Enactus Global Research Network Conference 2025

Compendium



Empowering Graduates for a Sustainable Future:

Integrating Social Entrepreneurship and Sustainability in Higher Education

enactus WORLD CUP 2025 BANGKOK THAILAND

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Empowering Graduates for a Sustainable Future:

Integrating Social Entrepreneurship and Sustainability in Higher Education

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IMPACT

20 tracks
83 papers
173 authors
28 student-led papers
21 Countries

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Foreword

The Global Research Network Conference, held in Bangkok, Thailand, during the Golden Jubilee Year of ENACTUS, marks a significant milestone in our collective journey to advance knowledge at the intersection of social entrepreneurship and sustainability. With the theme "Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education," the conference underscored the vital role of academia in shaping responsible leaders for tomorrow.

Bringing together distinguished scholars, practitioners, and thought leaders from 21 countries, the conference created a vibrant platform for the exchange of ideas. From 132 submissions, 83 outstanding papers were selected for presentation, each offering fresh perspectives and rigorous inquiry into the challenges and opportunities of building a sustainable future.

I extend my deepest gratitude to the authors for their valuable contributions, and to the reviewers for their careful evaluations that upheld the highest standards of academic rigor. From our Together, their efforts have enriched this compendium and ensured its relevance to global discourse.

This collection is more than a record of a conference—it is a resource and a call to action. I hope the ideas captured here will inspire researchers, practitioners, and policymakers to continue advancing solutions that create a more equitable and sustainable world.

Dr Asha Bhatia

Enactus India

EGRN Co-Chair

Note from our Enactus Global and Resolution Project CEO

On behalf of Enactus Global and Resolution Project, I want to congratulate you on the work showcased at the 2025 Enactus Global Research Network Conference. Your contributions inform both the future of learning and higher education's role in preparing its graduates to face tomorrow's critical challenges.

This year's academic symposium has once again been organized by the dynamic duo of Selena Griffith and Dr. Asha Bhatia with support from the Enactus Global Research Network. We are grateful for their commitment to connecting Enactus's out-of-classroom work with the institutions from which it launches, and for their tireless, passionate, and dedicated leadership in advancing research in the field. Thank you also to Srinakharinwirot University for hosting, and to the John Dobson Foundation and Enactus Canada for their sponsorship and support that allow the event to be hosted at no cost to participants.

This year, we celebrate 50 years of Enactus and 25 years of the Enactus World Cup. The world looks different than it did when Enactus launched all those decades ago. And it is with that global change in mind that we come to this year's theme and a perhaps timeless question for those in higher education:

How can we prepare our students for a world we can't even imagine?

Our work at Enactus is grounded in the belief that participating in our programming unlocks something in young people that makes them better leaders, colleagues, and community members. But what does it unlock? How do we define "better?" Why does it make a difference?

We have a chance to explore how social entrepreneurship, early-career innovation, stakeholder engagement and management, and environmental sustainability are crucial soft skills for life after graduation and how they contribute to improved societal outcomes at an individual and community level.

Because of you, we can analyze these big ideas. Because of you, we can connect with networks, communities, and talent pools beyond our immediate reach. Your important work informs and challenges us in all we do, and we are grateful for it. In fact, you have inspired us at Enactus Global to bring on a dedicated Director of Impact Evaluation and Learning to the team. Perhaps we will have some research and insights to contribute next year!

Once again, congratulations and gratitude to the organizers. Let's have a great symposium.

George Tsiatis

President & CEO

Enactus Global & Resolution Project

Official Letter of Support Rakkaew Foundation and Enactus Thailand

Enactus Global Research Network (EGRN) Conference 2025

"Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education"

To the EGRN Organizing Committee and Esteemed Participants,

On behalf of the Rakkaew Foundation and Enactus Thailand, it is my great honor to welcome you to Thailand and to the Enactus World Cup 2025. We are delighted to host this remarkable gathering in Bangkok, where heritage meets innovation, and we extend our sincere thanks to the EGRN Organizing Committee for their dedication and effort in making this event possible. We also wish to express our deep gratitude to Srinakharinwirot University for graciously hosting this year's conference and providing an environment that nurtures collaboration, dialogue, and discovery.

We offer our warmest congratulations to all participants for contributing to this landmark event, which unites researchers, students, and leaders from around the globe. This year's theme "Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education" reflects a vital mission: preparing graduates with the knowledge, soft skills, and values needed to lead change in an era shaped by sustainability and social equity. Through your research and dialogue, this conference plays a pivotal role in shaping how higher education equips graduates to become agents of positive impact.

We are also proud that this conference offers an opportunity to share Thailand's cultural richness, highlight the results of our social initiatives, and showcase innovative research contributing to sustainable development. May this exchange of perspectives inspire meaningful collaborations and strengthen our collective commitment to building a sustainable and inclusive future.

Once again, on behalf of the Rakkaew Foundation, I warmly welcome you to Thailand and wish you a truly enriching, inspiring, and memorable Su at the Enactus Global Research Network Conference 2025.

With deep respect and warm wishes,

Chalermchai Boonyaleepun

Asst. Prof. Dr. Chalermchai Boonyaleepun, MD

Chairman of the Rakkaew Foundation and Enactus Thailand

Advancing Global Citizenship through Social Entrepreneurship and Sustainability in Higher Education

On behalf of Srinakharinwirot University (SWU), it is an honor to express our strong support for the Enactus Global Research Network (EGRN) Academic Symposium 2025. As the host institution in Bangkok, we welcome this global gathering of educators, researchers, students, and practitioners who share a common vision of empowering graduates for a sustainable and socially responsible future. The chosen theme—"Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education"—resonates deeply with our mission to prepare graduates who are not only academically competent but also committed to leading change in society.

At Srinakharinwirot University, we embed this philosophy into practice. Our Green University initiatives promote zero-waste management, carbon reduction, and community-based sustainability projects. In addition, our student development programs emphasize leadership, teamwork, and innovation through experiential learning. These initiatives echo the principles that Enactus champions worldwide—using entrepreneurship as a force for good, linking knowledge to action, and inspiring students to transform their communities.

This symposium also reflects the strong collaboration between Enactus and the Rakkaew Foundation Thailand. Together, we empower students to design and implement social innovation projects that benefit local communities—from sustainable product development to entrepreneurship training. The Rakkaew Foundation's commitment to nurturing young leaders and fostering social responsibility aligns seamlessly with SWU's mission to develop graduates who make a positive impact on society.

The EGRN provides a vital platform for showcasing research, exchanging best practices, and amplifying student voices. Papers and projects presented at this symposium demonstrate how education can foster graduates who are not only work-ready but world-ready—capable of advancing the United Nations Sustainable Development Goals and contributing to peace, trust, and inclusive prosperity. This global dialogue strengthens our collective responsibility to prepare graduates who think critically, act ethically, and innovate courageously.

I wish to express my sincere appreciation to the Enactus leadership, the organizing and scientific committees, and all contributors for their dedication in advancing this mission. Most importantly, I commend the students whose passion, creativity, and determination continue to inspire us all. Their initiatives remind us that universities are not only sites of learning but also catalysts for social transformation.

As President of Srinakharinwirot University, I affirm our steadfast commitment to supporting the goals of Enactus and the Global Research Network. We look forward to welcoming delegates to Bangkok, a vibrant city where tradition and innovation converge, and to creating a space where ideas flourish, collaborations deepen, and solutions emerge for the challenges of our time.

With great anticipation, I invite you to join us in this journey of knowledge, empowerment, and global citizenship. Together, let us shape a future where education and entrepreneurship unite for sustainability and the common good.

Yours sincerely,



Cholvit Jearajit

President of Srinakharinwirot University, THAILAND

Support from The John Dobson Foundation and Enactus Canada

The John Dobson Foundation and Enactus Canada are proud to jointly support the 2025 Enactus Global Research Network (EGRN) Conference, themed “Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education.” This theme aligns closely with our shared commitment to equipping young people with the entrepreneurial mindset, leadership skills, and innovative spirit needed to thrive in their careers and make meaningful contributions to society.

By embedding social entrepreneurship and sustainability into teaching and research, post-secondary institutions prepare students to address pressing economic, social, and environmental challenges while building the competencies required for leadership in the 21st century. We believe that experiential learning, the development of soft skills, and the encouragement of bold, innovative thinking are essential in producing graduates who will lead with integrity, create economic value, and drive positive change.

The research presented in this year’s compendium reflects a rich diversity of perspectives from across the Enactus academic community. By connecting rigorous scholarship with practical application, academics and researchers within Enactus empower students to transform ideas into sustainable solutions—bridging theory and action in ways that benefit communities and inspire the next generation of entrepreneurs.

We extend our deepest thanks to Selena Griffith for her vision and dedication to make this conference possible. This platform for global collaboration, innovation, and the exchange of knowledge will resonate far beyond the conference itself.

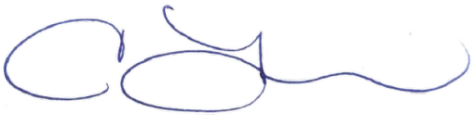
We also thank Enactus Thailand for hosting the 2025 Enactus World Cup in Bangkok. Their hospitality and commitment to the Enactus mission provide an inspiring setting to celebrate

the achievements of our students and the role of research in advancing entrepreneurial action for sustainable impact.

The EGRN Conference highlights the essential partnership between academia, philanthropy, and experiential learning. By fostering inquiry, innovation, and collaboration, The John Dobson Foundation and Enactus Canada remain steadfast in our mission to empower graduates to lead with purpose and shape a sustainable future.



Ian Aitken, M.S.C., CFA
Director, The John Dobson Foundation



Catherine Fowler
President & CEO, Enactus Canada

Research Note : Universities: sites of soft skill learning for sustainability?

Donella Caspersz, Associate Professor, Management & Organisations, University of Western Australia Business School

Building an entrepreneurial ecosystem that generates purposeful economic activity engages numerous stakeholders. There is increasing recognition that universities are not only one of these stakeholders but, in fact, have a "catalyst" role to play in this endeavour (Mazzarol et al., 2016). This is because by pursuing their core functions of research and teaching (OECD, 2009), universities are both driver and engine in developing capabilities amongst today and tomorrow's leaders to innovate – ideas, processes and "product" - that generate economic activity and prosperity for society to enjoy a sustainable future. However, influenced by the positivism of neoliberalism, universities have in recent times, focussed on fostering the "hard skills" of students (e.g. maths, sciences, Savage, 2017). This trend has been exacerbated by the increasing commodification of university learning that has not only marketized education but also linked the quality of universities to hard skill metrics of student satisfaction, academic publications, accreditation and university rankings (Lynch, 2015).

As a result, universities (often in response to government priorities to develop "21st century skills" such as digital capability in graduates) have privileged funding for courses in sciences at the expense of social sciences, Yet, there is a growing realisation by employers that despite the trend towards digital and non-standard work arrangements in Industry 4.0, employees (aka graduates) require "soft skills" (Succi & Canovi, 2020), These are particularly the skills of creativity and innovation, self-efficacy, resilience, strategic planning and evaluation to be successful entrepreneurs (Jardim, 2021). Further, working in digital and non-standard work

arrangements require individuals to think for themselves and to be able to use “tools” (such as AI) interactively in socially heterogenous groups. Importantly, these and other soft skills required for impactful engagement with stakeholders underpin solution-seeking to address sustainability challenges that are omnipresent in society today (Brundiers & Wiek, 2017; Redman & Wiek, 2021).

As the "last stop" before students’ transition into their careers and the broader world” (Enactus call for papers, 2025), universities are well placed to be the sites for learning these soft skills, especially to respond to sustainability challenges. The papers included in this compendium showcase the different strategies that universities can consider when teaching soft skills. Profiling case studies using various aspects of work-integrated and experiential learning, a clear “lesson” to emerge from these is that embedding “learning based on reality” in the learning approach is a crucial principle to embrace for these learning approaches to be effective. This is particularly when the focus is on “learning for sustainability”, that is learning for purpose to develop solutions to the many challenges that the world is facing. As the papers show, this type of learning heavily rests on soft skills that engage students in being self-critical while remaining critically engaged.

Thus, a further “lesson” to emerge is that this approach to learning requires time. Again, reflecting on the papers in this compendium, this is partly because this learning heavily rests on “personalized” learning approaches that are often co-designed with students and flexible in style and delivery (Gonzalez-Salamanca et al., 2020). In other words, this approach to learning is not merely a function of teaching content but rather delivering content in a manner that invites students to be in charge of their own learning and, in the process, disentangle

solutions that are relevant for them and others. The conundrum is that this approach to learning not only creates challenges for universities in terms of having the necessary human and other resources, but also for students themselves, whose own lived experience conditions them to expect teaching about soft skills using hard skill learning approaches. Again, the papers in this compendium offer ideas about how to approach and manage this conundrum. We urge others to consider these as the need to grapple with develop adequate responses to sustainability challenges that are in fact sustainable is imminent rather than being a far distant desired goal.

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The Impact of a Global Community of Knowledge Sharing

The Enactus Global Research Network existed for a number of years as a loose community of Enactus linked academics interested in documenting and sharing related research. In 2024 we held our first formal Symposium as a satellite event of the Enactus World Cup in Kazakhstan. This year we have scaled exponentially. We are running 20 tracks, across 5 parallel sessions, with 80 papers being presented in person, or virtually. 173 authors from 21 countries have contributed their work exploring our conference theme and the impacts of Enactus globally. This inclusive community of practice includes Enactus academics, partners, students, alumni, staff, faculty advisors, and beneficiaries. ⅓ of the papers are first time publications, there are 3 PhD, 4 Masters, and a further 21 student-led or students as partners papers. We have included abstracts in both English, and local languages in the compendium to celebrate the diversity of our community and to allow their work to be shared more widely.

This compendium is an inspiring read. It documents the impact Enactus has on students, and through students, and into recipient communities. It provides case studies of innovation and impact, reveals best practices and uncovers new research that is being built in our network. Thank you to all who have engaged in the EGRN. Congratulations to all our authors who will receive a Fellowship of The EGRN (FEGRN) upon presentation of their work, and to all conference attendees who will be given Membership of the EGRN (MEGRN). I look forward to seeing our body of research grow. The generation and sharing of knowledge for impact is one of the most important acts we can engage in towards a sustainable future.

Selena Griffith

Enactus Australia

EGRN Co-Chair

Call for Papers 2025

"Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education"

Hosted at Srinakharinwirot University มหาวิทยาลัยศรีนครินทรวิโรฒ; abbr: มศว, Bangkok Thailand.

Submissions to this call may include work-in-progress case studies, teaching innovations, practice innovations, and other research.

Key Theme: Graduate attributes have long been the subject of debate for educators and stakeholders in higher education. While some resist the notion that universities are responsible for fostering attributes leading to employability, it remains a reality that the university experience is the "last stop" before students transition into their careers and the broader world. Today's graduates face unique challenges, particularly around global sustainability and social equity, making the development of attributes related to social entrepreneurship and sustainability essential.

Acceptance of this reality has further stimulated debate around how much universities should focus on "hard" versus "soft" skills. Soft skills, however, underpin effective problem-solving and are key to driving social change and social entrepreneurship. They empower students to engage with communities, practice ethical leadership, and contribute to building a sustainable future.

In this context, we invite submissions exploring how fostering graduate attributes, particularly those related to social entrepreneurship and sustainability, can drive positive change in society. Papers may address questions such as:

- How can universities teach soft skills that empower graduates to become social entrepreneurs and sustainability champions?
- In light of today's global challenges, should educational programs prioritize skills related to social impact and sustainable practices?
- How significant are soft skills in fostering peace, trust, and community development in the context of sustainability?

We will also run an open stream for any Enactus related research.

Students are welcome to submit Enactus related research.

We invite extended abstracts of 1,000 words that address these and related questions.

Abstracts will be double blind peer reviewed and accepted abstracts will be published in the conference compendium which will have an ISBN.

Enactus Global Research Network Links

All Enactus Global Research Network Compendiums may be found here:

https://www.enactusaustralia.org.au/impact/enactus-global-research-network/

You may also join the network here:

https://docs.google.com/forms/d/e/1FAIpQLSdP3SdfkRJcEeQVAHUUEpytnAvgG6I_oFtjg_1vGQdlcgE_hg/viewform

2025 paper presentation schedule: can be found here:

https://docs.google.com/spreadsheets/d/e/2PACX-1vSF4qLOUC35ArUthM1sh5pNe4wMDumjkpNdpOCUbXyJrI-KGJZkFCh8koq6OntXF_TDn-jg3vzgi61h/pubhtml?gid=879195514&single=tru

A Blueprint for Impact: Fostering Sustainable Ventures at Chiang Mai University

Wan Wiriya
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Introduction:

A critical "preparedness gap" exists between the theoretical knowledge imparted by universities and the practical, adaptive skills graduates need to tackle complex global challenges. This gap has become increasingly pronounced as the global agenda, shaped by the United Nations' Sustainable Development Goals (SDGs), redefines the mission of higher education. Universities are no longer seen as mere repositories of knowledge but as vital engines for fostering a sustainable future, amplifying the call to cultivate holistic "Graduate Attributes"—the blend of skills, values, and knowledge essential for real-world impact. Nowhere is the urgency of bridging this gap more apparent than in Northern Thailand. The region faces entrenched challenges, from the severe public health and economic disruptions caused by the annual PM2.5 air pollution crisis to persistent social inequities among its diverse ethnic communities. These issues demand more than academic analysis; they require a new generation of leaders equipped with the practical tools to design and implement sustainable, on-the-ground solutions. The limitations of traditional curricula in addressing these immediate crises underscore the need for a fundamental pedagogical shift. This paper argues that to bridge the preparedness gap, universities must adopt models grounded in real-world application. We present Chiang Mai University's student-led social enterprise incubation model as a "Blueprint for Impact"—a practical and replicable framework for empowering graduates to translate academic learning into tangible action. By examining this

model, this paper seeks to provide a clear pathway for other institutions aiming to equip their students as effective changemakers.

Literature review:

The literature confirms a significant trend in higher education towards integrating sustainability and social entrepreneurship (SEE). Scholars like Leal Filho et al. (2016) advocate for "integrative approaches" that prioritize project-oriented learning to make sustainability concepts tangible. This is strongly supported by Kolb's (2015) foundational Experiential Learning Theory, which posits that deep learning is a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Despite this theoretical consensus, many SEE programs remain confined to classroom simulations, failing to fully engage students in the complexities of real-world implementation. The primary gap in the literature, therefore, is a lack of detailed, longitudinal case studies from non-Western contexts that document how university-led incubation models function as authentic, long-term experiential learning processes. This research addresses this gap by asking how such a model fosters the essential soft skills—resilience, empathy, and collaborative leadership—for graduates to become effective social entrepreneurs.

Methodology:

This research employs a qualitative, comparative case study methodology to conduct a rich, in-depth exploration of the CMU incubation model. This approach is justified by its ability to capture the complex social dynamics, nuanced learning processes, and community impacts that quantitative methods would overlook. Two social ventures were selected purposively for robust comparative analysis. Beyond their thematic fit, the cases—Zhakara (Cultural

Conservation) and Nai Suan (Environmental Innovation)—were chosen based on a matrix of criteria designed to yield contrasting insights: venture maturity (one early-stage, one scaling), diversity of stakeholders (varying levels of community versus private-sector engagement), and scalability potential. This selection strategy ensures the findings are not monolithic but reflect the model's application under different conditions.

Data was gathered over a structured **12-month period** to capture the evolution of each venture. The process involved:

- **Quarterly semi-structured interviews** with student founders, community leaders, and faculty mentors to track progress, challenges, and skill development over time.
- **Analysis of project documentation**, including initial business plans, funding proposals, and quarterly progress reports, to corroborate interview data.

To ensure the validity of the findings, data was triangulated by systematically cross-referencing interview narratives with project documentation. In instances where conflicting information arose, follow-up member-checking interviews were conducted with participants to clarify discrepancies. This process of reconciliation allowed for a more nuanced and accurate interpretation of the findings, significantly enhancing the study's methodological rigor.

Findings:

The findings provide compelling evidence of the model's dual impact on community development and student learning. A comparative analysis of the Zhakara and Nai Suan cases reveals how a shared framework can be adapted to solve divergent challenges, yielding distinct but equally significant outcomes. While both ventures pursued a "green product" strategy, their core challenges and approaches differed significantly. **Zhakara (Cultural**

Conservation): This case, located with the Karen weaving community in Chiang Dao, addressed a socio-economic challenge: boosting income while preserving cultural heritage. The strategy was rooted in deep community engagement and trust-building over several months. The student team of five worked alongside weavers to co-develop the "Zhakara" brand, focusing on high-value textiles made with natural dyes from the local forest. **Nai Suan (Environmental Innovation**): In contrast, this case in Mae Rim tackled a pressing technical-environmental challenge: reducing PM2.5 air pollution from agricultural burning. The four-person student team applied systems thinking and rapid prototyping, designing a low-cost heat press to transform leaf litter into biodegradable plates. Their strategy prioritized logistical efficiency and creating a viable local supply chain.

Both projects delivered measurable benefits, though the metrics of success reflected their unique goals.

- The **Zhakara** venture resulted in a 20% increase in average household income for the 15 participating families, achieving a community participation rate of over 80%. This economic empowerment created a direct incentive for the community to act as guardians of the forest that provides their raw materials.
- The **Nai Suan** project diverted an estimated five - ten tons of biomass from being burned in its first season, engaging over 4 local households in the collection supply chain and more than 20 connections. This not only provided supplemental income but also contributed directly to severe community service.

Despite their different paths, both cases served as profound, real-stakes learning laboratories. Students moved far beyond theory to develop critical graduate attributes. Navigating the complexities of community politics, supply chain logistics, and product design provided immersive lessons in empathy, negotiation, financial management, and lean startup

methodology. This demonstrates the model's power as a flexible "blueprint" for cultivating adaptive problem-solvers, capable of creating tangible impact in both socio-cultural and technical domains.

Discussion:

The findings directly illustrate how the incubation model fosters essential skills by immersing students in Kolb's (2015) full cycle of experiential learning. This process is not incidental but structural, as seen in the Nai Suan case. The Concrete Experience of a batch of plates failing quality control triggered a period of Reflective Observation, forcing students to analyze why the process failed. This led to Abstract Conceptualization, where they redesigned their production methodology and heat press settings. Finally, they engaged in Active Experimentation by testing the new technique, embedding a powerful lesson in resilience and adaptive problem-solving. This granular analysis moves beyond a general validation of theory to demonstrate precisely how the cycle forges graduate attributes.

Furthermore, the Zhakara case reveals that in community-based social entrepreneurship, relational skills are the primary driver of project viability. The initial Concrete Experience of navigating complex community dynamics led students to conclude that empathy and trust-building must precede the business plan. This finding challenges the pedagogy of many Social Entrepreneurship Education (SEE) models that prioritize technical training over deep, immersive engagement. While the model is effective, its practical utility as a blueprint requires critically examining its limitations. The success of both ventures was heavily dependent on intensive faculty mentorship, a resource that may be difficult to scale. Moreover, ensuring the sustainability of ventures post-graduation, once students leave the

university's support structure, remains a significant challenge. Acknowledging these dependencies is crucial for realistically adapting the model to other contexts.

Contributions:

This paper demonstrates that student-led, community-embedded incubation is more than an educational exercise; it is a powerful mechanism for universities to fulfill their evolving role as engines of sustainable development. By bridging the gap between theory and practice, the "Blueprint for Impact" offers a tangible pathway for higher education institutions to directly contribute to the Sustainable Development Goals (SDGs). The Zhakara and Nai Suan cases show direct alignment with goals like SDG 1 (No Poverty), SDG 4 (quality education) , SDG 8 (Decent Work), SDG 11 (Sustainable Communities), and SDG 13 (Climate Action). As universities worldwide are called upon to address humanity's most pressing challenges, this research provides practical evidence that empowering students to act is one of the most effective ways to build a more sustainable and equitable future.

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Artificial Intelligence, Entrepreneurial Skills and Entrepreneurial Intentions of University Students

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Introduction:

Over the past decade, the conversation about how artificial intelligence (AI) is transforming education and entrepreneurship has intensified. While many discussions remain speculative, this research takes a concrete step forward by examining how university students actually experience AI in their learning and entrepreneurial development. Conducted at the University of Guadalajara, this study investigates the ways in which AI tools—ranging from decision-support systems to problem-solving assistants—help students cultivate skills that later become decisive in shaping their entrepreneurial intentions. In a time when uncertainty defines much of the labor market and when small business failure rates remain high in Mexico, understanding this relationship becomes more than an academic question: it is a social and economic necessity.

Literature review:

The literature on entrepreneurship education has long emphasized the importance of cultivating not only technical knowledge but also the soft and managerial skills that prepare individuals to face the challenges of starting and sustaining a business. Historically, entrepreneurship training emerged in the United States during periods of economic crisis,

when self-employment was promoted as an alternative to formal jobs (Proaño, 2014). In Latin America, however, the outcomes of entrepreneurship education have been mixed, often constrained by high uncertainty and limited institutional support.

Artificial intelligence enters this scene as a potentially transformative force. Scholars such as Benbya et al. (2020) argue that AI can augment decision-making, leadership, and adaptability, while others like Freire (2023) show that AI tools can enhance confidence and trust in managerial skills. Systematic reviews of AI in education, such as Bolaño and Duarte (2024), suggest that AI provides personalized learning experiences, though questions remain about long-term retention and meaningful learning.

Against this backdrop, our study proposes that entrepreneurial intentions are not merely the product of motivation or opportunity but also the result of skill sets nurtured through AI-assisted learning. We focused on four key areas: entrepreneurial skills, leadership abilities, information management, and problem-solving. Each is essential for entrepreneurial success, and each, we hypothesize, is strengthened by AI.

Methodology:

To test these ideas, we designed a quantitative study rooted in statistical rigor but also attentive to the lived experiences of students. The population under consideration included more than 21,000 students enrolled in economics and business programs at the University of Guadalajara. Using a 95% confidence level and a 4% margin of error, we calculated a representative sample of 584 students. Ultimately, we obtained 610 valid responses, which provided a robust foundation for analysis.

The survey instrument was carefully constructed from existing literature. Students were presented with scenario-based items that asked them to reflect on how AI might support their

skill development and entrepreneurial journeys. Responses were collected on a five-point Likert scale, capturing both enthusiasm and skepticism.

Statistically, the study employed Exploratory Factor Analysis to validate the constructs, followed by Structural Equation Modeling (SEM) using EQS 6.4 software. Reliability was confirmed through Cronbach's alpha, while convergent and discriminant validity were assessed with Average Variance Extracted (AVE) and Composite Reliability (CR). Finally, the robustness of the model was evaluated through goodness-of-fit indices, ensuring that the statistical representation accurately captured the theoretical ideas behind the research.

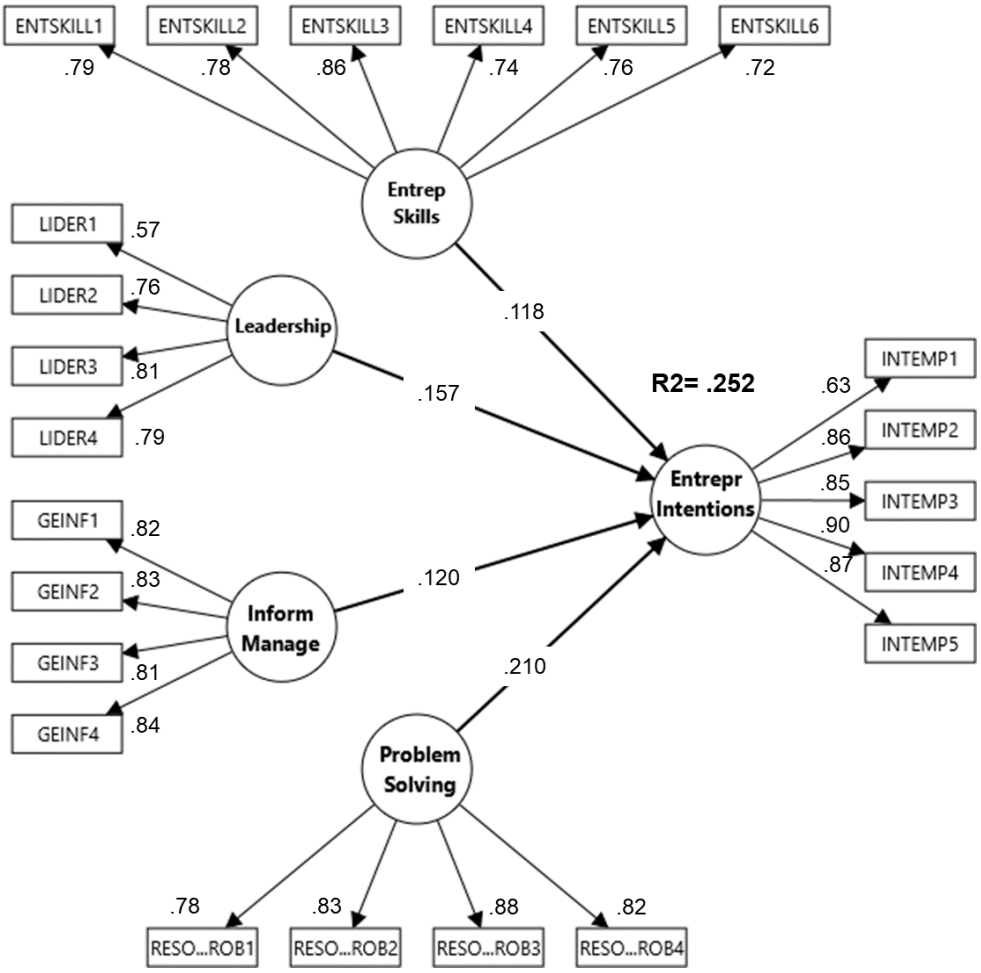
Findings:

The results were both statistically sound and theoretically illuminating. The factor analysis confirmed that each of the four proposed skill groups—entrepreneurial, leadership, information management, and problem-solving—stood as distinct constructs with strong internal consistency. Cronbach's alpha values exceeded 0.82 across the board, while AVE values surpassed the recommended threshold of 0.50, ensuring both reliability and validity. The SEM analysis produced a model with excellent fit: CFI reached 0.961, NNFI stood at 0.955, and RMSEA remained well below 0.05. These indicators confirmed that the model was not only acceptable but robust.

When testing the hypotheses, all four were supported. Entrepreneurial skills ($\beta = .118$), leadership skills ($\beta = .157$), information management ($\beta = .120$), and problem-solving ($\beta = .210$) each demonstrated a significant and positive effect on entrepreneurial intention. Among them, problem-solving stood out as the most powerful predictor. In other words, students who perceive AI as a tool that strengthens their capacity to tackle challenges and generate

solutions are also the ones most likely to envision themselves as future entrepreneurs (see figure 1).

Figure 1. Research model



Discussion:

The findings bring to light several important themes. First, they reaffirm the long-standing argument that entrepreneurship education is not solely about teaching business models or financial planning but about nurturing a comprehensive set of skills that prepare students to

navigate uncertainty. AI, in this sense, acts as both a facilitator and an amplifier of these skills.

Second, the prominence of problem-solving in the model suggests that entrepreneurial intention is fundamentally tied to how students see themselves responding to adversity. AI tools, with their capacity to simulate scenarios, generate alternatives, and provide predictive insights, empower students to think critically and act decisively. This aligns with global discussions around entrepreneurship in volatile, uncertain, complex, and ambiguous (VUCA) contexts, where adaptability is often the most valued trait.

Third, leadership emerges as a significant predictor, which speaks to the cultural and institutional setting of the study. In Mexico, where entrepreneurship often relies on collaborative networks and community-based initiatives, leadership is not only about guiding a business but also about inspiring collective action. AI can enhance these skills by providing structured information, communication support, and even motivational insights.

Finally, the relationship between information management and entrepreneurial intention underscores the reality that today's entrepreneurs are as much data managers as they are innovators. Students who learn to harness AI for effective information use are better positioned to design strategies and reduce risks in their ventures (see table 1).

Table 1. Test of hypotheses.

Hypotheses R^2= 252**	**Test**	**Comments**
H1. The use of AI tools for developing entrepreneurial positively impacts the entrepreneurial intentions of university students	Accepted	**β= .118**
H2. The use of AI tools for developing leadership skills positively impacts the entrepreneurial intentions of university students	Accepted	**β= .157**
H3. The use of AI tools for effective information management positively impacts the entrepreneurial intentions of university students	Accepted	**β= .120**

H4. The use of AI tools for problem-solving positively impacts the entrepreneurial intentions of university students.	Accepted	**β= .210**

Source: Own elaboration

Contributions:

This study provides compelling evidence that AI is not a peripheral tool in entrepreneurship education but a central enabler of skill development. By showing that entrepreneurial, leadership, information management, and problem-solving skills are all strengthened through AI, and that these in turn fuel entrepreneurial intention, we position AI as a key ally in higher education.

The practical implications are clear: universities should not treat AI as an optional add-on but as an integral part of curricula. Embedding AI tools into entrepreneurial training can increase not only the technical competence of students but also their confidence and readiness to pursue entrepreneurial paths. This is especially relevant in countries like Mexico, where fostering entrepreneurship is essential for economic resilience and innovation.

The theoretical contribution of this work lies in bridging the gap between technology adoption and entrepreneurship education. By grounding AI's role in established constructs of entrepreneurial intention and testing them empirically through SEM, this study extends the dialogue on how digital transformation shapes human agency in business creation.

As with any research, limitations exist. The study focused on a single institution and relied on self-reported data, which may limit generalizability. Future research could expand across multiple contexts, employ longitudinal designs to trace the evolution of intentions over time, and explore ethical considerations of AI in education and entrepreneurship.

In conclusion, this research confirms that AI does more than automate tasks; it actively cultivates the very skills that make entrepreneurship possible. By equipping students to lead,

to manage information, to solve problems, and to envision opportunities, AI becomes a catalyst for entrepreneurial futures. Far from being a distant technological trend, AI is already shaping the mindset and aspirations of the next generation of entrepreneurs.

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Beyond Skills: Why Self-Understanding Matters in Social Entrepreneurship and Sustainability

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Introduction:

The greatest challenge facing young people today is not a lack of opportunities, but a lack of self-understanding. From primary school through university, students are trained to perform and choose predefined pathways yet rarely taught to look inward and cultivate individuality. This absence of self-awareness explains why "I don't know" is the most common response when asked about future aspirations. While programs in innovation, entrepreneurship, and sustainability already exist, they often assume students know who they are and what they want to pursue.

To truly foster graduate attributes aligned with social entrepreneurship and sustainability, we must reframe the system: shifting from a project-first to an individual-first model. By prioritising identity formation, reflection, and values-driven exploration, we can equip students not only with employability skills, but with clarity of purpose. A generation that understands itself will be better positioned to design solutions that are authentic, sustainable, and transformative for society. The answer is not simply more initiatives, but a reorientation of focus, shining the light on individuality as the foundation for meaningful and lasting change.

Literature review:

Extensive literature highlights a consistent mismatch between higher education outcomes and graduate preparedness for the complexities of the real world. Students frequently leave

university with strong technical competencies but limited confidence in their ability to navigate career pathways or contribute meaningfully to society (Student Research Group, 2020). Universities attempt to bridge this gap through employability frameworks, entrepreneurial hubs, and sustainability-oriented programs, yet these often reach only a minority of highly engaged students.

One explanation for why this mismatch persists lies in the structural legacy of the Prussian-style education model (Collins, 2020). This model, designed during the industrial era, values uniformity, compliance, and output-driven performance. While effective in training disciplined workers, it systematically undervalues individuality, emotional intelligence, and self-reflection. Current reforms, while improving access to innovation and sustainability initiatives, rarely address this root issue: the lack of inward focus in the educational journey.

Crucially, limited research explicitly connects identity formation and self-awareness with employability, social entrepreneurship, and sustainability competencies. Most studies ask, "what skills are graduates missing?" rather than, "why do graduates lack the clarity and self-knowledge to apply these skills meaningfully?" or even why they choose certain disciplines, social issues or topics over others. This large gap leaves unexamined the role that individuality plays in enabling graduates to translate technical training into purposeful social impact.

Research Question: To what extent does the current education model's lack of focus on individuality and self-awareness impact graduates' ability to become effective drivers of sustainability and positive social change?

Proposition: Graduates who undergo structured inward-focused learning (identity, resilience, values exploration) alongside technical training demonstrate greater capacity to engage in social entrepreneurship and sustainability initiatives than those trained under traditional, compliance-driven models. (Di Fabio & Kenny, 2015)

Methodology:

This study proposes a mixed-methods design, combining qualitative and quantitative approaches. A survey of recent graduates across multiple disciplines will quantify perceptions of preparedness, with particular attention to their confidence in pursuing socially impactful and sustainability-focused careers. This will be complemented by in-depth interviews with graduates engaged in social entrepreneurship, sustainability initiatives, or community leadership, to capture how self-awareness and identity development influenced their pathways.

The justification for a mixed-methods approach lies in its ability to capture both measurable patterns (quantitative) and deeper insights into lived experiences (qualitative). Together, these methods will address whether the absence of individuality-focused education constitutes a systemic barrier to developing graduates as pioneers of social and environmental change (Creswell & Plano Clark, 2017).

Findings:

The findings are expected to highlight a twofold pattern:

1. Quantitative results will show a significant correlation between graduates reporting strong self-awareness and higher confidence in pursuing social entrepreneurship or sustainability-focused careers.

2. Qualitative narratives will reveal that individuals who engaged in identity-driven opportunities (e.g., reflective coursework, mentorship, or extracurricular leadership) felt better equipped to integrate their personal values with societal needs.

This suggests that while technical skills are essential, graduates attribute their readiness for social impact more to inward development and clarity of purpose than to formal training alone.

Discussion:

Practical approaches might include:

- **Curriculum redesign** to integrate structured reflection, personal values exploration, and sustainability challenges into core subjects.
- **Experiential learning** that combines community engagement with inward reflection, bridging the gap between technical knowledge and social purpose.
- **Early interventions**, where primary and secondary schools normalise identity exploration, ensuring universities build upon rather than introduce these capacities.

By reframing the focus from producing workers to cultivating reflective individuals, education systems can create graduates who not only participate in but drive sustainable societal transformation.

Contributions:

This research contributes to three domains:

- **Empirical understanding:** Providing evidence that self-awareness and individuality are critical enablers of social entrepreneurship and sustainability outcomes, not just optional attributes.

- **Theoretical insight:** Challenging traditional employability models that frame graduate readiness in terms of skills gaps, instead advancing a framework that places individuality at the core of social impact education.
- **Practical application:** Offering actionable recommendations for universities and schools to embed self-awareness, reflective practice, and values-driven exploration into curriculum, thus better equipping graduates to address pressing global challenges.

Ultimately, this study proposes a paradigm shift: to empower graduates to lead in sustainability and social entrepreneurship, education must first teach them to understand themselves and their inner attributes.

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Bridging Academia and Social Impact from the Bottom-Up: Empowering University Faculty to Lead Active Learning for Sustainable Social Entrepreneurship

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Introduction:

Global sustainability challenges such as climate change, inequality, and resource scarcity require transformative responses from higher education. Yet, more than 20,000 universities worldwide fail to integrate sustainability into their core missions (Ramakrishna, 2021). Curriculum reform processes are often hindered by rigid structures and outdated frameworks (Paeradigms, 2024), leaving little room for the inclusion of transformative competencies such as social entrepreneurship. Despite the systemic inertia, university faculty possess untapped potential to initiate bottom-up change through innovative pedagogies. This study addresses the gap in understanding how faculty members in Puerto Rico implement active learning strategies to embed sustainability and social impact into the academic experience.

Literature review:

Sustainability discourse often sidelines social sustainability in favor of environmental concerns (Annarelli, et al., 2024), making a holistic, transdisciplinary approach essential (Ramakrishna, 2021). Educational systems themselves are identified as potential social tipping elements capable of catalyzing systemic change (Otto, et al., 2020) , with faculty serving as key change agents when empowered.

Self-Determination Theory (Ryan & Deci, 2020) explains how autonomy, competence, and related fuel sustained faculty motivation and pedagogical innovation. Transformative learning

(King, 2004) also plays a critical role by encouraging faculty to reassess how they cultivate civic responsibility and sustainability competencies.

Among active pedagogies, experiential learning and place-based education (PBE) stand out for fostering real-world connections, agency, and systems thinking. By positioning students as co creators of knowledge and embedding universities in local communities, these pedagogies reinforce civic engagement and sustainable development.

Research Question:

How do university faculty members use classroom-based strategies to promote sustainability and social impact, and what outcomes do they observe from these bottom-up efforts?

Methodology:

A qualitative research design was employed to explore how faculty implement sustainability focused pedagogy. Semi-structured interviews were conducted with university professors from diverse disciplines in Puerto Rico, selected via purposive sampling for their demonstrated commitment to sustainability education.

This approach allowed participants to describe their teaching strategies, motivations, and the institutional challenges they navigate. Thematic analysis (Braun & Clarke, 2006) was used to identify recurring patterns and insights from the transcribed interviews. This methodology was selected for its ability to capture rich, context-sensitive narratives that reveal complexity.

We enhanced credibility through cross-case triangulation (themes evidenced across participants) and member checking: each participant reviewed a one-page synthesis of their case with illustrative quotations and confirmed accuracy or suggested clarifications, which were incorporated.

Findings:

Seven core findings emerged:

1. **Purpose-Driven Faculty Engagement**: Faculty actions were anchored in deeply held values and community awareness rather than directives. Local crises (e.g., agricultural decline) catalyzed educational responses that empower students to act.
2. **Experiential and Place-Based Pedagogies**: Courses centered on real contexts fieldwork with farms, consulting for local organizations, market-ready prototypes, and panel interviews so students apply theory to concrete problems and stakeholders.
3. **Observable Student Transformation**: Students developed leadership, civic agency, entrepreneurial intent, adaptability, and professional "soft skills." Many reported perspective shifts that persisted beyond the course.
4. **Institutional Limitations and Workarounds**: Rigid curricula, scarce resources, and bureaucratic approvals constrained innovation. Faculty advanced projects through personal networks, grants, student associations, and extra-role effort.
5. **Bottom-Up Institutional Impact**: Sustained classroom initiatives produced reputational gains, partnerships, and new programs (e.g., student-run ventures). Administrative attitudes shifted as tangible results accumulated.
6. **Call for Structural and Cultural Change**: Participants urged early, curriculum-wide integration of sustainability; faculty development; funding for community-engaged work; and evaluation systems that recognize social impact.
7. **Faculty Professional Growth and Transformation**: Engaging in bottom-up sustainability pedagogy reshaped instructors' identities and practice. Designing and leading real-world projects deepened their expertise, fostered sustainable habits, and renewed their sense of purpose as educators.

Discussion:

The study confirms that bottom-up innovation is not only possible but impactful. Faculty members operated as agents of change within restrictive systems, affirming the role of education as a social tipping point (Otto, et al., 2020). Their intrinsic motivation, as explained by Self Determination Theory (Ryan & Deci, 2020), sustained their engagement with transformative teaching.

Active pedagogies like experiential learning and PBE effectively bridge theoretical concepts with practical outcomes. These methods cultivate critical thinking, community awareness, and entrepreneurial skills, enabling students to internalize sustainability as a lived practice. Structural barriers persist, but faculty agency can circumvent institutional inertia. Their ability to generate institutional value without top-down mandates suggests a need to shift from symbolic recognition of sustainability to actionable institutional support.

Contributions:

Empirical:

This study documents real-world practices by faculty who embed sustainability and social entrepreneurship across agro-entrepreneurship, management/HR, finance–law–entrepreneurship, and economics/statistics. It shows how grassroots, place-based projects (e.g., farm fieldwork, market-entry strategy) cultivate student leadership and adaptability while generating institutional ripple effects (partnerships, student-run ventures, recognition).

Theoretical:

Findings reinforce Self-Determination Theory—faculty autonomy, competence, and relatedness fuel bottom-up innovation—and frame education as a social tipping element. They extend experiential and place-based education within sustainability and operationalize integrated thinking by linking triple-bottom-line criteria to concrete finance/accounting decisions (e.g., cost structures and option evaluation). They also surface a reciprocal pathway: faculty professional transformation through practice.

Practical:

Actionable guidance includes investing in faculty development; enabling flexible, early curriculum integration; and building interdisciplinary communities that support sustainability from the ground up. Institutions should resource logistics and micro-grants, formalize partner MOUs, and adopt authentic assessment that ties sustainability to financial decision-making, scaling proven classroom designs into durable programs.

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Bridging education and practice: Toward a circular economy skills framework

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Introduction:

The circular economy (CE) has become a strategic imperative for manufacturing companies seeking sustainable competitive advantage. By shifting from linear to circular models, firms can reduce resource dependency, enhance resilience, and align with evolving regulatory and societal demands (The Ellen McArthur Foundation, 2013). However, this transition requires a profound reconfiguration of technical, organizational, and human capabilities.

Despite a growing body of research on the capabilities necessary for circular manufacturing (CM), many companies still struggle to operationalize circular principles (Acerbi and Taisch, 2020). A key barrier is the misalignment between the skills developed in educational systems and those needed in practice (Hofmann Trevisan et al., 2024). Currently, there is no standardized or officially recognized framework for CE-related skills, particularly at the Higher Education (HE) and Vocational Education and Training (VET) levels, i.e., those that prepare individuals to enter and evolve in the labour market. This lack of guidance impedes the development of relevant educational programmes and contributes to persistent skills gaps.

This research aims to address that gap by contributing to the development of a preliminary skills framework to support educational providers in designing CE-oriented curricula. The study aligns with the objectives of the CERES project (Sassanelli et al., 2023), which seeks to create a CE Digital Innovation Hub offering collaborative tools and training services to support the twin (green and digital) transition.

Literature review:

A systematic literature review (SLR) was conducted to assess the current state of research on CE skills and related educational initiatives. The SLR identified 39 skills deemed essential for CE implementation, classified into two main categories:

1. Transversal skills (24 skills) - these are not specific to CE but are essential enablers and subdivided into:
    - Business strategy skills: e.g., value creation, opportunity identification, negotiation, customer engagement.
    - Resilience skills: e.g., problem-solving, flexibility, systems thinking.
    - Interpersonal skills: e.g., teamwork, leadership, communication.
2. Circular-technical skills (15 skills) - these are directly linked to CE-specific processes and further divided into:
    - Lifecycle management skills: e.g., Design for X, eco-design.
    - Digital technologies (DTs) skills: related to Industry 4.0 and 5.0, such as additive manufacturing and human-centric technologies.

The SLR revealed a strong emphasis in the literature on transversal skills and lifecycle management practices. However, it also uncovered significant gaps, including:

- limited focus on DTs skills, particularly those related to implementing Industry 4.0/5.0 technologies in CE support;
- lack of guidance on how educational providers can adapt pedagogical strategies to foster these digital and transversal skills;
- minimal attention to the skills required for the development of the Digital Product Passport.

Methodology:

To complement the SLR and understand the alignment between existing educational offerings and real-world needs, a market analysis was conducted (Boscarato et al., 2024). This involved reviewing CE-focused educational programmes at HE and VET levels, assessing their content against the skill categories and sub-categories identified in the literature.
The skills were systematically mapped to compare:

- The *requisite skills*, i.e. those identified through SLR.
- The *as-is state*, i.e. skills currently taught in CE-related programmes.

This comparison enabled the identification of educational gaps, particularly in *transversal* and *digital* competencies.

To inform the development of skills framework and better understand industry needs, semi-structured interviews were conducted with two CE-based startups, both of which give second life to food industry waste and involved in the Enactus Italy ecosystem. The interviews followed a structured protocol and explored:

1. company background and CE approach;
2. key skills needed for business development;

3. challenges in acquiring or applying those skills;
4. final reflections on education and training needs.

The interviews contributed to identifying relevant skills by complementing the literature and education analysis, providing practical insights into real-world application and existing gaps.

Findings:

Interviews with CE-based startups yielded valuable insights into the strengths and gaps in current educational approaches. Key findings include:

- *Circular-technical skills* are generally well addressed by both HE and VET programmes, particularly lifecycle management skills such as eco-design. However, DTs-related skills (e.g., digital integration, data management for CE) remain underrepresented.
- *Transversal skills* are insufficiently developed in both HE and VET offerings.

Startups consistently emphasized the central importance of *transversal skills* for entrepreneurial success and CE implementation. While technical skills were often acquired over time with external support, transversal competencies, such as adaptability, collaboration, and systems thinking, proved to be foundational.

Interestingly, the degree to which these skills were developed varied based on educational background:

- Programmes like management engineering, which incorporate interdisciplinary and project-based learning, helped cultivate transversal skills.

- More traditional, theoretical courses (e.g., chemical/materials engineering) offered fewer opportunities to build these competencies.

Thus, not only what is taught, but how it is taught, significantly affects the development of CE-relevant skills.

Discussion:

The findings underscore that the transition to CE is not solely a technical challenge, but also an organizational and cultural one. As such, transversal skills, particularly those that support interdisciplinary collaboration, critical thinking, and systems awareness, are just as important, if not more so, than technical capabilities.

Moreover, the early-stage nature of CE adoption demands professionals who can navigate uncertainty, and rethink existing value chains. These demands are not currently met by traditional educational models, especially in technically oriented programmes that emphasize knowledge acquisition over skills application.

The preliminary validation of the skills framework confirms that educational institutions must adopt a more holistic, learner-cantered approach. Interdisciplinary teaching, experiential learning, and systems thinking need to be embedded into curricula to adequately prepare students for the demands of circular ecosystems.

Contributions:

This research provides preliminary results fundamental for the development of a CE skills framework, with practical implications for curriculum development at both HE and VET levels. The study contributes to the academic and educational discourse by:

- Bridging the gap between theory and practice in CE skill development;
- Highlighting the importance of transversal competencies in facilitating the CE transition;
- Providing foundational evidence that informed the development of a holistic CE skills framework (Hofmann et al., 2025), which can support educational institutions in reassessing and redesigning programmes to better align with evolving industry demands.

To effectively support the CE transition, educational institutions must not only teach circular-technical skills but also enable the development of transversal competencies, particularly in programmes that traditionally focus on theoretical content. This may involve integrating interdisciplinary projects, enhancing soft skill training, and promoting digital literacy.

The transition to CE requires a shift from firm-level optimization to value network collaboration. As such, the education system must evolve to equip future professionals with the skills needed to lead this transformation.

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Italian Version

Introduzione:

L'economia circolare (EC) è diventata una priorità strategica per le imprese manifatturiere che cercano un vantaggio competitivo sostenibile. Passando da modelli lineari a circolari, le aziende possono ridurre la dipendenza dalle risorse, aumentare la resilienza e allinearsi alle crescenti esigenze normative e sociali (The Ellen McArthur Foundation, 2013). Tuttavia, questa transizione richiede una profonda riconfigurazione delle capacità tecniche, organizzative e umane. Nonostante un numero crescente di ricerche sulle competenze necessarie per la manifattura circolare (MC), molte aziende faticano ancora a tradurre in pratica i principi circolari (Acerbi e Taisch, 2020). Una barriera chiave è la disconnessione tra le competenze sviluppate nei sistemi educativi e quelle richieste nel contesto operativo (Hofmann Trevisan et al., 2024). Attualmente non esiste un quadro standardizzato o ufficialmente riconosciuto per le competenze legate alla EC, in particolare nei livelli di istruzione superiore (HE) e di istruzione e formazione professionale (VET), cioè quelli che preparano gli individui a entrare nel mercato del lavoro. Questa mancanza di linee guida ostacola lo sviluppo di programmi educativi adeguati e contribuisce a persistenti gap di competenze.

Questa ricerca mira a colmare tale lacuna contribuendo allo sviluppo di un quadro preliminare delle competenze per supportare gli enti formativi nella progettazione di curricula orientati all'EC. Lo studio si allinea agli obiettivi del progetto europeo CERES (Sassanelli et al., 2023), che intende creare un Digital Innovation Hub per l'EC, offrendo strumenti collaborativi e servizi formativi a supporto della duplice transizione (verde e digitale).

Revisione della letteratura:

È stata condotta una revisione sistematica della letteratura (SLR) per valutare lo stato attuale delle ricerche sulle competenze EC e le relative iniziative educative. La SLR ha identificato 39 competenze considerate essenziali per l'implementazione della EC, classificate in due principali categorie:

1. Competenze *trasversali* (24 competenze) – non specifiche dell'EC, ma abilitanti fondamentali, suddivise in:
    - Competenze di strategia aziendale: es. creazione di valore, identificazione di opportunità, negoziazione, coinvolgimento del cliente.
    - Competenze di resilienza: es. problem solving, flessibilità, pensiero sistemico.
    - Competenze interpersonali: es. lavoro di squadra, leadership, comunicazione.
2. Competenze *tecnico-circolari* (15 competenze) – direttamente legate ai processi specifici dell'EC, suddivise in:
    - Competenze di gestione del ciclo di vita: es. Design for X, eco-design.
    - Competenze sulle tecnologie digitali (DTs): relative a Industria 4.0 e 5.0, come la manifattura additiva e le tecnologie human-centric.

La SLR ha evidenziato una forte enfasi, in letteratura, sulle competenze trasversali e sulle pratiche di gestione del ciclo di vita. Tuttavia, ha anche rilevato lacune significative, tra cui:

- attenzione limitata alle competenze DTs, in particolare quelle legate all'implementazione delle tecnologie 4.0/5.0 a supporto dell'EC;
- mancanza di indicazioni su come gli enti formativi possano adattare le strategie pedagogiche per sviluppare competenze digitali e trasversali;
- scarsa attenzione alle competenze richieste per lo sviluppo del Digital Product Passport.

Metodologia:

Per integrare la SLR e comprendere l'allineamento tra l'offerta educativa esistente e i bisogni reali, è stata condotta un'analisi di mercato (Boscarato et al., 2024). Questa ha incluso la revisione dei programmi educativi orientati all'EC a livello HE e VET, valutandone i contenuti rispetto alle categorie di competenze individuate in letteratura.
Le competenze sono state sistematicamente mappate per confrontare:

- le competenze richieste, ossia quelle identificate tramite la SLR;
- lo stato attuale, ossia le competenze effettivamente insegnate nei programmi legati all'EC.

Questo confronto ha permesso di individuare gap formativi, in particolare nelle competenze trasversali e digitali. Per supportare lo sviluppo del quadro di competenze e comprendere meglio i bisogni industriali, sono state condotte interviste semi-strutturate con due startup basate sull'EC, entrambe attive nel dare una seconda vita agli scarti dell'industria alimentare e coinvolte nell'ecosistema Enactus Italy. Le interviste, condotte seguendo un protocollo strutturato, hanno esplorato:

1. background aziendale e approccio EC;
2. competenze chiave necessarie per lo sviluppo del business;

3. sfide nell'acquisizione o nell'applicazione di tali competenze;
4. riflessioni finali sui bisogni di istruzione e formazione.

Le interviste hanno contribuito a identificare competenze rilevanti, integrando analisi bibliografiche ed educative, e fornendo spunti pratici sulle applicazioni reali e sui gap esistenti.

Risultati:

Le interviste con le startup hanno fornito informazioni preziose sui punti di forza e di debolezza degli approcci educativi attuali. I principali risultati includono:

- Le competenze tecnico-circolari sono generalmente ben affrontate dai programmi HE e VET, in particolare quelle di gestione del ciclo di vita come l'eco-design. Tuttavia, le competenze legate alle DTs (es. integrazione digitale, gestione dei dati per l'EC) risultano sottorappresentate.
- Le competenze trasversali sono insufficientemente sviluppate sia nell'HE sia nel VET.

Le startup hanno sottolineato costantemente l'importanza centrale delle competenze trasversali per il successo imprenditoriale e l'implementazione dell'EC. Mentre le competenze tecniche venivano spesso acquisite nel tempo con supporto esterno, le competenze trasversali, come adattabilità, collaborazione e pensiero sistemico, si sono rivelate fondamentali.

Interessante notare come il grado di sviluppo di tali competenze vari in base al background formativo:

- Corsi come ingegneria gestionale, che includono apprendimento interdisciplinare e basato su progetti, hanno favorito lo sviluppo di competenze trasversali.

- Corsi più tradizionali e teorici (es. ingegneria chimica/materiali) hanno offerto meno opportunità di coltivare tali capacità.

Pertanto, non solo cosa viene insegnato, ma anche come viene insegnato influisce significativamente sullo sviluppo delle competenze rilevanti per l'EC.

Discussione:

I risultati evidenziano che la transizione all'EC non è solo una sfida tecnica, ma anche organizzativa e culturale. Pertanto, le competenze trasversali – in particolare quelle che favoriscono la collaborazione interdisciplinare, il pensiero critico e la consapevolezza sistemica sono tanto importanti quanto, se non più, delle capacità tecniche.
Inoltre, la natura ancora agli inizi dell'adozione EC richiede professionisti in grado di affrontare l'incertezza e ripensare le catene del valore esistenti. Queste esigenze non sono attualmente soddisfatte dai modelli educativi tradizionali, soprattutto nei corsi tecnici che privilegiano l'acquisizione di conoscenze piuttosto che l'applicazione delle competenze.
La validazione preliminare del quadro di competenze conferma che le istituzioni educative devono adottare un approccio più olistico e centrato sul discente. Insegnamento interdisciplinare, apprendimento esperienziale e pensiero sistemico devono essere integrati nei curricula per preparare adeguatamente gli studenti alle esigenze degli ecosistemi circolari.

Contributi:

Questa ricerca fornisce risultati preliminari fondamentali per lo sviluppo di un quadro di competenze EC, con implicazioni pratiche per la progettazione dei curricula sia a livello HE sia VET. Lo studio contribuisce al dibattito accademico ed educativo:

- colmando il divario tra teoria e pratica nello sviluppo delle competenze EC;

- evidenziando l'importanza delle competenze trasversali nel facilitare la transizione circolare;
- fornendo evidenze di base che hanno supportato lo sviluppo di un quadro olistico delle competenze EC (Hofmann et al., 2025), utile alle istituzioni formative per rivalutare e riprogettare i programmi in funzione delle esigenze industriali in evoluzione.

Per sostenere efficacemente la transizione EC, le istituzioni educative non devono solo insegnare competenze tecnico-circolari, ma anche favorire lo sviluppo di competenze trasversali, in particolare nei programmi tradizionalmente più teorici. Ciò può richiedere l'integrazione di progetti interdisciplinari, il potenziamento delle soft skills e la promozione della alfabetizzazione digitale.

La transizione all'EC richiede un passaggio dall'ottimizzazione a livello di singola impresa alla collaborazione a livello di rete di valore. Di conseguenza, il sistema educativo deve evolversi per fornire ai futuri professionisti le competenze necessarie a guidare questa trasformazione.

Inizio modulo

Fine modulo

Bridging the Digital Divide: A Full-Stack, Inclusive Agritech Platform by Student Social Entrepreneurs

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Introduction:

Agriculture is the backbone of many low- and middle-income countries, yet small and medium farmers struggle with limited access to timely, localized information, reducing both yields and sustainability (Fabregas et al., 2019). Existing advisory services rely on field agents, making them costly, slow to scale, and less effective in remote areas. Conventional practices further depend on guesswork, resulting in poor resource use, unstable outputs (Nedumaran and Ravi, 2019; Spielman et al., 2021).

Literature review:

Recent progress in agricultural digitization highlights opportunities for smallholders through AI, IoT, and blockchain. While chatbots often face accessibility challenges, Large Language Models (LLMs) paired with Retrieval-Augmented Generation (RAG) provide contextual, reliable solutions (DG, 2024; Silva et al., 2023). As summarized in Table 1, existing agritech initiatives show important contributions but also reveal gaps that remain unaddressed.

Prior studies explore IoT, blockchain, and deep learning (Chaganti et al., 2022; Pradhan et al., 2021; Rahman et al., 2024), yet these solutions remain fragmented or inaccessible for low-literacy users. This gap emphasizes the need for a holistic, student-led, modular model to empower smallholder farmers.

Table 1. Comparative Analysis of Agritech Solutions and Identified Gaps Addressed by AgriLink360

Sr. No	Study / Project	Key Contributio ns	Gaps Identified	Proposed Solution
1	**AgroTIC (García et al., 2023)**	IoT + ML app for citrus quality and B2B sales	Narrow focus, no advisory/finance	Multi-crop stack with fintech, traceability, SMS advisory
2	**Farmer.Chat (Ali et al., 2024)**	AI chatbot in local languages for farmer queries	Only advisory	Integrated IoT, finance, marketplace
3	**IoT-AI-Blockc h ain Forecasting (Zhou et al., 2025)**	High accuracy forecasting via secure blockchain	Tech-heavy, low accessibility for low-literate users; no real-time advisory	**Offline-first,** SMS-enabled app

4	**IoT4Ag (Mehta et al., 2025)**	biodegradabl e sensors	Research only	Deployment-ready IoT kits with solar power
5	**AIM for Scale (UNDP, 2025)**	AI climate forecasting	Public scale but lacks *localized B2B*, finance, or traceability focus	Combines AI, fintech, traceability at community scale

Source: *Compiled by the authors based on existing literature (2021–2025).*

Methodology:

The Flowchart in Fig 1. explains an integrated digital agriculture platform with distinct, interconnected modules designed for subsistence farmers. IoT sensor kits (soil, weather, environment) powered by solar batteries collect field data using MQTT, stored on AWS IoT. AI/ML modules generate real-time insights on crop health, yield, and risks.

These modules are being designed, tested, and refined by an interdisciplinary student team, ensuring the architecture remains practical, affordable, and aligned with smallholder needs.

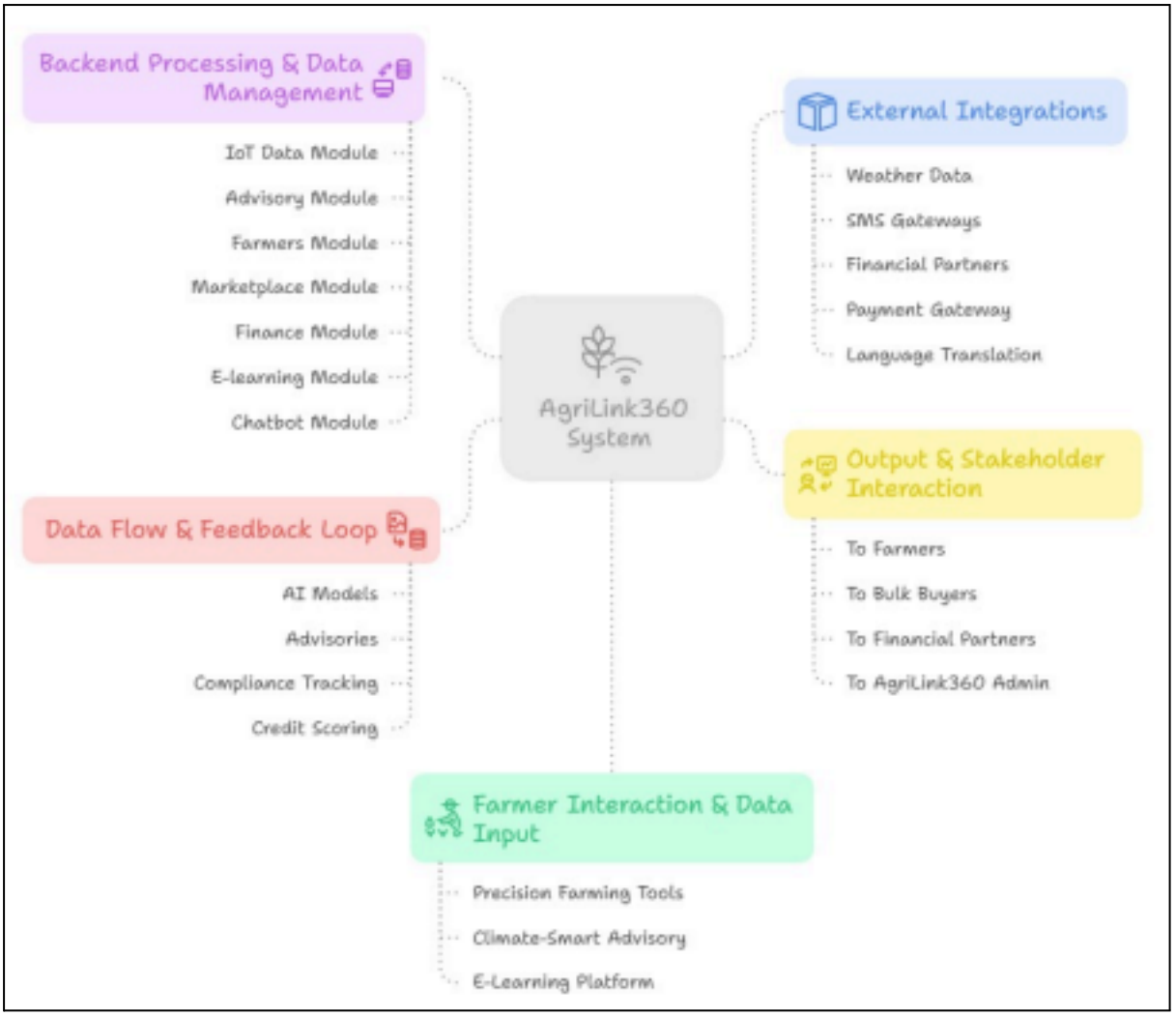


Fig 1. *AgriLink360 System Architecture*
Source*: Our study*

In Fig 2. flowchart of Farmer Interaction shows that the advisory and decision-support components use these analytics to provide farm specific recommendations, synthesized via chatbot or smart dashboard interfaces for easy farmer access. Insights are shared via chatbot and dashboards, offering farm-specific recommendations. Insurance and weather modules link forecasts with field data. Fintech and marketplace modules connect farmers to loans, insurance, and input/output markets via secure APIs.

It also suggests appropriate tools and equipment tailored to specific crops and conditions, helping farmers make informed decisions on resource use.

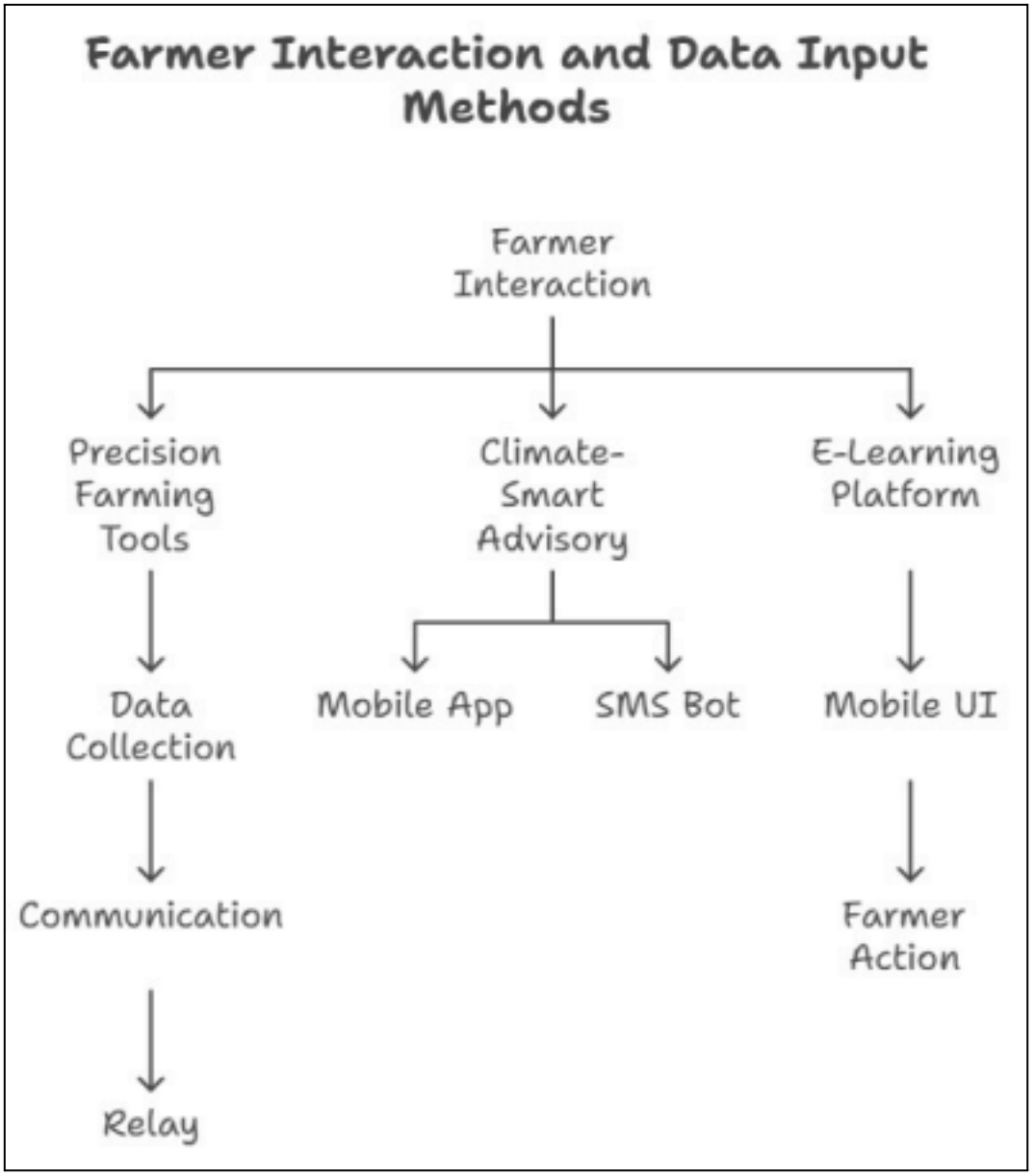


Fig 2 *Farmer Interaction*
Source*: Our study*

The workflow of backend infrastructure which is shown in Fig 3, leverages scalable cloud storage e.g. PostgreSQL, Django and external APIs for robust data management and fintech operations. Support modules include e-learning and multilingual advisories, making the

platform inclusive and accessible even to low-literate farmers. The backend workflows and support modules are being developed and tested by student teams, integrating farmer feedback at each stage to ensure usability and inclusivity.

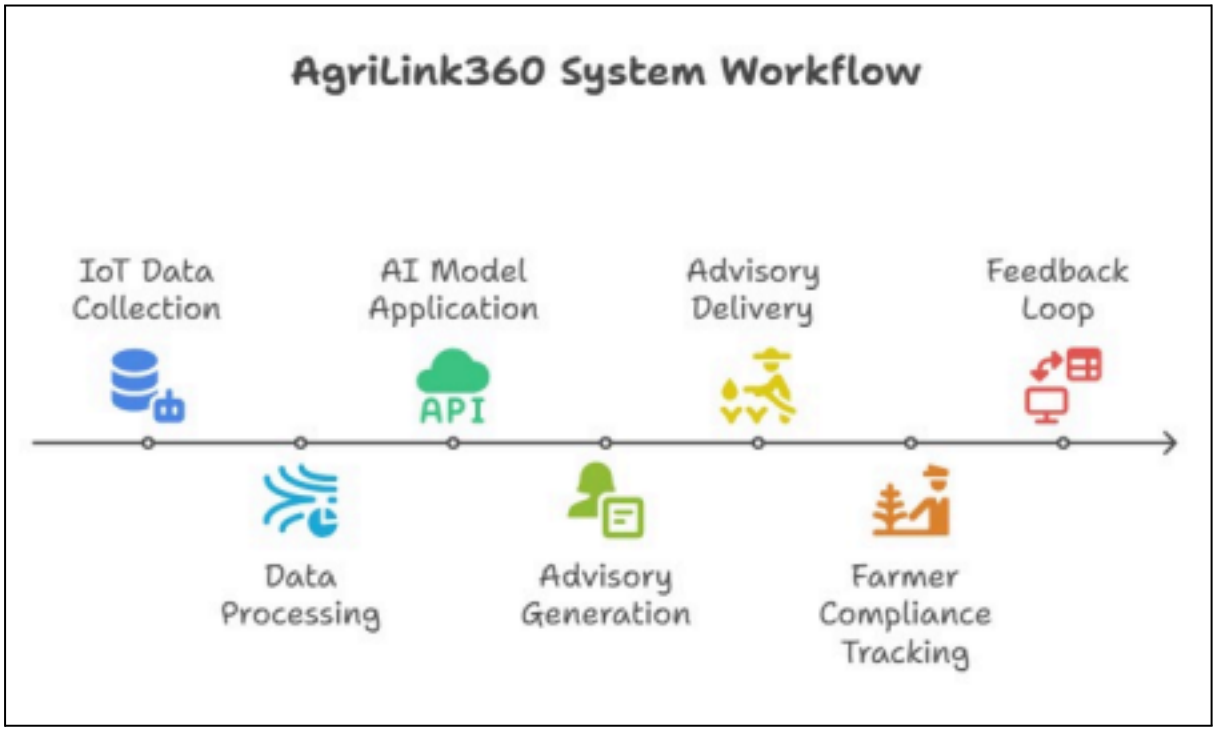


Fig 3 *AgriLink System Workflow*
Source*: Our study*

This user interface at Fig 4 provides streamlined navigation for agricultural stakeholders, offering direct access to the Farmer Dashboard, Buyer Dashboard, Advisory & Finance, E-Learning, and a return option to the Welcome screen.

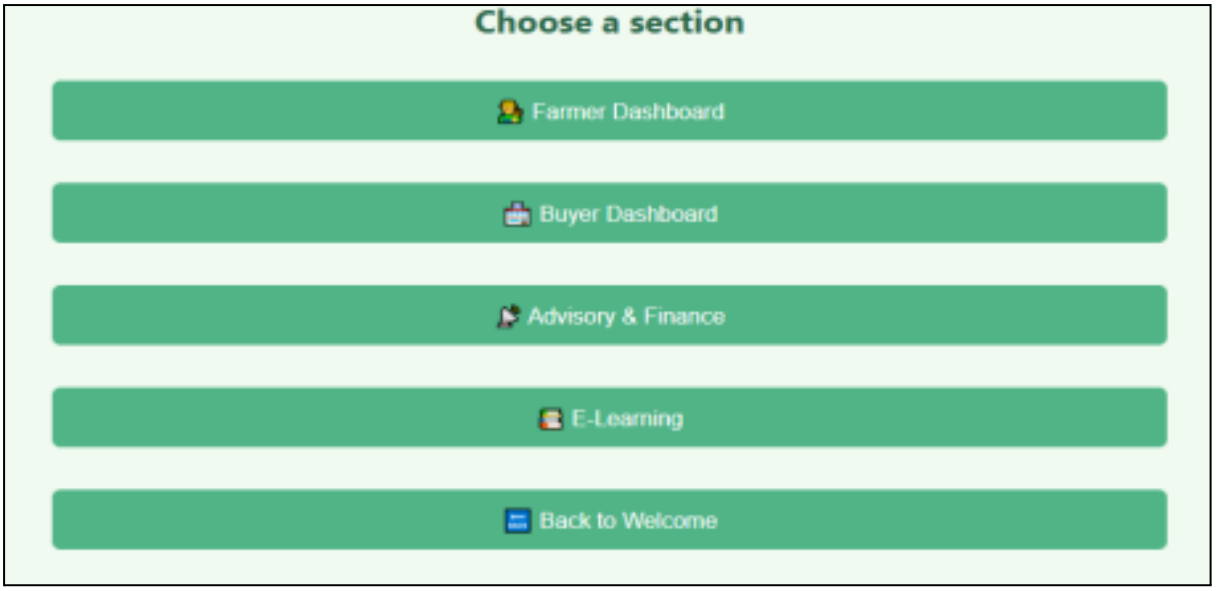


Fig 4 *User Interface*
Source*: Our application*

Findings:

AgriLink360 Platform:

- **Unified platform** for agricultural services
- **Integrates** microfinance, crop insights, markets, schemes & learning
- **Single, accessible interface** across literacy levels
- **User-centric design** with inclusive access
- **Bridges gaps** in info flow & rural digital participation

Pilot Survey by students (Maharashtra, 2025):

- Students have led field surveys, conducted focus group discussions, and engaged with farmers in Bhiwandi, Wada and Ratnagiri to refine features like local-language advisory, offline-first access, and subscription models.
- Farmer Testimonial (Pilot Survey, Palghar 2025):
- "We decide sowing dates by looking at the sky, but sometimes the rains come late or early. If we had clear weather updates in our language, we could plan better and avoid

wasting seeds and water. Many of us don't even know about the government schemes we qualify for, someone has to explain them simply."

- Majority welcomed a subscription model; the proposed 60-day free trial was viewed as a trust-building mechanism before adoption.

Enactus MPSTME Initiative:

- AgriLink360 is co-created by an interdisciplinary Enactus MPSTME team handling design, testing, and implementation.
- The team leads project management, stakeholder engagement, and field validation, using agile feedback loops with farmers for iterative refinement.
- A subscription-first model, 60-day free trial followed by ₹28/month, ensures dignity, sustainability, and trust, enabling farmers to test across weather cycles and increase yields by up to 60%.

SDG Alignment:

- Directly aligns with UN Sustainable Development Goals:
    - SDG 1 (No Poverty)
    - SDG 2 (Zero Hunger)
    - SDG 8 (Decent Work and Economic Growth)
    - SDG 10 (Reduced Inequalities)
- Addresses structural constraints in agricultural productivity and rural inclusion.

Discussion:

Seed Phase (0–12 months):

- Focus on initial funding via grants, CSR programs, and university challenges.
- Pilot rollouts in selected districts, backed by universities and public bodies.

- Student-led design and surveys validate the subscription-first, dignity-driven model.

Growth Phase (12–36 months):

- Introduces Public-Private Partnerships (PPP) with agro-input providers, government, microfinance, and NGOs.
- Establishes revenue through freemium plans, paid analytics dashboards, and third-party API integrations.
- Students drive refinement, framing AgriLink360 as social entrepreneurship.

Sustainability Phase (36+ months):

- Ensures long-term viability via subscription services for institutional clients.
- Offers certification modules for rural entrepreneurship.
- Expands into warehousing, crop insurance, and agri-credit.
- Projects tangible impact on yield and rural digital participation.

Contributions:

Through this project, we believe there would be a humongous impact as we'll have:

- Students act as bridge-builders and co-creators, linking technology, entrepreneurship and rural communities to ensure context-specific, practical deployment aligned with smallholder farmers' realities.
- Improved accuracy in farm planning through centralized advisories.
- Reduced turnaround time for subsidies and credit disbursal via integrated fintech.
- Better price realization for local produce through cooperative awareness and market access.
- Higher digital engagement across pilot rural clusters, fostering inclusivity.

- Sustainable, dignity-driven impact through a subscription-first model designed and tested by students.

Conclusion:

AgriLink360, co-created by Enactus MPSTME, lays the foundation for an informed, connected farming community. By merging IoT, AI, fintech, and marketplaces into one accessible platform, the initiative empowers farmers, closes the digital gap, and advances sustainable agricultural development.

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Case Study of Experiential Learning for Impact: Challenge-Based learning for Cultivating Social Entrepreneurship in Final-Year Graduates

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Introduction:

Entrepreneurship serves as a critical driver for innovation, economic growth, and social impact, particularly within the context of South Africa (Ssekitoleko & Dhliwayo, 2023). South Africa faces persistent structural challenges, including high unemployment rates, significant economic inequality and pervasive social issues (Sheik, van Rooyen & Mazzei, 2022). Notably, youth unemployment exceeds 45%, underscoring an urgent need for innovative and sustainable solutions that facilitate job creation, empower communities, and enhance economic inclusion (Stats SA). The Entrepreneurship module at North-West University, South Africa directly addresses this imperative by equipping students with essential skills in business development, problem-solving, and ethical leadership. The module's objective is to equip students with the abilities and mindset necessary to launch social enterprises that address pressing challenges. This abstract provides a case study detailing an innovative teaching approach to foster social entrepreneurship and sustainability awareness among final-year students.

Literature review:

The module’s core pedagogical strategy, Challenge-Based Learning (CBL), requires students to engage with real-world problems and develop solutions that create tangible comunity impact. The approach, referred to as the Start-up Challenge, specifically tasks students with launching an innovative social business aligned with at least one of the United Nations

Sustainable Development Goals (SDGs). The overarching aim is to prepare students to become change-makers who drive sustainable growth, create jobs, and contribute to an inclusive South African economy

Methodology:

A mixed-methods research design was employed to investigate how Challenge-Based Learning (CBL) functions as an innovative teaching approach to foster entrepreneurship and sustainability awareness among 138 final-year students. Multiple data sources were used to evaluate the impact of CBL:

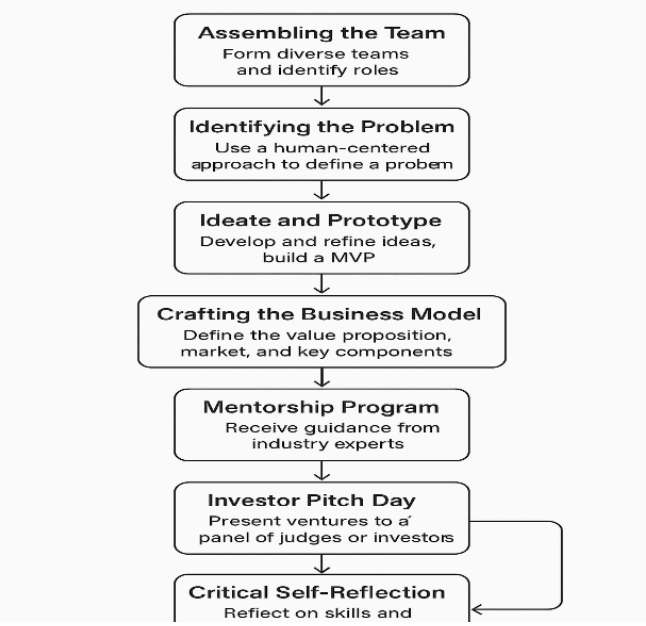
1. **Student Reflections:** Learners participated in structured reflection activities and submitted their insights as podcasts, blogs, digital magazines, or audio recordings. These reflections captured personal entrepreneurial journeys, key challenges, lessons learned, and applications of insights gained from industry and mentor engagements.
2. **Mentor Evaluations:** Industry mentors completed a structured rubric assessing each team's engagement, responsiveness, and collaboration. While evaluating teams, mentors also reflected on their own role in guiding student development.
3. Investor/Judge Feedback: After each 4-minute pitch and 2-minute Q&A, judges provided immediate feedback. Final reflections were captured through short video interviews, offering holistic insights on student performance and the program's overall impact.
4. **Business Pitches:** Written proposals and pitch presentations gave rich evidence of the students' entrepreneurial thinking, business planning, and response to real-world challenges.

5. **Peer Evaluations:** Students rated one another's contributions, reliability, and teamwork, offering an internal perspective on collaboration and group dynamics.

Findings:

In order to execute the Startup Challenge. Students employed an iterative human-centred process to develop and launch their social businesses. The results are presented as the process followed and illustrated in figure 1.

Figure 1: Entrepreneurship Start-up Challenge Process for the module case



Students are first tasked with assembling teams, typically comprising four or five members. This process is strategically designed to promote diversity, including consumer scientists, gender balance, and ethnic diversity, to encourage diverse perspectives and holistic problem-solving. The module facilitates a "Team Member Exchange" where students use the Belbin Team Inventory to identify interests, traits, and desired roles (Rahmani, Scott-Young, Tadayon & van der Walt, 2022). This helps students understand each person's potential and

limitations beyond mere familiarity, learning that friends are not always the best choice for team building.

The next crucial step is to identify a problem empathizing with those affected, understanding their pain points and unmet needs, and defining the root causes of issues. Students must align the problem with at least one SDG, ensuring the proposed solution contributes to global impact. Once a problem is defined, students ideate and prototype solutions. The goal is to develop multiple ideas that effectively solve the identified problem, encouraging divergent and convergent thinking and a human-centric approach. This phase emphasizes building a Minimum Viable Product at a low cost, using mockups or sketches. The principle of "Fail Fast, Learn Fast" is central here, encouraging iterative refinement based on early user feedback (Koporcic, Sjödin, Kohtamäki & Parida,2025). The subsequent phase involves crafting a detailed business model. Students define their value proposition.

A cornerstone of the module's experiential learning is the mentorship program. Ten industry experts and founders serve as mentors, providing instrumental guidance to 3-4 student teams. Mentors participate in three key check-ins: an Introductory Session for initial feedback, a Midpoint Check-in to review progress, and a Pitch Prep Session for final feedback on content and delivery. Their role is advisory, offering real-world insights, challenging students' thinking, and guiding decision-making, thereby bridging the gap between theory and practice (Lein, 2024).

The module culminates in the Investor Pitch Day, a final practical assessment where teams present their business ventures to a panel of judges, investors, or business enterprise development experts. This event is designed as a "launchpad" to showcase their vision and impact. Pitches are evaluated based on the business idea, target market, business model, competitive environment, and overall presentation. The Pitch Day aims to enhance students'

entrepreneurial intention through experiential learning, provide a platform for real-world business communication, and inspire confidence beyond the classroom.

Beyond the project, the module emphasizes critical self-reflection students utilize the "What, So What, Now What" critical reflection model by Borton (1970) to reflect on their problem-solving, leadership, adaptability, and collaboration skills throughout the module. This process enhances self-awareness, helps identify strengths and areas for improvement, and prepares students for future careers by understanding how their experiences can be applied to navigate challenges in professional settings (Sheppick, C., 2024). The insights gained are intended to be valuable for CVs, references, and job interviews, as employers seek graduates with entrepreneurial traits like adaptability, grit, and leadership. This focus on reflection echoes findings from similar CBL implementations, noting improvements in academic writing, project management, and leadership skills (Lorenz & Kikkas, 2024).

Discussion:

The implementation of Challenge-Based Learning (CBL) in the Entrepreneurship module at North-West University yielded several key findings across pedagogical, personal development, and entrepreneurial outcomes. The holistic design of the module, which blending real-world problem-solving with reflective learning and industry mentorship, demonstrated the potential of CBL to cultivate both technical and soft skills critical for future-ready graduates.

Students reported high levels of engagement due to the autonomy given in defining problems, designing solutions, and pitching their ideas. The open-ended nature of the challenges created a sense of ownership and accountability. This was evident in the creativity of solutions developed, ranging from menstrual health initiatives to mobile tech platforms addressing food

insecurity. Reflection data confirmed that students felt more connected to the learning process when the challenge was real, personal, and community-based.

Through immersive experiential learning, students demonstrated marked growth in entrepreneurial competencies such as opportunity recognition, risk-taking, and innovative thinking. The iterative design process (ideate–prototype–pivot) fostered resilience and adaptability, echoing the "Fail Fast, Learn Fast" philosophy. Multiple peer reflections emphasized how students learned to embrace ambiguity and navigate setbacks—critical traits for entrepreneurs.

Mentor evaluations highlighted students' responsiveness to feedback, growth in business communication, and development of viable business models. Mentors noted improved professionalism and strategic thinking by the final pitch session. Students also expressed appreciation for external input, which helped them link classroom learning to market realities and industry expectations.

While most teams reported high levels of collaboration, some reflected on early-stage conflict due to mismatched expectations. The structured use of the Belbin Team Inventory was effective in helping teams reflect on strengths and manage group conflict.

The Investor Pitch Day emerged as a high-impact capstone assessment. Judges' feedback served not only as summative evaluation but also as a career readiness checkpoint. Students gained exposure to real-world scrutiny, prompting many to reframe their CVs to include leadership in launching a social enterprise. Some even received invitations to continue developing their projects post-course. The authenticity of the experience bridged the gap between university learning and industry expectations.

The application of Borton's reflection model deepened student reflection. Themes across student submissions included improved problem-solving skills, confidence in public

speaking, and an enhanced sense of social responsibility. These reflections revealed students' growing capacity to connect their entrepreneurial journey to broader societal impact and career goals.

All student projects explicitly addressed one or more Sustainable Development Goals. Students articulated how their social ventures could generate long-term value by addressing systemic inequalities—a finding that reinforces the relevance of CBL for advancing social impact education.

Contributions:

The BMAN312 Entrepreneurship module at North-West University offers a robust and impactful model for cultivating social entrepreneurship through Challenge-Based Learning. By engaging students in the conception, development, and pitching of social enterprises aligned with SDGs, the module effectively imparts theoretical knowledge while simultaneously cultivating essential entrepreneurial competencies, leadership skills, resilience, and a deep understanding of societal impact.

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CO_2 mitigation through energy efficiency: use of smart "IoT" systems in hotel rooms

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Abstract:

This study presents a systematic review conducted in strict alignment with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The review explored the term "energy efficiency" across three major scientific databases—Scopus, Web of Science (WoS), and Google Scholar—without temporal restrictions, using the combined keywords IoT OR Industry 4.0 OR Smart OR Intelligent AND Hotel. The initial search retrieved 1,709 publications. After applying inclusion criteria limited to peer-reviewed studies addressing Industry 4.0 energy-saving strategies in buildings, 156 articles were shortlisted for content analysis. A subsequent validation process, including double-checking and open-access verification, refined the sample to 68 studies. These final articles constitute the basis of this review, which critically examines the potential of Industry 4.0 technologies—particularly Internet of Things (IoT) applications—to enhance energy efficiency in the hospitality sector. Building on this synthesis, the research outlines a proposed experimental framework to evaluate the effectiveness of IoT-based solutions for achieving energy efficiency in conventional hotel buildings, contributing both theoretical and practical insights into sustainable hospitality management.

Introduction:

The implementation of Industry 4.0 tools is crucial for achieving energy efficiency in hotel rooms, particularly given the low level of the guests' cooperation in reducing in-room energy

consumption. Real-time monitoring and control of in-room resources are crucial for effective decision-making in the hospitality sector, particularly amid environmental challenges, rising energy costs, and increasing international competition for tourists. The transition to smart hotels is still in its early stages, as well as applied research.

This study aims to clarify the concept of Industry 4.0 for the hospitality industry, discuss the benefits of its implementation for energy efficiency, and address the reported challenges.

Literature review:

This paper seeks to confirm the current situation and potential of the energy saving strategies guided by the implementation of Internet of things technology in the hospitality industry. To this end, a systematic review was carried out using the preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology. Within this framework, the keywords ‘keywords "Energy efficiency" both in Spanish and English were sought in the WOS, Scopus and Google Scholar databases with a search range ‘all years to the present’, locating 1,709 papers from which only the peer-reviewed articles researching “IOT - Industry 4.0 - Smart - Intelligent – Hotel” were selected, thus reducing the original amount to 115 articles that were subsequently included in the content analysis. As a result, the thematic lines of energy saving investigation in hospitality that are using the Internet of things tools will be reported as the current problems and achievements altogether with an experimental study case that will illustrate what the investigation is reporting. The research will represent future lines of research in relation to energy saving in hospitality and industry 4.0 capacity to contribute to the energy saving needs in this field and marks guidelines for decision makers. The main hypothesis is that the Internet of things tools can control the right temperature and lighting for the occupants of the room achieving the minimum enough energy needed and

will not consume any energy when is without occupation achieving the energy saving needs without any need of collaboration from the occupants.

Methodology:

To complement the systematic review, quantifiable data will be obtained on energy consumption (kW/day/occupancy time), CO2 emissions reductions (tons), billing savings, the number, and types of IoT devices installed, and temperature measurements and their relationship to energy consumption, before and after implementing smart systems in a controlled experiment. Investment and human resource calculations will be made, among others, seeking to generate applicable knowledge for solving the problem of energy efficiency in the hotel sector and mitigating climate change, emphasizing empirical observation, experimentation, and hypothesis testing. The study will be correlational and will seek to document the intensity of the relationship between the variables of smart system implementation and the energy efficiency of hotel rooms. The study will be cross-sectional, analyzing the impact of these systems over a specific 4-month period (2 billing periods), comparing data from at least 40 3- and 4-star hotels.

Descriptive tests will include:

- Mean, median, and standard deviation: to analyze energy consumption before and after the IoT.
- Trend graphs: to observe changes in consumption and emissions over time.
- Inferential Tests
- Student's t-test: to compare energy consumption before and after implementing IoT in the same hotels.

- Multiple linear regression: to evaluate the extent to which IoT systems impact energy consumption and CO2 reduction, controlling for other variables (occupancy, hotel size, room size).

Regarding the software that will be used, there will be SPSS, as well as intelligent device management software and hardware to obtain the data.

We affirm that although there may be some difficulties in generalization, the results will be applicable to most hotels in the industry. Likewise, the precision of IoT sensors will be able to generate accurate measurements that can be analyzed and explained using this methodology.

Findings:

In the progress in the systematic review, findings confirm that tourism is a key sector for both the global economy and the acceleration of climate change. Since 2008, organizations such as the World Tourism Organization, the United Nations, and the World Meteorological Organization have warned about the increase in greenhouse gas emissions associated with tourism activity, projecting critical scenarios toward 2050 (UNWTO, UNEP & WMO, Climate Change and Tourism – Responding to Global Challenges, 2008). In the case of Mexico, responsible for 1.2% of cumulative global emissions from 1850 to 2021 (more than 25 trillion tons of CO_2), the energy matrix reveals a heavy dependence on fossil fuels: in 2019, 86.9% of electricity was generated from fossil sources, compared to only 10.3% from renewable sources (SENER, 2023). This situation highlights the urgency of mitigation measures, especially considering that more than 10 million jobs depend directly and indirectly on tourism, a sector projected to represent 10% of the national GDP in the next two decades.

Although researchers have attempted for over four decades to induce behavioural changes in tourists to encourage more responsible resource use, the results have been limited and cooperation minimal (Ajzen, 1985; MacInnes et al., 2022). Faced with this limitation, technological innovation becomes essential. Several studies have documented the effectiveness of the fourth industrial revolution—particularly the Internet of Things (IoT)—in improving energy efficiency in hotels (Car et al., 2019; Fritzsche et al., 2018; Gobbo et al., 2018; Hermann et al., 2015). The potential is significant: there are more than 17.5 million hotel rooms in the world (Mesirow, 2019), hospitality facilities are among the top five subsectors by energy consumption within the buildings sector and the implementation of smart systems has been shown to generate savings of between 15% and 50% in energy consumption (Harish & Kumar, 2016; Shen et al., 2021).

Finally, studies such as those by Susskind (2014) demonstrate that the energy efficiency achieved through smart systems does not compromise the guest experience, which is essential for their widespread adoption in the hotel sector. In short, given the limited capacity of the human factor to optimize resource use, the adoption of Industry 4.0 technologies constitutes an indispensable strategy for reducing operating costs, increasing competitiveness, and moving toward more sustainable tourism.

Discussion:

The aim is to explore the potential of IoT systems to reduce energy consumption and facilitate the hotel industry's goals toward sustainability and carbon footprint reduction, as well as how tourists perceive these new smart hotel rooms and the challenges surrounding their implementation where research is currently lacking.

Contributions:

To confirm the potential of IoT systems to reduce energy consumption, as well as to determine whether there is any impact on tourists who will interact in these new smart hotel rooms, and to document any implementation challenges that need to be addressed.

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Comprehensive model for the Perception of "Buen Vivir" in eco-villages in Mexico

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Introduction:

It is important to evaluate the integration of regenerative design and the principles of Buen Vivir in Mexican ecovillages, since, according to the literature review, this is where their potential lies to generate alternative models of socio-ecological development, that is, the relationship between the human and non-human based on the practices of those who inhabit this type of community.

Current urban models are fundamentally unsustainable from a socio-ecological perspective (Raworth, 2028). The social urgency of this research lies in the fact that 79% of the Mexican population lives in urban areas, generating processes of dehumanization and vulnerability to environmental stress (INEGI, 2020). The research takes on greater relevance in the context of the Decade of Ecosystem Restoration (2021-2030) declared by the UN (UNEP, 2019), positioning itself as a concrete response to this global urgency.

The analysis and evaluation of ecovillages from a Buen Vivir perspective would provide multidimensional indicators so that, in future work, regulatory frameworks can be designed that recognize non-capitalist forms of production, prioritize biocultural regeneration over economic growth, or articulate glocal scales in territorial management that, seen from a particular approach, promote coordinated actions at different levels to achieve the development of communities (Fernández et al 2012).

This research is ethically necessary to build regenerative development alternatives that transition towards sustainable communities, contributing both to the advancement of

scientific knowledge and to the practical solution of urgent socio-environmental problems in the Mexican and Latin American context.

The work presented here addresses a critical limitation in scientific knowledge: the empirical understanding of the perception of well-being in Mexican ecovillages under the principles of Buen Vivir. While most studies focus on ecological or economic aspects, this research incorporates the subjective and collective dimension of Buen Vivir, as well as the valuation of ancestral knowledge. Despite their proven effectiveness, ecovillages are not considered formal development models, representing a missed opportunity that this research seeks to remedy through rigorous empirical evidence.

Theoretically, the research proposes a conceptual innovation through the development of the Comprehensive Model for the Perception of Good Living in Ecovillages (MIPBVE), which articulates ancestral knowledge with modern scientific knowledge through the ecology of knowledge. This proposal transcends alternative models of development to propose alternatives to development itself, representing a significant epistemological advance.

It is worth mentioning that, during the application of the methodology of this research, a measurement instrument for data collection will be developed, the “Good Living Self-Assessment Instrument” (IA-BV). This instrument will be generated from the people-centered design (PCD) methodology, which includes UX (user experience) and, as it is an instrument that will be applied digitally, it will also include UI (user interface), generating a practical and functional product that can be used by any ecovillage that so desires.

Although the specific function of the IA-BV for this research is to establish the level of well-being through Good Living indicators, it could also be used to identify opportunities for improvement within the ecovillage if used periodically.

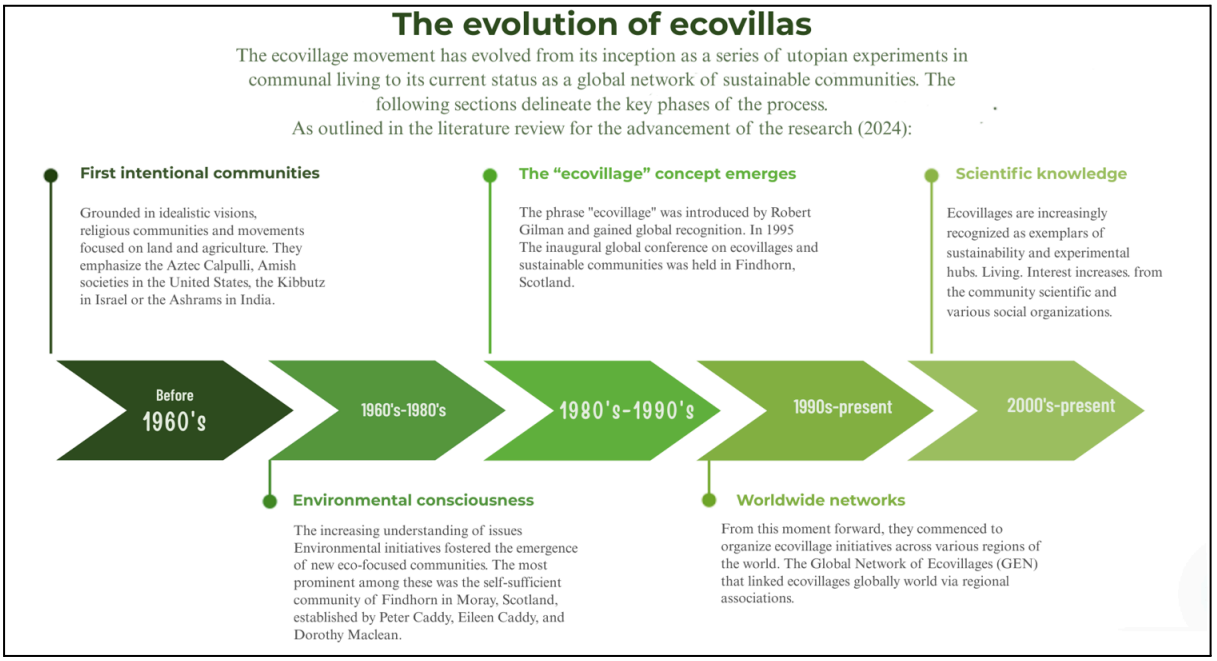
Literature review:

When beginning to research intentional communities, the state of the art starts with concepts such as the Jewish kibbutzim in Israel (the first communes formed by Russian migrants), communities of socialist influence that began to proliferate during the first decade of the 20th century, communities that have been identified by their agricultural formation, unlike their Indian counterparts, called Ashrams, intentional communities that were established almost contemporaneously with the Kibbutz (the first being the so-called Hridaya Kunj in 1917), but with an identity more closely linked to religious, educational, and cultural aspects. Like these two models, other types of intentional communities have developed in different ways throughout the 20th century. To mention a few from the American continent, there are the Aztec Calpullis or the Amish communities in the United States, following a long list presented by Leonardo Salamanca and Fernando Silva in an in-depth analysis of the ecovillage movement in Polis magazine (2016, p.40). All of these serve as a prelude before we delve into our subject of study, ecovillages.

Over time, the ecovillage movement took shape (Figure 1); new intentional communities were created and developed, such as the Free Town of Christiania in Copenhagen, Denmark, or the consolidation of the Findhorn ecovillage in Sweden. However, it was not until the end of the last century that communities with similar typologies were created and standardized, driven by the annual summit of "ecovillages and sustainable communities"; an event organized by Findhorn in 1995 (Jackson, 2004), and following the formalization and dissemination of the concept of "ecovillage" coined by Robert Gilman in 1991, bringing concepts such as counter-urbanization and neo-ruralism into scientific discourse. These concepts have been questioned by different authors who, in one way or another, refer to

ecovillages as new models of human settlements from a perspective of sustainable, regenerative, and/or alternative development, as can be seen from a critical standpoint in the works of J.W. Berry (1976), A.G. Champion (1989), M. Sánchez-Oro, and J. A. Pérez (2012).

Figure 1. *Milestones over time in the creation and development of ecovillages. elaboration, data taken from a review of the literature in 2024.*



Source: Own

Although ecovillages have been studied "relatively" thoroughly, resulting in ecological islands to be observed and analysed (Andreas, 2013), their efficiency and impact on standardized communities (Meijering, 2013) is still being questioned. and here we refer to cities around the world, human settlements that currently serve as centres of mass human concentration with a tendency toward growth, according to a 2019 World Bank projection which shows that within six years, cities will be home to 60% of the world's population (Vaca, 2020).

Eco-villages, according to their original definition, are: "a comprehensive human settlement (not just a housing structure, but a settlement where human activities are integrated into the natural environment in a harmless way), conceived on a human scale, which includes all aspects important to life, integrating them respectfully into the natural environment, which supports healthy forms of (sustainable) and can persist indefinitely" (Gilman, 1995: 19) rescued by Muñoz Villareal (2018), cited by Fernández (2020).

These types of intentional communities tend to be human habitats dedicated to an increasingly sustainable life in harmony with nature. That is why this research will take as its theoretical basis the model of Buen Vivir, which is defined particularly as a model of well-being that implements lifestyle practices that are in harmony with all living beings in nature (ecological sustainability), with all people (social justice), and with oneself (life satisfaction) (Hidalgo-Capitán et al., 2019). This worldview seeks a balance between the needs of humanity and the resources available to satisfy them (de la Cuadra, 2015).

However, even though ecovillages propose a new model of community life by implementing practices that are alternatives to the fundamental modes of the capitalist economy (Salamanca and Silva, 2015), very little attention has been paid to whether they can have an impact in an urban, peri-urban, or rural context. This can be seen in the results shown in the work entitled “A framework for identifying and developing potential ecovillages: Meta-analysis of studies on ecovillages around the world.” (Barani et al., 2018) or in Marcus Andreas' questions in the last chapter of the compilation: “Making Utopia a Reality - Ecovillages and Academic Approaches” (Andreas et al., 2012).

It is important to define models of knowledge transfer that lead us to find ecological and empathetic development alternatives from ecovillages for the necessary and urgent planning and reconfiguration of cities, thus achieving a transition towards urban sustainability through experimentation and the combination of different types of knowledge (Hodson et al., 2017).

Research on ecovillages has been based on empirical knowledge (Hall, 2015). Although scientific evidence already exists, this knowledge will continue to be generated from on-site experimentation whenever the data is the result of the day-to-day life experience of those who live in this type of intentional community (Andreas and Wagner, 2012). During the first two years of this study, it has been found that this type of knowledge is not at odds with empirical research; on the contrary, it is necessary to continue investigating from an empirical perspective to obtain proven results from the field of applied academic research with a scientific basis (Sousa Santos 2017). A large amount of research on ecovillages is based on the theory of ecological knowledge (ecological knowledge model), taking a theoretical basis that defines the essence of life in ecovillages, which translates into the Buen Vivir model, an alternative to the way development is conceived, even when a sustainable or regenerative approach is desired, as criticized in the work of Dovers and Handmer (1993) “contradictions in sustainability”: economic growth versus ecological limits can make sustainable development an oxymoron due to the profound contradictions within the concept.

Eco-villages must be investigated to learn beyond the limits that science has set for us, not to discover alternative models of development but alternatives to development itself (Torres-Solís and Ramírez Valverde, 2019).

According to the RSL analysis, the holistic worldview of these intentional communities has not changed much over the years. Unlike standardized communities, ecovillages must not only meet the basic necessities of a habitat but also guarantee the lives of those who inhabit it, while ensuring the lives of future generations. Eco-villages, as described by Escorihuela (2012), unlike other types of sustainable communities, aim to create a model of life based on two fundamental ethical principles: caring for people and caring for the earth, as well as procuring the necessary resources to ensure their permanence in the future. (Escorihuela J.L, 2012 by Correa, 2013).

Therefore, the sum of references found in the RSL conceives of ecovillages, in general, as communities consciously designed through local participatory processes in the four dimensions of sustainability: social, cultural, environmental, and economic, as perceived from a more particular perspective by Vander Wal (2010).

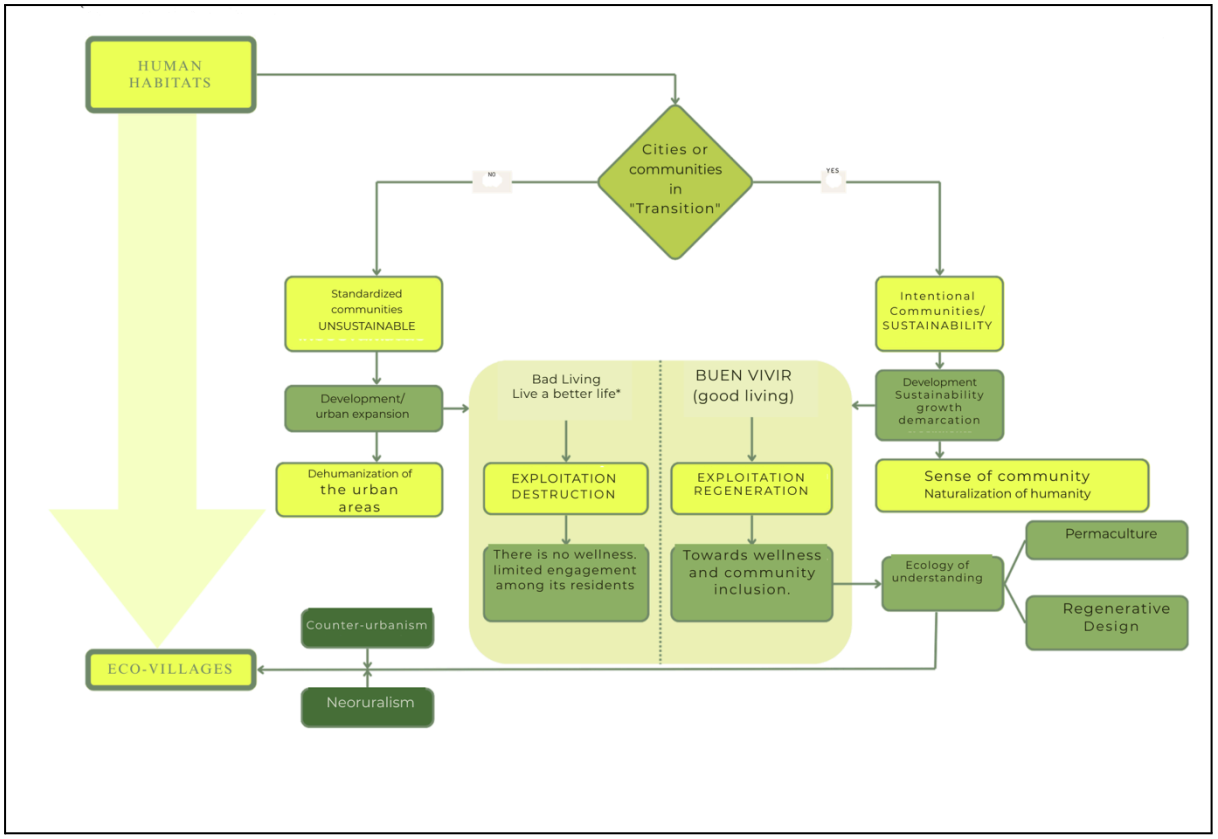
One of the conclusions of Wagner and Andreas (2012) is that, since there is no real interest in radically changing the macro-political system, ecovillages end up being applicable but not replicable models; that is, they are small laboratories and research projects rather than transferable models, leading us instead to inspiration.

However, ecovillages have been conscious of maximizing the quality of life and subjective well-being of their members, which makes them a useful model for national welfare policies. With up to half a century of empirical experimentation, these communities offer valuable data that can benefit society in general (Hall, 2015).

Speaking of well-being, as mentioned in the introduction to this work, ecovillages are often considered urban utopias when taken into account as models of the common good, as they have based their existence on principles of well-being, taking into account design principles such as permaculture, which is based on a holistic and sustainable approach and which, in urban and rural development, can promote long-term sustainability, improving quality of life and protecting the environment (Luna, 2022). This is where the model of Buen Vivir (Good Living) comes in, considered the basic theory for this research.

It is on this background that this research does not intend to investigate a proven and established practice, as detected in the Systematic Literature Review (SLR), but rather to evaluate the concept of the ecovillage as a practice for the transition from traditional human habitats to sustainable communities in Mexico from the perspective of Buen Vivir (BV). the latter concept is in constant construction, fluctuating between a reappropriation by indigenous peoples (from an indigenous perspective) and a readaptation by academia (Lalander & Cuestas-Caza, 2018). This study presents a hybrid model that is broken down and refined throughout the research, as can be seen in a simplified graphic form in the conceptual diagram presented below (Figure 2) and explained further on in this document.

Figure 2. *Concept diagram developed from the review of the state of the art during this research. It details the transition model from the concept of human habitats to the concept of ecovillages based on the Andean philosophy of Good Living.*



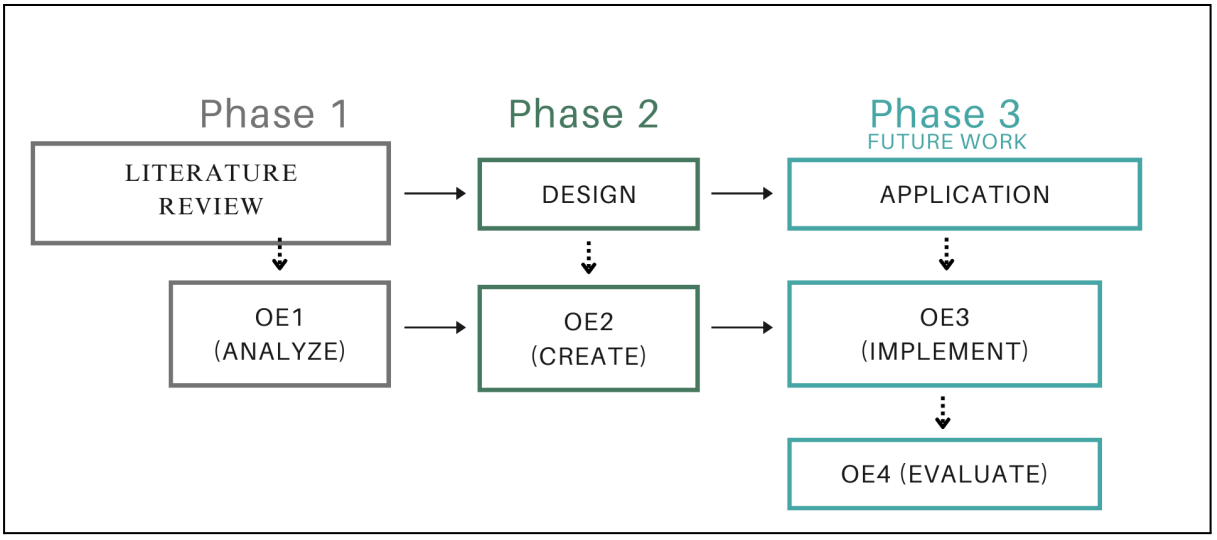
** Llaki Kawsay, Bad Living or Miserable Life. Concept by Hidalgo, Arias, and Ávila (2014), cited in the interpretive essay by John Alexander Arias (2014). Vivir Mejor (Living Better), mentioned by Perea Sandoval (2013). Living better means living at the expense of others, exploiting others, plundering natural resources, violating Mother Earth, privatizing basic services; in contrast, Vivir Bien (Living Well) means living in solidarity, equality, harmony, complementarity, and reciprocity.*
*** Sumak Kawsay or Buen Vivir (Good Living). (Salamanca & Silva, 2015)*
**** Definition of Caudillo-Félix (2012) on Good Living (BV) cited by Muñoz-Villareal (2018) as an alternative to development, noting that BV embraces principles and values such as the naturalization of human beings.*
Source. *Own elaboration.*

Within the framework of this research, the hypothesis is proposed that the inhabitants of ecovillages in Mexico have a perception of good living, which confirms the effectiveness of ecovillages as a viable practice for the transition to sustainable communities in that country. Consequently, the following question is posed: Is it possible to define ecovillages as an effective practice for the transition of communities to sustainable models in Mexico?

Methodology:

This research was carried out in three different stages, generating a series of activities spread across each of the three phases and directly related to at least one of the four specific objectives (SOs). In turn, each SO contributes in a staggered manner to the achievement of the general objective (GO) of evaluating ecovillages as a transitional practice towards sustainable communities in Mexico. This can be seen in the following graph, which represents the coherence of the methodological phases:

Figure 3. *Consistency of the methodological phases.*



Source. Own elaboration.

Findings:

A categorical content analysis was performed to identify patterns, typologies, and theoretical elaborations on ecovillages, classifying the variables according to the dimensions of "el Buen Vivir" (Good Living):

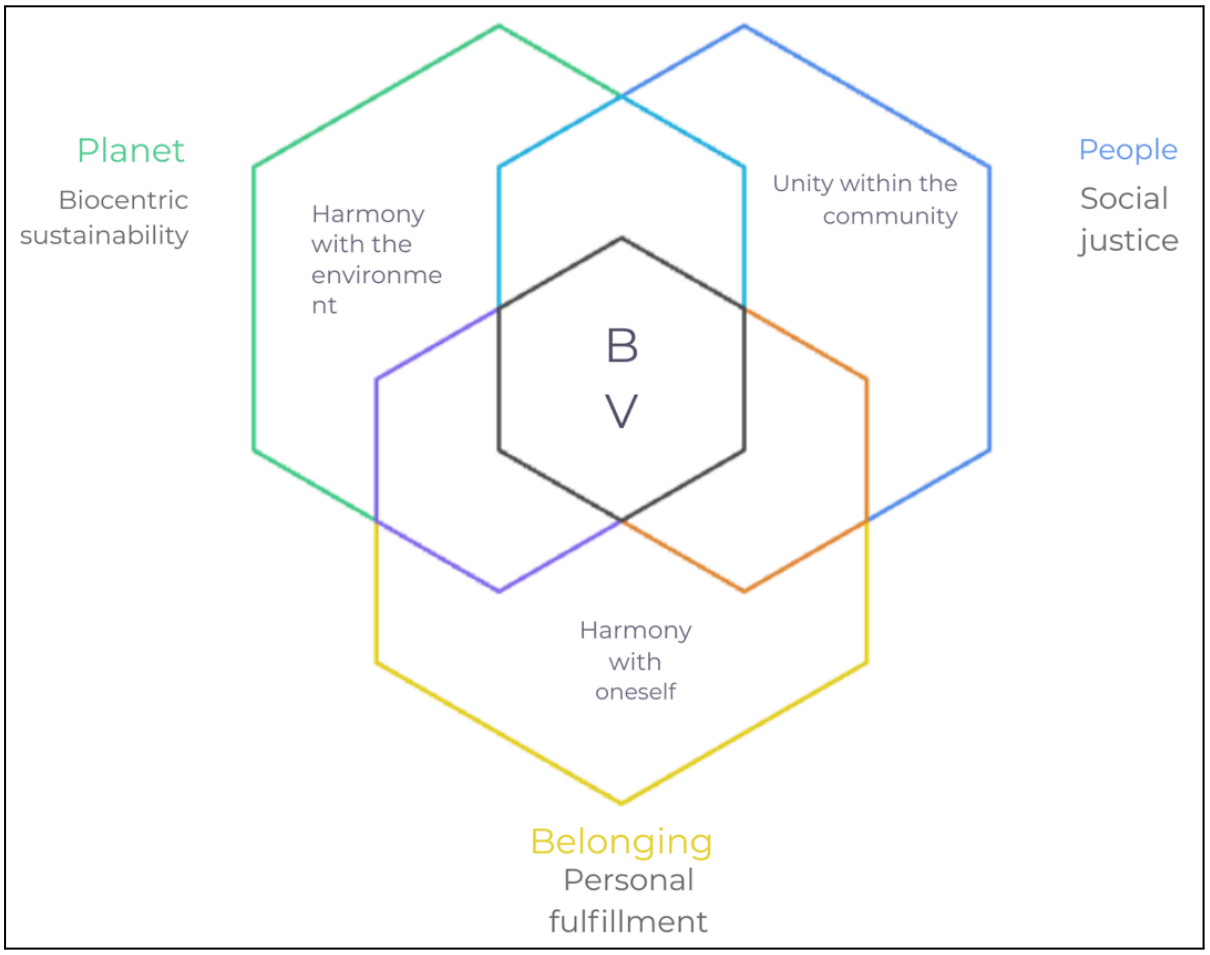
Table 1 . *Conceptual basis*

INDICATORS	THE BV DEFINES IT AS
Biocentric Sustainability	**Harmony with nature**

Social Equity	**Harmony among people**
Personal Satisfaction	**Internal harmony / Sense of belonging**

Source. *Own elaboration.*

Figure 2. *Dimensions of good living ("el Buen Vivir").*



Source. Own elaboration.

The results of the RSL allowed for a comprehensive characterization of ecovillages based on three fundamental elements:

Conceptual definition: Ecovillages are defined as intentional communities consciously designed through local participatory processes in four dimensions of sustainability (social, cultural, ecological, and economic) to regenerate their social and natural environments (GEN, 2024).

Structural components: Following the principles of Mollison (1978), ecovillages integrate: ecotechnologies and ecotechniques, ideologies based on ontological design, participatory and consensual governance, and autonomy in multiple dimensions.

Identified types: They were classified into six main types: traditional, spiritual, urban and rural, transitional, educational, and ecotourism.

Theoretical Elaborations on Good Living: Four main theoretical elaborations were identified in studies on ecovillages:

identified in studies on ecovillages:

Table 2 . *List of theoretical works with authors according to the RSL.*

THEORETICAL WORKS	CENTRAL PROPOSAL	APPROACH/CURRENT	AUTHORS
A. Socialism	A.1 Social Equity for Citizen Transformation	Neo-Marxist	Boaventura de Sousa Santos, Ana Patricia Cubillo-Guevara and Hidalgo-Capitán, Yessica Vicencio & Nora Bringas
B. Ecologist	B.1 Preservation of nature	Post-developmentalism, environmentalism, and other social movements	Eduardo Gudynas, Arturo Escobar, Alberto Acosta, Unai Villalba
	B.2 Construction participatory Good Living		
C.Indigenist	C.1 Autonomy of indigenous peoples C.2 Ancestral worldview	Leadership and cultural identity	Fernando Huanacuni, Luis Macas
D. Other indigenous theoretical and epistemological constructions	%0.1 new policies for humanity and the conservation of life on the planet	Complexity, Systemic Thinking, Holism, and Deep Ecology	Carlos Maldonado, Enrique Luengo, Antonio L. Cubillo-Guevara, and Hidalgo-Capitán, Sara Caria & Rafael Domínguez, **SENPLADES

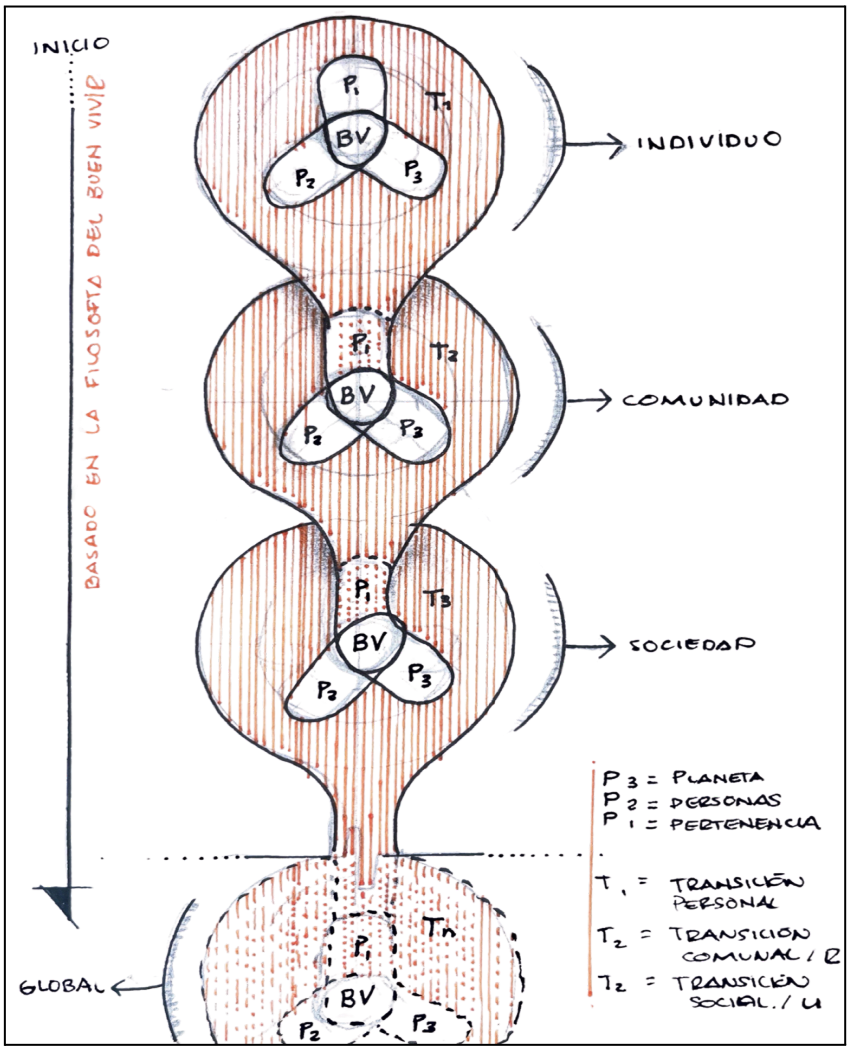
**CORRESPONDS TO AN INSTITUTION OR ORGANIZATION DEDICATED IN SOME WAY TO RESEARCH ON A TOPIC OR OBJECT OF STUDY RELATED TO GOOD LIVING. (National Secretariat of Planning and Development of Ecuador).

Source. Own elaboration.

Proposed Comprehensive Model (MIPBVE)

The Comprehensive Model for the Perception of Good Living in Ecovillages (MIPBVE) was developed, articulating three fundamental dimensions:

Figure 3. *Comprehensive model for the perception of good living in ecovillages proposed for this research.*



Source. Own elaboration.

Structure and key elements of the model:

1. **Three fundamental dimensions (The 3Ps)**

P1: pertain / Represents the connection with oneself, encompassing the cultural and spiritual dimensions of being. It is the starting point for the perception of well-being and is located at the core of each helix or circle.

P2: People / Symbolizes the connection with others, that is, the social and relational dimension. It includes coexistence, cooperation, and a sense of community.

P3: Planet / It refers to the connection with nature, encompassing the ecological relationship, respect, and care for the natural environment.

At the center (the intersection of these three circles) is **BV** (Buen Vivir), which arises from the balance and integration of the three dimensions.

2. **Context and transition**

The outer area, marked with orange lines, represents the context or environment in which each level of well-being develops. This context is dynamic and is called Transition.

Transition (T):

It is inspired by Rob Hopkins' transition movement and is divided into:

T1: Personal transition (individual)

T2: Communal transition (community)

T3: Social transition (society)

Tn: Global transition (planetary scale)

3. **Scalability and continuity**

The model is modular and scalable: each time one propeller overlaps the next, the transition context becomes the new P1 (belonging) of the next level. Thus, individual well-being is

projected and transformed into community, social, and finally global well-being, in a continuous and evolutionary process.

4. Interpretation and conceptual contributions

A. Integration of alternative knowledge and approaches

The model is based on the philosophy of Good Living, integrating ancestral and empirical knowledge, and is inspired by models such as the Jackson Ecovillages study model (2004), the regenerative development model, and the permaculture flower. It reinterprets Elkington's 3Ps model (People, Planet, Prosperity), replacing the economic axis called "profirt" with that of Belonging, which emphasizes the cultural and spiritual dimension, traditionally invisible in conventional development models.

B. Relational and holistic dimension

Good Living is not conceived as an individual state, but as a relational and collective process, where well-being arises from the harmonious interaction between the individual, the community, and nature. The transition of contexts shows how well-being is an interdependent phenomenon: personal flourishing is the basis for community well-being, which in turn enables social and global well-being.

C. Inspiration from the transition movement

The model visualizes transition as a permanent process of change and adaptation, inspired by the Hopkins transition movement (2008), which promotes resilient and sustainable communities in the face of global crises. Only a community can decide to be open to change, so regardless of scale, from the awakening of personal awareness to the transition of an entire

city (Hopkins' transition movement) towards a truly sustainable world. The helical structure suggests an evolutionary process, where each level of transition is a condition for the next, and where learning and regeneration are continuous. This background is relevant to research on ecovillages, but not limited to them.

Framework for assessing well-being:

This model allows us to operationalize the perception of Good Living in ecovillages, evaluating

the degree of integration of the dimensions of belonging, people, and planet at different levels of transition.

Guide for the design and analysis of sustainable communities:

It offers a theoretical and practical framework for analyzing how ecovillages can be laboratories for transitioning to more sustainable, holistic, and regenerative ways of life.

Epistemological contribution:

It proposes an ecology of knowledge, recognizing the plurality of knowledge and the need to overcome scientific monoculture in order to address the complex challenges we face today. The Integral Model of Perception of Good Living in Eco-villages (MIPBVE) represents an innovative and holistic proposal for understanding and promoting well-being in sustainable communities. Its scalable and relational structure, based on the integration of personal, social, and ecological dimensions, and its inspiration from the transition movement, make it a valuable tool for both research and transformative practice in the field of ecovillages and beyond.

Discussion:

Eco-villages as an Alternative to Urban Development

The results confirm that ecovillages represent a viable alternative to the dominant urban model, operating under principles that transcend the conventional development paradigm. Unlike traditional urban growth, which exceeds planetary ecological limits according to Raworth's (2018) "Doughnut Theory," ecovillages maintain a population threshold (50-250 inhabitants) determined by available resources and the regenerative capacity of the context.

Integration of Ancestral and Modern Knowledge Research shows that ecovillages function as laboratories of "ecology of knowledge" where ancestral knowledge (such as the philosophy of Sumak Kawsay) is integrated with appropriate and sustainable technologies. This integration challenges the monoculture of scientific knowledge and proposes holistic approaches to addressing the contemporary socio-environmental crisis.

Limitations and Critical Perspectives

Despite their potential, the research identified significant limitations. As Andreas (2013) points out, ecovillages function more as "ecological peninsulas" than as completely autonomous islands, maintaining dependencies on external systems. Furthermore, their limited scale raises questions about their ability to significantly influence the massive urban transition that is required.

Relevance to the Mexican Context

With Mexico projected to account for 84.9% of Latin America's urban population by 2050, ecovillages take on particular relevance as laboratories for transition. The country, as a megadiverse nation with significant indigenous populations bearing ancestral knowledge, represents an ideal context for exploring the viability of integrating philosophies such as Buen Vivir into the construction of sustainable alternatives.

Contributions:

The research confirms that ecovillages are viable practices for the transition to sustainable communities in Mexico, based on the philosophy of Buen Vivir. The main findings include:

1. **Comprehensive characterization**: Ecovillages operate as intentional communities that integrate ecological sustainability, social equity, and personal fulfillment, representing concrete alternatives to conventional urban development.
2. **Robust theoretical framework**: The philosophy of Buen Vivir provides a solid foundation for evaluating well-being in ecovillages, transcending traditional models of sustainable development.
3. **Evaluative model**: The MIPBVE offers a conceptual and practical tool for analyzing and promoting the transition to sustainable communities, integrating scales from the personal to the global.
4. **Contextual relevance**: Ecovillages are particularly relevant for Mexico given its megadiverse context and rich heritage of ancestral knowledge.
5. **Need for scaling up**: Although ecovillages function effectively on a small scale, knowledge transfer mechanisms and public policies are needed to facilitate the replicability of their principles in broader urban contexts. Eco-villages thus represent not only alternative models of development, but true alternatives to development itself, offering concrete paths toward the construction of more just, sustainable, and regenerative societies. Their study and promotion is essential to addressing the challenges of the climate and social crisis resulting from unsustainable urbanization in the 21st century.

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Creating a connected and collaborative Global Learning Community: Enactus x Neutopia

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Introduction:

Enactus attracts students from a broad range of interests, disciplines, skill sets and with plethora passions. This is a great strength and helps us create a diversity of projects addressing many different opportunities and issues. It also creates challenges with respect to providing relevant development resources for our members, teams, and communities. No matter what resources we provide, not all will be relevant to all students. This raised a number of questions.

How might we create current and valuable resources?

How do we engage students with these?

How do we acknowledge their development through access to these?

What form should these take?

Who will develop, produce, and maintain these?

How might we share these resources across the Enactus network?

How might we provide additional leadership opportunities for teams and individuals through this?

How might we attract students and retain them as alumni?

Methodology:

Enactus Australia has used a mixed methods and Action Research approaches to produce this work.

Desktop research to establish options for delivery.

Survey of students for content and delivery preferences.

Prototyping and testing utilising human centred design, UX design, and CX design research methods.

Focus Groups for feedback.

Findings:

Preliminary findings indicate students are seeing self-service models for learning skills and gaining knowledge that compliments their study and supports the development of their Enactus projects.

Students are digitally literate and interface savvy, AI curious but also AI sceptical. They enjoy community learning to the same degree they enjoy individual, self-paced, asynchronous learning. Learning platforms that work like the social media platforms they are comfortable using will have a greater uptake.

Recognition through badging and micro credentials is desirable.

Enactus students enjoy engaging with their own teams, but also value interaction with other teams, locally, regionally, and internationally.

Enactus teams and members are interested in developing their own content for, and sharing their innovations with, peers.

Discussion:

We are still synthesising our user research and iterating our prototype platform with a small community of users. We are using our findings to inform the iterations through a cyclical development model of continuous improvement.

We have established more questions for the next stage of development through this research,

Platform – how should we deliver?

People – who will benefit from this project, and why?

Place – What would the learning and collaboration environment be like?

Contributors – who should we involve?

Community – how will our community work, who will be part of it?

Content – what should be available, and how?

Contributions:

This paper contributes to the Enactus Network's mission to create Global Future Leaders through exploring possibilities for rich, relevant, accessible, timely, self-service and community-led personal and professional development resources.

It also provides opportunities to explore how to engage and retain alumni and provide opportunities for faculty.

Cultivating Global Change Agents: The Role of Soft Skills in Empowering Myanmar's Women Students Abroad for Future Career

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Introduction:

The ongoing political and social crises in Myanmar have created unprecedented challenges for its citizens, particularly for women who face deeply entrenched patriarchal norms and limited opportunities at home. According to statistics from UN Women, the literacy rate for females over the age of 15 in Myanmar is 75.6%, which is higher than that of their male counterparts at 71.8% (The Women Count Data Hub, 2025). However, the quality of education, particularly since the 2021 coup d'état, is increasingly being questioned (Htet, 2022). As a result, studying abroad has become an alternative for students who possess the knowledge and the financial support, whether through scholarships or private funding, to pursue an education they believe to be better in foreign countries. For the growing number of Myanmar women studying abroad, their university experience represents a critical juncture for personal and professional development.

This decision to study abroad places these students within a context that is widely recognized for its developmental benefits. Numerous studies have demonstrated the benefits of studying abroad. In terms of personal growth, research has found that students who study abroad for an extended period become more open, extraverted, and less neurotic (Zimmermann et al., 2021). Regarding second language attainment, students with strong determination and a willingness to communicate develop a higher level of proficiency through exposure to different linguistic contexts (Jackson et al., 2021). Furthermore, studying abroad enhances

cultural sensitivity, as students have been shown to develop greater intercultural awareness and more ethno-relative views (San & Htwe, 2023).

While the general benefits of studying abroad are well-documented, a significant gap exists in understanding how these transformative experiences apply to the unique circumstances of female students from Myanmar. Given their background of navigating a society in crisis and confronting patriarchal structures, the development of soft skills such as resilience, cross-cultural communication, and adaptability is not merely an academic outcome but a potentially life-altering process. Therefore, investigating how these women acquire and perceive their soft skills is crucial. Such a study will not only illuminate their personal and professional empowerment but also provide valuable insights into how international education can serve as a vital tool for women seeking to overcome patriarchal barriers and forge new professional pathways.

Literature review:

Existing literature on social entrepreneurship and sustainability leadership in higher education primarily focuses on Western contexts. While some research addresses women's entrepreneurship in developing countries, there is a significant gap in the specific experience of Myanmar women studying abroad. Studies have shown that soft skills like ethical leadership, collaboration, and resilience are critical for social change agents (Bruce J. Avolio & Gardner, W. L., 2005; Goleman, 2006). Furthermore, due to a growing interest in international education, there has been an increase in the number of undergraduate and postgraduate students from Myanmar applying for study abroad scholarships (San & Htwe, 2023). However, there is a lack of research exploring how a study abroad experience can uniquely cultivate these skills among Myanmar women and prepare them for a global

workforce focused on social impact. This abstract proposes to bridge this gap by investigating the pedagogical and experiential mechanisms that can foster these attributes.

Research Questions

1. How do the multifaceted experiences of studying abroad—encompassing curricular engagement, extra-curricular activities, and personal adaptation—contribute to the development of soft skills among female students from Myanmar?
2. In what ways do female Myanmar students believe their study abroad experience has equipped them with valuable soft skills for their professional futures?

Objectives

1. To identify the soft skills that female students from Myanmar develop during their study abroad experiences.
2. To analyze how different components of the study abroad experience, including both formal curricular engagement, informal extra-curricular activities and personal adaptation, contribute to the development of these soft skills.
3. To explore the female students' perceptions regarding the value and relevance of their newly acquired soft skills for their future careers

Methodology:

This research will employ a qualitative approach. We will conduct a series of structured interviews with open-ended questions with 7 Myanmar women currently studying abroad and planning to pursue their future career in foreign countries. We will also analyze the curricula and extracurricular programs of universities that are known for their social impact initiatives to identify best practices. Data will be collected through online interviews and questionnaires. This methodology is justified as it allows for an in-depth understanding of the participants'

lived experiences, perceptions, and the specific challenges and opportunities they face, which a quantitative approach would miss.

Findings:

By means of growing number of Myanmar women who are studying abroad, it becomes necessary to look at the benefits such as developing their soft skills, personal and professional empowerment and Myanmar women's challenges facing during and after graduation. In this session, the findings are discussed from the study.

General Background Information

The studied participants consisted of seven Myanmar female students who are recently studying abroad. Four female students are pursuing their academic pathways in Thailand and other three of them are currently learning their degree in Germany. Most of them were in the adult age group, 18 to 30 years old. And, among this participant group, the majority of their major specialization is Business and only one student is focusing on the major of Physics. According to the findings, the primary motivations for these students to pursue international education are three folds which are personal development, job opportunities, career goals, and scholarship. Therefore, it is revealed that these motivations indicate a clear connection between global learning and both professional and personal growth.

Data on all participants' career plan after graduation shows a varied approach to their aspirations. A majority, 42.9% intend to see prompt job opportunities or instant hiring. This indicates a strong focus on applying their soft skills and knowledge directly to the workforce. The remaining participants have a different focus with an equal ratio between two other pathways. 28.6% of participants would like to pursue further education suggesting a desire for deeper specialization or a higher degree, and exploring opportunities through internships

and fellowships. Obviously, the result highlights most participants wanted to gain practical experience and networking before committing to a permanent role.

Curricular Engagement

This research explored the challenges and benefits of collaborating with students from diverse cultural backgrounds within an academic setting. The data, gathered from seven female participants highlights key themes related to communication, cultural differences and personal growth.

Participants described their experiences in collaborative settings, such as design thinking project where they worked with other international students. So, it means this context was instrumental in revealing both challenges and opportunities at the same time.

On this communication theme, it is highlighted a 21 years old participant as follow:

"During my studies abroad, I took part in a group project for an Intercultural management course, where I collaborated with students from Germany and other students. For example, some of my teammates preferred very direct and immediate feedback, while others, including myself, were more reserved and indirect in our approach. To address this, I decided to listen actively, ask clarifying questions and confirm shared agreements at the end of the meeting. This experience strengthened my communication skills, particularly intercultural awareness, and adaptability. I learned how to adjust my communication style to different cultural preferences."

Another recurring challenge was the language barrier, which complicated group discussions and understanding. One participant noted the difficulty in switching between different academic subjects, particularly in Mathematics. Furthermore, the result described the fear of

misrepresenting a new culture during a presentation, highlighting the pressure of being a group representative.

Despite the challenges, participants reported significant development in their communication skills. The direct engagement with people from different nationalities fostered a greater sense of confidence. One participant made a note, “We are smarter than we think. We just need to be more confident.”

To navigate the language barrier and cultural differences, participants actively employed strategies such as active listening and seeking clarification. This included asking questions and confirming shared agreements at the end of meetings. The experience also encouraged external research to deepen their understanding of new cultures and habits, which helped alleviate the fear of misunderstanding.

Academic Coursework and Critical Thinking

Based on the responses, academic coursework has significantly enhanced participants' critical thinking and adaptability. The key finding is the shift from rote memorization to a deeper analysis of information. For instance, a student with a background in literature and art noted that transitioning to STEM courses improved their logical thinking and ability to understand scientific concepts and structures. Another participant's experience with a term paper on managerial roles exemplifies this shift. Initially, they had a simplified view of a manager's responsibilities but, through research, discovered the multifaceted nature of the role.

This forced them to question assumptions and reorganize their arguments, thereby demonstrating improved critical thinking and adaptability. Another finding is that participants developed the ability to apply what they read without external assistance, as noted by a thesis

writer. The need to adapt to different expectations, formats, and audiences, particularly during presentations and group discussions abroad, further honed their adaptability.

Ethical and Leadership Skills Gained from Group Projects

The findings reveal that working on group projects and taking on leadership roles have been instrumental in developing both ethical and leadership skills. A prominent theme is the development of **fairness** and **accountability**. Participants learned to ensure that everyone's ideas were valued and tasks were divided equitably, which they consider a core component of leading with integrity.

Furthermore, participants highlighted the importance of **active listening** and **respecting diverse opinions**. One individual noted that they learned to be more inclusive of all group members. Another learned to listen more and understand the reasoning behind differing opinions, especially when leading people of different ages and backgrounds.

Leadership skills gained include the ability to take initiative, organize meetings, and delegate tasks based on individual strengths. This is seen as a way to promote transparency and ensure the group's overall success. Ultimately, the data suggests that ethical leadership is not just about words but also about actions, embodying respect, responsibility, and collaboration to ensure all group members feel valued and included.

Extracurricular activities

The research also gathered data on student involvement in extracurricular activities such as student clubs, volunteer work, or social impact initiatives. **71.4%** of the participants indicated they have taken part in student clubs, volunteer work, or social initiatives. In contrast, **28.6%** of the participants have not been involved. This finding suggests a high level of engagement in extracurricular activities among the students surveyed.

Only four participants involved in these activities strengthened their **interpersonal** skills and provided a practical foundation for **teamwork**. One individual, who joined the Myanmar Girl Guides, specifically mentioned that planning and supporting events taught them how to "keep things on track," highlighting the development of organizational and management skills. The overall sentiment was that these experiences helped them learn how to collaborate effectively and support a group in working toward a shared objective.

The activities also served as a practical setting for enhancing **cross-cultural communication**. Participants learned to appreciate diversity and adapted to different perspectives. One person stated that these experiences taught them how to ensure "inclusive interactions." The participant from the Myanmar Girl Guides club noted that having a diverse group taught them to **listen and adapt** their communication style to make sure "everyone felt included." This finding emphasizes that extracurricular involvement provides a valuable platform for developing cultural awareness and adaptability beyond the classroom.

Personal Adaptation

The biggest challenges for students when they first moved abroad were primarily related to **culture shock** and **loneliness**. This includes feeling homesick, adjusting to a new environment and culture, dealing with language barriers, and finding a sense of belonging. The result highlights that these challenges were not just logistical but deeply personal.

Based on the responses, a key finding is the power of a positive mindset. Several participants noted that they consciously worked on their mental state. They overcame homesickness by focusing on the present moment, appreciating their new surroundings, and reminding themselves that their feelings were temporary. One person expressed this by saying, "Time shall pass" and that it was better to focus on "greater moments" instead of stressing over

things they couldn't control. Another participant, who felt isolated, reframed their situation by accepting that being alone was a normal part of life.

- **Adaptability and Initiative**: Participants discovered their own adaptability by actively engaging with their new environment. This included observing and learning from others, actively participating in class, and asking questions. For example, one person overcame the challenge of a new academic environment by adjusting to different teaching styles, which taught them they were "capable of adjusting quickly to unfamiliar situations."
- **Patience and Hard Work**: The responses also highlighted the importance of patience and perseverance. One participant who worried about finding a part-time job simply "tried hard" and remained patient, which ultimately led to a positive outcome.

Moreover, these experiences helped students learn that they are more resilient and **adaptable** than they thought. They gained a deeper understanding of themselves and their ability to navigate difficult situations independently, which significantly boosted their confidence.

Overcoming Homesickness and Building a Support Network

Participants' responses to homesickness and isolation show a blend of proactive and reactive strategies. A primary finding is the emphasis on **maintaining existing connections** through regular calls with family and friends. This provided a crucial emotional anchor. Concurrently, participants recognized the necessity of **proactive engagement** to build new social networks. This included participating in class activities, joining group events, and making a conscious effort to socialize. As one participant noted, realizing that they were unintentionally isolating themselves was the first step to actively seeking out new friendships and activities. This balance between staying connected with home and building a new life

abroad was a key strategy for mitigating feelings of loneliness. The data also suggests that staying busy and finding "a partner" or a close confidant was a helpful tactic.

Shifting Perspectives and Personal Values

Navigating a new culture significantly altered participants' perspectives and personal values. A central finding is the development of increased **open-mindedness and adaptability**. Participants reported learning to appreciate diverse perspectives and traditions, which led to a deeper sense of empathy and a reduction in judgmental attitudes.

Several responses highlighted a shift from a more self-focused perspective to one of greater **respect and inclusivity**. One participant noted that living in a new culture reinforced the importance of understanding others' experiences before forming judgments. Another expressed a newfound gratitude for the opportunity to learn from new cultures rather than remaining "stuck in my own bubble." This suggests a profound personal transformation from being passive observers to active, appreciative learners. The experience also instilled a deeper understanding that people approach problems and communication in diverse ways, which ultimately strengthened the values of flexibility and tolerance.

Future Career and Social Impact

Being an independent female students who are studying abroad in another country gained a set of soft skills and strengths. Four out of seven participants indicated that they developed skills in flexibility and adaptability. This suggests that the experience of living and studying in a new environment, navigating different cultures, and adjusting to new academic systems was a significant factor in their personal development. Additionally, only three participants reported gaining **leadership skills**, suggesting that a smaller but still notable number of students took on roles or responsibilities that helped them develop in this area.

The Impact of Study Abroad on Preparedness to Challenge Patriarchal and Social Barriers

An analysis of qualitative reflections reveals that the study abroad experience serves as a significant catalyst for developing the competencies necessary to identify and overcome patriarchal norms and other social barriers in a professional context.

Participants consistently reported the acquisition of several transferable skills and traits directly applicable to navigating social barriers:

- **Increased Confidence and Self-Efficacy**: Immersion in a foreign environment fostered a strong sense of independence and self-belief. This confidence is directly linked to a greater willingness to **"express voice and feelings in diverse settings"** and assert one's contributions.
- **Resilience and Perseverance**: The inherent challenges of adapting to a new culture developed a heightened capacity for resilience. This trait is identified as crucial for persisting against structural obstacles, encapsulated in the phrase **"always trying hard will find its way."**
- **Empathetic Engagement**: The experience cultivated a deeper sense of empathy, allowing for a more nuanced and respectful approach to challenging norms, rather than confrontational opposition.

All female participants in the study already confronted challenges patriarchal norms and they fully understood how gender and cultural perspectives were valued equally, which encouraged them to involve more actively and trust their own contributions. One of the participants mentioned as follow:

"My study abroad experience exposed me to different social norms and ways of thinking, which helped me develop confidence, independence, and resilience. It taught me to question assumptions, speak up respectfully, and navigate challenges- skills that will help me overcome patriarchal norms or other social barriers in my future career."

Discussion:

The findings from this study on seven Myanmar female students studying abroad in Germany and Thailand reveal a profound and multifaceted transformation, highlighting the development of essential soft skills, personal and professional empowerment, and the acquisition of strategies to navigate challenges. The participants' experiences underscore the significant benefits of international education, particularly in an era of increasing globalization.

The research findings on the development of communication skills through collaboration with a diverse group of international students are consistent with established theories of intercultural competence. Gudykunst (2005) and other communication scholars argue that direct engagement with people from different cultural backgrounds is a primary mechanism for developing intercultural awareness and adaptability. The participant's narrative of adjusting her communication style from indirect to more direct feedback is a textbook example of this process. The ability to actively listen and seek clarification, as reported by the participants, is a core component of "mindful communication," a concept central to navigating diverse interpersonal contexts (Ting-Toomey, 2010).

The shift from rote memorization to critical thinking is another key finding supported by academic literature. Educational research consistently shows that learning environments focused on critical analysis and problem-solving, rather than mere information recall, lead to

higher-order cognitive skills (Halpern, 2014). The participants' experience of questioning assumptions and reorganizing arguments reflects a move toward a more analytical mindset, a cognitive shift that is highly valued in both academic and professional settings. This finding challenges the notion that students from memorization-based educational systems are unable to adapt, suggesting that the right academic environment can significantly foster critical thinking.

Furthermore, the development of ethical and leadership skills gained through group projects aligns with theories on collaborative learning. Research by Johnson, Johnson, and Smith (2014) on cooperative learning emphasizes that group projects are not only about achieving a common goal but also about teaching students' fairness, accountability, and the ability to listen to diverse opinions. The participants' focus on ensuring equitable task division and respecting all ideas demonstrates a practical application of ethical leadership, a concept that extends beyond simply managing a team to embodying respect and integrity.

The study's findings on the motivations for studying abroad—personal development and career goals—are well-supported by research on student mobility. A study by the Institute of International Education (2019) found that professional and personal growth are among the top motivators for international students globally. The high percentage of participants (42.9%) seeking immediate employment after graduation confirms that they perceive their international education as a direct pathway to career advancement, a finding that mirrors the global trend of students using study abroad to enhance their marketability.

The participants' reflections on overcoming homesickness and loneliness reveal a high degree of **personal resilience**, a trait that is increasingly recognized as a crucial outcome of international education. Research by Eko Mulyadi, et al. (2024) highlight that international students are deeply impacted by culture shock, a complex experience they face when

adjusting to different academic and social settings. The participants' strategies, such as reframing loneliness and proactively building new social networks, illustrate a resilient mindset. As they discovered, the ability to adapt to new social and cultural environments is a significant boost to self-confidence and a powerful form of personal empowerment.

Most notably, the finding that the study abroad experience prepared these women to **challenge patriarchal and social barriers** is a significant contribution to the literature on gender and international education. The acquisition of increased confidence, resilience, and empathetic engagement directly addresses the competencies needed to navigate and overcome gender-based obstacles in the workplace and society. This aligns with Federici's work on social reproduction theory which argues education, particularly in women's empowerment, requires a struggle against the unpaid and devalued labor that has historically confined them (Silvia Federici, 2012). The participants' realization that their experience equipped them to "speak up respectfully" and "question assumptions" underscores the transformative nature of this experience, extending beyond professional skills to personal liberation and a heightened sense of agency. This suggests that for female students from patriarchal societies, the benefits of studying abroad are not merely academic or professional but are also deeply personal, leading to a profound shift in their self-perception and their role in society.

Contributions:

This research will make several significant contributions:

- Empirical Understanding: It will provide new empirical data on the unique challenges and opportunities faced by a specific, under-researched demographic: Myanmar women studying abroad.

- Theoretical Contribution: It will contribute to the theory of educational development by proposing a framework for integrating soft skills education with social entrepreneurship for students from conflict-affected regions.
- Practical Contribution: It will offer concrete, actionable recommendations for universities, NGOs, and student organizations on how to design curricula and support systems that effectively nurture the next generation of Myanmar's social entrepreneurs and sustainability leaders

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Cultivating Graduate Attributes for Social Entrepreneurship and Sustainability: The Case of El Malangazo at the University of Puerto Rico at Utuado

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Introduction:

Graduate attributes have long been debated in higher education. While some question whether universities should be responsible for developing competencies that enhance employability, the reality is that the university experience is the final structured educational stage before students enter the workforce and society. Today, graduates face unique challenges related to global sustainability and social equity, making it essential to develop attributes linked to social entrepreneurship and sustainability.

The debate between technical ("hard") skills and soft skills persists. However, soft skills are critical for effective problem-solving and driving social changes. They enable students to engage with communities, exercise ethical leadership, and contribute to building a sustainable future.

In this context, this study examines how a student-led agroecological venture, El Malangazo, under Génesis Agroempresarial Project at University of Puerto Rico at Utuado, foster graduate attributes related to sustainability and social entrepreneurship. The project focuses on producing and commercializing taro-based (malanga in Spanish) cookies, integrating culinary innovation, cultural preservation, and sustainable agriculture practices.

Literature review:

Recent scholarship emphasizes the importance of sustainability competencies and social entrepreneurship education in higher education. Building on Redman & Wiek (2021), Brundiers et al. (2020) propose a framework of eight competencies, including systems thinking, anticipatory competence, ethics, and interpersonal skills. Annelin and Boström (2022, 2024) highlight the need to validate these competencies in interdisciplinary higher education settings. García and Ramírez (2021) and Wee et al. (2024) stress experiential learning and data-driven assessment methods to track competency development.

Ramírez-Montoya et al. (2025) demonstrate that co-creation in higher education projects fosters creativity, leadership, and entrepreneurial skills. Azqueta et al. (2023) and García & Ramírez (2021) underline that this education develops ethical awareness and social responsibility, showing the centrality of soft skills for social impact.

The Theory of Planned Behavior (Ajzen, 1991; Islam & Al Mehdi, 2024) provides a lens for analyzing how students' intentions translate into sustainable entrepreneurial action, considering attitudes, subjective norms, and perceived behavioral control. The research gap addressed in this study is understanding how experiential, culturally embedded student projects cultivate graduate attributes that integrate sustainability competencies and social entrepreneurship skills.

Research Question:

How can universities teach soft skills that empower graduates to become social entrepreneurs and sustainability champions in culturally and ecologically significant contexts?

Methodology:

A qualitative case study approach was employed (Yin, 2018), focusing on El Malangazo.

Data collection:

- Semi-structured interviews with students and faculty advisors.
- Participant observation during production, sales, and marketing activities.
- Document review of project reports, social media, and student reflections.

Analysis:

Thematic analysis was applied, combining inductive and deductive coding. Themes emerged from student experiences and were cross referenced with the sustainability competency framework and the TPB. Methodological triangulation and participant validation ensured reliability and credibility.

Findings:

1. Creativity and Problem-Solving: Development of value-added taro cookies that address local needs.
2. Cultural Sustainability and Social Awareness: Students reconnected with Puerto Rico's agricultural heritage.
3. Teamwork and Collaborative Leadership: Interdisciplinary coordination in managing production and marketing.
4. Communication and Brand Development: Creation of a brand reflecting sustainability and cultural pride.

5. Purpose-Driven Engagement and Civic Responsibility: Motivation toward food sovereignty and rural revitalization.

Discussion:

Findings indicate that student-led agroecological projects can act as incubators for critical graduate attributes: soft skills, ethical leadership, systems thinking, and cultural awareness.

- Empirically: Demonstrates how rural student projects foster integrated sustainability and social entrepreneurship competencies.
- Theoretically: Extends TPB and sustainability competency frameworks by incorporating cultural sustainability as a key dimension.
- Practically: Provides a replicable model for universities seeking to integrate experiential learning, community engagement, and sustainability into their programs.

Contributions:

- Empirical: First in-depth case study of a Puerto Rican agroecological student venture developing relevant graduate attributes.
- Theoretical: Extends sustainability competency frameworks and TPB by incorporating cultural sustainability in social entrepreneurship education.
- Practical: Offers a replicable model for rural universities to foster soft skills, leadership, and sustainable engagement.

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Cultivating Impact: Empowering Graduates as Social Entrepreneurs and Sustainability Champions through Soft Skills Education

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Introduction:

The complexities of the 21st century demand a new generation of leaders capable of addressing pressing social and environmental issues with both ingenuity and resilience. This imperative has brought two critical roles to the forefront: social entrepreneurs and sustainability champions. Social entrepreneurs are individuals who apply business principles and innovative approaches to solve societal and environmental problems, prioritizing positive change over mere financial gain.[1] Their mission is to identify community needs and develop sustainable, scalable solutions that create lasting impact.[1] Complementing this, sustainability champions are leaders who integrate environmental, social, and economic considerations into their decision-making processes, advocating for policies and practices that safeguard the planet for future generations while ensuring equitable progress for all.[3]

Success in both social entrepreneurship and sustainability leadership is not solely dependent on technical knowledge or hard skills. Instead, it hinges significantly on a unique blend of "soft skills"—abilities that are challenging to quantify or certify but are indispensable for navigating intricate challenges and driving positive transformation.[1] These capabilities are increasingly recognized as essential in the modern workforce, with reports consistently highlighting their growing value and demand.[4] For instance, a World Economic Forum report explicitly notes that "human" skills such as creativity, critical thinking, persuasion, negotiation, emotional intelligence, leadership, and resilience are projected to "retain or increase their value" and experience an "outsized increase in demand relative to their current

prominence".[4] This indicates that these abilities are not merely desirable attributes but have become indispensable competencies for professional success and societal influence. The cultivation of these skills is, therefore, a strategic imperative for higher education institutions aiming to prepare graduates for a future defined by complex global challenges.

Literature review:

A closer examination of the skills required for social entrepreneurship and sustainability leadership reveals a profound interconnectedness. While distinct lists of soft skills are often presented for each domain (e.g., business acumen for social entrepreneurship [1] and environmental literacy for sustainability [3]), a comprehensive review demonstrates substantial overlap. Core abilities such as empathy, innovation, leadership, communication, collaboration, resilience, adaptability, and critical thinking appear as crucial requirements across multiple sources for both social entrepreneurs and sustainability champions.[1] This convergence suggests that these two roles are not mutually exclusive but rather complementary, often requiring a similar foundational set of human-centric and problem-solving capabilities. Consequently, universities possess a significant opportunity to design integrated programs that foster both mindsets simultaneously, leveraging shared pedagogical approaches to maximize impact. The emphasis on these qualities underscores that what are often termed "soft skills" are, in fact, fundamental requirements for future relevance. The difficulty in training these high-quality soft skills, as opposed to easily trainable hard skills, further reinforces their critical nature.[8] Their cultivation by universities is thus not a secondary objective but a primary mission to equip graduates for effective engagement with the world's most pressing issues.

A particularly important aspect that differentiates and simultaneously integrates these roles is

the ethical compass that guides their actions. While many soft skills are universally valuable, the explicit emphasis on "Ethical Leadership" [3] and "Strong moral values" [4] for sustainability leaders, coupled with the inherent social mission of social entrepreneurship [1], points to ethics as a core, non-negotiable component. This extends beyond mere compliance; it represents a fundamental moral grounding for decision-making. Unlike traditional business, where ethical considerations might be a separate or optional layer, for social entrepreneurs and sustainability champions, ethical principles—such as inclusivity, fairness, and accountability—are deeply embedded in the very definition of success and impact. This suggests that universities must integrate ethical frameworks and values-based reasoning throughout the curriculum, rather than treating them as isolated topics. The development of a strong moral compass becomes as crucial as any technical skill, shaping the very purpose and direction of their endeavors.

The following table consolidates these essential soft skills, illustrating their relevance across both social entrepreneurship and sustainability leadership.

Table 1: Consolidated Soft Skills for Social Entrepreneurship and Sustainability Leadership

Skill Category	Specific Soft Skill	Description	Relevance to Social Entrepreneurship	Relevance to Sustainability Leadership
Interpersonal	Empathy	Understanding and sharing the feelings of others to design resonant solutions and build trust.	Yes [1]	Yes [4]
	Communication	Clear, compelling, and persuasive articulation of ideas, active	Yes [1]	Yes [3]

		listening, and effective engagement with diverse stakeholders.		
	Collaboration / Networking	Building strong relationships, fostering partnerships, sharing resources, and working effectively in teams towards common goals.	Yes [1]	Yes [3]
	Emotional Intelligence	Understanding and managing one's own emotions, and recognizing/influencing the emotions of others to navigate team dynamics and inspire.	Yes [4]	Yes [4]
	Cross-cultural Competencies	Understanding and appreciating diverse cultural backgrounds and global contexts.	Yes [4]	Yes [4]
Cognitive	Innovation / Creativity	Generating novel ideas, thinking outside the box, and seeking new ways to address complex problems.	Yes [1]	Yes [3]
	Critical Thinking	Analyzing information objectively, identifying root causes, questioning assumptions, and making	Yes [5]	Yes [3]

		evidence-based decisions.		
	Problem-Solving	Identifying, approaching, and effectively resolving challenges, often requiring unconventional solutions.	Yes [5]	Yes [3]
	Systems Thinking	Understanding complex interconnections, anticipating ripple effects, and developing holistic strategies.	Yes [9]	Yes [3]
	Data Analysis & Strategic Planning	Interpreting data to track progress, identify trends, and refine strategies for impactful initiatives.	Yes [1]	Yes [3]
Personal/Adaptive	Leadership	Inspiring and motivating teams, building shared vision, making tough decisions, and guiding an organization.	Yes [1]	Yes [3]
	Resilience	Persevering in the face of setbacks, bouncing back from adversity, and maintaining focus on the mission.	Yes [1]	Yes [3]
	Adaptability / Flexibility	Embracing change, adjusting to new situations, and rethinking approaches as circumstances	Yes [5]	Yes [3]

		evolve.		
Ethical/Values-Based	Ethical Leadership / Strong Moral Values	Prioritizing inclusivity, fairness, and moral principles in decision-making; advocating for vulnerable populations.	Yes [1]	Yes [3]
Domain-Specific	Business Acumen	Understanding financial management, marketing, operations, and strategic planning for enterprise sustainability.	Yes [1]	No (indirect)
	Environmental Literacy	Deep understanding of natural world, ecosystems, climate change, biodiversity, and resource management.	No (indirect)	Yes [3]

Research Gap: While the importance of soft skills for social entrepreneurs and sustainability champions is well-established, there remains a gap in comprehensively outlining how universities can effectively integrate and cultivate these intangible yet critical competencies within their curricula and institutional practices.

Research Question: How can universities teach soft skills that empower graduates to become social entrepreneurs and sustainability champions?

Methodology:

This research employs a qualitative, descriptive approach, synthesizing findings from existing literature and case studies of leading university programs. The methodology involves a comprehensive review of academic articles, reports, and university program descriptions related to social entrepreneurship, sustainability education, soft skill development, pedagogical approaches, faculty development, assessment methods, and strategic partnerships. The aim is to identify best practices and exemplary models for cultivating the identified soft skills. Data was gathered through an extensive review of publicly available documents and research papers, focusing on how various institutions and experts address the challenge of teaching and assessing these human-centric competencies. The synthesis of this information provides a holistic understanding of effective strategies for empowering graduates in these critical fields.

Findings:

The research identified several key findings regarding innovative pedagogical approaches, curriculum design, faculty development, assessment strategies, and strategic partnerships that are crucial for cultivating soft skills in social entrepreneurs and sustainability champions.

Innovative Pedagogical Approaches

Experiential learning is consistently recognized as highly effective for developing soft skills, enabling students to apply theoretical knowledge to real-world challenges (Anon., n.d. [22]; Anon., 2013 [23]; Anon., n.d. [24]). This "learning by doing" approach makes concepts more tangible (Anon., 2013 [23]). Key components include:

- **Service Learning:** Students engage in community activities linked to course content, fostering empathy and understanding of societal needs (Tulane University, n.d. [25]; Anon., n.d. [26]). Examples include Washington University in St. Louis requiring practicum hours with social enterprises [10] and the University of Pennsylvania's Social Impact Strategy course guiding students through venture design and scaling (University of Pennsylvania, n.d. [25]). PennSEM further supports this with pro-bono consulting and an accelerator program (PennSEM, n.d. [27]).
- **Internships and Board Service:** Academic credit for internships with sustainability offices or purpose-driven entities allows practical application of management skills (Anon., 2013 [23]). Serving on non-profit boards, as seen at Duke and Yale, provides direct governance and strategic management experience.[11]
- **Simulations and Case Studies:** These are adapted to complex social and environmental dilemmas, allowing decision-making in controlled environments.[14] Oxford's MBA uses mini-cases and videos of social entrepreneurs (Oxford University Department for Continuing Education, n.d. [14]).

The method of instruction is as important as content; "Education for Sustainability (EfS) is really about pedagogy as much as content" (Western Sydney University, n.d. [28]). This necessitates interactive, participatory, and transformative learning.

Interdisciplinary and problem-based learning are crucial for addressing "wicked problems".[9] Examples include Tulane University's Social Innovation and Social Entrepreneurship (SISE) Minor, which focuses on social innovation, systems thinking, and design thinking (Tulane University, n.d. [25]). The University of Manchester's Interdisciplinary Sustainable Development unit uses a problem-based approach, with students acting as "sustainability

consultants" (University of Manchester, 2024 [29]). Methodologies like;

Systems Thinking (Claremont Lincoln University, 2025 [3]) and

Design Thinking (Tulane University, n.d. [25]; University of Pennsylvania, n.d. [25]) are foundational for holistic solution design. Global opportunities, such as Duke's global travel experiences [11] and Yale's courses with social enterprises in Kenya [12], develop cross-cultural competencies.

Design thinking integrates empathy, ideation, prototyping, and testing for social impact (Tulane University, n.d. [25]; University of Pennsylvania, n.d. [25]). This iterative process inherently involves potential for failure, which universities must reframe as a learning opportunity, fostering resilience and continuous improvement (Starkey, K., n.d. [30]; University of Pennsylvania, n.d. [25]; TeachingEntrepreneurship.org, n.d. [31]). Reflective practices, such as weekly discussions and journals, are indispensable for internalizing learning and connecting theory to practice (Oxford University Department for Continuing Education, n.d. [14]; University of Manchester, 2024 [29]; TeachingEntrepreneurship.org, n.d. [31]).

Curriculum Design and Exemplary University Programs

Universities can integrate sustainability and social entrepreneurship as an "overall orientation" across disciplines, infusing "Foundation Sustainability Concepts" into existing courses (Anon., n.d. [26]; Anon., n.d. [26]). Alternatively, dedicated programs, minors, or concentrations are common, often housed in business or public policy schools, or interdisciplinary centers.[9] The prevalence of interdisciplinary programs (e.g., Tulane's SISE Minor (Tulane University, n.d. [25]), Washington University in St. Louis's MSW/Business

program [10], Stanford's Certificate in Public Management and Social Innovation [19], and Manchester's Interdisciplinary Sustainable Development unit (University of Manchester, 2024 [29])) reflects a strategic imperative to dismantle disciplinary silos.

Leading institutions with successful models include:

- **University of Pennsylvania:** Offers the Social Impact Strategy course (University of Pennsylvania, n.d. [25]) and PennSEM, providing consulting and the Spire accelerator (PennSEM, n.d. [27]).
- **University of Oxford:** MBA electives in international social entrepreneurship and innovation [17], using individual/group activities, discussions, mini-cases, and videos (Oxford University Department for Continuing Education, n.d. [14]).
- **Duke University:** Fuqua School of Business offers an MBA concentration in Social Entrepreneurship through CASE [17], with experiential learning like Mentored Study Programs and New Ventures Courses (Duke's Fuqua School of Business, n.d. [11]; Duke's Fuqua School of Business, n.d. [11]). Students can serve on non-profit boards.[11]
- **Yale University:** Program on Social Enterprise, Innovation, and Impact (PSEII) covers nonprofits, social enterprises, and public sector social entrepreneurship.[12] It offers electives like "Behavioral Science for Social Good" and "Corporate Sustainability" (Yale School of Management, n.d. [20]), with experiential learning including consulting for local non-profits and international engagements.[12]
- **Stanford University:** Offers a Certificate in Public Management and Social Innovation.[19] Experiential courses like the Social Innovation Practicum involve researching problems and testing ideas (Starkey, K., n.d. [30]; Stanford Graduate School of Business, n.d. [19]). Opportunities include the Impact Design Immersion Fellowship and Impact Fund (Stanford Graduate School of Business, n.d. [19]).

- **Northwestern University:** Kellogg School of Management provides coursework focusing on social systems, impact management, and finance.[21] Social Impact & Sustainability Days challenge students to propose ventures for social challenges (Northwestern University, n.d. [21]; Northwestern University, n.d. [13]).
- **Washington University in St. Louis:** Brown School offers a cross-listed MSW/Business program with a required practicum in social enterprises.[10]

The university campus can serve as a "living laboratory" for sustainability initiatives (Anon., 2013 [23]; EnergyCap, n.d. [32]). Students can conduct greenhouse gas inventories or design composting systems (Anon., 2013 [23]).

Eco-Rep Programs engage students in peer-to-peer sustainability education, sometimes for academic credit (Anon., 2013 [23]).

Empowering Educators: Faculty Development for Soft Skills Pedagogy

Effective soft skill development critically depends on faculty capabilities. There is a need to bridge the gap between sustainable entrepreneurship education theory and practice (Anon., n.d. [22]; Anon., n.d. [33]). Professional development is crucial for enhancing teaching skills and productivity (Continents, n.d. [34]). The core message is "It's more about how you teach than what you teach" (Western Sydney University, n.d. [28]), requiring a transformation in pedagogical approach.

Best practices include:

- **Experiential Workshops for Faculty:** Programs like the "Experiential Classroom" offer hands-on training in best classroom practices and creative experiential approaches,

including cases, business plans, and integrating real-world entrepreneurs (McKenna Center, n.d. [16]).

- **Sustainability-Focused Academies and Learning Labs:** Initiatives like the Rob and Melani Walton Sustainability Teachers Academy at Arizona State University provide knowledge and resources to integrate sustainability science, fostering a community of changemakers through online courses and "Sustainability Learning Labs" (Arizona State University, n.d. [35]).
- **Mentorship and Peer Learning:** Faculty benefit from mentorship by experienced practitioners, entrepreneurs, and funders (Northwestern University, n.d. [21]). Collaborative learning environments among educators are highly effective for sharing good practices (Western Sydney University, n.d. [28]; Arizona State University, n.d. [35]).
- **Integrating Soft Skills into Teacher Education:** Embedding soft skills like communication, cooperation, and emotional intelligence directly into teacher education courses ensures natural integration into teaching methodologies (Sen, D., 2025 [22]; Anon., 2025 [6]; Teacher Academy, n.d. [36]).
- **AI-Powered Tools for Pedagogy:** Platforms like TeachingEntrepreneurship.org offer AI tools for customizable course outlines, lesson plans, and grading rubrics, grounded in pedagogical principles (TeachingEntrepreneurship.org, n.d. [31]).

Faculty must model the soft skills they teach, embodying communication, collaboration, and ethical leadership in their interactions (Teacher Academy, n.d. [36]). Their expertise, often from direct experience as entrepreneurs, positions them as credible role models (Northwestern University, n.d. [21]).

Assessing Soft Skills for Impact

Assessing soft skills is complex due to their intangible nature and the difficulty in quantifying them (Anon., n.d. [8]; Anon., 2025 [37]). Effective assessment requires "multiple layers of assessment" (Anon., n.d. [8]).

Methods and tools for effective assessment include:

- **Rubrics:** Highly effective for assessing social skills, providing a systematic way to evaluate students on specific tasks based on predefined performance levels (Anon., n.d. [38]; Anon., 2017 [39]; Anon., n.d. [40]; Anon., n.d. [41]; Anon., 2020 [42]; TeachingEntrepreneurship.org, n.d. [31]). Rubrics break down complex skills into measurable competencies, offer numeric values for tracking growth, and can be customized (Anon., n.d. [38]; Anon., 2017 [39]; Anon., n.d. [40]; TeachingEntrepreneurship.org, n.d. [31]).
- **Group Projects and Presentations:** Provide a natural context for skill development. Assessment can involve a general rubric for hard skills, complemented by self-and-peer evaluations for soft skills, and instructor ratings (Anon., n.d. [8]; Anon., 2017 [39]).
- **Self-and-Peer Assessment:** Tools like the Johari Window Questionnaire help students understand their strengths and weaknesses and how others perceive them (Anon., 2025 [43]). Peer evaluations foster critical evaluation and reflection (Anon., n.d. [8]).
- **Specialized Scales:** Standardized tools like the Career Adapt-Abilities Scale (CAAS) assess adaptive resources such as concern, control, curiosity, and confidence (Anon., 2025 [43]).
- **Backwards Design Approach:** Starting with "What do you want your students to be able to do by the end of the course?" ensures assessment aligns with desired learning outcomes (Anon., n.d. [8]).

Assessment should be a learning tool, showing growth and identifying areas of need (Anon., n.d. [38]). This shifts focus to a formative, developmental process, fostering a growth mindset. Standardized yet flexible frameworks, like AACU's VALUE Rubrics [8], enhance consistency while allowing customization (Anon., n.d. [8]; Anon., n.d. [40]).

Table 3: Recommended Assessment Methods for Soft Skills in Social Impact Programs

Assessment Method	Description/Application	Soft Skills Assessed	Benefits	Considerations/Challenges
Rubrics	Systematic evaluation of specific tasks based on performance levels, breaking down skills into competencies. Customizable for specific learning goals.	Communication, Collaboration, Leadership, Critical Thinking, Problem-Solving, Empathy, Adaptability, Ethical Decision-Making.	Provides clear criteria, objective scoring, tracks growth over time, clarifies expectations for students, promotes self-reflection.	Requires careful design and calibration; may still have subjective elements in interpretation.
Group Projects & Presentations	Students work collaboratively on real-world problems, culminating in a presentation. Assessment includes individual contributions, team dynamics, and presentation quality.	Collaboration, Communication (verbal/non-verbal), Leadership, Problem-Solving, Conflict Resolution, Adaptability, Time Management.	Simulates real-world work environments, fosters teamwork, allows observation of dynamic skill application, provides multi-source feedback (peers, instructor).	Free-rider problem; ensuring equitable participation and assessment of individual soft skills within a group context.
Self- and Peer-Assessment	Students evaluate their own performance and that of their peers using structured criteria (e.g.,	Self-Awareness, Empathy, Accountability, Teamwork, Feedback Giving/Receiving,	Encourages introspection and critical self-evaluation, promotes understanding of	Potential for bias or inflated/deflated ratings; requires clear guidelines and trust within

	Johari Window Questionnaire, peer evaluation forms).	Reflection.	diverse perspectives, fosters ownership of learning.	the group.
Specialized Scales (e.g., CAAS)	Standardized questionnaires or surveys that measure specific adaptive resources or traits related to soft skills.	Adaptability, Resilience, Confidence, Curiosity, Concern (for future), Control (over career).	Provides quantitative data, allows for longitudinal tracking, can be efficient for large cohorts.	May not capture nuanced behavioral manifestations; relies on self-reporting, which can be subjective.
Reflective Journals / Portfolios	Students document their learning experiences, challenges, and growth in soft skills over time, often with prompts for critical reflection.	Self-Awareness, Critical Thinking, Problem-Solving, Ethical Reasoning, Learning from Experience.	Deepens learning, encourages metacognition, provides qualitative evidence of development, demonstrates application of concepts.	Subjectivity in evaluation; requires significant time for students to complete and for instructors to assess thoroughly.

Strategic Partnerships: Amplifying Learning and Impact

Strategic collaborations with external entities significantly enhance university programs. These partnerships bridge academic and real-world spheres (Anon., n.d. [24]; Anon., 2025 [44]; Northeastern University, n.d. [45]; Social Change Innovators, n.d. [46]; Anon., n.d. [47]). Examples include:

- **Pro-bono consulting services:** PennSEM provides consulting to social enterprises (PennSEM, n.d. [27]).
- **Engagement with local non-profits:** Yale SOM facilitates student consulting projects for New Haven non-profits.[12]
- **Industry collaboration for climate solutions:** Northwestern Kellogg's Abrams Climate Academy connects students with companies to develop climate crisis solutions

(Northwestern University, n.d. [13]).

- **International partnerships:** Some universities partner with overseas institutions for entrepreneurship modules, exposing students to global perspectives (Anon., n.d. [47]).

Benefits include:

- **Application of Classroom Knowledge:** Bridges theory and practice, enabling students to apply knowledge to real-world challenges, deepening understanding and stimulating innovation (Anon., n.d. [24]; EnergyCap, n.d. [32]).
- **Enhanced Learning and Employability:** Students gain exposure to industry expertise through adjunct faculty, guest speakers, and mentors (Anon., n.d. [24]). Internships and co-op opportunities provide practical experience (Anon., 2013 [23]; Anon., n.d. [24]).
- **Mentorship and Role Modeling:** Mentors from partner organizations boost student confidence in entrepreneurial ideas (Anon., n.d. [24]; Anon., n.d. [47]).
- **Driving Innovation and Problem-Solving:** Access to authentic, complex problems and diverse perspectives fosters innovation (Anon., n.d. [24]).
- **Economic Growth and Social Impact:** University-industry ties stimulate local economies, inspire startups, and create job opportunities (Anon., n.d. [24]; Anon., 2025 [44]; EnergyCap, n.d. [32]). They also strengthen soft skills training by aligning educational outcomes with industry expectations (Sen, D., 2025 [22]).
- **Quality Assurance:** Partnerships with overseas universities can enhance education quality through external moderation and dual/triple award degrees (Anon., n.d. [47]).

External partnerships are the ultimate experiential learning platform, exposing students to unpredictable real-world challenges that refine adaptability, resilience, and negotiation skills (Duke's Fuqua School of Business, n.d. [11]; Anon., 2013 [23]; EnergyCap, n.d. [32]; Anon., n.d. [24]).

They foster a symbiotic relationship, positioning universities as active drivers of social and environmental change (Anon., 2025 [44]; EnergyCap, n.d. [32]; Social Change Innovators, n.d. [46]).

Discussion:

The findings of this research highlight a clear pathway for universities to cultivate the soft skills essential for graduates to become effective social entrepreneurs and sustainability champions. The emphasis on experiential, interdisciplinary, and problem-based learning, coupled with robust faculty development and multi-layered assessment, demonstrates a shift from traditional pedagogical models to more immersive and transformative educational experiences.

The convergence of required soft skills for both social entrepreneurship and sustainability leadership—such as empathy, innovation, and critical thinking—underscores the efficiency and impact of integrated curricula. By treating these as fundamental, rather than "soft," skills, universities can better prepare graduates for the complex, interconnected challenges of the 21st century. The integration of methodologies like design thinking and systems thinking provides students with structured approaches to tackle "wicked problems," fostering a mindset of iterative problem-solving and resilience in the face of failure.

Furthermore, leveraging the campus as a living laboratory and fostering strategic external partnerships are critical for bridging the gap between theory and practice. These real-world engagements not only deepen student learning and enhance employability but also position universities as active contributors to societal and environmental progress. The success of exemplary programs at institutions like the University of Pennsylvania, Duke, Yale, and

Stanford demonstrates that these integrated approaches are not merely theoretical ideals but achievable models for higher education.

The critical role of faculty development cannot be overstated. For students to develop these complex soft skills, educators must be equipped with the pedagogical expertise to facilitate such learning and, crucially, embody these skills themselves. This requires ongoing professional development that focuses on active learning strategies and fostering an adaptive, ethical classroom environment. Finally, the move towards comprehensive, rubric-based assessment provides the necessary tools to measure the growth of these intangible skills, ensuring accountability and guiding continuous improvement in student development.

Contributions:

This research offers several contributions to empirical understanding, theory, and practice:

Contribution to Empirical Understanding

The report consolidates and categorizes the essential soft skills for both social entrepreneurship and sustainability leadership, empirically demonstrating their significant overlap and highlighting the shared foundational competencies required for these roles. It provides concrete examples of how leading universities worldwide are currently implementing innovative pedagogical approaches, curriculum designs, and assessment methods to cultivate these skills, offering a practical overview of successful models.

Contribution to Theory

The research reinforces the theoretical shift from viewing "soft skills" as secondary attributes to recognizing them as fundamental, human-centric, and cognitive competencies indispensable for navigating complex global challenges. It implicitly contributes to the theory of transformative learning by emphasizing that the how of teaching (pedagogy) is as crucial

as the what (content) in fostering deep, values-based learning for social and environmental impact. The integrated approach to social entrepreneurship and sustainability education, driven by shared soft skill requirements, suggests a theoretical framework for synergistic program development.

Contribution to Practice

The report provides actionable recommendations for universities seeking to empower graduates as social entrepreneurs and sustainability champions. These practical contributions include:

- **Curriculum Design:** Advocating for explicit integration of a consolidated set of soft skills across disciplines, or through dedicated interdisciplinary programs, utilizing experiential, problem-based, and design thinking methodologies.
- **Pedagogical Innovation:** Encouraging the use of service learning, practicums, internships, and leveraging the campus as a living laboratory and eco-rep programs to provide authentic learning environments.
- **Faculty Empowerment:** Stressing the critical need for comprehensive professional development that equips educators with specialized pedagogical approaches and encourages them to model the soft skills they teach.
- **Assessment Strategies:** Recommending multi-layered assessment methods, particularly the widespread use of customizable rubrics, alongside self- and peer-assessment, to effectively measure intangible skill development and provide formative feedback.
- **Strategic Partnerships:** Highlighting the imperative of collaborations with NGOs, businesses, and government entities to provide real-world application, mentorship, and amplify societal impact.

By adopting these strategies, universities can effectively equip the next generation of leaders

with the competencies to drive meaningful social and environmental progress, aligning their educational mission with global sustainability goals.

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Designing futures, discovering purpose: An Appreciative Inquiry into Enactus as a catalyst for graduate capabilities and global citizenship

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Introduction:

In the face of 21st-century challenges, ranging from systemic inequality to persistently high youth unemployment, graduates are increasingly expected to transcend mere employability by contributing meaningfully to innovation (Christiansen & Even, 2024) , sustainability, and social transformation (Walker & Fongwa, 2017) . This evolving expectation places (re)newed responsibility on higher education institutions to cultivate work-ready graduates and global citizens equipped to design resilient and inclusive futures. South Africa, like any other country, has these challenges more pronounced; therefore, universities are positioned at the crossroads of developmental need and transformative potential (Bawa & Boulton, 2024) .

This paper examines the impact of participation in Enactus, a global platform for social entrepreneurial experiential learning that promotes student-led social enterprises and cultivates graduate attributes aligned with the overarching goal of human development. The paper centres on student experiences at the Central University of Technology (CUT) and is structured around the Appreciative Inquiry (AI) 5D cycle: Define, Discover, Dream, Design, and Destiny (Cooperrider & Whitney, 2005) . The study utilises the AI model as a

methodological and conceptual framework to analyse how students express and embody their transformation through involvement in social entrepreneurship. This paper elucidates how co-curricular learning environments, such as Enactus, can foster agency, innovation, and global citizenship in ways that conventional curricula may not adequately facilitate.

Literature review:

Higher education scholars have highlighted the rising relevance of sustainability education, graduate attributes, and global citizenship (Hunduma & Mekuria, 2016; Wang & Horta, 2024) . Meanwhile, frameworks such as the Capability Approach (Sen, 1993) and Human Development (Sen, 2000; Ul Haq, 1995) lens foregrounds individual agency, freedom, and societal contribution as essential educational outcomes. Appreciative inquiry offers a complementary framework by shifting attention from deficits to strengths, potential, and relational change (Cooperrider & Whitney, 2005) . The AI, the 5-D model focusing on Define, Dream, Discover, Design, Destiny, has gained traction in learning environments for catalysing inclusive, asset-based development processes.

The study's central inquiry question is: *How do Enactus students at CUT experience personal and professional development aligned with sustainability and global citizenship when viewed through the Appreciative Inquiry 5-D framework?*

Methodology:

This research employed a qualitative, student-centred design using semi-structured interviews with 22 current and former Enactus CUT students. Participants held roles ranging from general member to project manager, chief finance officer, presenter, and team president. These participants came from diverse disciplines, socio-economic backgrounds, and different

levels of study. This helps us understand their different experiences running social enterprises and how they contributed to shaping their futures and becoming global citizens.

Data was analysed thematically and mapped onto the 5-D AI model dimensions:

a) ***Define:*** What do students understand as success or meaningful development participating in Enactus?
b) ***Discover:*** What are the strengths and takeaways of their Enactus experiences?
c) ***Dream:*** What did they envision as possible for themselves, their communities, or the world?
d) ***Design:*** How did they co-create sustainable, impactful solutions?
e) ***Destiny/Deliver:*** What sustainable outcomes, capabilities, or identities emerged from these experiences?

This model allowed us to capture student transformation grounded in their voices and experiences.

Findings:

The study findings were presented using the AI dimensional pillars as the main themes.

Define: Naming what matters

Students defined success not merely as awards or recognitions, but as real impact on people's lives and growth within themselves. One participant reflected:

> *It's not about winning competitions. For me, the highlight was meeting a beneficiary three years later who said his farm had expanded to three businesses because of what we started (Male alumni 11).*

The above alumni attached value to their experiences in personal development, sustained community benefit, and ethical leadership.

Discover: Recognising strengths and breakthroughs

Through their roles, students discovered hidden abilities: public speaking, team leadership, negotiation, and innovation. A former chief finance officer shared:

> *Being in charge of finances pushed me to learn accountability, planning, and even fundraising skills I never imagined I would master (Female student, 5).*

They also discovered the value of learning and doing, collaboration, perseverance, and stakeholder engagement, even under complex institutional or funding constraints.

Dream: Imagining possibility and purpose

Students consistently articulated aspirational visions for their projects and their communities. Some dreamed of solar energy reaching rural villages; others envisioned sustainable agriculture replacing dependency and hunger.

> *We called our project 'Village far', to end hunger. We wanted young people to feed themselves and feel proud (Male Alumni, 19).*

Participants began to dream beyond Enactus, which created a platform to create sustainable change, addressing grand challenges such as hunger. At the same time, some students imagined careers as entrepreneurs, community leaders, or innovators addressing systemic injustice.

Design: Co-creating practical, purpose-driven solutions

The most tangible expressions of transformation occurred in the design and implementation of social enterprises. Highlighted enterprises included:

a. **Grey-to-Green:** a greywater purification solution for drought-affected communities.
b. **Battery Management Systems with artificial intelligence:** created to extend solar battery life and reduce e-waste.

c. **Worm Farming (Vermi Village Enterprise):** This initiative was initiated to improve soil nutrient quality and empower unemployed women farmers through worm farming.

These were not hypothetical exercises; students prototyped, failed, re-designed, and scaled their innovations, often in collaboration with various stakeholders, such as the private sector providing financial support, local municipalities providing technical resources and the university providing a space for igniting these ideas.

Destiny/Deliver: Sustaining impact and identity

The final phase of AI, Destiny, was reflected in the sustainable shifts in students' aspirations, identities, and contributions. Some launched businesses post-graduation; others took up local development work or mentorship roles.

> *Enactus didn't just give me experience. It gave me direction. Now I know I want to create value, not just find a job (Male Alumnus, 9).*

Participants reported applying their Enactus learning in job interviews, graduate studies, and ongoing community engagements, proving that the experience was not transactional but transformational.

Discussion:

Using the AI 5-D model, this study reveals how Enactus can be viewed as a strengths-based action learning platform where students define meaning, discover potential, dream boldly, design creatively, and deliver sustainable change (Lucas & Spencer, 2017) . Notably, the AI lens helped surface the internal dimensions of transformation, such as confidence, identity, and ethical awareness, alongside technical and entrepreneurial growth.

This shift from deficit to asset framing is important in South African higher education, where many students come from under-resourced communities. Enactus allowed these students to lead with their knowledge and become global citizens by solving local problems. They gained entrepreneurial agency and emotional investment in building sustainable futures through dreaming and taking action.

Contributions:

a. Empirical: This study offers in-depth narratives from Enactus students that document how social entrepreneurship fosters key graduate attributes, such as purpose-driven students and global citizenship in South Africa.
b. Theoretical: It innovatively applies the five-phase Appreciative Inquiry model to interpret student transformation in a co-curricular university setting.
c. Practical: It provides evidence for higher education institutions and funders to invest in student-led innovation and community-engaged learning as an urgent developmental strategy, not just extracurricular enrichment.

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Designing Scalable, Compostable Food Packaging: A Study of Biopolymers

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Abstract

Plastic pollution from single-use packaging continues to escalate, with the food industry being one of the largest contributors. While bioplastics have emerged as alternatives, their adoption has been limited by cost, scalability, and performance challenges. This study evaluates existing biodegradable packaging solutions and investigates potential composites and combinations of such solutions. The findings support a multi-material approach as a viable pathway toward developing cost- effective, compostable food packaging capable of replacing conventional plastics.

Introduction:

Global demand for “use-once, throw-away” plastic items bags, wrappers, bottles, cutlery has driven overall plastics output to 460 million tonnes in 2019, twice the level in 2000. Packaging and other single-use goods account for the fastest growth and, because they are discarded within months, they dominate the 353 million tonnes of plastic waste generated each year. Yet only 9% is recycled, 19% incinerated, and fully 22% escapes any waste system, leaking to land, rivers, and seas [OECD, 2022].

Although there has been significant innovation in bioplastics and other sustainable packaging alternatives, their large-scale adoption, particularly in the food industry, re- mains limited. Existing solutions often fail to achieve the delicate balance between cost- effectiveness,

compostability, durability, and barrier properties required to match the performance of conventional plastics.

There is an urgent need for biodegradable and compostable food packaging mate- rials that combine low cost, strong mechanical and barrier properties, and widespread end-of-life compatibility. Bridging this gap can unlock widespread adoption in the food industry, which in turn has the potential to significantly reduce single-use plastic pollution worldwide.

Literature review:

1. **Polylactic Acid (PLA)**

PLA is a biodegradable polyester derived from renewable resources such as corn starch or sugarcane via ring-opening polymerization of lactide [Lim et al., 2008].

Advantages:

- Derived from renewable agricultural feedstocks.
- Approved for direct food contact; non-toxic and food-safe.
- Good aesthetic and printability, suitable for branded packaging.

Limitations:

- Thermal instability; softens and deforms above 60°C [Lim et al., 2008].
- Brittle when thin; requires modification for flexibility [Tsuji and Ishizaka, 2005].
- Requires industrial composting; does not readily degrade in landfills.

2. **Starch-Based Bioplastics**

Produced from natural polysaccharides (amylose and amylopectin) in crops like corn, potato, and tapioca, starch-based plastics are blended with plasticizers (e.g., glycerol) and molded into disposable plates, bowls, and clamshells [Liu and Zhang, 2009].

Advantages:

- Fully biodegradable and compostable in natural environments.[Tharanathan, 2003]
- Derived from abundant and low-cost feedstocks. [Liu and Zhang, 2009]
- Breaks down into non-toxic byproducts with no microplastic residue.[Liu and Zhang, 2009]

Limitations:

- Highly hydrophilic, resulting in poor moisture resistance [Tharanathan, 2003].
- Softens above 50°C, limiting hot food applications [Liu and Zhang, 2009].
- Poor mechanical strength without reinforcement [Lourdin et al., 1995].

3. Seaweed-Based Bioplastics

Seaweed-derived bioplastics leverage marine algae polysaccharides such as alginate, carrageenan, and agar. They are highly sustainable as seaweed does not require arable land, freshwater, or fertilizers [Reddy et al., 2017].

Advantages:

- Fully biodegradable with no microplastic residue. [Reddy et al., 2017].
- Rapid growth without competing for terrestrial resources.[Halim et al., 2022]
- Can be edible, increasing versatility. [Reddy et al., 2017].

Limitations:

- Higher production costs than traditional plastics. [Halim et al., 2022]
- Limited scalability due to reliance on cultivation. [Reddy et al., 2017].
- Processing technologies require further optimization. [Halim et al., 2022]

4. Cellulose-Based Bioplastics

Advantages:

- Renewable, biodegradable, and compostable. [Moon et al., 2011]
- Excellent oxygen and grease barrier properties. [Klemm et al., 2005]
- Versatile applications from films to trays.[Moon et al., 2011]

Limitations:

- Water sensitivity reduces performance in humid conditions. [Klemm et al., 2005]
- Lower tensile strength unless reinforced. [Moon et al., 2011]
- Processing nanocellulose is energy-intensive and costly. [Klemm et al., 2005]

5. **Polyhydroxyalkanoates (PHA)**

PHAs are polyesters synthesized by microorganisms from renewable carbon sources. They are fully biodegradable in diverse environments [Chen and Patel, 2012].

Advantages:

- Excellent biodegradability without microplastic formation. [Chen and Patel, 2012].
- Mechanical properties comparable to PP and PE. [Chen and Patel, 2012].
- Compatible with existing processing infrastructure.[Philp et al., 2013]

Limitations:

- High production costs. [Philp et al., 2013]
- Some types are brittle and less thermally stable. [Philp et al., 2013]
- Limited global production capacity. [Philp et al., 2013]

6. **Mycelium-Based Packaging**

Mycelium packaging uses fungal root structures with agricultural by-products to form biodegradable alternatives to EPS [Jones et al., 2020].

Advantages:

- Fully biodegradable in home composting.
- Lightweight with strong compressive [Islam et al., 2023])properties. [Jones et al., 2020]
- Low-energy production using agricultural waste. [Islam et al., 2023]

Limitations:

- Limited barrier properties for moisture and oils. [Jones et al., 2020]
- Short functional lifespan due to biodegradability. [Islam et al., 2023]
- Higher production costs and limited scalability. [Jones et al., 2020]

Methodology:

Combining Biopolymer Layers on Sugarcane Bagasse Trays

During the early prototyping phase of the SusPak, extensive material scoping was conducted to evaluate the suitability of various biodegradable alternatives for food delivery packaging. Among the materials assessed, ranging from mycelium and seaweed to paper; Polylactic Acid (PLA) emerged as a viable candidate due to its favorable mechanical and processing characteristics.

PLA is industrially compostable, food-safe, and thermoformable using conventional plastic processing equipment, making it commercially scalable. These properties made PLA particularly attractive compared to other alternatives that, while biodegradable, suffered from limitations such as low thermal stability, poor mechanical integrity, or prohibitive costs at scale.

To build a stronger understanding of the available options, the team conducted mar- ket surveys, ordered and tested a range of commercially available products, and engaged in

discussions with multiple manufacturers to evaluate supply chain readiness and manu- facturing capabilities. To assess PLA's practical viability in greater depth, the team also initiated a collaboration with a bioplastics manufacturer with over a decade of experi- ence in producing PLA-based containers. A site visit to their manufacturing facility in Dahanu, Maharashtra provided critical technical exposure. The team observed the full production pipeline—from the drying of PLA pellets to thermoforming processes, includ- ing mold calibration, temperature optimization, and post-processing techniques. This hands-on engagement confirmed that PLA could be processed reliably under industrial conditions to produce dimensionally stable, aesthetically finished, and structurally robust containers suitable for hot and greasy food items.

Despite PLA's dependence on industrial composting infrastructure (i.e., conditions exceeding 58◦C and high humidity), its supply chain maturity, process compatibility, and regulatory approvals for food contact made it a rational intermediary material for early-stage prototyping.

Following the visit, the team initiated more testing and development of a formulation combining PLA coating with sugarcane bagasse trays. This product aimed to integrate the water resistance of PLA with the low-cost biodegradability, mechanical strength, and waste valorization potential of bagasse. Preliminary results indicated successful moldabil- ity and improved barrier properties, although edge finishing and dimensional consistency required further refinement.

Moreover, PLA's compatibility with end-of-life options such as gasification was noted as a potential advantage in settings where composting infrastructure is lacking, thereby offering a path toward energy recovery rather than landfill accumulation. More testing and development

is currently being carried out to make the PLA–bagasse trays suit- able for large-scale manufacturing and to optimize its barrier properties for diverse food applications.

Findings:

Based on the literature review, the key findings regarding each biodegradable packaging material are as follows:

1. **Polylactic Acid (PLA)**: Commercially mature and scalable; however, its brit- tleness, dependency on industrial composting, and suboptimal barrier properties restrict its ability to fully replace conventional plastics in food packaging.
2. **Starch-based plastics**: Suitable for low-moisture food applications but lack the durability and barrier properties necessary for mainstream food packaging.
3. **Seaweed-based packaging**: Shows strong environmental promise but faces cost and scalability barriers.
4. **Cellulose-based bioplastics**: Highly versatile and sustainable; however, water sensitivity and production costs limit their competitiveness.
5. **Polyhydroxyalkanoates (PHAs)**: A promising long-term alternative but remain economically and logistically challenging for widespread food industry adoption.
6. **Mycelium-based packaging**: Ideal for protective secondary packaging but lacks the performance attributes needed for mainstream food packaging applications.

The industry visit and our ongoing-work on PLA-bagasse trays led to several key findings:

1. PLA alone is insufficient for extended shelf-life food packaging.
2. Sugarcane bagasse improves compostability and reduces cost.
3. PLA-bagasse composites withstand hot and greasy foods better than pure PLA.

4. Industrial scalability is possible with minimal adjustments in current infrastructure.
5. Material is compatible with industrial composting and energy recovery.

Discussion:

The findings highlight the potential of composite materials, particularly the combination of PLA and bagasse, to address gaps in biodegradable packaging. While the composites improve strength, cost-effectiveness, and scalability, challenges remain in barrier properties and reliance on industrial composting.

Ongoing research at SusPak explores integrating seaweed-based coatings to further improve moisture and oxygen barriers while maintaining compostability. Beyond the technical and environmental advantages, scalable compostable food packaging has significant social benefits. By reducing dependence on petroleum-based plastics, communities can mitigate health risks associated with microplastic contamination in food chains and water systems. Adoption of biopolymer-based packaging also supports local economies by creating demand for agricultural residues (such as sugarcane bagasse) and renewable feedstocks (such as seaweed and starch), thereby generating new livelihood opportunities for farmers and small-scale producers.

This project directly advances several United Nations Sustainable Development Goals (SDGs), including:

- **SDG 3 (Good Health and Well-Being)**: Reducing exposure to harmful plastic residues.
- **SDG 8 (Decent Work and Economic Growth)**: Supporting green jobs in bioplastics production and agricultural waste valorization.

- **SDG 11 (Sustainable Cities and Communities)**: Promoting circular waste management practices.
- **SDG 12 (Responsible Consumption and Production)**: Encouraging sustainable alternatives to single-use plastics.
- **SDG 13 (Climate Action)**: Lowering greenhouse gas emissions through reduced plastic production and improved waste management.
- **SDG 14 (Life Below Water) and SDG 15 (Life on Land)**: Preventing plastic leakage into terrestrial and marine ecosystems

Contributions:

This research contributes empirical evidence on the potential of PLA-bagasse trays as scalable, cost-effective alternatives to plastics. It demonstrates how a composite ap- proach can overcome limitations like brittleness and poor barrier properties while being compatible with existing infrastructure.

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Development of Social Business in The Rocinha Favela of Rio de Janeiro: The Entrelaços Project.

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Introduction:

During the pandemic, indices such as the National Household Sample Survey (PNAD) and data from community newspapers like Fala Roça indicated that unemployment in peripheral regions grew faster than the national average of 14% in 2020, reaching 58% in some communities. This crisis was aggravated by political disputes and delays in emergency aid, while 10 million businesses closed or migrated online. Despite this scenario, solidarity initiatives emerged to mitigate social impacts.

One such initiative was the Enactus team at the State University of Rio de Janeiro (UERJ), Maracanã campus, which identified the need to support grassroots projects. At the same time, the Rio de Janeiro State Research Support Foundation (FAPERJ) launched the Smart Favelas call, aiming to stimulate innovation in Rocinha. This created an opportunity to partner with Nós do Crochê, a project growing organically but limited by structural challenges. The Entrelaços project was born from this partnership to strengthen Nós do Crochê's activities and expand its social impact.

Founded in 2019 by the Associação das Mulheres Amigas da Rocinha – AMAR, Nós do Crochê evolved from philanthropic aid to offering crochet training and psychological support, recognizing that welfare alone did not promote autonomy. Crochet was chosen for its accessibility, low cost, cultural value, and potential for quick skill acquisition. With FAPERJ's support, the partnership aimed to professionalize the initiative, combining craft training with knowledge in marketing, finance, and entrepreneurship, while UERJ students provided technical support and management strategies.

Thus, Entrelaços positioned itself as a social technology to help early-stage impact businesses in Rocinha strengthen operations, increase revenue, and empower women socially and economically.

Literature review:

The Entrelaços project is supported by the concepts of social technology, social entrepreneurship, and business models. According to the Ministry of Science, Technology, and Innovations (2023), social technology is based on participatory methodologies jointly developed with communities, enabling solutions tailored to specific realities. Unlike top-down consultancy, it requires collaboration and co-creation. At Entrelaços, this approach united artisanal production, collaborative management, and transformative training opportunities.

Entrepreneurship has long been associated with innovation and risk. The Global Entrepreneurship Monitor (GEM) defines entrepreneurs as those who create ventures, even informally, and highlights resilience as a core trait. From the 1980s, social entrepreneurship gained prominence, particularly with Ashoka's initiatives, standing apart from traditional business by prioritizing solutions to social problems.

In Brazil, social entrepreneurship is especially relevant for marginalized groups with limited access to education or stable jobs, offering pathways for mobility and empowerment (Vale, 2014). Social businesses thus demonstrate how enterprises can positively transform territories by reducing inequality and fostering sustainability.

The Entrelaços model used the Business Model Canvas to identify value propositions, market opportunities, and strategies for sustainability. By empowering women in Rocinha through training, mentoring, and access to networks, the project showed potential for replication in other communities.

Methodology:

The methodologies applied combined quantitative research, which measured impact through data such as the number of women assisted and changes in income, with qualitative research aimed at understanding participants' needs and challenges. In addition, documentary research was carried out using academic references and case studies, and action research was conducted following Enactus Brasil's entrepreneurial framework to ensure that collaborative solutions were developed alongside Nós do Crochê.

At the start, Nós do Crochê faced significant challenges due to its informal structure, limited business expertise, and the constant tension between its social mission and entrepreneurial needs. Issues such as weak management, low visibility, and insufficient credibility limited its potential. To address these difficulties, the Enactus team implemented collaborative strategies that included creating spreadsheets for effective stock control, developing a professional product catalog to enhance sales presentations, and organizing workshops that explored crochet history, the market, and specific techniques. Participation in acceleration programs increased the project's visibility and credibility, while efforts to build partnerships with

consultancies and brands opened new avenues for collaboration. Together, these activities optimized operations and created valuable growth opportunities for the project.

Findings:

An evaluation form administered to participants revealed high satisfaction with training and a perception of personal transformation. About 30 women, aged 22 to 68, benefited. Many were single mothers, some with more than three children, highlighting diverse family contexts.

Economically, most participants reported significant income increases, relying on crochet as their main source of income. This was critical given that many families lived on one to two minimum salaries. The project not only provided revenue but also improved living conditions.

Socially, the initiative fostered confidence, psychological support, and a safe environment. Some participants described the group as essential to overcoming depression and emotional struggles. Nós do Crochê thus became both an income source and a community of solidarity.

For Nós do Crochê as an organization, the partnership with Entrelaços led to professionalization, growth from 10,000 to 50,000 social media followers, inclusion in the Rocinha Social, Technological, and Environmental Innovation Park (PISTA), a fivefold increase in gross revenue, and formalization as an NGO. Even unsuccessful partnership attempts provided lessons and opened doors for future collaborations.

Discussion:

Entrelaços generated tangible results—income growth, organizational strengthening, and partnerships—as well as intangible benefits such as self-confidence and emotional

well-being, demonstrating that combining economic and psychosocial support can foster sustainable change. The success of Nós do Crochê suggests that the Entrelaços model could be adapted to other communities, offering structural empowerment and showing how social entrepreneurship links business practices with community needs.

Contributions:

The project created dual impact: empowering women while fostering learning among university students. Participants reported higher self-esteem, autonomy, and improved prospects. Around 30 women benefited economically and socially, and Nós do Crochê advanced in management, visibility, and revenue, achieving NGO status. Formalization allows access to public funds and broader service expansion. Advanced participants could form cooperatives to supply the project, while others may engage for therapy or socialization, extending benefits to families and communities.

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Does involvement in extra-curricular activities influence university graduates' employability?

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ABSTRACT:

Engagement of students in extra-curricular activities depends on students' motivation and goal to be achieved through the activity. It is not taken into account on grading or credit awards towards student's academic performance. This makes them 'inconsequential' to many students or parents whose concern is the final degree. They are perceived as an opportunity cost or as zero sum activity. In addition, universities rarely or never fund the activities leaving all financial obligations to students and mentors. The benefits of student involvement are driven by student's readiness to gain from the activity and super ordinated goals on future use of the skills and competencies. It is therefore a self-regulated exercise which calls for balance between academics and involvement in the activities.

This paper documents a graduate tracer study conducted on a group of students (all under full-time mode of study) who had participated in Entrepreneurial Actions in Us (ENACTUS) program as an extra-curricular activity in the Kenyan universities. The study hypothesized a positive relationship between extra-curricular activities and employability. The objective was to determine skills gained from ENACTUS projects and how they have contributed to graduates' success in employability. It also looked into the uptake of self-employment by graduates and how extra-curricular activities can help. Finally, quality and relevance of training received and how it can be improved were assessed.

Anchored in Bricolage Theory, exploratory research design was employed using phenomenological and narrative approach. Snowball and purposive sampling method were

used to get graduates who participated in ENACTUS project activities. Questionnaires were used to collect data in Google form format. Ontological questions were used to explore the nature of experience being in an extra-curriculum activity in the university and connecting its benefits to the future of the graduates. Both quantitative and qualitative data were analyzed. The study found that extra-curricular activities through ENACTUS program in Kenya were giving skills which ultimately assisted graduates to gain employability. Most of the graduates with these skills gain employability within the first six months after graduation. There is a paradigm shift in employability as some of the graduates are engaging in self-employment and most of those in formal employment are concurrently also engaging in self-employed activities.

The study recommends change on educational policy to make extra-curricular activities prestigious by recognizing them as tools enhancing employability. Additionally, flexibility on the curricula should be encouraged to enhance relevant skills development especially in the fast-moving world as a result of technology and artificial intelligence. Recognition and appreciation of faculty advisors should also be put in practiced for 360o motivation, sense of belonging and achievement. The study also recommends flexibility on graduates for identification of opportunities and use locally available resources to solve problems. This will enable them have social enterprises and therefore bridge the ever-widening gap of unemployment.

Key Words: Entrepreneurship; Soft skills; Mentorship; Economic engagement; Bricolage; Self-employment

Educating for Impact: A Student-Led Path to Rural Development and Sustainability

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Introduction:

Rural sustainability depends on steady jobs and incomes. Unemployment stems from seasonal cycles and reliance on farming. Before 1991 reforms, scattered policies left villages financially vulnerable.

Unemployment was ~10% in 2009 (Journal of Rural Development); Agriculture Research Journal showed a rise from 6% to 8% (1993–2005), reflecting growth without jobs. The 2006 MGNREGA promised 100 workdays annually but faced delays and weak execution. Later schemes improved access but gaps persist, especially for less educated women.

Colleges now push beyond textbooks, encouraging students to address real-world issues. Enactus MPSTME's Shilpkaar trains rural women to convert plastic waste into plarn-based products , thus addressing income, environment, and empowerment.

This case study draws from Gujarat and Maharashtra communities, combining data, interviews, and student reflections to show how higher education bridges grassroots development. This aligns with Enactus' idea of driving change through hands-on action.

Literature review:

Rural households continue to face unstable income. Research in Jharkhand (2017) highlighted wide income variation based on market access, while NITI Aayog (2020) emphasized structural unemployment. In Bihar, training programs often fail as graduates lack market links (Chakravorty & Bedi, 2019).

Women face sharper challenges. Though MGNREGA increased cash flow (Mishra & Panda, 2023), decision-making power remains low. Vocational initiatives could empower women but often fail in execution (Parveen, 2023). By 2025, rural women showed entrepreneurial intent but were hindered by resource gaps and tech shortages (Nayak & Nayak, 2025).

Digital access promised opportunities but remains inconsistent. TRAI (2021) showed infrastructure growth, yet last-mile connectivity lags. Women, in particular, struggle with digital finance (IBEF, 2025).

Health is another barrier. Kumar's 2019 study showed healthcare gaps reduce work opportunities. While Ayushman Bharat expanded by 2023, execution remains inconsistent. Both findings argue for community-driven, well-connected solutions.

Social entrepreneurship offers promise, Ganly and Mair suggested small community-led steps work best Chitrao's 2020 emphasized active participation and market-smart projects. Ravichandiran (2025) argued innovation plus impact-focused funding drives inclusion more effectively than traditional methods.

Universities can support this process. Luvalo (2015) advocated academia’s direct role in communities. Cornet (2022) showed mutual learning when students partner locally. Ramya (2023) stressed lasting partnerships that deliver real value beyond paper projects.

Traditional crafts fight modern survival battles. Sharan's team noted in 2020 that sustainability needs market access, skill upgrades and tech adoption. Anonymous research added that solutions must balance economic viability with protecting cultural roots, no easy task for policymakers these days. The whole picture stays complex you know Progress inches forward but hurdles keep multiplying across sectors basic needs persist despite efforts over decades

Despite progress, structural gaps such as limited digital reach and weak facilities keep rural India behind. Furthermore, there aren’t many studies on how universities might close the gap by giving students the tools they need to actively participate in rural development. Presenting Shilpkaar as a paradigm that has a dual effect of promoting community upliftment and student learning is the goal of this study.

Methodology:

This study highlights Project Shilpkaar as a model for integrating social entrepreneurship within advanced education, with four crucial objects

1. Assessing Shilpkaar's impact on rural sustainability,
2. Examining student soft skills and ability development,
3. Exploring academic and allied institutions' roles in transforming rural economies, and
4. Recommending viable policy measures for upliftment.

The project underscores human connection, where trust-building, sensitivity, and open communication proved vital for long-term collaboration with artisans. The methodology supports embedding community engagement and experiential learning into academics, showing potential for social impact and holistic student development.

Findings:

Surveys from artisans engaged with Shilpkaar revealed:

The project survey of artisans involved with Project Shilpkaar exemplifies the life-changing effects of student-driven rural development (Fig. 1). A significant proportion of respondents were working-age women, indicating the project's focus on empowering women in rural communities (Fig. 2). Consistent involvement over years speaks volumes of trust and stability, affirming livelihood security (Fig. 3). Income security was a predominant outcome, with plastic waste processed into goods providing steady non-farm incomes and filling seasonal gaps in employment (Fig. 4). Most beneficiaries had bank accounts opened for the

first time, with access to savings, pensions, and subsidies—a critical step toward inclusion (Fig. 5). Linkages with welfare programs like pensions, subsidies, and health insurance

further demonstrate the transformation of policy into practice (Fig. 6). Apart from income, women expressed greater self-confidence and participation in household decisions (Fig. 7). Security of income also helped ensure education for children, an indicator of intergenerational effect (Fig. 8). High satisfaction confirms Shilpkaar as a sustainable student-driven model of rural development (Fig. 9).



Fig 1 *Shilpkaar Survey Dashboard*
Source: *Our study*

The Shilpkaar Student Volunteer Survey provides valuable insights into student participation and learning outcomes. The distribution of respondents across academic years reflects diverse engagement from multiple levels of study (Fig. 1). The duration of involvement indicates sustained participation, highlighting continuity in student commitment (Fig. 2). Volunteering was reported to enhance key skills, particularly leadership, teamwork, and communication, thereby contributing to holistic development (Fig. 3). Students also rated their personal growth positively, underscoring the transformative nature of the experience (Fig. 4). Challenges such as cultural differences, communication barriers, and logistical constraints were acknowledged, offering practical problem-solving exposure (Fig. 5). Importantly, most students found it relatively easy to build trust and collaborate with rural artisans, reflecting the project's emphasis on mutual respect and cooperation (Fig. 6).

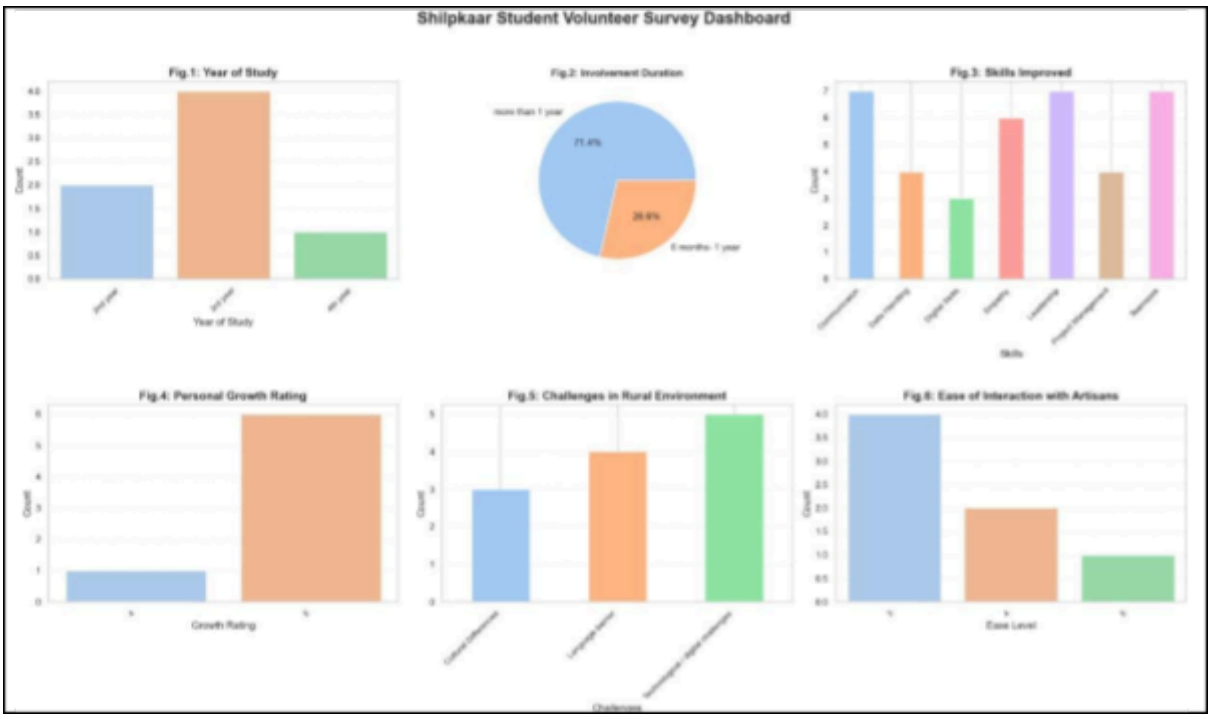


Fig 2 *Student Volunteer Survey Dashboard*
Source: *Our study*

Discussion:

Shilpkaar proves how advanced education, along with skill initiatives support rural development, not just in theory but through community engagement. It bridges the gap between policy and its perpetration. Shilpkaar, along with major UN SDGs like No poverty, Decent Work and profitable Growth, Industry, Innovation and structure, Reduced Inequalities, Responsible Consumption and product, and Climate Action, therefore facilitates metamorphosis in lives.

Contributions:

This study contributes:

1. A replicable model of pastoral engagement through advanced education.
2. Substantiation on how pupil- led enterprises construct pastoral sustainability and graduate capacity.
3. A strategic frame for integrating government schemes and social entrepreneurship.

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Educating for Impact: Student-Led Sustainability and Social Entrepreneurship in Higher Education: The Case of The Khajoor Co.

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Introduction:

The accelerating environmental crisis and widening socio-economic disparities demand innovative, socially responsible leadership from higher education graduates. Universities often prioritize technical expertise, while underdeveloping soft skills such as ethical reasoning, empathy, collaboration, and adaptive problem-solving, which are critical for navigating sustainability challenges. Graduates are expected to engage meaningfully with societal and environmental issues including climate change, circular economy practices, and social equity.

Social entrepreneurship has emerged as a framework to embed sustainability education in higher education. By combining innovation, community engagement, and economic viability, social ventures provide students with experiential learning that cultivates both technical and soft skills. Despite this potential, social entrepreneurship remains largely peripheral in academic programs. There is limited empirical understanding of how student-led ventures can be integrated into university curricula to promote transformative learning, sustainability literacy, and ethical leadership.

This study addresses this gap through a case study of The Khajoor Co., a student-founded social enterprise that transforms discarded date seeds into consumer products such as caffeine-free coffee and natural body scrubs. Developed within the Enactus ecosystem, this initiative demonstrates how student-driven ventures can address environmental concerns, generate social impact, and cultivate essential graduate attributes. In its first year, The

Khajoor Co. recycled over 200 kilograms of agro-waste, trained more than 30 rural and semi-urban women, engaged over 11,800 individuals through workshops and campaigns, and achieved a 22% conversion from sample distribution to paid orders without paid advertising. These outcomes demonstrate tangible environmental, social, and entrepreneurial impacts while highlighting the capacity of student-led ventures to foster experiential learning.

The objective of this research is to examine how university-supported, student-driven social ventures serve as platforms for sustainability education and transformative learning. Specifically, it investigates how initiatives like The Khajoor Co. shape graduates who are employable and equipped to lead sustainably and ethically. By situating the venture within sustainability education, this paper contributes to understanding how experiential, mission-driven entrepreneurship cultivates critical soft skills, sustainability competencies, and ethical awareness.

Literature review:

Sustainability education and graduate skill development have gained significant attention. Traditional curricula emphasize technical knowledge while underdeveloping critical soft skills such as ethical reasoning, collaboration, systems thinking, and adaptive problem-solving. These competencies are essential for graduates to contribute meaningfully to sustainability, social equity, and innovation-driven careers.

Sustainability education requires a shift from conventional knowledge transmission to participatory, transformative learning processes that cultivate ecological literacy and social responsibility. Experiential engagement and reflective practice help students internalize sustainability principles, develop ethical reasoning, and foster leadership capabilities.

Problem-based learning and real-world projects effectively embed these competencies in higher education.

Social entrepreneurship acts as a pedagogical tool bridging theory and practice, allowing students to address societal challenges while gaining entrepreneurial experience. Through identifying problems, developing innovative solutions, and creating sustainable value, students apply disciplinary knowledge and acquire soft skills crucial for social impact. However, university initiatives often remain extracurricular, limiting their potential to systematically foster graduate competencies.

Experiential learning, including student-led ventures, engages students in practical problem-solving and stakeholder collaboration. Circular economy projects integrate sustainability principles through waste reduction, resource efficiency, and social value creation. Although empirical evidence on student-driven circular economy initiatives is limited, studies suggest these initiatives enhance environmental awareness and entrepreneurial capability.

Despite growing interest, few studies document the combined impact of student-led ventures on soft skill development, transformative learning, and tangible social and environmental outcomes. The integration of circular economy principles in student-led projects has received limited attention. This study addresses these gaps by examining The Khajoor Co. as a model for embedding sustainability and entrepreneurship competencies in higher education.

Hands-on, mission-driven social entrepreneurship experiences allow students to acquire sustainability literacies, ethical leadership skills, and problem-solving capabilities that are difficult to teach conventionally. Situating The Khajoor Co. within this discourse shows how university-supported student ventures cultivate graduate attributes relevant to sustainability, social entrepreneurship, and community engagement.

Methodology:

A **qualitative case study approach** was used to explore how student-led social entrepreneurship fosters graduate competencies. Case studies are appropriate for examining complex phenomena in real-life contexts. The Khajoor Co., developed within the Enactus ecosystem, integrates circular economy principles, environmental responsibility, and community empowerment.

A **purposive sampling strategy** engaged 35 participants: 2 student founders, 3 mentors, 20 early customers, and 10 community stakeholders, primarily women trained in production and packaging. The enterprise reached over 600 paying customers, reflecting social impact and market validation.

Data were collected via semi-structured interviews focusing on graduate skill development, sustainability awareness, community engagement, and entrepreneurial practice. Interviews lasted 5-20 minutes, were transcribed verbatim, and supplemented by project documentation, social media campaigns, workshop reports, and product development logs. Quantitative indicators, including 200 kg of recycled agro-waste, 30+ women trained, 600+ customers served, and a 22% sample-to-order conversion, complemented qualitative insights.

Data were analyzed using thematic analysis. The process included **familiarization** with transcripts, theme development around problem-solving, leadership, environmental responsibility, and community engagement, reviewing themes across sources, defining and naming themes, and reporting them alongside quantitative impact metrics. **Triangulation, member checking, audit trails,** and integration of **quantitative metrics** ensured rigor and trustworthiness.

Findings:

Analysis revealed four major themes highlighting the educational, social, and environmental impact of The Khajoor Co.

1. **Problem-Solving and Critical Thinking Skills**

   Students reported enhanced analytical and strategic capabilities. Navigating challenges in production, quality control, and distribution required innovative solutions under resource constraints. Optimizing the roasting process for caffeine-free coffee involved ten iterative trials. The team developed two product lines and achieved a 22% sample-to-order conversion among 600+ customers, demonstrating market problem-solving success.

2. **Ownership, Agency, and Leadership Development**

   Students gained responsibility and leadership by managing production teams, mentoring women producers, and coordinating logistics. Training over 30 rural and semi-urban women reflected effective student leadership. Students developed soft skills essential for social entrepreneurship, including ethical reasoning, teamwork, conflict resolution, and persuasive communication.

3. **Environmental Responsibility and Circular Economy Integration**

   Students demonstrated environmental awareness by repurposing over 200 kg of discarded date seeds. Over 600 customers purchased eco-friendly products, and outreach engaged 11,800 individuals, raising awareness about circular economy practices. Experiential, student-led initiatives internalize sustainability principles beyond classroom instruction.

4. **Community Engagement and Social Empowerment**

Students engaged directly with vendors, producers, and consumers, fostering empathy, social responsibility, and ethical entrepreneurship. Training and employment for 30+ women, alongside workshops reaching 11,800 individuals, demonstrated tangible social impact. Direct engagement helped students appreciate societal implications of their enterprise, promoting inclusion, equity, and sustainable development.

Overall, The Khajoor Co. shows that student-led social ventures can simultaneously advance graduate skills, environmental stewardship, and community empowerment, combining qualitative insights with quantitative outcomes.

Discussion:

The findings provide strong evidence that student-led social entrepreneurship fosters transformative learning experiences, equipping graduates with competencies essential for a sustainable future. Experiential learning develops problem-solving, ethical leadership, sustainability awareness, and social impact consciousness.

Students reported significant development of critical thinking, problem-solving, and leadership, consistent with experiential learning literature. Managing production and market outreach required analyzing complex problems, evaluating solutions, and making evidence-based decisions. Direct mentorship of over 30 women and managing products for 600+ customers cultivated soft skills often underemphasized in traditional curricula.

The project exemplifies embedding sustainability and circular economy principles. Repurposing 200+ kg of agro-waste provided hands-on engagement with environmental challenges. Outreach to 11,800+ individuals illustrated the broader societal impact of student-led ventures.

Social entrepreneurship created measurable social impact by training women in production, packaging, and hygiene standards. Direct engagement fostered empathy, ethical reasoning, and adaptive communication skills, bridging academic learning and civic engagement. University-supported, student-led social ventures cultivate hard and soft skills, enabling graduates to innovate sustainably, lead ethically, apply circular economy principles, and engage meaningfully with diverse stakeholders. Integrating quantitative impact metrics with qualitative insights reinforces that such initiatives deliver both educational and societal value.

Contributions:

Empirically, the study demonstrates that student-led social entrepreneurship cultivates transformative learning, sustainability competencies, and social impact. Graduate attributes were deepened through experiential learning, integrating qualitative insights with quantitative outcomes. Circular economy practices were internalized through hands-on application. The study illustrates that student-led ventures empower communities, generate social value, and enhance employability.

Theoretically, the findings extend literature on transformative learning and sustainability education, showing that experiential social ventures act as embedded pedagogical tools for ethical and sustainability literacy. Soft skills development is amplified through engagement with community stakeholders, and circular economy practices are best learned through applied projects.

Practically, universities can embed student-led ventures into curricula, leverage experiential learning for sustainability education, promote community engagement, and integrate quantitative metrics for reflection and assessment. The Khajoor Co. demonstrates that student-led, sustainability-focused social ventures are powerful instruments for

transformative graduate education, preparing graduates to drive social change and environmental stewardship.

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Education and social change in Colombia: strengthening the post-university impact

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Introduction:

Higher education in Colombia faces a crucial challenge: preparing students for a world of work characterized by complexity, uncertainty, and social and environmental challenges. Beyond imparting technical knowledge, universities must train citizens with soft skills and entrepreneurial abilities geared toward social change and sustainability. This issue is highly relevant because, in a country with deep equity gaps and growing environmental impacts, university graduates represent a transformative force with the potential to generate positive impact in their communities and in the productive environment. The central question guiding this work is: how can higher education, through innovative models such as that of EAN University, strengthen post-university impact in social, environmental, and economic terms?

Literature review:

The literature on education and sustainable development highlights the need to link academic knowledge with practical actions that contribute to the achievement of the Sustainable Development Goals (SDGs) (UNESCO, 2020). Previous studies emphasize that university entrepreneurship can be a driver for social innovation and the creation of sustainable value (Fayolle & Redford, 2014). However, significant gaps remain: most universities in Latin America continue to focus on traditional approaches, prioritizing immediate economic results and leaving sustainability and comprehensive training in the background (López et al., 2019).

In this context, the case of EAN University is a unique experience in integrating business incubation, volunteer programs, sustainable infrastructure, and applied innovation projects. What we still do not know, and what this research seeks to explore, is how these efforts translate into measurable and replicable impacts in other universities and regions of the country. The general hypothesis is that higher education, when it combines pedagogical innovation, sustainable entrepreneurship, and social action, can significantly strengthen the post-university impact in Colombia and generate a scalable model for Latin America.

Methodology:

This study uses a qualitative methodology with descriptive support, based on the analysis of a case study: EAN University and its sustainable entrepreneurship programs. This approach was chosen because it provides an in-depth understanding of how initiatives implemented in a specific context (project incubation, volunteer programs, sustainable infrastructure, and technological innovation such as Agrogreenhouse) contribute to social and environmental impact. In addition, quantitative metrics reported by the institution (number of entrepreneurs trained, projects supported, energy savings, emissions reduction) are integrated to reinforce the empirical validity of the analysis. This combination of qualitative and quantitative sources allows for a more robust response to the research question.

Findings:

The main findings of the study are:

- Impact on training and entrepreneurship: since 2016, the EAN Impacta incubator has trained more than 17,000 entrepreneurs and supported 1,200 projects, mobilizing nearly $500,000 in seed capital.

- Environmental results: the EAN Legacy building has reduced its energy consumption by 32%, its water consumption by 35%, and avoids 74 tons of CO_2 per year.
- Applied innovation: projects such as AgroGreenhouse, an automated greenhouse with sensors and a digital application, show how university research can be turned into solutions for sustainable agricultural productivity.
- SDGs exemplified in ventures:
    1. Worm farming to produce dog food (SDGs 2, 8, and 12).
    2. Biodegradable biomaterial from rose stems (SDGs 11 and 13).
    3. Inclusive educational games to integrate people with mental disabilities (SDGs 4 and 10).

Discussion:

These findings support the hypothesis put forward: higher education can transcend its traditional formative role and become a direct agent of social, economic, and environmental transformation. By linking sustainable entrepreneurship, pedagogical innovation, and community action, EAN University not only responds to local needs but also offers a scalable and replicable model. This suggests that the key lies not only in imparting knowledge but also in creating impactful academic ecosystems where students and graduates apply what they have learned in real-world scenarios, generating tangible benefits.

Contributions:

This paper contributes on three levels:

- Empirical: it demonstrates with metrics and examples how a university can measure and communicate its social, environmental, and economic impact.
- Theoretical: it broadens understanding of the role of higher education in sustainable development, showing the importance of ecosystems of entrepreneurship and social innovation.
- Practical: it offers a step-by-step plan to replicate the EAN model in other universities and countries in Latin America, providing a guide for educational policies and institutional programs geared toward the SDGs.

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Spanish Version

Introducción:

La educación superior en Colombia enfrenta un reto crucial: preparar a los estudiantes para un mundo laboral caracterizado por la complejidad, la incertidumbre y los desafíos sociales y ambientales. Más allá de transmitir conocimientos técnicos, las universidades deben formar ciudadanos con habilidades blandas y capacidades emprendedoras orientadas al cambio social y la sostenibilidad. Este problema es de gran relevancia porque, en un país con profundas brechas de equidad y afectaciones ambientales crecientes, los egresados universitarios representan una fuerza transformadora con el potencial de generar impacto positivo en sus comunidades y en el entorno productivo. La pregunta central que guía este trabajo es: ¿cómo puede la educación superior, a través de modelos innovadores como el de la Universidad EAN, fortalecer el impacto postuniversitario en términos sociales, ambientales y económicos?

Revision bibliográfica:

La literatura sobre educación y desarrollo sostenible resalta la necesidad de articular el conocimiento académico con acciones prácticas que contribuyan al cumplimiento de los Objetivos de Desarrollo Sostenible (ODS) (UNESCO, 2020). Estudios previos destacan que el emprendimiento universitario puede ser un motor para la innovación social y la creación de valor sostenible (Fayolle & Redford, 2014). Sin embargo, persisten brechas importantes: gran parte de las universidades en América Latina continúan centradas en enfoques tradicionales, priorizando resultados económicos inmediatos y dejando en segundo plano la sostenibilidad y la formación integral (López et al., 2019).

En este contexto, el caso de la Universidad EAN constituye una experiencia singular al integrar incubación de emprendimientos, programas de voluntariado, infraestructura sostenible y proyectos de innovación aplicada. Lo que aún desconocemos, y que esta investigación busca explorar, es cómo estos esfuerzos se traducen en impactos medibles y replicables en otras universidades y regiones del país. La hipótesis general plantea que la educación superior, cuando combina innovación pedagógica, emprendimiento sostenible y acción social, puede fortalecer significativamente el impacto postuniversitario en Colombia y generar un modelo escalable para América Latina.

Metodología:

El presente trabajo se enmarca en una metodología cualitativa con apoyo descriptivo, basada en el análisis de un estudio de caso: la Universidad EAN y sus programas de emprendimiento sostenible. La elección de este enfoque se justifica porque permite comprender en profundidad cómo las iniciativas implementadas en un contexto específico (incubación de proyectos, programas de voluntariado, infraestructura sostenible e innovación tecnológica como AgroGreenhouse) contribuyen al impacto social y ambiental. Además, se integran métricas cuantitativas reportadas por la institución (número de emprendedores capacitados, proyectos acompañados, ahorros energéticos, reducción de emisiones) para reforzar la validez empírica del análisis. Esta combinación de fuentes cualitativas y cuantitativas permite responder con mayor solidez a la pregunta de investigación.

Hallazgos:

Los principales hallazgos del estudio son:

- Impacto en formación y emprendimiento: desde 2016, la incubadora EAN Impacta ha formado a más de 17.000 emprendedores y acompañado 1.200 proyectos, movilizando cerca de 500.000 USD en capital semilla.
- Resultados ambientales: el edificio EAN Legacy ha reducido en un 32 % su consumo energético, un 35 % su consumo de agua y evita 74 toneladas de CO_2 anuales.
- Innovación aplicada: proyectos como AgroGreenhouse, un invernadero automatizado con sensores y aplicación digital, muestran cómo la investigación universitaria se convierte en soluciones para la productividad agrícola sostenible.
- ODS ejemplificados en emprendimientos:

1. Cría de gusanos para producir alimento para perros (ODS 2, 8 y 12).
2. Biomaterial biodegradable a partir de tallos de rosa (ODS 11 y 13).
3. Juegos didácticos inclusivos para integrar a personas con discapacidad mental (ODS 4 y 10).

Discusión:

Estos hallazgos respaldan la hipótesis planteada: la educación superior puede trascender su rol formativo tradicional y convertirse en un agente directo de transformación social, económica y ambiental. La Universidad EAN, al vincular emprendimiento sostenible, innovación pedagógica y acción comunitaria, no solo responde a las necesidades locales, sino que además ofrece un modelo escalable y replicable. Esto sugiere que la clave no está únicamente en impartir conocimientos, sino en crear ecosistemas académicos de impacto, donde los estudiantes y egresados aplican lo aprendido en escenarios reales, generando beneficios tangibles.

Contribuciones:

Este trabajo aporta en tres niveles:

- **Empírico**: demuestra con métricas y ejemplos cómo una universidad puede medir y comunicar su impacto social, ambiental y económico.
- **Teórico**: amplía la comprensión sobre el rol de la educación superior en el desarrollo sostenible, mostrando la importancia de ecosistemas de emprendimiento e innovación social.
- **Práctico**: ofrece un plan paso a paso para replicar el modelo de la EAN en otras universidades y países de América Latina, lo que constituye una guía para políticas educativas y programas institucionales orientados a los ODS.

Education, Service, and Sustainability: Perceptions of Community Services in an Inter-Agency Nonprofit Network

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Introduction:

Nonprofit organizations, including educational institutions, foundations, religious organizations, and charities, among others, play a central role in community development, especially in contexts of poverty and sustainability. However, although many studies focus on operational or nutritional impact, there remains a need to investigate how perceptions of their services differ between those who access them and those who do not. A study by Middleton et al. (2018) indicates that perceptions of community services are not uniform between beneficiaries and non-beneficiaries. Beneficiaries who have direct contact with the service may experience barriers (such as stigma or low options) but also feel gratitude or appreciation if the service is worthy. Non-beneficiaries, on the other hand, may have more neutral perceptions or perceptions based on indirect information, without the sensitive nuances of stigma or human interaction.

Literature review:

According to Benjamin et al. (2022), nonprofit organizations have acquired a strategic role in sustainable community development, particularly in contexts of social vulnerability, structural poverty, and humanitarian crises. The perceptions of both beneficiaries and non-beneficiaries of the services offered by these institutions are fundamental as they can influence the evaluation of their legitimacy, community trust, effectiveness and social acceptance, as well as the actual scope of sustainable development promoted by the organization, which determines their actual role as entities that promote the empowerment of less-privileged communities.

The objective of this research was to determine whether there is a significant difference in the perception of community services (such as community development, disaster relief, emotional and spiritual support, humanitarian support, support for vulnerable communities, and job skills training) between beneficiaries and non-beneficiaries of a nonprofit organization in New York.

Methodology:

This study was conducted in a New York-based nonprofit organization whose mission includes providing community services in areas such as social development, humanitarian assistance, and community strengthening. This organization is part of an inter-institutional consortium comprised of educational institutions, hospitals, food banks, churches, and other faith-based organizations.

The study population consisted of members and collaborators of the institutions comprising this consortium. A quantitative, descriptive, cross-sectional, and explanatory methodological design was adopted. Sampling was conducted using a non-probability convenience

procedure. The final sample consisted of 111 participants, of whom 64.86% (n = 72) were direct beneficiaries of community services, specifically those who had used food banks in the previous 12 months, considered the most vulnerable population among all service beneficiaries, while 35.14% (n = 39) were non-beneficiaries.

Data collection was carried out using a questionnaire developed by the authors, consisting of 23 items designed to assess perceptions of community services. The instrument was distributed electronically during January 2025. The reliability of the questionnaire was assessed using Cronbach's alpha coefficient, obtaining a value of .944, indicating high internal consistency. Responses were recorded on a seven-point Likert-type scale, ranging from (1) strongly disagree to (7) strongly agree.

For statistical analysis, arithmetic means were calculated for each group (beneficiaries and non-beneficiaries), and a Student t-test for independent samples was applied to identify significant differences in perceptions of community services between the two groups. Data processing was performed using IBM SPSS Statistics, version 25.

Findings:

Prior to applying for the Student t-test for independent samples, the relevant statistical analyses were performed to verify compliance with the required assumptions. First, the normality of the distributions was assessed using normality tests, which indicated that both samples conformed to a normal distribution ($p = .200$). Subsequently, Levene's test was applied to evaluate the homogeneity of variances, confirming the equality of variances between groups ($p > .05$).

Once the assumptions were met, the Student t-test for independent samples was performed. The results yielded a two-tailed significance value of less than .05 ($p = .039$), indicating a

statistically significant difference in the perception of community services between beneficiary and non-beneficiary participants of a New York-based nonprofit organization. From a descriptive perspective, community service beneficiaries reported a higher perception ($M = 5.35$, $SD = 0.92$) compared to non-beneficiaries ($M = 4.96$, $SD = 0.93$). To assess the magnitude of this difference, the effect size was calculated using Cohen's statistic (d), yielding a value of $d = 0.42$, representing a moderate effect according to the criteria established by Cohen (2013). This suggests that, in addition to being statistically significant, the observed difference has practical relevance in the context of the study.

Discussion:

The findings of this research are consistent with the study by Middleton et al. (2018) and further support the hypothesis that direct contact with community services positively influences the perception of their value and social impact. Additionally, various studies show that the positive perception of community services directly influences the willingness to collaborate with these organizations, whether through volunteering, donations or recommendations (Graca & Zwick, 2020; Hwang et al., 2023), which would give legitimacy to the commitment and social responsibility of educational institutions, reinforcing the trust that society has in them.

As Martin and Osberg (2007) point out, social organizations are increasingly under pressure to demonstrate their value and sustainable impact. In addition, the increase in demand for the services of non-profit organizations, coupled with the reduction in public funding for these organizations, has led many of them to adopt entrepreneurial and innovative practices (Phills et al., 2008, p. 40). Far from being worrying, this turns out to be a great opportunity for social

innovation and value creation by seeking to create support networks between entrepreneurs, beneficiaries, society and other social organizations that seek the same goal. Hervieux et al. (2010) propose that involving beneficiaries in this network will generate empowerment for them and also strengthen the social entrepreneur's capacity to search for solutions together, thus creating a learning and development ecosystem.

In a study conducted by Nandan et al. (2019), which aimed to analyze the nature of the social value generated by a group of social service professionals, the “why” and “how” of their innovation processes were explored. Participants represented a wide diversity of organizations, which provided a more complete view of the motivations and strategies used to generate social value through innovation. The study also analyzed participants' current understanding and practices regarding social entrepreneurship.

Participants were reported to have generated social value through social innovation, fulfilling their organizations' mission and addressing both existing and emerging needs. They improved internal efficiency and expanded their community impact, even identifying new market niches and revenue streams. Some used the market to fund programs that also empowered beneficiaries. In addition, they fostered creative partnerships that strengthened financial sustainability and social justice, ensuring the financial sustainability of their programs and organizations and promoting social and economic justice.

They also positively impacted on volunteers and interns and highlighted the importance of measuring the social value created. This highlights the vital role of social organizations in addressing needs, creating social value, and empowering society.

Since educational institutions are considered non-profit organizations whose primary mission is to comprehensively educate individuals through the knowledge, skills, and values that enable them to become committed citizens, they should prioritize the development of skills that transcend into community service practices with a social impact. Rodríguez Zurita et al. (2024) conducted a review of 118 publications related to service learning (SL) and community engagement in higher education institutions, identifying a significant shift from an emphasis on curriculum to teaching focused on sustainable development. They found that integrating SL with community projects is highly effective in fostering competencies related to the Sustainable Development Goals (SDGs), transforming students' perspectives toward meaningful social engagement.

Today, more than ever, there is a strong need to strengthen the capacities of current and future professionals in key areas such as innovation, social entrepreneurship, and strategic management. Furthermore, the importance of incorporating content into academic training that allows for a comprehensive understanding of social value and its creation is emphasized. This fosters more effective professional practice, geared toward sustainable results and the empowerment of vulnerable communities.

The lack of formal training in social entrepreneurship means that professionals apply its principles intuitively, reinforcing the urgency of structured and cross-disciplinary training in these topics. Based on the above and derived from this study, we recommend that non-profit institutions, specifically educational institutions, include content related to social entrepreneurship, innovation, and value creation in their training programs. These are

essential elements for the sustainability of social projects and adaptation to changing contexts. Integrating this content will strengthen the skills of future professionals, enabling them to identify opportunities, design innovative solutions, and generate positive impact in their communities. It will also contribute to a more resilient, collaborative, and results-oriented organizational culture.

Contributions:

The main contribution of this research lies in demonstrating, through an empirical approach, that direct contact with community services significantly improves the perception of their value and social impact among beneficiaries. This difference in perception is not only statistically significant but also practically relevant, as it is associated with a greater willingness to collaborate with organizations through volunteering, donations, and other forms of participation, which is of utmost importance, especially given the risk of financial support being cut by various organizations. The study also raises the urgent need to integrate these concepts into academic training, especially in educational institutions, to ensure sustainability and strengthen social engagement and community empowerment.

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Emergent Soft Skills Derived from Swarm Robotics Modelling Real-World Scenarios

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Introduction:

Swarm robotics reframes engineering education by shifting attention from single-agent optimisation to system level behaviour that emerges from local interactions. This paper addresses a gap in many curricula: limited emphasis on how modelling biologically inspired, real-world swarm scenarios can intentionally cultivate soft skills, systems thinking, collaborative leadership, adaptive communication, ethical reasoning, and sustainability consciousness, that graduates require for complex socio-technical challenges such as environmental monitoring, disaster response, and assistive technologies. When students design swarm systems that model phenomena like ant foraging, flocking, or marine monitoring, they encounter authentic complexity requiring them to reason about collective outcomes, trade-offs, resilience, and socio-environmental impacts rather than isolated agent performance. Our research question asks: How does modelling real-world scenarios through swarm robotics naturally develop emergent soft skills in engineering education? We propose that biologically inspired, context rich swarm modelling provides repeated opportunities to practise system mapping, distributed decision-making, communication design under constraints, and normative reflection, thereby producing the targeted soft skills.

Literature review:

The literature contrasts traditional robotics instruction with swarm approaches by showing that swarm paradigms foreground emergent properties, decentralised coordination, and robustness through redundancy; features that impose distinct cognitive demands on learners compared to single agent models [6],[10],[12]. Biological metaphors drawn from ant colonies, bird flocks and fish schools are widely used both as algorithmic inspiration and as scholarly devices because they make complex adaptive dynamics tangible and sensitise learners to environmental constraints and collective outcomes [7],[15],[16],[36]. Project based learning (PBL) research demonstrates that authentic, hands-on activities improve teamwork and transferable skills in STEM contexts, and these benefits extend to swarm projects when tasks emphasise real-world social or environmental goals [8],[9],[14],[23]. Educational research on cognitive load and instructional guidance indicates that scaffolding is necessary to support higher-order learning in complex projects [10],[12],[11]. Recent scholarship further argues that explicitly connecting technical tasks to environmental and social contexts supports sustainability and social responsibility learning outcomes [1],[2],[3],[24],[27]. Despite these insights, there is limited work that explicitly maps distinct swarm modelling characteristics, such as emergent behaviour dynamics, collective intelligence design and biological mapping, to soft-skill outcomes, and empirical evidence remains largely project-level or anecdotal rather than systematic across curricula [17],[18]. This gap motivates a conceptual framework that links modelling affordances to emergent soft skills and guides subsequent empirical testing.

Methodology:

To explicate mechanisms linking swarm modelling to soft-skill development we employed a qualitative, conceptual approach comprising a systematic literature synthesis, theoretical framework construction, and expert validation. We synthesised twenty-five peer-reviewed articles (2015-2025) from IEEE, Springer, Elsevier and education journals, focusing on cognitive shifts in swarm robotics education [10],[11], pedagogical roles of biological inspiration and real-world modelling [15],[16], and evidence for soft-skill development in complex systems and PBL [17],[18]. Keywords included “swarm robotics,” “emergent behaviour,” “biological inspiration,” “systems thinking,” and “complex adaptive systems.” From that synthesis we iteratively mapped modelling features to soft skills. For example, the process of drawing on biological inspiration encourages sustainability thinking by highlighting how natural systems maintain ecological balance. Similarly, modelling emergent behaviours cultivates systems thinking, as learners must analyse how simple local interactions give rise to complex global outcomes. The design of collective intelligence mechanisms supports the development of collaborative leadership, since effective coordination emerges from shared responsibilities rather than centralised control. In addition, creating adaptive communication protocols enhances adaptive communication skills, requiring participants to design flexible information-sharing strategies that enable the swarm to respond effectively to dynamic environments. We then presented the draft framework to faculty and stakeholders within the School of Computing, Engineering and Mathematical Sciences for critique and refinement, capturing practical constraints and alignment with graduate attributes. This approach is appropriate because the research seeks explanatory mechanisms; how and why certain pedagogical choices produce soft-skill affordances, rather

than immediate quantitative effect sizes, and it establishes a testable foundation for surveys, controlled pilots and longitudinal studies.

Findings:

Three integrated findings emerged. First, designing for emergence provokes a durable cognitive shift: students move from optimising individual agent metrics to attending to global patterns, cascading interactions and unintended side effects, which exercises systems thinking, scenario analysis and metacognitive reflection [10],[12],[11].

Second, biological inspiration functions as a potent pedagogical affordance: modelling ant foraging, flocking or schooling compels learners to reason about resource constraints, sensing limitations and adaptive decision rules, foregrounding sustainability considerations and social responsibility [15],[16],[36],[24].

Third, project authenticity is a critical moderator: tasks embedded in plausible real-world contexts such as ocean monitoring or disaster response prompt students to integrate social and environmental constraints into technical trade-offs and to engage in ethical reasoning rather than pursuing algorithmic novelty alone [19],[20]. These findings yield a coherent mapping: systems thinking develops through iterative "design-simulate-evaluate" cycles of local rules and global outcomes; collaborative leadership emerges when decentralised coordination mechanisms such as role adaptation and leader election are required and can be observed; adaptive communication is fostered by designing under bandwidth, noise and partial information constraints; ethical reasoning arises when human-centred safety and accessibility trade-offs are explicit; and sustainability consciousness grows when scenarios

explicitly involve resource limits, ecological metrics or links to Sustainable Development Goals [21],[22],[1],[2],[3],[27]. These relationships are summarised in Table 1, which maps swarm robotics modelling characteristics to emergent soft skills and links them to real-world applications and sustainability goals.

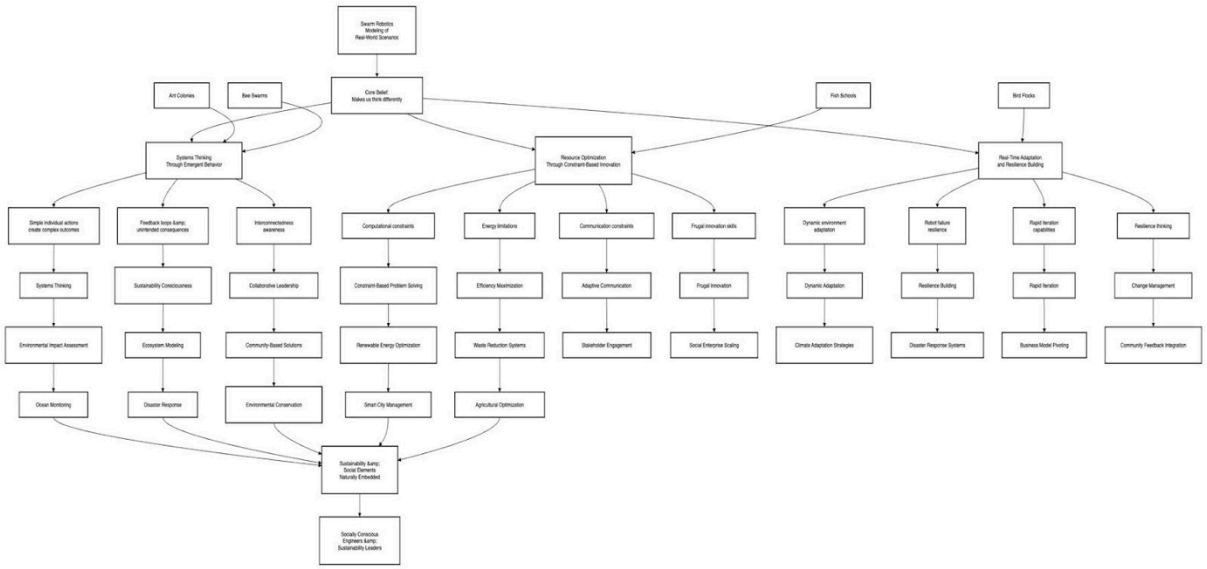


Figure 1: Proposed system model showing how swarm robotics modelling of real-world scenarios leads to emergent soft skill development. The model illustrates how biological inspiration, emergent behaviours, and real-world scenario modelling converge to develop critical soft skills through authentic learning contexts.

Discussion:

The framework clarifies why swarm modelling naturally fosters the identified soft skills: the conceptual relationships are illustrated in Figure 1, which visualises how biological inspiration, emergent behaviours, collective intelligence, adaptive communication and authentic contexts converge to cultivate the five soft skills.

Swarm Robotics Concept	Developed Skill	Sustainability Application	Social Entrepreneurship Application
Systems Thinking Through Emergent Behavior	Understanding how simple individual actions create complex collective outcomes	Environmental impact assessment, ecosystem modeling, climate change mitigation strategies	Community based solutions, collective impact initiatives, stakeholder engagement
Resource Optimization Through Constraint-Based Innovation	Frugal innovation, constraint-based problem solving, efficiency maximization	Renewable energy optimization, waste reduction systems, sustainable resource management	Social enterprise scaling in resource constrained environments, impact measurement with limited resources
Real-Time Adaptation and Resilience Building	Dynamic adaptation, rapid iteration, resilience thinking	Climate adaptation strategies, disaster response systems, environmental monitoring	Business model pivoting, community feedback integration, adaptive social programs
Biological Inspiration and Collective Intelligence	Collaborative leadership, distributed decision-making, collective intelligence	Biomimetic design, ecosystem based approaches, nature inspired solutions	Community led development, participatory decision making, grassroots innovation
Complex Adaptive Systems Modeling	Systems thinking, feedback loop understanding, interconnectedness awareness	Circular economy design, sustainable supply chains, systemic environmental solutions	Social innovation ecosystems, cross-sector collaboration, systemic social change

Table 1: Mapping Emergent Soft Skills to Swarm Robotics Modelling Characteristics and Real-World Applications. The table illustrates how specific modelling approaches (biological inspiration, emergent behaviours, collective intelligence) correspond to soft skill development and contribute to various real-world applications and UN Sustainable Development Goals (SDGs).

The success criteria and constraints are system-level and contextually grounded, offering iterative, authentic problem contexts that require negotiation of trade-offs and collaborative solutions. Academically, this implies that instruction should combine authentic, open ended swarm projects with structured reflection, formative feedback and assessment instruments that capture systems reasoning, collaborative processes, communication design decisions, ethical deliberation and sustainability awareness rather than only agent-level metrics [8],[9],[14],[23]. To manage cognitive load and support transfer, educators should scaffold complexity through incremental tasks, worked examples and checkpoints so students can engage in higher-order reasoning without being overwhelmed [10],[12]. The biological

metaphors serve both as heuristic design guides and as narrative tools that make system dynamics meaningful, helping to bridge technical learning with broader social and environmental reasoning.

Contributions:

This paper contributes conceptually by identifying the cognitive shift toward system-centred reasoning as the principal mechanism linking swarm modelling to emergent soft-skill development. It contributes practically by offering educators a usable mapping between specific modelling features and targeted learning outcomes and by recommending pedagogical practices, authentic contexts, scaffolding, reflective activities and broadened assessment rubrics. It contributes a research roadmap for empirical validation: deploy stakeholder surveys, run controlled pilot studies comparing swarm and traditional robotics projects, develop standardised instruments for emergent soft skills, and conduct longitudinal tracking of graduate outcomes to assess workplace transfer [17],[18],[19]. The principal limitation is the conceptual nature of the study; empirical work is required to estimate effect sizes and boundary conditions across different institutions and student cohorts.

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Empowering Graduates Entrepreneurship: Experience of Communication and Media Studies Faculty, University Technology Mara, Malaysia

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Introduction:

Universiti Teknologi MARA, UiTM has been in existence since 1956 with it being originally known as RIDA then known as Maktab MARA and later it changed its name to Institut Teknologi MARA, ITM since 1972. In 1999, ITM was upgraded to full university status, and it is known as Universiti Teknologi MARA, UiTM. Currently, there are around 180000 students enrolled in various faculties, campuses, programs and levels start from pre-diploma until PhD. In terms of entrepreneurship aspect, UiTM has been actively involved started with the formation of MEDEC in 1973 and now MEDEC is known as Malaysian Academy of SME and Entrepreneurship Development or MASMED. One of the notable UiTM's achievement when it was announced as the recipient of prestigious "Anugerah Keusahawanan KPT" (Ministry of Higher Education Entrepreneurial Award). This shows that UiTM has played a significant role in developing more talent in entrepreneurship and also to spur the activities whether within its institution and in the international level.

Literature review:

Faculty of Communication and Media Studies is one of the faculties in UiTM and it was established in 1972 where there are nine academic programs currently offered at degree level. Although the faculty more popular with its core study of communication and media, but the faculty also active in organizing entrepreneurship activities and programs. Almost every semester, its student would organize such activities whether it is related to their academic

programs or it just club activities. Those activities organized related to entrepreneurship support not only the academic programs but also support the development of the student themselves. One of the academic programs that is active in organizing such activities is advertising undergraduate program. Normally, advertising students will find a "potential" client, and they will approach the client and offer them an advertising and promotion campaign. The students will do the pitching and present the ideas to the client. Meanwhile, another academic program which is journalism also active in doing their own entrepreneurship activities. For example, every semester second year student need to publish a critical academic magazine and, in that magazine, also include advertisements and sponsorships. To complete the publication with such efforts, they need to have entrepreneurship skills and knowledge and here those students would apply what they learn whether in entrepreneurship courses or journalism and media courses. The other academic program, public relations also have their own entrepreneurship activities. Almost similar to advertising where they need to find and approach a client but the only different, normally they would organize an event and to achieve their target and objective, they need to raise fund and also, they need to make sure the event is attractive and get media coverage.

Methodology:

Currently, under student's club known as "Kelab Media Siswa" (Graduates Media Club) or MEDSIS, they are publishing two publications. First, "Siswa XTIVE" a publication on programs and activities in the university. Secondly, "Warta Konvo" a periodical published twice a year. Both publications would generate income direct or indirectly not only to the club but also to the faculty and university. MEDSIS's involvement as a publisher and

consultant to the project shows the monetary or intangible value can be brought in by optimizing their skills and knowledge in their filed of study.

Findings:

MEDSIS also produced a 25-30 minutes documentary Netflix-style on 25 years history of university's formation as full-fledged university. The documentary still in its final stage of post-production. The documentary costs approximately RM25000 (USD6000) and in terms of ROI, it may bring up to more than RM200000. The documentary is a joint venture project with one of the alumnus and fully supported by student affairs department of the university.

Discussion:

This faculty also active in terms of social entrepreneurship. Whether those activities embedded in academic courses or specifically organized, it can be said almost every semester there must be such activities or programs organized. Since its establishment, social entrepreneurship can be said the faculty's forte. There are times where people whether within UiTM or outside seek faculty's cooperation and advise. Nowadays with the emergence of social media, some organizations and companies would come to faculty to collaborate or getting advise for their campaigns or programs. This shows the aspect of entrepreneurship has been long instilled in the students and graduates through their academic journey in the faculty and UiTM.

Contributions:

In conclusion, entrepreneurship is one of the most important element in UiTM apart from academic excellence and also other academic outcome. But given the current challenge, it is

up to the students themselves to grab opportunities and facilities offered in UiTM. The institution whether through its own academy of entrepreneurship or known as MASMED and other faculties such as communication and media studies have worked tirelessly to make sure their graduates are ready not only for the industry but also ready to create their own industry one day after they graduated.

Empowering Graduates For A Sustainable Future

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In this era of rapid and unprecedented transformation, the world is confronting far more than just changes in the labor market. We are facing deeply interconnected global challenges climate change, widening economic inequality, social unrest, and the swift evolution of technology that reshapes our lives on a daily basis. Within this dynamic context, the concept of a **"sustainable future"** is no longer a distant destination, it has become a shared pathone that requires not only technical knowledge, but also adaptability, emotional intelligence, and ethical commitment. Building that path demands the strength of a **new generation of leaders**: our graduates. Graduates are not merely recipients of academic degrees they are the architects of tomorrow. To empower them is not to fill them with facts, but to nurture their whole potential: fostering **critical thinking, creativity, resilience, and compassion.** Higher education, therefore, must be more than a system of credentialing. It must be a space of transformation where young minds are inspired to discover themselves, to question the world around them, and to learn how to collaborate and contribute meaningfully to society. One essential pillar of sustainability in today's world is the **ability to adapt**. As global conditions shift unpredictably, our graduates must develop **lifelong learning skills** the ability to unlearn and relearn, to remain curious and open-minded, to cross disciplinary boundaries, and to engage meaningfully with innovation. They must be able to apply knowledge across contexts, understand emerging technologies, and leverage data to solve complex problems while staying grounded in human values. Moreover, graduates must possess a **global consciousness**. Understanding issues such as climate resilience, clean energy, digital equity,

and human rights is not optional it is essential. A sustainable future requires individuals who not only understand the systems that shape the world, but who are willing to **take ethical action** within them. They must transition from passive observers to **responsible actors** who are deeply aware of their impact on both local and global communities. At the heart of this empowerment lies the cultivation of a **public spirit**. A sustainable society can only be built when individuals care not only for their own success, but for the common good. We must nurture graduates who embrace **diversity**, respect human dignity, and seek to bridge divisions across culture, class, and ideology. True leadership is not rooted in control or authority but in empathy, collaboration, and moral clarity. Being i**ntelligent is no longer enough**. In a world as fragile and complex as ours, we need people who are not just smart, but **good** those who use their intellect in service of justice, peace, and shared prosperity. Lastly, empowering graduates cannot be the responsibility of academic institutions alone. It requires **collective commitment** from universities, governments, industries, civil society, and families. Together, we must build an ecosystem that supports the **holistic development of young people** so that they are equipped not just to survive in the future, but to shape it. Let us remember that a sustainable future will not arrive on its own. It must be **imagined, nurtured, and actively built** and that journey begins with the graduates we empower today.

Throughout history, humanity has never ceased to progress. Yet, we have never been free from crises. Our world advances day by day, accompanied by increasingly complex and urgent challenges. As resources dwindle, inequality rises, and climate change silently threatens our collective existence, the notion of a "sustainable future" is no longer just a dream for the younger generation it has become a

shared necessity for all of humankind. In the 21st century, rapid transformations in technology, economics, and society have reshaped the landscape of life and work.

Knowledge and skills that once sufficed for survival may now fall short. The defining challenge of this century is not merely economic competition, but the ability to thrive **equitably, ethically, and sustainably on a shared planet**. Within this context, graduates are not simply degree holders; they are emerging changemakers with the potential to influence social, economic, and environmental systems. **Empowering graduates** is, therefore, not just an educational objective it is a national mission. For the growth of our graduates is the very foundation of our society's sustainable future. In a world driven by fast-moving information and constant change, possessing expertise in just one area may no longer be sufficient. Today's graduates must be equipped with **a wide array of competencies:** critical thinking, communication, collaboration, and the capacity to adapt to new realities. A sustainable future is not built by those who know everything but by those who are willing to learn continuously and evolve with purpose.Beyond technical proficiency, graduates must also embody a **public spirit** a deep respect for others, an appreciation of diversity, and a commitment to using their talents for the greater good, not solely for personal or organizational gain. This sense of social responsibility is what transforms educated individuals into **true leaders of sustainability**. Universities, as the starting point of this journey, must not confine themselves to delivering rigid curricula. They must serve as **incubators for discovery, experimentation, and holistic development**. The public sector should provide meaningful opportunities for graduates, support careers that contribute to social good, and invest in policies that drive sustainable development. Meanwhile, the private sector must open doors for young talent to thrive while cultivating organizational cultures that balance profitability with **environmental and social responsibility**. If we are to build a cleaner, fairer, and more resilient world, we must shape graduates who do not enter the workforce solely to **"get jobs,"** but to **"create value, generate impact, and contribute to society".** In the past,

education was often centered around fixed content and rigid structures. But the demands of the present call for far more than academic knowledge. **Graduates of tomorrow must possess practical wisdom, life skills, systems thinking, and an unwavering consciousness of their social and environmental impact**.These are the very forces that will power the movement toward a truly sustainable future.

Empowering graduates is like planting resilient seedlings in the soil of hope nurturing them to grow into towering trees that one day will offer shade and shelter to the world. A sustainable future does not begin only with global policies or international agreements. It begins with graduates of today individuals who are ready to live with purpose, passion, and meaning.

When we speak of "sustainable development," the term may sound distant something reserved for global leaders or high-level policy discussions. But in truth, sustainability begins with something far more intimate: **people**. Among those people, **graduates are the ones we must pay close attention to**. They are not just individuals who have completed their education; they are the next generation standing at the threshold of real life equipped with energy, creativity, and the potential to shape the world in profound ways.They are not just the future workforce; they are **future leaders, innovators, and changemakers**. Their thoughts, choices, and actions will determine whether we move toward a world that is more just, compassionate,

and sustainable. By empowering them today with knowledge, values, and the courage to care we are laying the foundation for a future that belongs to all of us.

Introduction:

The contemporary world is experiencing rapid and unprecedented transformations across economic, social, technological, and environmental domains. These changes make the concept of a **"sustainable future"** not merely a distant goal, but a **shared pathway** requiring not only technical knowledge but also adaptability, emotional intelligence, and ethical commitment.

Graduates are not just degree holders; they are **architects of the future**. Empowering them is not merely filling them with facts but nurturing their full potential: critical thinking, creativity, resilience, and compassion. Higher education must be more than a credentialing system; it must be a **space of transformation** that encourages young people to discover themselves, question the world around them, and learn to collaborate meaningfully with society.

Problem:

1. Misalignment Between Education and Labor Market
    - According to **NESDC (2025)**, 91,000 out of 358,000 Thai graduates were unemployed.
    - **TDRI** reports that only 22% of job positions match fresh graduates' qualifications, while 38% require at least 1–2 years of experience.
2. Skills Gap
    - Key skills such as English proficiency, critical thinking, communication, and complex problem solving remain insufficient.
3. Unclear Role in Sustainability

- Although graduates are regarded as emerging leaders, their practical roles in social, environmental, and economic sustainability remain unclear.

Proposal / Approach:

1. Competency Framework
    - **Academic and Technical Skills:** Critical thinking, knowledge application, digital literacy.
    - **Life Skills and Values:** Communication, collaboration, social responsibility, environmental awareness.
    - **Adaptability and Lifelong Learning:** Continuous learning, adaptation to new contexts, innovation.
2. Examples of Successful University Programs
    - I**nternships and Industry Collaboration:** Many universities offer programs to provide real-world experience for graduates.
    - **Service Learning Projects:** Engineering and architecture students participate in community-based sustainable development projects.
3. Post-Graduation Support

- **Job Matching and Career Counseling:** Reduce unemployment and connect graduates with suitable jobs.
- **Alumni Networks:** Support collaboration and engagement in social-impact projects.

Results / Implications:

Empowering graduates helps to:

1. Prepare graduates for employment and reduce unemployment.

2. Produce socially and environmentally responsible graduates.
3. Establish a clear competency framework for developing future graduates.

Summary Table: Evidence – Examples – Proposed Actions:

Issue	Empirical Evidence	Examples	Proposed Actions
Graduate unemployment	NESDC (2025): 91,000 out of 358,000 unemployed	–	Align curricula with labor market, provide internships, career counseling
Skills mismatch	TDRI: Only 22% of jobs suitable for fresh graduates	–	Develop competency framework: English, problem-solving, communication, critical thinking
Social and environmental leadership	WEF (2023): Key skills: Critical Thinking, Creativity, Emotional Intelligence	Service Learning Projects	Promote social and environmental projects, establish alumni networks
Preparing graduates for global challenges	WEF (2023): Top 10 skills for the future	Internships with industry partners	Train adaptability, collaboration, and complex problem-solving skills

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Thai Version

การเสริมพลังบัณฑิตเพื่ออนาคตที่ยั่งยืน

ในยุคที่มีการเปลี่ยนแปลงอย่างรวดเร็วและไม่เคยเกิดขึ้นมากIอน โลกกำลังเผชิญกับความท้าทายที่ซับซ้อนมากกว่าการเปลี่ยนแปลงในตลาดแรงงานเพียงอยIางเดียว เรากำลังเผชิญกับปญัหาระดับโลกที่เชื่อมโยงกันอย่างลึกซึ้ง เช่น การเปลี่ยนแปลงสภาพภูมิอากาศ ความไม่เท่าเทียมทางเศรษฐกิจที่เพิ่มขึ้น ความไม่สงบในสังคม และวิวัฒนาการทางเทคโนโลยีที่เปลี่ยนแปลงชีวิตของเราทุกวัน ในบริบทที่มีพลวัตเชIนนี้ แนวคิดเรื่อง “อนาคตที่ยั่งยืน” ไม่ใช่เพียงจุดหมายไกลตัวอีกต่อไป แต่กลายเป็น เส้นทางรวมกัน ซึ่งต้องใช้ทั้งความรู้ ทางเทคนิค ความสามารถในการปรับตัว ความฉลาดทางอารมณ์ และความมุ่งมั่นทางจริยธรรม การสร้างเส้นทางนี้ต้องการพลังของ ผู้นำรุ่นใหม่ บัณฑิตของเรา บัณฑิตไม่ใช่เพียงผู้รับปริญญา แต่เป็น สถาปนิกแห่งอนาคต การเสริมพลังให้พวกเขาไม่ใIการเติมเต็มข้อเท็จจริงเพียงอย่างเดียว แต่คือการบ่มเพาะศักยภาพทั้งหมด ทั้งการคิดเชิงวิเคราะหm ความคิดสร้างสรรค์ ความยืดหยุ่น และความเห็นอกเห็นใจ การศึกษา ระดับอุดมศึกษาจึงต้องเป็นมากกว่าเพียงระบบมอบวุฒิการศึกษา แต่ต้องเป็น พื้นที่แห่งการเปลี่ยนแปลง ที่ กระตุ้นให้เยาวชนค้นพบตัวเอง ตั้งคำถามกับโลกที่อยู่รอบตัว และเรียนรู้ที่จะทำงานร่วมกันอย่างมีความหมาย เพื่อสังคม หนึ่งในเสาหลักของความยั่งยืนในโลกปัจจุบันคือ ความสามารถในการปรับตัว เมื่อสภาพแวดล้อมโลกเปลี่ยนแปลงอย่างไมIคาดคิด บัณฑิตต้องพัฒนาทักษะการเรียนรู้ตลอดชีวิต สามารถลืมและเรียนรู้ใหม่ เปิด ใจรับสิ่งใหม่ เชื่อมโยงความรู้ข้ามสาขาวิชา และมีส่วนร่วมอย่างมีความหมายกับนวัตกรรม พวกเขาต้องสามารถประยุกต์ความรู้ในหลายบริบท เข้าใจเทคโนโลยีเกิดใหม่ และใช้ข้อมูลในการแก้ปัญหาที่ซับซ้อน ขณะเดียวกันยังคงยึดมั่นในคุณค่ามนุษย์

นอกจากนี้ บัณฑิตต้องมีความตระหนักในระดับโลก การเข้าใจประเด็นเช่น ความยืดหยุ่นต่อสภาพภูมิอากาศ พลังงานสะอาด ความเท่าเทียมด้านดิจิทัล และสิทธิมนุษยชน ไม่ใช่สิ่งเลือกทำ แต่จำเป็นอย่างยิ่ง อนาคตที่ยั่งยืนต้องการบุคคลที่ไม่เพียงเข้าใจระบบที่กำหนดโลก แต่ยังพร้อมที่จะ ลงมือทำอย่างมีจริยธรรม จากผู้สังเกตการณ์กลายเป็นผู้กระทำที่รับผิดชอบตIอชุมชนท้องถิ่นและโลก หัวใจของการเสริมพลังนี้คือการปลูกฝัง จิตสาธารณะ สังคมที่ยั่งยืนเกิดขึ้นก็ต่อเมื่อบุคคลใส่ใจไม่เพียงความสำเร็จของตนเอง แต่ยังมุ่งมั่นต่อ

ความดี ร่วม บัณฑิตต้องเปิดรับความหลากหลาย เคารพศักดิ์ศรีของผู้อื่น และสร้างสะพานเชื่อมระหว่าง วัฒนธรรม ชั้น ชน และอุดมการณ์ ความเป็นผู้นำที่แท้จริงไม่ได้อยู่ที่การควบคุมหรืออำนาจ แต่เกิดจากความเห็นอกเห็นใจ

การทำงานร่วมกัน และความชัดเจนทางศีลธรรม ความฉลาดเพียงอย่างเดียวไม่เพียงพอ ในโลกที่เปราะบางและซับซ้อน เราต้องการผู้ที่ ไม่เพียงแค่เก่ง แต่ดีด้วย ผู้ที่ใช้สติปัญญาเพื่อสร้างความยุติธรรม สันติภาพ และความเจริญร่วม

สุดท้าย การเสริมพลังบัณฑิต ไม่ใช่หน้าที่ของสถาบันการศึกษาเพียงอย่างเดียว แต่ต้องอาศัยความร่วมมือจาก มหาวิทยาลัย รัฐบาล ภาคอุตสาหกรรม ภาคประชาสังคม และครอบครัว ด้วยกัน เราต้องสร้างระบบนิเวศที่สนับสนุนการพัฒนาอย่างครบวงจรของเยาวชน เพื่อให้พวกเขาไม่เพียงแค่รอดในอนาคต แต่ สามารถสร้างอนาคต ได้

ประวัติศาสตร์แสดงให้เห็นว่ามนุษยชาติไม่เคยหยุดพัฒนา แต่ก็ไม่เคยปราศจากวิกฤติ โลกก้าว ไปข้างหน้าในแต่ละวัน ท้ามกลางความท้าทายที่ซับซ้อนและเร่งด่วน เมื่อทรัพยากรลดลง ความไม่เท่าเทียม เพิ่มขึ้น และการเปลี่ยนแปลงสภาพภูมิอากาศคุกคามการอยู่รอดร่วมกัน แนวคิดเรื่อง “อนาคตที่ยั่งยืน” จึง ไม่ใช่เพียงความฝันของคนรุ่นใหม่ แต่เป็น ความจำเป็นร่วมของมนุษยชาติทั้งหมดในศตวรรษที่ 21 การ เปลี่ยนแปลงอยIางรวดเร็วในด้านเทคโนโลยี เศรษฐกิจ และสังคม ได้เปลี่ยนรูปแบบชีวิตและงานอย่างรวดเร็ว ความรู้และทักษะเดิมอาจไม่เพียงพอ ความท้าทายสำคัญของศตวรรษนี้ไม่ใช่เพียงการแข่งขันทางเศรษฐกิจ แต่ คือความสามารถในการเติบโตอยIางเท่าเทียม มีจริยธรรม และยั่งยืนบนโลกที่เราใช้รIวมกันในบริบทนี้ บัณฑิต ไม่ใช่เพียงผู้ถือปริญญา แตIคือ ผู้เปลี่ยนแปลงสังคม (changemakers) ที่มีศักยภาพในการสร้างผลกระทบ ต่อระบบสังคม เศรษฐกิจ และสิ่งแวดล้อม การเสริมพลังบัณฑิตจึงไม่ใช่เพียงวัตถุประสงค์ทางการศึกษา แต่ คือ ภารกิจระดับชาติเพราะการเติบโตของบัณฑิตคือรากฐานของ อนาคตที่ยั่งยืนของสังคม ในโลกที่ข้อมูล และการเปลี่ยนแปลงเกิดขึ้นอย่างรวดเร็ว ความเชี่ยวชาญเพียงด้านเดียวไม่เพียงพอ บัณฑิตยุคใหม่ต้องมี ความสามารถหลากหลาย เช่น การคิดเชิงวิพากษ์ การสื่อสาร การทำงานร่วมกัน และความสามารถในการ ปรับตัวต่อความเปลี่ยนแปลง อนาคตที่ยั่งยืนไม่ได้ถูกสร้างขึ้นโดยผู้ที่รู้ทุกสิ่ง แต่โดยผู้ที่ เต็มใจเรียนรู้และ ปรับตัวอย่างมีเป้าหมาย นอกจากนี้ บัณฑิตต้องมีจิตสาธารณะ เคารพผู้อื่น รับรู้ความหลากหลาย และ

มุ่งมั่น ใช้ความสามารถเพื่อประโยชน์ส่วนรวม ความรับผิดชอบต่อสังคมคือสิ่งที่เปลี่ยนผู้ที่ได้รับการศึกษาให้กลายเป็น ผู้นำแห่งความยั่งยืน มหาวิทยาลัยในฐานะจุดเริ่มต้นของการเดินทางนี้ ต้องไม่จำกัดตัวเองอยู่เพียงหลักสูตรตายตัว แต่ต้องเป็น พื้นที่ทดลอง ค้นพบ และพัฒนาศักยภาพอย่างครบวงจร ภาครัฐควรสนับสนุนโอกาสการทำงานที่สร้างประโยชน์ตIอสังคม และลงทุนในนโยบายที่ส่งเสริมการพัฒนาอย่างยั่งยืน ภาคเอกชน ต้องเปิดโอกาสให้เยาวชนสร้างผลงาน พร้อมปลูกฝังวัฒนธรรมองค์กรที่สมดุลระหว่างกำไรกับความรับผิดชอบ ต่อสังคมและสิ่งแวดล้อม

การเสริมพลังบัณฑิตเหมือน การปลูกต้นกล้าที่เข้มแข็งในดินแห่งความหวัง บ่มเพาะให้เติบโตเป็น ต้นไม้ใหญ่ที่มอบร่มเงาและความอุIนใจให้โลกในวันหน้า อนาคตที่ยั่งยืนไม่ได้เริ่มจากนโยบายโลกหรือข้อตกลงระหว่างประเทศเพียงอย่างเดียว แต่เริ่มจาก บัณฑิตของวันนี้ผู้ที่พร้อมใช้ชีวิตด้วยความมุ่งหมาย ความกระตือรือร้น และคุณค่า เมื่อเราพูดถึง การพัฒนาที่ยั่งยืน อาจฟังดูไกลตัวเหมือนเป็นเรื่องของผู้นำโลกหรือการประชุมระดับสูง แต่ความจริงแล้ว ความยั่งยืนเริ่มจากสิ่งที่ใกล้ตัวที่สุด ผู้คน และในกลุ่มผู้คนนี้บัณฑิต คือผู้ที่เราต้องให้ความสนใจ พวกเขาไม่ใช่เพียงผู้จบการศึกษา แต่คือ ผู้นำ ผู้สร้างนวัตกรรม และผู้เปลี่ยนแปลงสังคมในอนาคต ความคิด การเลือก และการกระทำของพวกเขาจะกำหนดว่าโลกของเราจะยุติธรรม มีความเมตตา และยั่งยืนหรือไม่

ด้วยการเสริมพลังบัณฑิตวันนี้ ด้วยความรู้ คุณค่า และความกล้าที่จะใส่ใจ เรากำลังวางรากฐานสำหรับอนาคต ที่เป็นของทุกคน

การเสริมพลังบัณฑิตสู่อนาคตที่ยั่งยืน

บทนำ (Introduction)

โลกยุคปัจจุบันเต็มไปด้วยการเปลี่ยนแปลงอย่างรวดเร็ว ทั้งด้านเศรษฐกิจ สังคม เทคโนโลยี และสิ่งแวดล้อม การเปลี่ยนแปลงเหล่านี้ทำให้แนวคิดเรื่อง “อนาคตที่ยั่งยืน” ไม่ใช่เพียงเป้าหมายไกลตัว แต่เป็นเส้นทางร่วมกันที่ต้องใช้ทั้งความรู้ ความสามารถในการปรับตัว ความฉลาดทางอารมณ์ และความมุ่งมั่นทางจริยธรรม บัณฑิตไมรใช่เพียงผู้รับปริญญา แต่เป็น สถาปนิกแห่งอนาคต ที่สามารถสร้างความเปลี่ยนแปลงทางสังคม เศรษฐกิจ และสิ่งแวดล้อม การเสริมพลังบัณฑิตจึงไม่ใช่การเติมเต็มข้อเท็จจริงเพียงอย่างเดียว แต่คือการบ่มเพาะศักยภาพทั้งหมด: การคิดเชิงวิเคราะห์ ความคิดสร้างสรรค์ ความยืดหยุ่น และความเห็นอกเห็นใจ

ปัญหา (Problem)

1. ความไม่สอดคล้องระหว่างการศึกษาและตลาดแรงงาน

ข้อมูลจาก NESDC (2025) ระบุว่าบัณฑิตไทยจำนวน 91,000 คนจาก 358,000 คนที่ว่างงาน เป็นผู้จบการศึกษาใหม่ ขณะที่ TDRI พบว่าเพียง 22% ของตำแหน่งงานเหมาะสมกับบัณฑิตใหม่ส่วนอีก 38% ต้องการประสบการณ์อย่างน้อย 1–2 ปี

2. ขาดทักษะสำคัญ

บัณฑิตส่วนใหญ่ขาด ทักษะภาษาอังกฤษ ทักษะการสื่อสาร การคิดเชิงวิพากษ์ และทักษะการแก้ปัญหาซับซ้อน ซึ่งเป็นทักษะจำเป็นในโลกงานสมัยใหม่

3. ความไม่ชัดเจนในบทบาทต่อความยั่งยืน

แม้บัณฑิตถูกมองว่าเป็นผู้นำรุ่นใหม่ แต่บทบาทเชิงปฏิบัติในการสร้างความยั่งยืนทั้งด้านสังคม สิ่งแวดล้อม และเศรษฐกิจยังไม่ชัดเจน การบ่มเพาะจิตสำนึกและคุณธรรมจึงยังไมIเปiนระบบ

ข้อเสนอ/แนวทาง (Proposal/Approach)

1. การสร้างกรอบความสามารถ (Competency Framework)
    - ทักษะวิชาการและเทคนิค: การคิดเชิงวิเคราะหm การประยุกต์ใช้ความรู้ และความเชี่ยวชาญด้าน ดิจิทัล
    - ทักษะชีวิตและคุณธรรม: การสื่อสาร การทำงานร่วมกัน ความรับผิดชอบต่อสังคม และความตระหนักด้านสิ่งแวดล้อม
    - ทักษะการปรับตัวและการเรียนรู้ต่อเนื่อง: การเรียนรู้ตลอดชีวิต การปรับตัวต่อสถานการณ์ใหม่ และ การสร้างนวัตกรรม
2. ตัวอย่างโครงการมหาวิทยาลัยที่ประสบความสำเร็จ
    - โครงการฝึกงานและความร่วมมือกับภาคอุตสาหกรรม: เช่น มหาวิทยาลัยไทยหลายแห่งร่วมกับ บริษัทเอกชนจัด Internship Program เพื่อให้บัณฑิตได้รับประสบการณ์จริง

- โครงการสร้างบัณฑิตเพื่อสังคมและสิ่งแวดล้อม (Service Learning): นักศึกษาวิศวกรรมศาสตร์ และสถาปัตยกรรมเข้าร่วมโครงการพัฒนาชุมชนยั่งยืน

3. การสนับสนุนหลังจบการศึกษา

- Job Matching และ Career Counseling: ลดอัตราว่างงานและเชื่อมโยงบัณฑิตกับงานตรงสาย
- เครือข่ายบัณฑิต (Alumni Network): สนับสนุนการทำงานร่วมกันและการมีส่วนร่วมในโครงการเพื่อสังคม

ผลลัพธÉ/นัยยะ (Implications)

การเสริมพลังบัณฑิตชIวยสรZาง:

1. บัณฑิตพร;อมทำงานและลดอัตราว<างงาน

2. บัณฑิตที่มีคุณค<าเชิงสังคมและสิ่งแวดล;อม

3. กรอบความสามารถเชิงวิชาการที่ชัดเจน สำหรับพัฒนาบัณฑิตในอนาคต

สำหรับมหาวิทยาลัย: ปรับหลักสูตรใหZตอบสนองทั้งตลาดแรงงานและความยั่งยืน

สำหรับรัฐและนโยบายสาธารณะ: สนับสนุนการจZางงานและพัฒนาทักษะบัณฑิต

สำหรับบัณฑิตเอง: พัฒนาทักษะครบทั้งวิชาการ ทักษะชีวิต และจิตสำนึกตIอสังคมและโลก

ผลลัพธ์นัยยะ (Implications)

การเสริมพลังบัณฑิตช่วยสร้าง:

1. บัณฑิตพร้อมทำงานและลดอัตราว่างงาน
2. บัณฑิตที่มีคุณค่าเชิงสังคมและสิ่งแวดล้อม
3. กรอบความสามารถเชิงวิชาการที่ชัดเจน สำหรับพัฒนาบัณฑิตในอนาคต

สำหรับมหาวิทยาลัย: ปรับหลักสูตรให้ตอบสนองทั้งตลาดแรงงานและความยั่งยืน

สำหรับรัฐและนโยบายสาธารณะ: สนับสนุนการจ้างงานและพัฒนาทักษะบัณฑิต

สำหรับบัณฑิตเอง: พัฒนาทักษะครบทั้งวิชาการ ทักษะชีวิต และจิตสำนึกตIอสังคมและโลก

ประเด็น	หลักฐานเชิงประจักษ์	ตัวอย่าง	ข้อเสนอ/แนวทาง
ความว่างงานของบัณฑิต	NESDC (2025): บัณฑิตใหม่ว่างงาน 91,000 คน จาก 358,000 คน	–	ปรับหลักสูตรให้สอดคล้องตลาดงาน เพิ่มโครงการฝึกงาน และแนะแนวอาชีพ
ความไม่สอดคล้องทักษะกับความต้องการตลาด	ตำแหน่งงานเหมาะสมกับบัณฑิตใหม่ ส่วนอีก 38% ต้องการประสบการณ์ 1–2 ปี	–	สร้างกรอบความสามารถ เน้นทักษะภาษาอังกฤษ การแก้ปัญหา การสื่อสาร การคิดเชิงวิพากษ์
การสร้างผู้นำที่มีจิตสำนึกต่อสังคมและสิ่งแวดล้อม	WEF (2023): ทักษะสำคัญ เช่น Critical Thinking, Creativity, Emotional Intelligence	โครงการ Service Learning พัฒนาชุมชนยั่งยืน	ส่งเสริมโครงการเพื่อสังคมและสิ่งแวดล้อม และสร้างเครือข่ายบัณฑิต (Alumni Network)
การเตรียมบัณฑิตรับมือความท้าทายโลก	WEF (2023): ทักษะสำคัญ 10 อันดับแรก	โครงการฝึกงานร่วมกับภาคอุตสาหกรรม	ฝึกทักษะการปรับตัว การทำงานร่วมกัน และการแก้ปัญหาเชิงซับซ้อน

Empowering Graduates for a Sustainable Future: Integrating Soft Skills and Sustainability at BUKC

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Introduction:

The 21st century presents unprecedented challenges for higher education institutions (HEIs). Climate change, socio-economic inequality, and global instability demand graduates who are not only technically proficient but also ethically grounded and socially responsible[1]. The United Nations' Sustainable Development Goals (SDGs) articulate a universal call for such transformation with Education for Sustainable Development (ESD) identified as a pivotal pathway for fostering societal change. Yet, the integration of ESD into higher education remains inconsistent, often constrained by resource limitations, faculty capacity, and competing institutional priorities[2]. The Bahria University Karachi Campus (BUKC) case study addresses this gap by situating ESD within a culturally resonant framework that draws on international academic principles. This approach not only grounds sustainability in locally meaningful values but also enhances student buy-in, which has been identified as a critical factor in the success of sustainability initiatives[3]. Furthermore, BUKC's hybrid model — combining top-down SDG alignment with bottom-up student-led initiatives — offers a distinctive pathway toward moving beyond compliance to authentic cultural transformation. Therefore, it is important to highlight how BUKC offers an evolving model that embeds soft skills — empathy, ethical reasoning, communication, critical thinking — into its SDG agenda, empowering graduates for a sustainable future.

[1] (Price *et al.*, 2021) (UNESCO-Commission, 2021)
[2] (Khadim, Qureshi and Khan, 2022, pp. 4–5)
[3] (Costa and Cipolla, 2025, pp. 16–17)

Literature review:

Graduate attributes have been framed around employability and "hard" skills — discipline-specific technical competencies[4], especially for sustainable entrepreneurship[5]. However, as the global employment landscape shifts, there is a growing recognition that "soft" skills — including adaptability, problem-solving, and ethical reasoning — are equally, if not more, important[6]. A Study conducted identified empathy, systems thinking, and collaborative problem-solving as core competencies for addressing global challenges[7]. Moreover, another study emphasized that these skills are not easily acquired through traditional didactic teaching, but through experiential, community-based, and problem-oriented learning[8]. The tension between preparing students for the workforce and preparing them to address societal challenges is particularly visible in ESD discourse. Some argue that universities should not be directly responsible for fostering employability-related skills[9], while others contend that these skills are inseparable from preparing graduates to navigate complex societal challenges. It is noted that self-reported measures dominate current practice, yet these approaches often fail to capture behavioral change or real-world application[10].

In this scenario, Mezirow's Transformative Learning Theory provides a robust framework of ten phases, beginning with a disorienting dilemma and culminating in the reintegration of new perspectives into one's life[11]. In the context of ESD, transformative learning involves not only acquiring knowledge about sustainability but also undergoing a deep shift in values,

[4] (Žalėnienė and Pereira, 2021)
[5] (Leal Filho *et al.*, 2025, p. 960)
[6] (Pinto *et al.*, 2019)
[7] (Costa and Cipolla, 2025, pp. 8–9)
[8] (Alafnan, Dishari and Mohdzuki, 2024, p. 306)
[9] (Price *et al.*, 2021)
[10] (Barthakur *et al.*, 2023)
[11] (Mezirow, 1994; Mezirow and Taylor, 2009)

behaviours, and identity[12]. It is well argued in the literature that perspective-taking — the ability to view situations from multiple standpoints — is critical in bridging critical thinking and transformative learning in sustainability contexts[13].

Methodology:

Research Design

This study employs a qualitative, single-institution case study design to examine how BUKC integrates soft skills into its sustainability agenda.

Theoretical Framework

The research is grounded in Mezirow's Transformative Learning Theory which emphasizes the role of critical reflection and perspective transformation[14] and aligns with BUKC's experiential learning activities such as interfaith dialogues and community engagement projects.

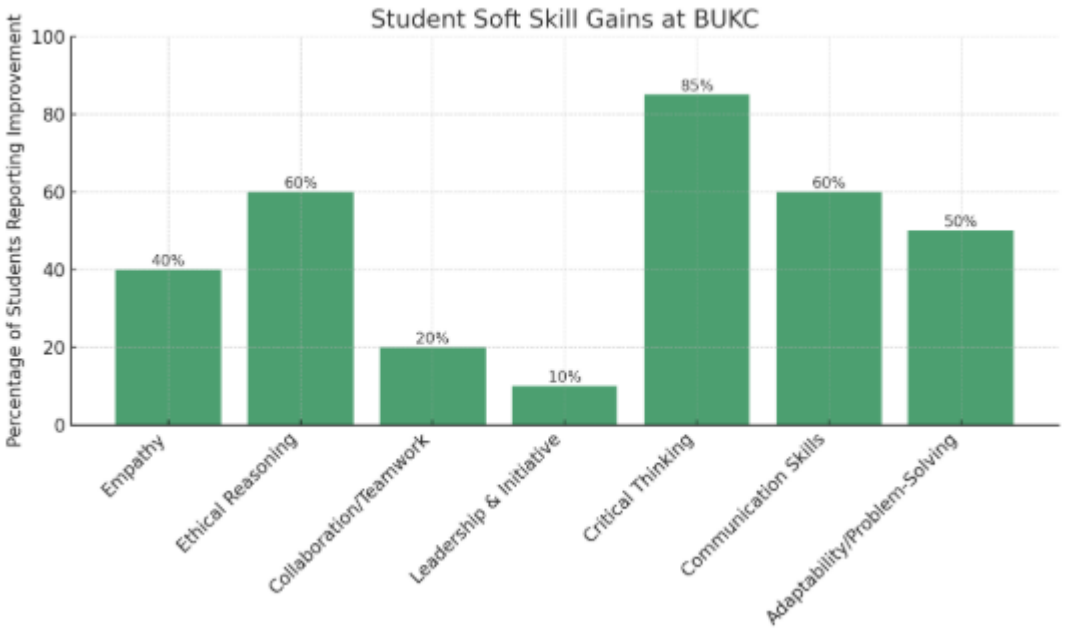
Rationale for Model Selection

Transformative learning provides the necessary depth for sustainability education, ensuring that students not only acquire knowledge but also internalize values and behaviors[15]. While case study allows for a deep engagement with local realities and reveal the interplay between institutional structure, cultural contexts, and pedagogical strategies[16]. Together, these models enable both qualitative insight and the potential for quantitative assessment.

Findings:

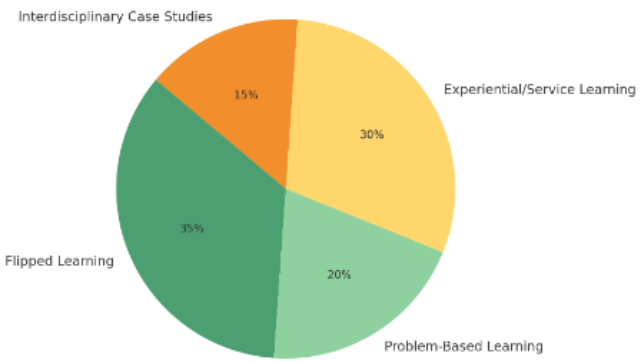
From the data set of 161 students, following are the findings,

[12] (Rodríguez Aboytes and Barth, 2020, pp. 1001–1003)
[13] (Southworth, 2022, p. 48)
[14] (Rodríguez Aboytes and Barth, 2020, p. 994)
[15] (Mezirow, 2003, p. 58)
[16] (Baron and McNeal, 2019)



- Approximately 70% of students described learning experiences that directly challenged their prior assumptions while 80% reported feelings of motivation and responsibility, and 20% expressed guilt or spiritual connection. Moreover, 60% explicitly recognized misconceptions in Islamic principles or religious practices, while 50% described group discussions as spaces for collaborative meaning-making. Furthermore, 70% intended to integrate new knowledge into daily practices. In general, students reported applying ethical reasoning to decisions, particularly around everydaay choices.

From the Training feedback of the 40 teachers regarding ESD and SDGs,



- Post-training, teachers expressed confidence embedding SDGs into curricula and agreed it would foster social responsibility and entrepreneurship.
- Flipped learning and experiential learning were most cited starting points.
- The lack of formal SDG assessment mechanisms was recognized as a critical limitation.

Discussion:

Findings align with global research emphasizing experiential learning as a catalyst for sustainability competencies. However, leadership development and environmental engagement remain low — echoing concern that without targeted assessment, later transformative phases are often underdeveloped. The BUKC model's cultural contextualization demonstrates a promising adaptation of ESD frameworks for contexts where Western sustainability narratives may not fully resonate.

Contributions:

Conclusion

- Critical thinking improvement was the most common skill gain (85%), followed by communication (60%) and ethical reasoning (60%).
- 75% expressed confidence in continuing to apply these skills. However, leadership development was minimal (<10%), suggesting that later transformative phases were less robust.
- BUKC's hybrid model effectively initiates transformative learning but requires stronger mechanisms to sustain later phases.
- Islamic ethical principles offer a culturally resonant entry point for sustainability engagement.
- Faculty readiness is high, but institutional structures must support ongoing integration and assessment.

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Empowering Graduates for Sustainability through Social Entrepreneurship: A Qualitative Exploration of an Enactus-led Project-Based Learning Initiative

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Introduction:

Universities are critical catalysts in cultivating sustainability-oriented graduates capable of tackling systemic challenges such as social inequity, climate change, and community development. Yet the sector still debates how to embed these attributes, especially soft skills such as ethical leadership, empathy, and collaborative problem-solving (Australian Universities Accord, 2024). Although project-based learning (PBL) is widely recognised as effective, we still lack qualitative accounts of how student-led initiatives, particularly Enactus programmes can build social-entrepreneurship capability.

Problem Statement: Graduate-attribute development is largely decoupled from authentic stakeholder accountability, which weakens translation into tangible community outcomes. This research seeks to address this gap by exploring the following research question: How does participation in an Enactus-led Project-Based-Learning programme foster graduate attributes related to social entrepreneurship and sustainability?

Literature review:

Recent work positions higher education as a lever for sustainability-ready graduates, with experiential and socially responsible learning aligned to the SDGs (Leal Filho et al., 2024). Enactus practice has been linked to empowerment and community development outcomes (Omotosho, 2024). Yet three gaps remain: (1) mechanism clarity—how attributes form in real

projects; (2) outcome linkage—how soft-skill gains convert to community value; and (3) context fidelity—evidence from live, student-run programmes rather than simulations. This study targets those gaps through an in-situ qualitative analysis of an operating Enactus programme. The existing research tends to focus primarily on quantitative outcomes, overlooking deeper insights into student experiences, learning processes, and internalisation of sustainability values. Consequently, this study qualitatively investigates the nuanced experiences of Enactus participants to uncover precisely how their involvement shapes their readiness to act as social entrepreneurs and sustainability leaders, addressing this critical gap.

Methodology:

Design. Qualitative case study of an Enactus team at a metropolitan Australian university (2024–2025).

Data: 20 semi-structured interviews (student volunteers n = 20); plus, document analysis (project proposals, partner communications, delivery logs and reflective journals).

Analysis: inductive thematic analysis with constant comparison across interviews and artefacts; anonymisation for double-blind review.

Justification: a qualitative case study is optimal for explaining process and meaning in context—surfacing how attributes are internalised and why they activate under authentic stakeholder accountability (Creswell & Poth, 2018).

Findings:

Qualitative thematic analysis identified four major themes:

Theme 1 — Ethical leadership under constraint. Students learned to reconcile beneficiary needs, partner expectations and resource limits—codifying transparent decision rules and proactive risk disclosure.

Theme 2 — Community-centric mindset. Co-design rituals (listen-learn-iterate) shifted teams from solution-first to needs-first, improving fit, trust and uptake.

Theme 3 — Collaborative competence at pace. Cross-disciplinary teaming and sprint cadences-built facilitation, negotiation and conflict-resolution with councils, NGOs and SMEs.

Theme 4 — Identity shift to action orientation. Participants moved from learning about sustainability to identifying as actors with agency. The data suggested these soft-skill gains were deeply connected to authentic, real-world project experiences unique to Enactus-style student-led programmes, which facilitated profound internalisation of sustainability values.

- Project name: ASEI Exchange
- Status: In progress (pilot build-out; conservative projections shown below based on minimal viable delivery).
- Problem: Australian classrooms seek authentic, curriculum-aligned global citizenship/SDG engagement; Ugandan secondary students need reliable, year-long funding for STEM-in-Schools (SiS) and structured exposure to applied STEM. Funding is fragmented and ad-hoc, undermining continuity (especially for girls) and teacher resourcing.
- Action: Co-designed with ASEI Uganda, ASEI Exchange is a subscription-backed exchange where each A$39 subscription funds one Ugandan student's SiS year, pairing an Australian classroom with an ASEI cohort for 3–5 guided sustainability

dialogues on a safeguarded platform. Delivery assets include co-created lesson plans, teacher facilitation notes, and asynchronous reflection tasks mapped to SDGs.

- Projected impact (conservative, 4-month pilot; basis stated):

— Assumptions (floor case): 4 classrooms × 10 subscriptions/classroom = 40 subscriptions (one-to-one student sponsorship). 3 dialogues/classroom (minimum viable).

— Social: ≈40 Ugandan students sponsored; 4 Australian classrooms engaged; 3 dialogues/classroom delivered; target ≥50% girls in sponsored cohort (to be confirmed by ASEI enrolment sheets).

— Environmental: ≈8 SDG mini-projects prototyped (≈2 per classroom; e.g., waste sorting, water testing, school garden plots). No emissions savings claimed unless verified; focus is literacy/behavioural outcomes and project outputs.

— Economic: Funds mobilised (pilot) = A$39 × 40 = A$1,560 toward SiS participation; teacher resource packs (1 per class) provided; [optional: data bundles/devices] if confirmed by partner.

- Mechanism link (skills → benefits):

– Community-centric mindset (Theme 2) → co-design with ASEI educators → culturally appropriate session plans → higher engagement/attendance.

– Collaborative competence (Theme 3) → school-to-school MoUs + scheduling + tech onboarding → on-time delivery of dialogues.

– Ethical leadership under constraint (Theme 1) → transparent 1:1 sponsorship rules + safeguarding → partner trust and equitable allocation.

Discussion:

Findings illuminate qualitative pathways through which Enactus-led PBL effectively fosters graduate attributes critical for sustainability leadership and social entrepreneurship. Students articulated how authentic engagement transformed theoretical sustainability concepts into actionable personal identities, reinforcing literature emphasising experiential learning's transformative potential. The data indicate a mechanism chain: authentic PBL context → soft-skill formation (leadership, empathy, collaboration, identity) → activation via stakeholder accountability → community outcomes aligned to the SDGs. This clarifies how Enactus-style PBL moves graduates from theory to action and why traditional classroom-only approaches—detached from real consequences—underperform on impact translation. Boundary conditions for scale include facilitator capability, micro-grant liquidity for rapid pilots, assessment alignment to mechanism + outcome, and timely partner access.

The results underscore the potential for student-led Enactus programmes to deliver unique educational experiences that actively embed graduate attributes beyond employability alone, contributing meaningfully to societal change. Institutional barriers, including resource constraints and limited faculty involvement, however, were noted as potential limitations to scalability and sustained implementation.

Contributions:

Empirical: Rich qualitative evidence linking graduate attribute development to measurable community outcomes within a live Enactus programme.

Theoretical: An activation sequence showing how attributes trigger under stakeholder accountability, extending graduate-attribute and employability-capital perspectives.

Practical: A replicable playbook: embed co-design; codify ethical triage; require outcome logs (social/environmental/economic); align assessment to mechanism + outcome; fund rapid pilot cycles.

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Empowering Graduates through Soft Skills for Social Entrepreneurship and Sustainability in South African Higher Education

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Introduction:

The 21st century has brought pressing global challenges such as climate change, rising inequality, and economic instability, which have intensified the call for universities to rethink their roles in society. Higher education institutions (HEIs) are increasingly expected not only to produce technically competent graduates but also to cultivate socially responsive, ethically grounded leaders capable of addressing complex societal problems (Berkowitz, 2018). The central problem, therefore, lies in the limited integration of soft skills such as empathy, ethical leadership, adaptability, and collaboration within South African higher education curricula. This is problematic because graduates often enter the workforce with strong theoretical knowledge but inadequate capabilities to navigate socio-economic realities, innovate for sustainability, and engage in social entrepreneurship (World Economic Forum, 2020).Thus, it is important to interrogate how HEIs can embed soft skills within pedagogical practices, particularly in contexts like South Africa, where higher education is simultaneously tasked with advancing decolonisation, transformation, and socio-economic development. This paper argues that integrating indigenous ethics, such as Ubuntu, with global frameworks of sustainability and transformative learning can produce graduates who are not only employable but also agents of social change.

Literature review:

The literature on higher education and employability emphasises the growing importance of soft skills in preparing graduates for dynamic labour markets (Jackson, 2016; Robles, 2012). Employers consistently rank communication, teamwork, problem-solving, and adaptability as core attributes, often above technical expertise (Andrews & Higson, 2008). In addition, soft skills are increasingly linked to entrepreneurial success, particularly in social entrepreneurship, which requires empathy, innovation, and the capacity to mobilise communities (Mwasalwiba, 2010). However, critics argue that the discourse around graduate employability tends to be dominated by neoliberal market-oriented frameworks that prioritise individual competitiveness rather than collective well-being (Tomlinson, 2017). From this perspective, the risk is that universities may treat soft skills merely as instrumental tools for employability rather than as transformative capabilities for social justice. This raises a critical gap: while there is extensive literature on soft skills and employability, much less is known about how these skills can be reimagined through a decolonial lens to address structural inequalities in South Africa. Furthermore, the integration of indigenous philosophies such as Ubuntu into higher education has been widely advocated (Letseka, 2012; Higgs, 2015). Ubuntu, with its emphasis on relationality, community, and ethical responsibility, provides an alternative to Western individualistic models of graduate success. At the same time, Mezirow's (1997) Transformative Learning Theory highlights the need for critical reflection and perspective transformation in adult education. The intersection of Ubuntu and Transformative Learning suggests a fertile space for rethinking soft skills not simply as transferable competencies but as ethical and socially embedded practices. Therefore, the research question emerges: **How can South African universities embed soft skills in curricula to empower graduates for social entrepreneurship and sustainability?**

The central proposition is that by combining Ubuntu ethics with transformative pedagogy, HEIs can bridge global sustainability goals with local development needs, thereby producing graduates capable of advancing both personal employability and collective well-being.

Methodology:

This study adopts a **qualitative case study methodology**, as it enables the exploration of experiences, values, and practices in context (Creswell & Poth, 2018). Data will be collected from three groups: educators, graduates, and curriculum designers. Semi-structured interviews will provide insight into perceptions of soft skills, while document analysis of curricula will reveal how these skills are currently embedded or overlooked. The qualitative approach is justified because the study seeks to uncover meanings and practices rather than measure quantifiable outcomes. Moreover, it allows for the integration of diverse voices, which aligns with the decolonial imperative of valuing multiple epistemologies.

Findings:

Preliminary findings indicate that while many South African universities recognise the importance of soft skills, their inclusion in curricula remains uneven. Often, soft skills are treated as implicit "by-products" of learning rather than explicitly taught or assessed outcomes. Graduates frequently acquire these skills informally through student organisations, community engagement projects, or service-learning initiatives rather than through structured classroom teaching (Jackson, 2016). At the same time, there is strong resonance between graduates' experiences of community engagement and the values of Ubuntu. For example, many reported that group-based projects and community service activities helped them to cultivate empathy, ethical responsibility, and collaborative leadership. However, these

experiences are not systematically aligned with formal curricular outcomes, leaving a gap between institutional goals and student development.

Discussion:

The findings suggest that soft skills must be more deliberately embedded into curricula if HEIs are to prepare graduates for social entrepreneurship and sustainability. Relying on incidental or extracurricular experiences risks reproducing inequalities, as not all students have equal access to such opportunities (Tomlinson, 2017). By drawing on Ubuntu, soft skills can be reframed as collective capabilities rather than individual attributes. This shifts the focus from employability alone to community transformation. For instance, empathy becomes not just a personal trait but an ethical obligation to act for the common good. Similarly, leadership is redefined as collaborative stewardship rather than hierarchical control. When combined with Transformative Learning Theory, which encourages critical reflection on assumptions and practices (Mezirow, 1997), this approach can foster graduates who are not only reflective but also socially grounded. This integration provides new insights: it demonstrates that graduate empowerment must be understood as a multi-dimensional process that goes beyond labour market readiness to encompass ethical, social, and environmental responsibilities.

Contributions:

This study makes several contributions:

1. It highlights gaps between institutional rhetoric on graduate attributes and the lived realities of students, showing that soft skills are often marginalised in practice.

2. By combining *Ubuntu* ethics with Transformative Learning Theory, it develops a decolonial and context-sensitive framework for understanding soft skills in South African higher education.
3. It offers a model for curriculum designers and policymakers, advocating for the explicit integration of empathy, ethical leadership, and sustainability into course design, assessment, and pedagogy. This has implications not only for South Africa but also for other postcolonial contexts seeking to align global goals with local realities.

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Empowering Graduates for a Sustainable Future: Integrating Social Entrepreneurship and Sustainability in Higher Education

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Introduction:

Universities play a vital role in shaping the future of graduates, equipping them with both technical knowledge and essential life skills. With global challenges such as unemployment, climate change, and inequality, there is an urgent need to integrate **social entrepreneurship** and **sustainability** into higher education. Social entrepreneurship promotes innovative solutions to social and environmental problems, while sustainability ensures that these solutions meet present needs without compromising future generations. This paper addresses the importance of developing graduates who are equipped to create positive societal change through a combination of academic learning, soft skills, and community engagement.

Literature review:

Soft skills,such as creativity, problem-solving, emotional intelligence, time management, and collaboration—are critical in driving social and economic well-being. Research highlights that organisation like **SWEEP, Enactus, EDHE**, and **Higher Health** bridge the gap between student business illiteracy and entrepreneurial success in higher education. These initiatives offer financial literacy, business acumen, mentorship, and personal development, empowering students to be self-reliant and community focused.

While existing literature recognises the benefits of such programs, there is a gap in how universities consistently integrate these soft skills and sustainability principles into their curricula. This paper asks: *How can universities embed social entrepreneurship and*

sustainability into their programs to produce graduates who are prepared to address pressing global challenges?

Methodology:

This paper adopts a **qualitative** approach, drawing on personal experiences as an Environmental Health student, Peer Educator, and Enactus MUT Project Coordinator. These roles provide first-hand insights into the impact of integrating social entrepreneurship and sustainability principles into student activities. A qualitative lens allows for an in-depth exploration of personal narratives, institutional support structures, and program outcomes in promoting graduate empowerment.

Findings:

The analysis reveals that initiatives like **Enactus, SWEEP, EDHE**, and **Higher Health** play a transformative role in shaping students beyond academics. These programs equip learners with a **holistic skill set** that supports both personal growth and community impact:

Key Capacities Developed

- **Financial Literacy & Management** Students learn budgeting, saving, and responsible financial planning—essential for both personal stability and entrepreneurial success.
- **Business Skills & Innovation** Exposure to real-world business challenges fosters creativity, strategic thinking, and the ability to design sustainable ventures.
- **Personal Development & Self-Care** Programs encourage self-awareness, resilience, and time management, helping students balance academic, social, and emotional demands.

- **Mental Health & Emotional Intelligence** Through workshops and peer support, students gain tools to manage stress, build empathy, and maintain psychological well-being.
- **Community Engagement & Leadership** Learners are empowered to lead initiatives that address local issues, promoting civic responsibility and social entrepreneurship.

Impact

These competencies not only **boost employability** but also i**nspire students to launch socially responsible businesses**—especially in underserved communities. The ripple effect contributes to **sustainable development**, aligning with national goals like poverty reduction, health promotion, and youth empowerment.

Discussion:

The findings suggest that universities can **maximize their impact** by embedding soft skills and sustainability into both formal and informal learning environments.

How to Achieve This

- **Experiential Learning** Encourage students to participate in hands-on projects—like food safety audits, river clean-ups, or township health campaigns—that tackle real-world problems while reinforcing academic concepts.
- **Mentorship Programs** Pair students with professionals in business, public health, and social innovation. This builds networks, confidence, and practical insight into career pathways.
- **Sustainability-Focused Modules** Integrate environmental and social responsibility into business, health, and science curricula. Teach students how to grow enterprises that protect ecosystems and uplift communities.

Alignment with National Goals

This approach supports:

- **Youth employment and entrepreneurship**
- **Public health improvement**
- **Environmental sustainability**
- **Community resilience**

Graduates become **agents of change**, equipped not just with degrees, but with the mindset and tools to lead transformation in their communities.

Contributions:

This paper contributes to practice by proposing that higher education institutions create structured pathways for social entrepreneurship and sustainability training. It offers empirical insights into how student-led initiatives foster these skills and demonstrates the value of such integration for both academic and community impact. This work supports policy recommendations for curriculum reform to ensure future graduates can lead with innovation and sustainability.

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Empowering Students for Sustainable Waste Management: A Case Study of Garbage Sorting During Freshmen Orientation

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Introduction:

Higher education institutions play a vital role in promoting sustainability and social responsibility. Large-scale events like university orientation programs generate significant waste, contributing to environmental problems if not managed properly. In July 2025, Srinakharinwirot University (SWU) welcomed nearly 8,000 freshmen, with 3,984 attending on-campus activities over two nights and three days. Six meals per participant produced substantial waste. This study addresses the lack of structured waste management and student engagement during such mass events, aiming to reduce environmental impact while fostering environmental stewardship.

Literature review:

Literature review:

Universities worldwide have adopted sustainability initiatives to align with the United Nations Sustainable Development Goals (SDGs), particularly SDGs 11, 12, and 13, which emphasize sustainable cities, responsible consumption, and climate action. Research has shown that student engagement in experiential sustainability projects, such as waste sorting, enhances awareness and long-term behavioral change (Raghu and Rodrigues, 2021). However, literature also highlights challenges in mobilizing student volunteers for labor-intensive tasks and ensuring that environmental initiatives are effectively measured (Debrah, Chan and Darko, 2021). Despite evidence on the importance of experiential learning in sustainability, limited research examines large-scale orientation events as living laboratories for environmental initiatives in Southeast Asia. This study addresses this gap by investigating the implementation and outcomes of a waste sorting project at SWU during the 2025 freshmen orientation, focusing on student engagement and measurable environmental impact. The research question guiding this study is: How can student-led waste sorting during orientation activities contribute to environmental sustainability and student awareness at SWU?

Methodology:

This study used a quantitative case study to measure waste generation, composition, and environmental impact, supported by qualitative observations of student participation. About 4,000 students attended the three-day orientation, producing waste at six meals. Seventy volunteers—30 individual sign-ups and 40 from 20 student clubs—facilitated the process. Rather than sorting waste themselves, they guided peers at sorting stations and ensured proper separation, so all 4,000 students participated. Waste was classified as food, recyclables, or general, and weighed with digital scales. Greenhouse gas (GHG) reduction

was estimated using Thailand's Pollution Control Department conversion factors. Qualitative data from the 70 volunteers were gathered through informal interviews and observations, highlighting their experiences and attitudes toward waste management.

Findings:

The analysis of waste generated during the orientation program showed that a total of 3,330 kilograms of waste were collected and categorized into food waste, recyclables, and general waste. Waste sorting at the event demonstrated the potential for substantial reductions in greenhouse gas (GHG) emissions, calculated using official conversion factors from the Pollution Control Department of Thailand.

Importantly, all 4,000 freshmen actively engaged in the sorting process during each meal, guided and monitored by 70 student volunteers. The findings revealed that these volunteers were highly engaged in their roles and reported developing a positive attitude toward waste management. They also influenced their peers by providing real-time guidance, which ensured proper sorting at the stations.

Qualitative insights further indicated that the volunteers gained confidence, strengthened their leadership skills, and viewed their contribution as a valuable learning experience. They observed that their presence at the sorting stations increased awareness among the wider student body, helped normalize sustainable practices, and created a sense of shared responsibility across the campus community.

Discussion:

This study shows that large-scale campus events, such as freshmen orientation, can effectively promote sustainable behavior when facilitation is structured. With the

participation of all 4,000 students in waste sorting across multiple meals, the initiative demonstrated that sustainability can be integrated into routine student activities without major structural changes.

The 70 student volunteers played a key role as facilitators and role models, guiding their peers and ensuring compliance at sorting stations. This peer-led approach not only ensured accurate sorting but also fostered a culture of shared responsibility. The volunteers' positive experiences and reported attitude shifts suggest that such leadership opportunities can shape long-term environmental values.

The findings also highlight the scalability of student-driven initiatives. Embedding waste sorting into high-participation events yields measurable benefits, such as waste diversion and greenhouse gas reduction, while providing experiential learning for students. Combining quantitative outcomes with qualitative insights strengthens the case for positioning waste management as both an operational and educational intervention.

Although recruiting volunteers posed challenges, the successful engagement of the entire freshman cohort shows that broad participation is achievable with proper guidance. This model offers a replicable framework for universities seeking to advance sustainability education through mass student activities.

Contributions:

This study contributes to both sustainability practice and higher education research in several ways. First, it demonstrates that large-scale orientation programs can be used as effective platforms for environmental education, engaging all 4,000 freshmen in hands-on waste sorting. This shows how sustainability can be embedded into routine student activities with wide participation in a short time.

Second, the model highlights the value of peer-led facilitation. The 70 student volunteers served as guides and role models, fostering a culture of shared responsibility while developing positive attitudes and leadership skills.

Third, the integration of quantitative data (waste and GHG reduction) with qualitative insights (volunteer reflections) provides a holistic view of environmental and educational outcomes. This supports positioning waste sorting as both an operational necessity and an experiential learning opportunity.

Finally, the case offers a replicable framework for other universities. By embedding sustainability into high-participation events, institutions can achieve measurable environmental benefits while cultivating environmental literacy and leadership among students.

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Empowering Youth through Cross-Sector Social Entrepreneurship in Oaxaca's Mixtec Region

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Introduction:

Universities are increasingly expected to produce graduates who champion sustainability and social innovation. This study examines a program in the Mixtec region of Oaxaca, Mexico that mobilizes university students as change agents for sustainable development. Anchored by the Enactus program at Universidad Tecnológica de la Mixteca (UTM), it organizes interdisciplinary student teams under faculty mentorship to design and implement ventures addressing community needs. The Mixtec region's poverty, unemployment and environmental degradation make it a critical context for such innovation. Enactus UTM projects target poverty reduction, environmental stewardship, and social inclusion, deliberately aligning each initiative with multiple United Nations Sustainable Development Goals (SDGs). By bridging academic learning with grassroots action, the program aims to build local capacity and foster sustainable change.

Literature review:

Amartya Sen's capabilities approach (Sen, 1999) defines development as expanding the freedoms people value, and this framework remains crucial for understanding how youth social entrepreneurship builds agency and well-being. Recent educational research applying

the capability approach to entrepreneurship finds that such programs cultivate young people's capacities to create social value (Forcher-Mayr & Mahlknecht, 2020). Similarly, Peter Evans' concept of social synergy, that cross-sector alliances achieve outcomes unattainable by any one sector (Evans, 1996), has gained renewed relevance. Contemporary scholarship suggests that institutionalizing multi-sector collaboration as part of universities' "third mission" can amplify and sustain the impact of student-led innovations (Wu et al., 2023; Berg-Postweiler & Leicht-Scholten, 2024).

A third pillar, David Kolb's experiential learning theory (Kolb, 1984), continues to inform social entrepreneurship pedagogy: engaging students in real-world projects yields deeper learning and commitment to social change (Mukesh et al., 2024). However, few studies have examined how formal program structures influence the longevity and scale of student-led initiatives, as most research focuses on short-term outcomes.

Addressing this gap, the study asks: **How does an institutionalized, cross-sector student entrepreneurship program empower youth and communities for sustainable development in a small-city context?** We hypothesize that institutionalizing cross-sector alliances through long-term agreements with external partners, combined with continuous faculty involvement, will yield more durable community outcomes than student projects run in isolation. Formal structures are expected to provide stability, resources, and knowledge transfer that persist after students graduate, thereby sustaining and scaling these initiatives over time.

Methodology:

This research uses a qualitative single-case study design focused on the Enactus UTM program, with its community projects as embedded sub-cases. Data were collected through

semi-structured interviews with key stakeholders (students, faculty, community members, and partner organizations) and field observations of project activities. These qualitative data were analyzed thematically to identify patterns in alliance formation, implementation processes, and outcomes. Triangulation of multiple data sources and participant feedback were employed to ensure the credibility of results. The qualitative approach enabled an in-depth understanding of how and why the program operates and produces its effects.

Findings:

Impact on Communities: In recent years, Enactus UTM student-led projects have directly engaged hundreds of community members across the Mixtec region, that together have directly impacted over 400 community members and indirectly benefited an estimated 86,000 residents. One flagship venture, Kuili, turned an abandoned site into a community-run recycling plant that now employs 69 former waste pickers in stable employment. This initiative significantly reduced local pollution and nearly tripled participating families' incomes, lifting many out of poverty. By addressing multiple SDGs simultaneously, Kuili exemplifies the program's impact. Its success spurred replication in other communities and drew interest from government authorities to scale the model nationally. Beyond Kuili, other ventures have improved livelihoods (e.g., in sustainable agriculture and women's artisan enterprises) via co-designed solutions that ensured local ownership and cultural appropriateness. Formal support from local authorities and institutional partnerships have further helped embed these projects so they endure beyond student team turnover. Overall, the community outcomes support the hypothesis that institutionalized cross-sector partnerships yield sustained impact.

Impact on Students: The program delivers significant educational benefits. Students report gains in practical and soft skills (e.g., creativity, teamwork, and project management), confirming that community-engaged learning produces more work-ready, socially conscious graduates. Working directly with marginalized groups deepens students' leadership and sense of social responsibility. Participants describe real-world problem-solving experiences, such as negotiating with officials or adapting project plans in response to community feedback, as transformative learning moments not achievable in a classroom. Many Enactus UTM alumni continue to engage in social innovation after graduation; for example, one alumna founded the first Social Economy School in Mexico. This shows the program not only provides immediate community benefits but also cultivates a new generation of social entrepreneurs and civic leaders. In sum, the initiative achieves a dual impact: tangible community improvements alongside youth empowerment, an embodiment of Sen's vision that expanding others' freedoms also expands one's own.

Discussion:

The findings highlight that the program's institutionalized alliance model was crucial: formal partnerships and faculty oversight enabled projects to continue beyond student turnover, supporting the hypothesis that such institutionalization yields more sustainable outcomes. Moreover, the multi-sector collaboration (exemplified by Kuili) generated concurrent social, economic, and environmental gains, demonstrating Evans' (1996) notion that public–community synergy can achieve results unattainable by one sector alone. The program's integration of co-creative development and experiential learning further expanded community members' capabilities (Sen, 1999) while cultivating adaptive, ethical leadership

in students (Kolb, 1984). These elements helped turn short-term student initiatives into lasting community development impact.

Contributions:

Empirical contribution: The study provides an in-depth case of a university-based social entrepreneurship program in a developing region, filling a gap in the literature on small-city sustainable development initiatives. It shows that student-led ventures can deliver significant community outcomes alongside educational benefits.

Theoretical contribution: It demonstrates how Sen's capabilities approach can inform co-creative program design and how social synergy can be realized through structured cross-sector partnerships, illustrating how collaboration and capacity expansion interplay in practice.

Practical contribution: The Enactus UTM model, defined by formal alliances, continuous faculty mentorship, and alignment with local government, offers a replicable template for similar communities. These features ensure continuity beyond student cohorts and embed projects in the community's fabric. The findings provide guidance for structuring youth entrepreneurship programs to achieve immediate impact and long-term sustainability.

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Spanish Version

Introducción:

Cada vez más se espera que las universidades formen egresados que promuevan la sostenibilidad y la innovación social. Este estudio examina un programa en la región Mixteca de Oaxaca, México, que moviliza a estudiantes universitarios como agentes de cambio para el desarrollo sostenible. Anclado en el programa Enactus de la Universidad Tecnológica de la Mixteca (UTM), organiza equipos interdisciplinarios de estudiantes bajo la tutoría de profesoras para diseñar e implementar emprendimientos que atienden necesidades comunitarias. La pobreza, el desempleo y la degradación ambiental de la región Mixteca la convierten en un contexto crítico para este tipo de innovación. Los proyectos de Enactus

UTM se orientan a la reducción de la pobreza, el cuidado del medio ambiente y la inclusión social, alineando deliberadamente cada iniciativa con múltiples Objetivos de Desarrollo Sostenible (ODS) de las Naciones Unidas. Al vincular el aprendizaje académico con la acción comunitaria, el programa busca fortalecer las capacidades locales y fomentar un cambio sostenible.

Revisión de la literatura:

El enfoque de capacidades de Amartya Sen (Sen, 1999) define el desarrollo como la ampliación de las libertades que las personas valoran, y este marco sigue siendo crucial para comprender cómo el emprendimiento social juvenil fortalece la autonomía y el bienestar. Investigaciones educativas recientes que aplican el enfoque de capacidades al emprendimiento muestran que tales programas cultivan la capacidad de los jóvenes para generar valor social (Forcher-Mayr & Mahlknecht, 2020). De manera similar, el concepto de sinergia social de Peter Evans, que sostiene que las alianzas intersectoriales logran resultados inalcanzables por cualquier sector de forma aislada (Evans, 1996), ha cobrado renovada relevancia. La literatura contemporánea sugiere que institucionalizar la colaboración multisectorial como parte de la "tercera misión" de las universidades puede amplificar y sostener el impacto de las innovaciones lideradas por estudiantes (Wu et al., 2023; Berg-Postweiler & Leicht-Scholten, 2024).

Un tercer pilar, la teoría del aprendizaje experiencial de David Kolb (Kolb, 1984), continúa orientando la pedagogía del emprendimiento social: involucrar a los estudiantes en proyectos del mundo real genera un aprendizaje más profundo y un compromiso con el cambio social (Mukesh et al., 2024). Sin embargo, pocos estudios han examinado cómo las estructuras

formales de los programas influyen en la longevidad y la escala de las iniciativas estudiantiles, ya que la mayoría de la investigación se centra en resultados de corto plazo. Para abordar esta brecha, el estudio plantea la siguiente pregunta: ¿Cómo un programa de emprendimiento estudiantil intersectorial e institucionalizado empodera a la juventud y a las comunidades para el desarrollo sostenible en un contexto de ciudad pequeña? Nuestra hipótesis es que institucionalizar las alianzas intersectoriales mediante acuerdos de largo plazo con socios externos, combinados con la participación continua de la academia, producirá resultados comunitarios más duraderos que los proyectos estudiantiles aislados. Se espera que estas estructuras formales proporcionen estabilidad, recursos y transferencia de conocimiento que persistan después de la graduación de los estudiantes, sosteniendo y escalando estas iniciativas en el tiempo.

Metodología:

Esta investigación utiliza un diseño cualitativo de estudio de caso único enfocado en el programa Enactus UTM, con sus proyectos comunitarios como subcasos incrustados. Los datos se recopilaron a través de entrevistas semiestructuradas con actores clave (estudiantes, profesores, miembros de la comunidad, y organizaciones asociadas), y observaciones de campo de las actividades de los proyectos. Estos datos cualitativos se analizaron temáticamente para identificar patrones en la formación de alianzas, los procesos de implementación y los resultados. Se aplicaron técnicas de triangulación de múltiples fuentes de datos y retroalimentación de participantes para garantizar la credibilidad de los resultados. El enfoque cualitativo permite una comprensión profunda de cómo y por qué funciona el programa y de qué manera produce sus efectos.

Resultados:

Impacto en las comunidades: En los últimos años, los proyectos liderados por estudiantes han involucrado directamente a cientos de miembros de la comunidad en la región Mixteca, que en su totalidad han impactado directamente más de 400 miembros de comunidades y beneficiado de manera indirecta a una población aproximada de 86,000 personas. Una iniciativa emblemática, Kuili, convirtió un espacio abandonado en una planta de reciclaje gestionada por la comunidad que ahora emplea a 69 expepenadores con trabajos estables. Esta iniciativa ha reducido de manera significativa la contaminación local y casi ha triplicado los ingresos de las familias participantes, sacando a muchas de la pobreza. Al atender simultáneamente múltiples ODS, Kuili ejemplifica el impacto del programa. Su éxito estimuló la réplica en otras comunidades y atrajo el interés de autoridades gubernamentales que evalúan escalar el modelo a nivel nacional. Más allá de Kuili, otras iniciativas han mejorado medios de vida (p. ej., en agricultura sostenible y en microempresas artesanales gestionadas por mujeres) mediante soluciones codiseñadas que garantizan apropiación local y pertinencia cultural. El apoyo formal de autoridades locales y de socios institucionales ha contribuido a consolidar estos proyectos, de modo que se mantienen incluso con la rotación de equipos estudiantiles. En conjunto, los resultados comunitarios respaldan la hipótesis de que las alianzas intersectoriales institucionalizadas generan impactos sostenibles.

Impacto en los estudiantes: El programa ofrece también beneficios educativos significativos. Los estudiantes reportan mejoras en habilidades prácticas y blandas (creatividad, trabajo en equipo, y gestión de proyectos), confirmando que el aprendizaje basado en las comunidades produce egresados más preparados y socialmente conscientes. El contacto directo con grupos marginados profundiza el liderazgo y el sentido de responsabilidad social de los participantes. Muchos señalan experiencias de resolución de

problemas reales, como negociar con funcionarios o adaptar planes de proyectos en respuesta a la retroalimentación comunitaria, como momentos de aprendizaje transformador.

Numerosos egresados de Enactus UTM continúan comprometidos con la innovación social después de graduarse; por ejemplo, una exintegrante fundó la primera Escuela de Economía Social en México. Esto demuestra que el programa no solo aporta beneficios inmediatos a las comunidades, sino que también forma una nueva generación de emprendedores sociales y líderes cívicos. En suma, la iniciativa logra un doble impacto: mejoras tangibles en el bienestar comunitario junto con el empoderamiento juvenil, en línea con la visión de Sen de que al expandir las libertades de otros también se amplían las propias.

Discusión:

Los hallazgos resaltan que el modelo de alianzas institucionalizadas del programa fue crucial: las asociaciones formales y la supervisión docente permitieron que los proyectos continuaran más allá de la rotación estudiantil, lo cual respalda la hipótesis de que tal institucionalización genera resultados más sostenibles.

Asimismo, la colaboración multisectorial (ejemplificada en Kuili) produjo beneficios sociales, económicos y ambientales de manera simultánea, demostrando la noción de Evans (1996) de que la sinergia entre lo público y lo comunitario puede lograr resultados inalcanzables por un solo sector.

La integración del programa de desarrollo cocreativo y aprendizaje experiencial amplió aún más las capacidades de los miembros de la comunidad (Sen, 1999), al mismo tiempo que fomentó un liderazgo adaptativo y ético en los estudiantes (Kolb, 1984). Estos elementos ayudaron a transformar iniciativas estudiantiles de corto plazo en impactos duraderos de desarrollo comunitario.

Contribuciones:

Contribución empírica: El estudio aporta un análisis detallado de un programa universitario de emprendimiento social que opera en una región en desarrollo, enriqueciendo la limitada literatura sobre cómo estas iniciativas funcionan en contextos de ciudades pequeñas. La investigación demuestra el potencial de los proyectos estudiantiles para obtener resultados comunitarios a la par de beneficios académicos.

Contribución teórica: El estudio demuestra cómo el enfoque de capacidades de Sen puede orientar el diseño cocreativo de programas y cómo la sinergia social puede concretarse a través de alianzas intersectoriales estructuradas, ilustrando cómo la colaboración y la expansión de capacidades interactúan en la práctica.

Contribución práctica: El modelo Enactus UTM, definido por alianzas formales, mentoría continua de la academia y alineación con el gobierno local, ofrece una plantilla replicable para comunidades similares. Estas características aseguran la continuidad más allá de las cohortes estudiantiles e integran los proyectos en el tejido comunitario. Los hallazgos brindan orientación para estructurar programas de emprendimiento juvenil que logren un impacto inmediato y una sostenibilidad a largo plazo.

Enactus as a Career Accelerator? An Industry View

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Introduction:

This study explores the perception gap between the career development potential of Enactus and how students engage with it as a career accelerator. It investigates whether students see Enactus as a transformative employability experience or simply as a social impact activity. The research is embedded in a pilot initiative called **Career Club**, where students are supported to actively reflect on and articulate their employability through Enactus projects, with direct input from industry mentors. It is underpinned by the assumption that AI is reshaping the future of work, and that the capabilities most valuable in an AI-enabled world are human capabilities such as adaptability, collaboration, empathy, and ethical judgment. These capabilities are best developed through experiences rather than traditional education. Enactus projects, when amplified through Career Club, offer a unique vehicle for building these durable, transferable capabilities at scale.

Research Question

Do students perceive their Enactus experience as a career accelerator, and how does this perception align with industry expectations of graduate employability in an AI-driven economy?

Overarching Proposition / Hypothesis

H1: Students who participate in structured employability reflection (e.g., Career Club) are more likely to perceive Enactus as a career accelerator and articulate its value in career contexts.

H2: There is a misalignment between the career potential of Enactus participation and how students position it in their career narratives.

H3: Embedding human capability reflection into Enactus experiences can bridge the gap between student perception and employer expectations, accelerating the transition from education to meaningful work.

Literature review:

What the Literature Says About the Problem

1. **Graduate Employability and the Skills Gap**
    - Employers increasingly report that graduates lack adaptability, emotional intelligence, and real-world experience needed for the modern workplace (WEF, 2023; McKinsey, 2022).
    - Research into Return on Intelligence (ROI²) shows that long-term competitiveness depends on flows of human capability, not just technical efficiency (Bowles & O'Hanlon, 2025).
2. **Experiential Learning and Social Impact Programs**
    - Programs like Enactus foster leadership, innovation, and social responsibility through experiential learning (Kolb, 2015; Kuh, 2008).
    - Human capability standards emphasise that experiences, not classrooms alone, are the most effective way to build the durable capabilities AI cannot replicate (Bowles, 2025).
3. **Industry Perspectives on Career Readiness**
    - Employers value graduates who demonstrate initiative, resilience, and the ability to collaborate across disciplines.

- Micro-credentials are emerging as credible tools to verify and signal these capabilities, but their impact depends on students being able to recognise and articulate the outcomes of their experiences (Bowles & Ghosh, 2025).

What We Don't Know

- While Enactus is known for social impact, it is unclear whether students perceive it as a **strategic career development platform**.
- There is a lack of research on how students connect Enactus experiences to **human capability development** valued in AI-driven workplaces.
- The alignment between student perceptions and employer recognition of Enactus-enabled capabilities remains underexplored.

Methodology:

This study adopts a mixed-methods action research approach to explore how students perceive their Enactus experience in relation to career development, and whether structured employability interventions through Career Club enhance this perception.

1. **Recruitment of Career Club Volunteer Leaders**

   Enactus student leaders registered to facilitate peer reflection, engage in industry mentoring, and explore how human capabilities developed through Enactus projects can be applied to career pathways.

2. **Baseline Survey and Soft Skills Assessment**

   Students completed a baseline survey and human capability self-assessment, aligned with industry frameworks such as the WEF Skills of 2025 and Human Capability Standards (HCS).

3. **Career Club Activities**

Over 6–8 weeks, students engaged in:

- Workshops on career storytelling, branding, and interview preparation.
- Reflection sessions linking Enactus project experiences to durable capabilities such as adaptability, empathy, and collaboration.
- Industry mentoring and peer-to-peer discussions on future careers.

4. **Final Assessment and Reflection**

   Students completed a post-program survey, repeat self-assessment, and a structured reflection exercise articulating how Enactus participation built capabilities that enhance employability in an AI-transformed workplace.

Enactus Ghana's Soft Skills Approach: A Model for Culturally-Grounded Entrepreneurship Education

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Introduction:

Ghana faces a critical challenge with a 14.7% youth unemployment rate and significant skills gaps, highlighting a disconnect between education outcomes and market needs. Addressing this problem is vital for sustainable economic development and achieving the Sustainable Development Goals (SDGs). This study examines how Enactus Ghana, a social enterprise organization, addresses this issue by uniquely blending local cultural traditions like Akan problem-solving with global entrepreneurial methods. While situated in Ghana, this research offers a replicable model for indigenizing entrepreneurship education globally, making it highly important for educators, policymakers, and practitioners in international development.

Literature review:

The literature establishes that effective stakeholder engagement is vital for the success of social enterprises (UNDP Ghana, 2023). Furthermore, there is a growing recognition of the value of indigenous knowledge systems in development practice. Enactus Ghana operationalizes this by combining the African philosophy of Ubuntu collectivism with local Akan practices, creating a unique hybrid model. However, a significant gap exists in understanding how such culturally-grounded soft skills training can be formally integrated into national higher education systems to amplify its impact. This leads to the research question: How can Ghanaian universities adopt an Enactus-style soft skills training framework for social entrepreneurs? The overarching hypothesis is that graduates trained

under this proposed Soft Skills Framework will engage three times more in ventures aligned with SDG 8 (Decent Work) and SDG 12 (Responsible Consumption).

Methodology:

This study employed a mixed-methods methodology. This approach was selected because it leverages the strengths of both quantitative and qualitative data to provide a comprehensive answer to the research question. The quantitative component offers generalizable, statistically significant data on venture creation and funding, while the qualitative component provides rich, nuanced insights into the 'how' and 'why' behind the program's impact and the barriers to its adoption. Data was collected via a stratified random sample survey of 150 Enactus Ghana alumni (2018-2024) and purposively selected focus groups with 15 program advisors. This design allows the quantitative data to quantify the program's outcomes, and the qualitative data to explore the contextual factors and institutional challenges, thus fully informing both the hypothesis and the research question.

Findings:

The main findings reveal the significant impact of the program:

81% of Enactus alumni started SDG-aligned ventures, compared to a 38% venture creation rate in a control group.

63% of alumni applied Akan mediation techniques in their business operations.

70% of respondents cited a lack of formal accreditation as the primary barrier to university adoption of the framework.

Program alumni secured four times more funding for their ventures than their peers (GIPC, 2023).

Discussion:

The findings confirm the hypothesis and inform the research question by demonstrating that the Enactus model is highly effective. The success is attributed to core cultural elements like communal learning (Nsomankasa) and women's partnerships. The findings provide new insight that scaling this Soft Skills Framework beyond its current context faces significant barriers: (1) institutional resistance to non-accredited modules, (2) challenges in applying a single cultural framework in ethnically diverse nations, and (3) a critical shortage of trained facilitators. This suggests that for wider adoption, the model's principles must be adaptable, and its success hinges on policy advocacy for accreditation and investment in trainer development.

Contributions:

This research makes three key contributions:

1. Empirical: It provides the first Ghana-specific study quantitatively and qualitatively linking culturally-grounded soft skills training directly to SDG impact and venture funding.
2. Practical: It proposes a practical Soft Skills Framework that can be adopted or adapted by universities and entrepreneurship programs to enhance sustainable venture creation.
3. Methodological: It advances Afrocentric research methodologies within the field of social entrepreneurship by validating the integration of indigenous knowledge systems into program design and assessment.

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Enactus integrated Learning

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Introduction:

The high unemployment rate in South Africa, which has reached 60%, is the issue being addressed. High numbers of youth with no way to make a solid living. This indicates that more jobs are required. What creates jobs? Businesses. Where does business start? With an idea that is financially plausible. A merge of skills integrated with knowledge with capabilities of implementation. High unemployment is essential to address, as it leads to many other social issues found in the global SDGs, for example, SDG 8, poverty. Furthermore, it can be addressed through creating job opportunities. Enactus can foster an environment that allows all its participants to contribute to the solution through innovation. State the problem being addressed, and why it is important to address this problem.

Literature review:

Entrepreneurial culture environments are conditions that allow for entrepreneurship to grow. The current high learning is sustainable to equip students prepare for the job market or to contribute to the job market. Through conducting on-the-ground research, many nuances are discovered about what state my students are in. What contribution can the Enactus organization make to addressing SDGs goals in accordance with SDGs 4, 8, and 10? How it can impact their education experience and, overall, the unemployment rate in South Africa. qualitative data (e.g., interviews, focus groups) to create a rich, contextualized understanding. This moves the discussion from "Is youth unemployment a problem?" how does a specific

social entrepreneurship model like Enactus work as a potential solution in a real-world setting?" "How does a specific social entrepreneurship model like Enactus work as a potential solution in a real-world setting?" Therefore, the proposition is how those Enactus foster networks' skills and knowledge that serve to elevate participants to contribute to problem-solving using unbiased, grounded project initiatives to contribute to addressing SDGs 8 and 10.The Enactus model is designed also to incentivize a focus on real-world-based projects. That sharpens the skills of those who participate in it. To be better equipped to address the issue of unemployment targeting SDGs goals set out by the UN .

The prevailing business paradigm, historically driven by profit maximization, has often perpetuated unsustainable practices and social inequities. This research operates on the premise that the future of enterprise must be redefined by integrating sustainability and socioeconomic equity into its fundamental structure. We posit that a new framework, where economic impact, environmental stewardship, and human well-being are inseparably linked, is essential to address past shortcomings and build resilient economic models.

This study identifies the Enactus model as a powerful vehicle for this paradigm shift. By functioning as a dynamic platform, it enables youth to translate theoretical knowledge into practical solutions that address real-world challenges. This approach cultivates a forward-thinking mindset in emerging entrepreneurs, one that consistently prioritizes a triple bottom line of people, planet, and profit. The research focuses on the model's ability to foster innovative and scalable social enterprises that challenge the status quo. It shifts the emphasis from short-term financial gains to the creation of sustainable value and a shared existence for all of humanity.

In essence, Enactus provides a unique ecosystem where seemingly simple ideas are rigorously developed and implemented, yielding significant, tangible benefits for average people. Much like a traffic light, a concept that seems simple but profoundly impacts daily life when it fails, a small-scale social enterprise can, when successfully implemented, create a sustainable existence that can be shared by all of humanity. This study provides empirical insight into how this process fundamentally changes the worldview of young entrepreneurs, equipping them with the bravery to address systemic issues and paving the way for a new era of enterprise.

Methodology:

The methodology used was of a casual approach to receive the most authentic response from participants. Quantitative data using a group of individuals from diverse backgrounds. Questions such as that of education assist them for readiness of a career beyond where they are asked. Upon gathering such data, pointers, e.g., the organizational culture of different universities, were brought up. Suggestions of how Enactus can be integrated into each institution. The problem is resolved by a combination of solutions.

Findings:

Enactus creates a real-world micro-simulation of what is required as a component of a real-world organization.

Enactus can serve the initial development of skills required to run microenterprises or be part of an enterprise. Targeting and incentivizing businesses that address the SDG goals.

Discussion:

The research outcome depicts the bridge between formal education and on-the-ground life skills cultivated through project-led enterprises assisted by Enactus.

The use of tools such as ClickUp and timesheets helps keep a well-documented record of the enterprises made under the establishment.

Enactus adds to the sustainable development goals by encouraging more ethical businesses that are more than profit-oriented but also add to the community focus.

Contributions:

This research provides a rich, qualitative case study of Enactus in a specific South African context. While existing literature often relies on broad statistics about youth unemployment, this paper offers a micro-level, human-cantered perspective. It provides empirical evidence of how grassroots, student-led model translates into tangible outcomes like skill development and job creation. Gathering firsthand accounts from students and community members. The findings of this case study affirm that Enactus, as a form of Work-Integrated Learning (WIL), serves as a powerful and practical model for addressing youth unemployment in South Africa. The research goes beyond merely describing the problem by providing a granular understanding of how this specific WIL model operates on the ground.

The paper demonstrates that Enactus effectively prepares students for industry by immersing them in a practical, project-based environment. Unlike traditional classroom settings, this model fosters the development of essential soft skills like communication, problem-solving, and ethical conduct, which are highly valued by employers. It serves as a vital bridge, filling

the gap between academic theory and real-world application, a challenge widely recognized in South Africa's educational landscape.

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Enactus World Cup a platform for students' transformation and skills development: Case study of university of Technology

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Introduction:

This study investigates how participating in the Enactus World Cup contributes to the transformation and skills development of university students, focusing on soft skills, leadership, and social entrepreneurial competencies. Enactus has been recognised as a global platform that empowers students through entrepreneurial projects (Dalibozhko & Krakovetskaya, 2018; Vezi-Magigaba, 2018), there is still lack of evidence that has been explored that focuses on the World Cup as a platform for experiential learning, skills development and student transformation especially in the South African context. Therefore, this study question is: How does participation in the Enactus World Cup enhance the soft skills, leadership and social entrepreneurial orientation and global citizenship of students at a university of technology?

Literature review:

Enactus mandate emphasises student empowerment through entrepreneurial action that addresses local and global challenges (Vezi-Magigaba, 2018). Several studies have shown that Enactus promotes innovation, social entrepreneurship, and sustainable community

development (Ndlovu & Lefera, 2024). Moreover, Enactus projects enables cross- cultural collaboration and provides a platform for experiential learning that bridge theory with practice (Weik, 2014). This shows that Enactus gives students an opportunity to practice what they learn in class through community engagement.

Given the limited studies explored on the World Cup as a transformative platform that develops students' soft skill such as leadership, networking, and intercultural competence. Soft skills are increasingly recognised as critical for employability and entrepreneurship (Lake et al., 2021). Therefore, Enactus plays an important role by providing a platform for students to develop soft skills and be intercultural competent.

Methodology:

This study used documentary analysis of primary data that is qualitative in nature. When conducting document analysis researchers may choose to use qualitative or quantitative methods (Morgan,2022). Document analysis was used as it granted the researchers an opportunity to analysis reflective reports of Enactus CUT students who attended the 2023 Enactus World Cup. Moreover, data was analysed using themes related to transformation and skills development

Findings:

Five themes emerged from the analysis:

1. **Cultural Exchange** – students gained exposure to diverse perspectives, enhancing intercultural competence.
2. **Entrepreneurship and Innovation** – participants reported learning innovative solutions and business practices.

3. **Learning and Skills Development** – growth in leadership, problem-solving, and presentation skills was evident.
4. **Relationship Building and Partnerships** – networking with peers, sponsors, and industry experts was highlighted as invaluable.
5. **Personal Growth** – increased confidence, self-awareness, and motivation were consistently reported.

Discussion:

The findings shows that the Enactus World Cup provides a multidimensional platform for student development. These findings are supported by Weik (2014), who points out that the event offers experiential learning opportunities that bridge academic knowledge with real-world application. The cultural exchange theme aligns with the literature on global citizenship and intercultural competence, validating that students benefit from exposure to diverse perspectives in ways that extend beyond classroom learning (Lake et al., 2021). Entrepreneurship and innovation were indicated as one of the outcomes, supporting Dalibozhko and Krakovetskaya's (2018) argument that student entrepreneurial projects contribute to sustainable development.

Vezi-Magigaba, (2018) concurs that Enactus plays a role in equipping students with knowledge and soft skills that are transferable such as leadership and communication. The findings also confirm the importance of networks and partnerships for advancing social entrepreneurship (Mbanda & Fourie, 2020). Also, personal growth illustrates how international exposure enhances students' confidence and sense of agency, reaffirming Ndlovu and Lefera's (2024) claim that participating in Enactus empowers students to take on entrepreneurial roles in the social and solidarity economy. Thus, the World Cup acts not only

as a competitive platform but also as a transformative learning environment that nurtures the holistic development of students.

Contributions:

This research demonstrates that the Enactus World Cup does not only create a platform for students to showcase innovative projects or enterprises but, serves a transformative learning environment that enhances soft skills, leadership capacity, and social entrepreneurial orientation. In the context of South African students, this global exposure equips them to transition from being job seekers to creators, positioning them as socially responsible leaders and global citizens.

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Enhancing Graduate Employability: The Role of Multidisciplinary, Student-Led Experiential Learning

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Introduction:

Modern graduates are entering a labour market that is increasingly shaped by climate change, social inequality, consumeristic ideals, and artificial intelligence. Students cannot address these complex challenges through classroom-based theory alone but require real-world skills to drive positive change (Bone et al., 2025). Success today depends on

adaptability, creativity, ethical leadership, and the skills for interdisciplinary collaborations. Many employers now deem communication, teamwork, and problem-solving superior to disciplinary expertise. Without these transferable 'soft' skills, graduates are being rendered inadequate and underequipped, unable to face multidimensional real-world contexts (Tushar & Sooraksa, 2023).

Universities therefore hold a dual responsibility: to equally provide disciplinary knowledge, and to ensure students develop necessary attributes for innovation and sustainability leadership (Valdes-Ramirez et al., 2024). Despite this obligation, higher education continues to favour traditional teaching models which emphasise individual achievement and content understanding. Opportunities to practise collaboration and apply learning in authentic settings remain limited (Boud & Bearman, 2022). This misalignment undermines both employability outcomes and interferes with universities' social role in fostering graduates prepared to face global challenges. Addressing this is not optional; rather, it is imperative (Falkner & Stålbrandt, 2023).

Thus, this paper aims to demonstrate that through facilitating multidisciplinary, student led social impact initiatives, universities can provide experiential learning opportunities that produce adaptable, sustainability-literate graduates with the drive and entrepreneurial capabilities to lead successful, impactful careers. Entirely student-managed, Griffith Enactus models a unique but replicable approach to social entrepreneurship that develops students' ethical leadership skills, whilst building their projects on a foundation of passion and intrinsic motivation.

Literature review:

Interdisciplinary, project-based learning has been demonstrated to build these important

capabilities effectively. Pardo-Garcia and Barac (2020) demonstrated how incubator competitions, where students design projects to meet social needs, strengthen innovation, empathy, resilience, and problem solving. The study analysed a decade's worth of student teams and established that finalists were predominantly multidisciplinary teams. Students reported that this skill-based application of their classroom knowledge partially minimised gaps in professional experience and in some cases, enabled them to launch real, sustainable businesses. This clearly highlights the benefits of structured, experiential learning for employability and impact.

However, critical skill gaps remain. Sujová et al. (2021) identified discrepancies between graduate capabilities and employer expectations, particularly around communication, conflict resolution, and creative thinking. This indicates that existing teaching models, although valuable, are insufficient. Most experiential initiatives remain facilitated by staff via a top down approach, limiting student ownership of learning. Au et al. (2024) propose that prosocial motivation alone does not correlate with positive social and business outcomes for social enterprises but does when combined with high intrinsic motivation. Projects facilitated by staff activate students' extrinsic motivation, which is negatively correlated with business outcomes.

Methodology:

This study employs a qualitative, case study-based approach, allowing in-depth exploration of how multidisciplinary, student-led initiatives develop transferable skills and impact communities. The underexplored opportunity thus lies in peer-to-peer, student-led collaboration. Griffith Enactus exemplifies this model, supporting students to lead multidisciplinary projects, leverage diverse student experiences, and deliver measurable

impact aligned with the United Nations Sustainable Development Goals (SDGs). Data sources included academic literature on interdisciplinary and experiential learning (Pardo-Garcia & Barac, 2020; Sujová et al., 2021) as well as secondary data from Griffith Enactus projects such as national competition reports and project documentation. The impact of Griffith Enactus was analysed through the lens of employability skills and sustainability competencies, using the SDGs. While applicability of findings is limited by the analysis of a single case study, the international recognition and adaptability of Enactus make it a strong exemplar for broader application.

Findings:

Griffith Enactus is a leading example of a fully student-driven program, where students independently design and implement initiatives that address the United Nations SDGs. This cultivates a horizontal teaching environment, enabling diverse student perspectives including health, business, engineering, law, and arts, to holistically tackle the SDGs. Each member gains exposure to the unique disciplinary expertise of others, fostering adaptability and soft skills essential in an increasingly complex workforce. For example, the 2025 Enactus Australia National Championship winning project "Cook and Connect" required skills in nutrition, event management, marketing, community engagement, and advocacy to address student food insecurity and isolation on campus. Working across disciplines developed ethical leadership, skill-sharing, adaptability, empathy, and innovation competencies in project members. More importantly, they directly advanced the SDGs by delivering the project in real communities. The contemporary applicability of this project establishes this horizontal teaching model as a template to be incorporated into a larger ecosystem of SDG projects. This can influence change broadly, granting organisations and individuals unique,

adaptable skillsets, such as harnessing artificial intelligence, preparing them to drive sustainable impact in the real world. Engaging in cross-disciplinary collaboration exposes students to varying perspectives and problem solving models, ultimately maximising their positive impact by enabling them to design considered, passion-driven projects. Hence, projects are not only better structured to address multiple community needs, but also more likely to be successful, resilient and long-lasting.

Discussion:

Universities cannot restrict their role to solely delivering disciplinary knowledge. Graduates are expected to enter dynamic, multifaceted job markets that demand innovation, adaptability and ethical leadership. Without authentic opportunities for students to lead, collaborate and implement solutions in real contexts, universities risk producing graduates who are technically competent but unprepared to address current global sustainability and social equity challenges (Hawthorne & Fyfe, 2015). Fostering interdisciplinary, peer-to-peer collaboration offers students ownership of their learning, empowers them to integrate multidisciplinary strengths, and challenges them to navigate conflict, leadership, and responsibility (Ivanitskaya et al., 2002).

Contributions:

Traditional, staff-led initiatives often produce graduates who are technically competent but lack adaptability, creativity, and ethical leadership. Student-driven, multidisciplinary projects such as Griffith Enactus illustrate how peer-to-peer collaboration fosters intrinsic motivation, innovation, and sustainability literacy while delivering measurable community impact. By resourcing and embedding these models, universities can bridge the gap between employer

expectations and graduate capabilities. Ultimately, this cultivates social entrepreneurs able to design ventures with social and environmental impact, and sustainability leaders prepared to drive systemic global change.

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EPLASTO: Training Change Agents through Circular Economy and Social Entrepreneurship in Vulnerable Communities

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Introduction:

Environmental sustainability is a critical global concern in the 21st century, driven by the rapid growth of plastic waste and the depletion of natural resources. Every year, over 300

million tons of plastic waste are produced worldwide, with at least 11 million tons entering aquatic ecosystems and threatening biodiversity and human health (PNUMA, 2021). In Mexico, over 50% of plastic waste remains untreated, with the issue being most severe in vulnerable communities lacking efficient recycling systems (INEGI, 2023). Given this, the EPLASTO project, an educational innovation initiative implemented by students and faculty from the Universidad Juárez Autónoma de Tabasco (UJAT), addresses this challenge by promoting circular economy practices and social entrepreneurship. It trains university students to co-create sustainable solutions with marginalized communities, benefiting students (skills development), communities (sustainable products and fair income), and higher education institutions (greater societal impact).

Literature review:

Higher education institutions are increasingly recognized as key agents for promoting sustainable development, not only through curriculum content but also via pedagogical innovation and social engagement (Blanco-Portela et al., 2017). Research highlights the need for embedding sustainability and circular economy into academic programs to foster transformative learning experiences (Lozano et al., 2019; Barrón et al., 2010). Yet, there remains a knowledge gap in how interdisciplinary, project-based learning can effectively empower students to address real-world sustainability challenges. This study addresses that gap by examining the implementation and outcomes of a university-led social entrepreneurship project. The guiding research question is: To what extent does the EPLASTO project enhance students' competencies in sustainability and social innovation through active engagement with community-based plastic recycling?

Methodology:

This research adopts a qualitative case study approach, suitable for exploring complex educational interventions in real-world contexts (Brundiers et al., 2021). Conducted between 2022 and 2024 in six vulnerable communities in southeastern Mexico, it involved 85 students from environmental engineering, chemistry, and social sciences. Data collection methods included semi-structured interviews, document analysis, student surveys, and direct observation of project activities, focusing on learning processes, community interactions, and measurable environmental impacts. Qualitative data were thematically coded to explore economic challenges, environmental awareness, and skill development needs, while quantitative data were analyzed using descriptive statistics to assess environmental benefits.

Findings:

Key findings demonstrate a multifaceted impact on both students and communities:

- Over 2.5 tons of plastic waste were transformed into durable goods (e.g., furniture, signage).
- 85 students reported improvements in leadership, communication, and teamwork skills (UJAT, 2024).
- 76% of students gained practical understanding of circular economy and sustainability.
- A community-based women's cooperative was established to manage and scale production.
- Social perception improved: students reported an increased sense of civic responsibility and agency.

These results validate the project's contribution to active learning and sustainable development in a tangible, community-rooted manner.

Discussion:

The EPLASTO project substantiates existing literature on experiential, competency-based education (Illeris, 2021; Salinas & de Benito, 2023). By integrating technical innovation with

direct community engagement, the initiative bridges the gap between academic knowledge and real-world application, reinforcing the value of learning by doing and service-learning in cultivating active citizenship. Compared to conventional educational models, EPLASTO demonstrates higher student engagement and deeper retention of sustainability concepts. Its participatory and inclusive design aligns with global calls for socially transformative education (UNESCO, 2022). The EPLASTO model can be replicated in other regions with academic commitment to sustainability and strong community–industry partnerships. Scaling requires process adaptation, interdisciplinary collaboration, and alignment with local priorities. Challenges such as limited funding and community skepticism were addressed through phased investments and awareness campaigns. The project provides a practical framework for universities to tackle environmental issues through applied research, social entrepreneurship, and collaboration, generating impact at both academic and community levels.

Contributions:

This study contributes to: a) Practice: Offers a replicable model for integrating circular economy and social entrepreneurship in university curricula. b) Empirical knowledge:

Provides qualitative and quantitative data on student learning outcomes and community impact. c) Theory: Reinforces theories of transformative and experiential learning in sustainability education contexts.

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Spanish Version

Introducción:

La sostenibilidad ambiental constituye una preocupación crítica a nivel global en el siglo XXI, impulsada por el rápido crecimiento de los residuos plásticos y el agotamiento de los recursos naturales. Cada año se producen más de 300 millones de toneladas de residuos plásticos en el mundo, de los cuales al menos 11 millones de toneladas ingresan a los ecosistemas acuáticos, amenazando la biodiversidad y la salud humana (PNUMA, 2021). En México, más del 50% de los residuos plásticos permanecen sin tratamiento, siendo el problema más severo en comunidades vulnerables que carecen de sistemas de reciclaje eficientes (INEGI, 2023). Ante este panorama, el proyecto EPLASTO, una iniciativa de innovación educativa implementada por estudiantes y docentes de la Universidad Juárez Autónoma de Tabasco (UJAT), aborda este desafío promoviendo prácticas de economía

circular y emprendimiento social. Su propósito es capacitar a estudiantes universitarios para co-crear soluciones sostenibles junto con comunidades marginadas, generando beneficios para los estudiantes (desarrollo de competencias), las comunidades (productos sostenibles e ingresos justos) y las instituciones de educación superior (mayor impacto social).

Revisión de la literatura:

Las instituciones de educación superior son cada vez más reconocidas como actores clave en la promoción del desarrollo sostenible, no solo mediante la inclusión de contenidos curriculares, sino también a través de la innovación pedagógica y el compromiso social (Blanco-Portela et al., 2017). La literatura destaca la necesidad de integrar la sostenibilidad y la economía circular en los programas académicos para fomentar experiencias de aprendizaje transformadoras (Lozano et al., 2019; Barrón et al., 2010). Sin embargo, persiste una brecha de conocimiento en torno a cómo el aprendizaje interdisciplinario basado en proyectos puede empoderar eficazmente a los estudiantes para enfrentar retos de sostenibilidad en contextos reales. Este estudio busca atender dicha brecha examinando la implementación y los resultados de un proyecto universitario de emprendimiento social. La pregunta central de investigación es: ¿En qué medida el proyecto EPLASTO fortalece las competencias de los estudiantes en sostenibilidad e innovación social mediante su participación activa en procesos comunitarios de reciclaje de plásticos?

Metodología:

La investigación adopta un enfoque de estudio de caso cualitativo, apropiado para explorar intervenciones educativas complejas en contextos reales (Brundiers et al., 2021). Se llevó a cabo entre 2022 y 2024 en seis comunidades vulnerables del sureste de México, con la

participación de 85 estudiantes de Ingeniería Ambiental, Química y Ciencias Sociales. Los métodos de recolección de datos incluyeron entrevistas semiestructuradas, análisis documental, encuestas a estudiantes y observación directa de las actividades del proyecto, enfocándose en los procesos de aprendizaje, las interacciones comunitarias y los impactos ambientales medibles. Los datos cualitativos fueron codificados temáticamente para explorar los desafíos económicos, la conciencia ambiental y las necesidades de desarrollo de competencias, mientras que los datos cuantitativos se analizaron mediante estadística descriptiva para evaluar los beneficios ambientales.

Resultados:

Los hallazgos principales evidencian un impacto multifacético tanto en los estudiantes como en las comunidades:

- Más de 2.5 toneladas de residuos plásticos fueron transformadas en bienes duraderos (ej. mobiliario, señalética).
- 85 estudiantes reportaron mejoras en liderazgo, comunicación y trabajo en equipo (UJAT, 2024).
- El 76% de los estudiantes adquirió un entendimiento práctico de la economía circular y la sostenibilidad.
- Se constituyó una cooperativa comunitaria de mujeres para gestionar y escalar la producción.
- La percepción social se fortaleció: los estudiantes manifestaron un mayor sentido de responsabilidad cívica y capacidad de agencia.

Estos resultados validan la contribución del proyecto al aprendizaje activo y al desarrollo sostenible de manera tangible y con arraigo comunitario.

Discusión:

El proyecto EPLASTO respalda la literatura existente sobre educación experiencial y basada en competencias (Illeris, 2021; Salinas & de Benito, 2023). Al integrar innovación técnica con vinculación comunitaria directa, la iniciativa reduce la brecha entre el conocimiento
académico y su aplicación práctica, reforzando el valor del aprender haciendo y del aprendizaje-servicio en la formación de ciudadanía activa. En comparación con modelos educativos convencionales, EPLASTO muestra mayores niveles de participación estudiantil y una retención más profunda de los conceptos de sostenibilidad. Su diseño participativo e inclusivo se alinea con los llamados globales hacia una educación socialmente transformadora (UNESCO, 2022). El modelo EPLASTO puede replicarse en otras regiones con compromiso académico hacia la sostenibilidad y con sólidas alianzas comunidad–industria. Para su escalamiento, se requiere adaptar procesos, fomentar la colaboración interdisciplinaria y alinear acciones con las prioridades locales. Retos como la limitación de recursos financieros y el escepticismo comunitario fueron abordados mediante inversiones graduales y campañas de sensibilización. El proyecto constituye un marco práctico para que las universidades enfrenten los problemas ambientales a través de la investigación aplicada, el emprendimiento social y la colaboración, generando impactos tanto en el ámbito académico como en el comunitario.

Contribuciones:

Este estudio aporta en tres niveles: a) Práctica: Ofrece un modelo replicable para integrar la economía circular y el emprendimiento social en los planes de estudio universitarios. b)

Conocimiento empírico: Genera datos cualitativos y cuantitativos sobre los resultados de aprendizaje de los estudiantes y el impacto comunitario. c) Teoría: Refuerza los marcos teóricos de aprendizaje transformador y experiencial en contextos de educación para la sostenibilidad.

Forming Leaders of Impact: Quantitative Evidence and Perceptions on the Personal and Academic Trajectories from Students of Enactus Brazil

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Introduction:

Universities today face the challenge of preparing graduates who are not only technically skilled but also capable of addressing complex socio-environmental issues. Traditional curricula, however, often fall short in developing leadership, creativity, empathy, and resilience—competencies necessary for students to become agents of change. Within this context, student-led social entrepreneurship initiatives have emerged as complementary spaces of experiential learning, providing young people with opportunities to design and implement projects that respond to societal challenges.

Enactus is one of the largest international student organizations dedicated to social entrepreneurship, operating in more than 35 countries. In Brazil, it has rapidly expanded over the past decade, involving students from diverse academic backgrounds and socio-economic realities. Brazilian enactors frequently engage in projects that aim to alleviate poverty,

hunger, and inequality, while simultaneously developing skills that influence their academic and personal trajectories.

Despite anecdotal evidence and institutional reports pointing to Enactus as a transformative experience, there is a lack of systematic, quantitative research on how Enactus participation impacts Brazilian students specifically. Addressing this gap is important not only for understanding the educational value of the network but also for informing universities, policymakers, and civil society about the potential of experiential learning to contribute to the Sustainable Development Goals (SDGs).

Literature review:

The literature on experiential learning highlights its role in fostering competencies beyond technical expertise. Kolb (1984) argues that knowledge emerges through the transformation of experience, while Eyler and Giles (1999) demonstrate how service-learning links academic knowledge with civic engagement. Social entrepreneurship education, in turn, is recognized as a catalyst for developing 21st-century skills such as problem-solving, leadership, and creativity (Passarelli, 2025; Thomsen, 2018).

Recent studies on Enactus emphasize its alignment with the SDGs and its contribution to students' employability and sense of agency (Omotosho et al., 2023; Smith, 2023). Research in Brazil confirms similar trends: students in Enactus teams report improved autonomy, leadership, and social responsibility through project-based activities (de Barros Neto & Hughes, 2023; Guerreiro & Ferrari, 2023). Nevertheless, evidence remains fragmented and largely qualitative.

This study addresses this gap by systematically examining the profiles, benefits, challenges, and perceptions of Enactus Brazil students using a quantitative approach. The guiding

research question is: How does participation in Enactus Brazil shape the personal and academic trajectories of its students?

Methodology:

A quantitative, descriptive design was adopted to capture the diversity of experiences among Enactus Brazil students. Data were collected through an online survey (Google Forms) distributed in July–August 2025. The questionnaire covered sociodemographic (age, gender, region), academic (field of study, time in Enactus), and socioeconomic aspects (family income, personal income, scholarships), along with questions on skills development, perceived benefits, challenges, and institutional experiences (ENEB and Symposium).

A total of 102 valid responses were obtained from students across multiple regions and disciplines. Questions included single-choice, multiple-choice, and Likert-scale items (1–5). Data were analyzed using Excel and Python, with results presented primarily as percentages to highlight frequencies and distributions. This method was selected for its capacity to provide a broad overview of perceptions and outcomes in a large, heterogeneous group. Limitations include reliance on self-reported data and uneven regional representation.

Findings:

Profile. Most respondents were between 21–30 years old (64.7%), with women representing 64.7% of the sample. Students came from diverse areas, with higher concentration in Social Sciences and Applied Fields (≈33%), followed by Agricultural Sciences (≈15%), Engineering and Exact Sciences (≈12%), and smaller proportions in Health and Humanities. Time in Enactus was evenly distributed, with about a quarter in each category from less than six months to more than two years.

Socioeconomic conditions. Financial challenges were evident: 45.1% lived in households with up to two minimum wages, 26.5% had no personal income, and only 7.8% reported Enactus-related scholarships.

Target groups and SDGs. Projects most often supported women heads of households (73.5%), single mothers (54.9%), and urban peripheral communities (54.9%). The most urgent SDGs were identified as poverty eradication (24.5%), zero hunger (20.6%), and good health and well-being (15.7%). Yet, only 55.9% reported that their teams addressed the SDG they personally considered most urgent.

Positive impacts. Students emphasized skills such as teamwork (82.3%), problem solving (81.3%), leadership (63.7%), creativity (62.7%), and empathy (57.8%). Benefits included belonging (78.4%), inspiration from peers (69.6%), and exchange of experiences (67.6%). Regarding careers, 82.4% viewed Enactus as a curricular differential, 84.3% intended to apply knowledge in their professions, and 56.9% planned to continue with social impact after graduation.

Challenges. On the negative side, 33.3% reported anxiety, 31.4% stress due to workload, and 31.4% internal conflicts. Structurally, main obstacles were lack of financial resources (48%), absence of physical space (40.2%), and legal difficulties (CNPJ, 39.2%).

Institutional experiences. The ENEB was highly recognized: 65.7% participated in person and 28.4% virtually, with 75.8% rating the experience as transformative. The Scientific Symposium, however, was less known: 42.2% had not participated but were interested, and 16.7% were unaware of it.

Future perspectives. Almost unanimous (95.1%) agreement emerged that replicated projects should receive recognition, reinforcing a collective view that scalability is central to social impact.

Discussion:

The findings confirm Enactus Brazil's role as both a training ground for social entrepreneurs and a support system for students from vulnerable backgrounds. The predominance of women echoes global trends of female leadership in social innovation (Omotosho et al., 2023). The socioeconomic profile reveals a paradox: students experiencing hardship dedicate themselves to projects alleviating poverty and hunger, showing how identification with beneficiaries can strengthen motivation (Eyler & Giles, 1999).

Skill development results—teamwork, leadership, creativity—corroborate experiential learning theory (Kolb, 1984) and research on social entrepreneurship education (Passarelli, 2025; Thomsen, 2018). High recognition of Enactus as a career differential confirms its contribution to employability (Smith, 2023). Institutional contrasts are also notable: while ENEB functions as a national hub of belonging and identity (Guerreiro & Ferrari, 2023), the Scientific Symposium remains underutilized, indicating potential for academic consolidation. Finally, the near consensus on replication highlights students' maturity in valuing scale and sustainability as drivers of systemic change (Sachs, 2015; UNDP, 2015).

Contributions:

This study contributes:

Empirically: This study provides one of the first quantitative mappings of Enactus Brazil students, filling a gap in the literature and complementing predominantly qualitative reports.

Theoretical: Findings reinforce theories of experiential learning and social entrepreneurship education by demonstrating their applicability in emerging economies and student-led initiatives.

Practical: Results inform universities, policymakers, and Enactus leadership on the importance of supporting student teams structurally and financially, while also highlighting opportunities to strengthen academic dissemination through the Symposium and to incentivize project replication as a criterion of recognition.

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Portuguese Version

Formando Líderes de Impacto: Evidências Quantitativas e Percepções sobre as Trajetórias Acadêmicas e Pessoais de Estudantes da Enactus Brasil

Introdução:

As universidades enfrentam hoje o desafio de preparar graduados que não sejam apenas tecnicamente competentes, mas também capazes de lidar com questões socioambientais complexas. Os currículos tradicionais, entretanto, muitas vezes não contemplam o desenvolvimento de competências como liderança, criatividade, empatia e resiliência — fundamentais para formar agentes de mudança. Nesse contexto, iniciativas de empreendedorismo social lideradas por estudantes têm se consolidado como espaços complementares de aprendizagem experiencial, oferecendo oportunidades para projetar e implementar soluções voltadas a desafios sociais.

A Enactus é uma das maiores organizações estudantis internacionais dedicadas ao empreendedorismo social, atuando em mais de 35 países. No Brasil, expandiu-se rapidamente na última década, envolvendo estudantes de diversas áreas acadêmicas e realidades socioeconômicas. Os enactors brasileiros frequentemente se dedicam a projetos voltados para a redução da pobreza, da fome e da desigualdade, ao mesmo tempo em que desenvolvem competências que influenciam suas trajetórias acadêmicas e pessoais.

Apesar de evidências anedóticas e de relatórios institucionais indicarem a Enactus como uma experiência transformadora, há carência de pesquisas sistemáticas e quantitativas sobre como a participação na rede impacta os estudantes brasileiros. Abordar essa lacuna é essencial não apenas para compreender o valor educacional da rede, mas também para informar universidades, formuladores de políticas públicas e sociedade civil sobre o potencial da aprendizagem experiencial para contribuir com os Objetivos de Desenvolvimento Sustentável (ODS).

Revisão de Literatura:

A literatura sobre aprendizagem experiencial destaca seu papel no desenvolvimento de competências além do conhecimento técnico. Kolb (1984) argumenta que o aprendizado emerge da transformação da experiência, enquanto Eyler e Giles (1999) mostram como o service-learning conecta conhecimento acadêmico ao engajamento cívico. Já a educação para o empreendedorismo social é reconhecida como catalisadora de competências do século XXI, como liderança, criatividade e resolução de problemas (Passarelli, 2025; Thomsen, 2018). Estudos recentes sobre a Enactus enfatizam sua contribuição para a empregabilidade dos estudantes, seu alinhamento com os ODS e o fortalecimento da agência estudantil (Omotosho et al., 2023; Smith, 2023). No Brasil, pesquisas confirmam tendências semelhantes: a participação em times Enactus favorece autonomia, liderança e responsabilidade social (de Barros Neto & Hughes, 2023; Guerreiro & Ferrari, 2023). Ainda assim, as evidências permanecem fragmentadas e em grande parte qualitativas.

Este estudo busca preencher essa lacuna por meio de uma análise quantitativa dos perfis, benefícios, desafios e percepções de estudantes da Enactus Brasil. A questão norteadora é:

como a participação na Enactus Brasil molda as trajetórias pessoais e acadêmicas de seus estudantes?

Metodologia:

Foi adotado um desenho quantitativo e descritivo para captar a diversidade de experiências entre os estudantes da Enactus Brasil. Os dados foram coletados por meio de um questionário online (Google Forms), aplicado entre julho e agosto de 2025. O instrumento incluiu questões sobre aspectos sociodemográficos (idade, gênero, região), acadêmicos (área de graduação, tempo na Enactus) e socioeconômicos (renda familiar, renda própria, bolsas), além de itens relacionados ao desenvolvimento de habilidades, percepções de benefícios, desafios e experiências institucionais (ENEB e Simpósio Científico).

Foram obtidas 102 respostas válidas de estudantes de diferentes regiões e cursos. As questões combinaram alternativas únicas, múltiplas e escalas Likert (1–5). Os dados foram analisados em Excel e Python, com resultados apresentados em percentuais para evidenciar frequências e distribuições. As limitações incluem o caráter auto relatado das respostas e a representação desigual entre estados.

Resultados:

Perfil. A maioria dos respondentes tinha entre 21 e 30 anos (64,7%), sendo 64,7% mulheres. Houve diversidade acadêmica, com maior concentração em Ciências Sociais Aplicadas (≈33%), seguidas das Ciências Agrárias (≈15%), Engenharias e Ciências Exatas (≈12%) e menor participação de áreas da Saúde e Humanidades. O tempo de participação foi equilibrado: cerca de um quarto em cada faixa (<6 meses, 6–12 meses, 1–2 anos e >2 anos).

Condições socioeconômicas. As dificuldades financeiras foram marcantes: 45,1% viviam em lares com até dois salários mínimos; 26,5% não tinham renda própria; apenas 7,8% relataram bolsas ligadas à Enactus.

Públicos e ODS. Projetos apoiavam majoritariamente mulheres chefes de família (73,5%), mães solo (54,9%) e comunidades periféricas urbanas (54,9%). Os ODS mais urgentes, segundo os alunos, foram erradicação da pobreza (24,5%), fome zero (20,6%) e saúde e bem-estar (15,7%). Entretanto, só 55,9% afirmaram que seus times atuavam no ODS que consideravam mais urgente.

Impactos positivos. Estudantes destacaram desenvolvimento de competências como trabalho em equipe (82,3%), resolução de problemas (81,3%), liderança (63,7%), criatividade (62,7%) e empatia (57,8%). Entre os benefícios, ressaltaram senso de pertencimento (78,4%), inspiração de colegas (69,6%) e troca de experiências (67,6%). Para a carreira, 82,4% viam a Enactus como diferencial curricular; 84,3% pretendiam aplicar os conhecimentos na profissão; e 56,9% planejavam seguir atuando com impacto social após a graduação.

Desafios. Negativamente, 33,3% relataram ansiedade, 31,4% estresse por sobrecarga e 31,4% conflitos internos. Estruturalmente, os principais obstáculos foram: falta de recursos financeiros (48%), ausência de espaço físico (40,2%) e dificuldades legais (CNPJ, 39,2%).

Experiências institucionais. O ENEB foi amplamente reconhecido: 65,7% participaram presencialmente e 28,4% virtualmente, sendo 75,8% considerados impactados de forma transformadora. O Simpósio Científico, no entanto, foi pouco conhecido: 42,2% nunca participaram, mas tinham interesse; 16,7% não o conheciam.

Perspectivas futuras. Houve quase unanimidade (95,1%) de que projetos replicados deveriam receber reconhecimento, reforçando a visão coletiva de que escalar impacto é essencial.

Discussão:

Os resultados confirmam o papel da Enactus Brasil como espaço de formação empreendedora e suporte para estudantes em condições vulneráveis. A predominância feminina reforça tendências globais de protagonismo de mulheres na inovação social (Omotosho et al., 2023).

O perfil socioeconômico revela um paradoxo: estudantes que enfrentam dificuldades financeiras dedicam-se a projetos contra pobreza e fome, fortalecendo sua motivação pelo alinhamento com a realidade dos beneficiários (Eyler & Giles, 1999).

O desenvolvimento de competências em liderança, criatividade e resolução de problemas corrobora a teoria da aprendizagem experiencial (Kolb, 1984) e pesquisas sobre educação empreendedora (Passarelli, 2025; Thomsen, 2018). O reconhecimento da Enactus como diferencial profissional confirma sua relevância para a empregabilidade (Smith, 2023).

No campo institucional, destaca-se o contraste entre o ENEB, consolidado como espaço de identidade e pertencimento (Guerreiro & Ferrari, 2023), e o Simpósio Científico, ainda subutilizado, mas com potencial para reforçar a produção acadêmica da rede.

Por fim, a unanimidade sobre a importância da replicação de projetos demonstra maturidade dos estudantes ao valorizar escala e sustentabilidade como motores de mudança sistêmica (Sachs, 2015; UNDP, 2015).

Contributions:

Empírica: fornece um dos primeiros mapeamentos quantitativos de estudantes da Enactus Brasil, preenchendo uma lacuna na literatura.

Teórica: reforça teorias de aprendizagem experiencial e educação para o empreendedorismo social em contextos de economias emergentes.

Prática: informa universidades, formuladores de políticas e a própria liderança da Enactus sobre a necessidade de maior suporte estrutural e financeiro, além de estimular a disseminação acadêmica via Simpósio e o reconhecimento da replicação como critério de impacto.

Forming Leaders Who Transform: An Amazonian Experience in Education for Sustainability and Social Entrepreneurship

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Introduction:

Educating graduates for a sustainable future requires more than technical excellence but also socio-emotional skills, systemic vision and the capacity to create innovative solutions to real problems. In Pará, the host state of the COP30 in 2025, where socio-environmental challenges coexist with unique biodiversity and economic potential, this need is even more urgent.

My career as a professor to young social entrepreneurs is directly linked to this reality. In 2025, I was recognised as Enactus Brazil Faculty Advisor of the Year.

Enactus-UFRA was founded in 2013 when I posted an open invitation on social media for students to discuss entrepreneurship. I advised the team from 2013 to 2015, returned in 2023, and since then, we have achieved remarkable national awards and community impact.

This study analyses how experiential learning and community-based social entrepreneurship projects can cultivate graduates capable of driving sustainable transformation in the Amazonian context. A qualitative, practice-oriented approach was employed, combining longitudinal monitoring of Enactus-UFRA projects (2013–2015; 2023–2025), institutional records, national and international award data, and testimonials from students and community partners. Qualitative data were coded thematically, following iterative cycles of categorization and interpretation, while project outputs were quantified through indicators such as production increases (EcoBrooms: from 10 to 3,000 units/month), number of women

entrepreneurs formally trained (EmpowerArt: 35 participants), and environmental metrics (over 100 students trained).

Findings show rapid team performance growth at Enactus Brazil National Awards: 2 in 2023; 9 in 2024 (making Enactus-UFRA the most awarded team); and 4 in 2025), improved employability of graduates (three alumni hired in leading institutions, including multinationals), and recognition through three consecutive UN SDG awards (SDG 2, SDG 5, and SDG 15). These results validate the effectiveness of active methodologies in connecting theory to practice, developing critical soft skills, and generating measurable community impact.

Nonetheless, challenges included resource constraints, the difficulty of scaling solutions across diverse Amazonian communities, and the reliance on voluntary engagement from students. Addressing these limitations highlights avenues for replication and adaptation in other regions.

This study contributes empirically by demonstrating tangible socio-economic and environmental results in Amazonian contexts, theoretically by reinforcing the relationship between experiential learning, soft skills, and employability, and practically by offering a replicable model for integrating sustainability and social entrepreneurship into higher education.

Literature review:

Preparing professionals for a sustainable future requires the development of skills such as empathy, ethical leadership, communication, and critical thinking, integrated with technical competence (Costa & Cipolla, 2025; Mohammed et al., 2024).

Experiential learning (Kolb, 1984; Hough et al., 2024; Avila et al., 2024) and project-based learning (Guo, 2020; Perrault & Albert, 2017) effectively connect theory and practice, stimulating real-world problem-solving and community engagement. Todd et al. (2025) show that authentic learning experiences strengthen both socio-emotional skills and environmental awareness.

Integrating sustainability into higher education (Gramatakos & Lavau, 2019; Barth et al., 2017) promotes changes in attitudes and behaviours. Institutions such as Arizona State University have implemented mandatory sustainability courses for all students (Time, 2024). However, a gap remains between traditional technical training and the development of these socio-emotional skills in real contexts that can contribute to preparing graduates to promote a sustainable future. The aim of this study was to analyse how experiential learning and community-based social entrepreneurship projects can educate graduates who can drive sustainable transformation in the Amazonian context.

Methodology:

A qualitative approach was adopted, based on a practice report and longitudinal monitoring of projects developed by Enactus-UFRA, enabling in-depth understanding of the transformation process among students and communities.

Data sources included:

→ Observation (2013–2015 and 2023–2025);

→ Institutional records and award data;

- Testimonials from students and community partners;
- Detailed descriptions of emblematic cases

Findings:

Main results included:

***Team performance growth*:** Two national awards in 2023, nine in 2024 (most awarded team at ENEB), and four in 2025;

***Increased graduate employability*:** two former female students hired by multinationals and one alumnus working at the State Department of Environment;

Significant socio-economic and environmental impact:

→ EcoBrooms: production increase from 10 to 3,000 brooms/month and national recognition;

→ EmpowerArt: formalisation of women-led enterprises and training in pricing;

→ Environmental education in schools with reforestation activities;

Recognition through Enactus UN SDG awards: SDG 2 (2023), SDG 5 (2024), and SDG 15 (2025);

Double champion status as the team with the most submissions to the Enactus Symposium.

Discussion:

The findings confirm the literature on the effectiveness of active methodologies in sustainability education (Kolb, 1984; Hough et al., 2024; Guo, 2020). Authentic projects developed with communities generate meaningful learning and develop essential socio-emotional skills (Todd et al., 2025).

The SDG awards strengthen the global alignment of the actions validating both local and international impact (Stephens, 2008; Stephens & Graham, 2010).

Increased employability reflects studies on the relationship between project-based learning, partnerships, and professional readiness (Noguera et al., 2015). Academic protagonism,

demonstrated by the high number of submissions to the Symposium, shows that students acted as change agents and knowledge producers (Avila et al., 2024; Gramatakos & Lavau, 2019).

The connection between sustainability education and community engagement is particularly relevant in the Amazonian context. The Enactus-UFRA experience offers a replicable model for institutions seeking to integrate sustainability and social entrepreneurship in higher education.

The combination of soft skills and technical expertise has enabled students to design scalable solutions that respect cultural contexts, address market needs and respond to global sustainability goals. The team's recognition at national level demonstrates that the Amazon can be a centre of educational excellence and innovation in sustainability.

Contributions:

This study contributes:

Empirically*:* Demonstrating the impact of active methodologies in Amazonian contexts, with tangible results for students and communities;

Theoretically: Reinforcing the relationship between experiential learning, soft skills, and sustainable employability;

Practically**:** Providing a replicable model for integrating sustainability and social entrepreneurship into higher education.

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Fostering Competencies for a Sustainable Future: Service-Learning as a Driver of Social Entrepreneurship and Student Development

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Introduction:

In the context of contemporary higher education, preparing graduates capable of responding to global challenges requires an educational transformation that integrates sustainability, justice, and social entrepreneurship. Higher education faces the challenge of preparing professionals who can address the needs of an increasingly interconnected, diverse world marked by environmental, social, and economic crisis. In this context, service-learning (SL) has positioned itself as a pedagogical strategy that integrates academic development with community engagement, fostering the acquisition of competencies among university students (Eyler & Giles, 1999; Furco, 2010).

In Puerto Rico, the importance of SL becomes even more relevant given the social, political, and economic challenges the country faces. However, a gap still exists in the systematic measurement of the impact of SL on students' holistic development. Hence, the need arises for validated instruments that allow the assessment, from the students' perspective, of how these educational experiences influence their formation.

This study seeks to design, validate, and apply a self-assessment instrument to measure the impact of SL on university students' competencies, contributing evidence to the field of higher education in Puerto Rico and Latin America.

Literature review:

Service-learning has its roots in the theories of John Dewey (1938), David Kolb (1984), and in Émile Durkheim's sociological vision, where reflective practice and interaction with real contexts strengthen the educational process. Previous studies (Astin, Vogelgesang, Ikeda & Yee, 2000; Rodríguez & Serrano, 2016) demonstrate that SL promotes retention, civic engagement, and professional development.

In Puerto Rico, research such as that of Torres Rivera & Ortiz Vélez (2019) shows that university-related social projects strengthen civic responsibility. However, the literature also highlights the lack of psychometrically validated instruments in the Caribbean context (Preradovic & Ma, 2020), which limits the systematization of results and comparability with other contexts.

This study addresses that gap by validating a questionnaire designed to reliably and contextually measure the impact of SL in three dimensions:

- Cognitive skills, critical thinking, and knowledge transfer.
- Leadership, teamwork, communication, and problem-solving.
- Social engagement, active citizenship, and sensitivity toward the common good.

The main research question is:

What is the impact of service-learning on the development of competencies for a sustainable future?

Methodology:

The study adopts a convergent mixed-methods design (Creswell & Plano Clark, 2018), simultaneously integrating quantitative and qualitative dimensions to achieve a holistic view of the phenomenon.

Quantitative Phase (descriptive):

The created questionnaire, composed of Likert-type items, will be applied to a representative sample of university students participating in SL projects. Content validity will be established through expert judgment, and reliability analysis will include coefficients such as Aiken's V and Cronbach's alpha. Descriptive analyses, correlations, and comparisons based on sociodemographic variables will be conducted.

Qualitative Phase (phenomenological):

Semi-structured interviews, guided by the questionnaire's dimensions, will be conducted to explore the meanings attributed by students to their SL experiences. Thematic analysis (Braun & Clarke, 2006) will identify narrative patterns that complement quantitative findings.

Integration of results:

Information will be triangulated through the parallel convergence model, comparing statistical findings with qualitative narratives to generate robust interpretation. Using the same competency framework in both instruments ensures methodological coherence and alignment.

Findings:

Preliminary results show that students perceive a high impact of SL on the development of their competencies, with academic impact being moderately valued.

In the qualitative phase, three central themes emerged:

1. **Personal and professional transformation**: Students recognized SL's value in strengthening leadership, communication, and self-confidence.

2. **Social awareness**: Experiences with marginalized communities fostered a sense of social responsibility and civic engagement.
3. **Theory-practice integration**: While students valued the connection between courses and social projects, they noted limitations in curricular alignment.

Discussion:

The findings confirm previous literature, indicating that SL is a powerful strategy for strengthening civic and professional engagement (Eyler & Giles, 1999; Furco, 2010). However, new evidence is provided in the Puerto Rican context regarding the need to improve curricular integration to maximize academic impact.

One of this research's main contributions is highlighting the role of self-assessment as a strategy for student empowerment. Self-assessment allows students to reflect on their learning processes, identify strengths and areas for improvement, and establish meaningful connections between the service experience and their professional and civic formation. This metacognitive dimension is key to forming change agents committed to sustainable development.

The questionnaire emerges as a valid and reliable tool for measuring competencies derived from SL, offering universities a way to systematize results, justify investment in social projects, and comply with accreditation frameworks such as MSCHE (2017), which emphasizes the importance of civic learning.

Contributions:

This study contributes on three levels:

- **Empirical**: Provides concrete evidence of SL's impact on Puerto Rican university students, a context underrepresented in international literature.
- **Theoretical**: Strengthens the conceptual basis of SL by proposing a model of integrated competencies evaluated through student self-assessment.
- **Practical**: Offers higher education institutions a validated tool to monitor and improve SL programs, fostering sustainable educational practices that prepare graduates to face social and environmental challenges.

Aligned with UNESCO's Global Education Agenda 2030 and Enactus' vision, this proposal argues that universities must integrate educational strategies that develop in students a critical awareness of their environment, solid professional preparation, and deep civic commitment. Service-learning, understood as a strategy for social transformation, allows students not only to be spectators of change but also active protagonists of community improvement and innovative leaders addressing the challenges of the 21st century.

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Spanish Version

Introducción:

En el contexto de la educación superior contemporánea, preparar graduados capaces de responder a los desafíos globales requiere una transformación educativa que integre la sostenibilidad, la justicia y el emprendimiento sociales. La educación superior enfrenta el reto de preparar profesionales capaces de responder a las necesidades de un mundo cada vez más interconectado, diverso y marcado por crisis ambientales, sociales y económicas. En este contexto, el aprendizaje en servicio (ApS) se ha posicionado como una estrategia pedagógica que integra el desarrollo académico con la participación comunitaria, fomentando la adquisición de competencias en los estudiantes universitarios (Eyler & Giles, 1999; Furco, 2010).

En Puerto Rico, la importancia del ApS cobra mayor relevancia ante los retos sociales, políticos y económicos que enfrenta el país. Sin embargo, aún existe un vacío en la medición sistemática del impacto del ApS sobre el desarrollo integral del estudiante. De ahí surge la

necesidad de contar con instrumentos validados que permitan evaluar, desde la perspectiva del estudiante, cómo estas experiencias educativas influyen en su formación.

Este estudio busca diseñar, validar y aplicar un instrumento de autoevaluación para medir el impacto del ApS en las competencias de estudiantes universitarios, aportando evidencia al campo de la educación superior en Puerto Rico y en América Latina.

Revisión de Literatura:

El aprendizaje en servicio tiene sus raíces en las teorías de John Dewey (1938), David Kolb (1984) y en la visión sociológica de Émile Durkheim, donde la práctica reflexiva y la interacción con contextos reales fortalecen el proceso educativo. Estudios previos (Astin, Vogelgesang, Ikeda & Yee, 2000; Rodríguez & Serrano, 2016) demuestran que el ApS favorece la retención, el compromiso cívico y el desarrollo profesional.

En Puerto Rico, investigaciones como las de Torres Rivera & Ortiz Vélez (2019) evidencian que los proyectos sociales vinculados a la universidad fortalecen la responsabilidad ciudadana. Sin embargo, la literatura también señala la falta de instrumentos psicométricamente validados en el contexto caribeño (Preradovic & Ma, 2020), lo que limita la sistematización de resultados y la comparabilidad con otros escenarios.

El presente estudio atiende esa brecha mediante la validación del cuestionario, diseñado para medir de manera confiable y contextualizada el impacto del ApS en tres dimensiones:

1. Habilidades cognitivas, pensamiento crítico, transferencia de conocimientos.
2. Liderazgo, trabajo en equipo, comunicación, resolución de problemas.
3. Compromiso social, ciudadanía activa, sensibilidad hacia el bien común.

La pregunta de investigación principal es:

¿Cuál es el impacto del aprendizaje en servicio en el desarrollo de competencias para un futuro sostenible?

Metodología:

El estudio adopta un diseño mixto convergente (Creswell & Plano Clark, 2018), integrando simultáneamente la dimensión cuantitativa y cualitativa para lograr una visión holística del fenómeno.

- **Fase Cuantitativa (descriptiva):**

  Se aplicará el cuestionario creado, compuesto por ítems tipo Likert, a una muestra representativa de estudiantes universitarios que participen de proyectos de ApS. La validez de contenido será establecida mediante juicio de expertos y el análisis de fiabilidad incluirá coeficientes como Aiken's V y alfa de Cronbach. Se realizarán análisis descriptivos, correlaciones y comparaciones según variables sociodemográficas.

- **Fase Cualitativa (fenomenológica):**

  Se utilizarán entrevistas semiestructuradas, con una guía diseñada a partir de las dimensiones del cuestionario, para explorar los significados atribuidos por los estudiantes a sus experiencias de ApS. El análisis temático (Braun & Clarke, 2006) permitirá identificar patrones narrativos que complementen los hallazgos cuantitativos.

- **Integración de resultados:**

  Se triangulará la información a través del modelo de convergencia paralela, comparando los hallazgos estadísticos con los relatos cualitativos para generar una

interpretación robusta. El uso de un mismo marco de competencias en ambos instrumentos asegura coherencia y alineación metodológica.

Hallazgos:

Los resultados preliminares muestran que los estudiantes perciben un alto impacto del ApS en el desarrollo de sus competencias y que el impacto académico se valora de manera moderada.

En la fase cualitativa, emergieron tres ejes centrales:

1. **Transformación personal y profesional**: estudiantes reconocen el valor del ApS para fortalecer liderazgo, comunicación y confianza en sí mismos.
2. **Conciencia social**: experiencias de contacto con comunidades marginadas fomentaron un sentido de responsabilidad social y compromiso ciudadano.
3. **Integración teoría-práctica**: aunque los estudiantes valoraron la conexión entre cursos y proyectos sociales, señalaron limitaciones en la articulación curricular.

Discusión:

Los hallazgos confirman la literatura previa al señalar que el ApS es una estrategia poderosa para fortalecer el compromiso cívico y profesional (Eyler & Giles, 1999; Furco, 2010). Sin embargo, se aporta nueva evidencia en el contexto puertorriqueño sobre la necesidad de mejorar la integración curricular para maximizar el impacto académico.

Una de las principales contribuciones de esta investigación es destacar el rol de la autoevaluación como estrategia de empoderamiento estudiantil. La autoevaluación permite a los estudiantes reflexionar sobre sus procesos de aprendizaje, identificar fortalezas y áreas de

mejora, y establecer conexiones significativas entre la experiencia de servicio y su formación profesional y ciudadana. Esta dimensión metacognitiva es clave en la formación de agentes de cambio comprometidos con el desarrollo sostenible.

El cuestionario se perfila como una herramienta válida y confiable para medir las competencias derivadas del ApS, ofreciendo a las universidades una vía para sistematizar resultados, justificar la inversión en proyectos sociales y cumplir con marcos de acreditación como MSCHE (2017), que subraya la importancia del aprendizaje cívico.

Contribuciones:

Este estudio contribuye en tres niveles:

1. **Empírico**: Proporciona evidencia concreta sobre el impacto del ApS en estudiantes universitarios puertorriqueños, un contexto poco documentado en la literatura internacional.
2. **Teórico**: Fortalece la base conceptual del ApS al proponer un modelo de competencias integradas evaluadas desde la autoevaluación estudiantil.
3. **Práctico**: Ofrece a las instituciones de educación superior una herramienta validada para monitorear y mejorar programas de ApS, fomentando prácticas educativas sostenibles que preparen a los graduados para enfrentar los retos sociales y ambientales de su entorno.

En línea con los objetivos de la Agenda Mundial de Educación 2030 de la UNESCO y la visión de Enactus, esta propuesta sostiene que las universidades deben integrar estrategias educativas que desarrollen en sus estudiantes una conciencia crítica sobre su entorno, una sólida preparación profesional y un profundo compromiso cívico. El aprendizaje en servicio, entendido como una estrategia de transformación social, permite que los estudiantes no solo

sean espectadores del cambio, sino protagonistas activos de la mejora comunitaria y líderes innovadores que respondan a los desafíos del siglo XXI.

Fostering Social Entrepreneurial Intentions through Experience-Based Education: Insights from Brazilian University Students

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Introduction:

In the face of pressing social, environmental, and economic challenges, traditional business models have proven insufficient to address emerging global issues. There is a growing imperative to embed sustainability and social entrepreneurship within the education of future leaders and entrepreneurs. Higher education institutions are increasingly expected to foster not only managerial competence but also social consciousness and ethical responsibility. This paper addresses the importance of integrating social entrepreneurship into higher education curricula and investigates how experience-based learning influences students' social entrepreneurial intentions.

Literature review:

Social entrepreneurship education has gained momentum over the last two decades. The literature points to its potential in shaping student values, fostering empathy, and instilling a strong sense of purpose (Mair & Noboa, 2006). Several studies have explored the predictors of social entrepreneurial intention, including empathy, moral obligation, self-efficacy, and perceived social support (Nga & Shamuganathan, 2010; Yiu et al., 2014). However, gaps remain in understanding how educational experiences — especially those involving real-life engagement — translate these traits into intentions and actions. While theoretical knowledge is widely taught, the translation of such knowledge into practice, particularly through immersive experiences, remains underexplored. This study addresses this gap by examining

the role of experiential learning in shaping social entrepreneurial intention. The overarching research question is: *How does experience-based education influence the development of social entrepreneurial intention among university students?*

We hypothesise that participation in hands-on programmes significantly enhances empathy, self-efficacy, and opportunity recognition, thereby promoting social entrepreneurial intention.

Methodology:

This study adopts a qualitative methodology, using semi-structured interviews to collect data from 20 university students in Brazil. All participants were engaged in the Enactus programme—an international initiative that integrates entrepreneurial action and social impact. The Enactus programme provided a rich context for exploring the research question, as it combines entrepreneurial education with real-world experience. The choice of a qualitative method is justified by the study's aim to gain deep insight into the subjective experiences and perceptions of students regarding empathy, self-efficacy, and social opportunity recognition. Interviews were transcribed and analysed using thematic analysis to identify emerging patterns and meaningful connections.

Findings:

The findings indicate that experiential learning plays a meaningful role in shaping students' social entrepreneurial intentions. Key insights emerged from participants' narratives:

- Empathy as a Foundational Trait: Students who actively engaged in Enactus projects consistently described heightened empathy, especially as a result of direct interaction with vulnerable communities and social issues.

- Self-Efficacy Development: Participants expressed increased confidence in their ability to lead and implement social initiatives, attributing this growth to hands-on challenges encountered during the programme.
- Opportunity Recognition: Interviewees frequently noted that their exposure to real-world problems helped them recognise viable opportunities for social intervention.
- Integrated Impact: Students' reflections revealed an interconnection between empathy, self-efficacy, and opportunity recognition, suggesting that these elements mutually reinforced their motivation to engage in social entrepreneurship.

These results confirm the effectiveness of experience-based learning models in shaping key psychological traits essential to the formation of social entrepreneurs.

Discussion:

Our findings directly respond to the research question by demonstrating that educational experiences grounded in real-world engagement significantly influence students' intentions to pursue social entrepreneurship. The interplay between empathy and self-efficacy appears to be especially critical: empathy fosters concern for social issues, while self-efficacy provides the confidence to act upon them. These results align with Bandura's (1997) social cognitive theory, which posits that both motivation and belief in one's capability are prerequisites for intentional action. Furthermore, opportunity recognition serves as the practical bridge between motivation and action, enabling students to identify implementable solutions. This suggests that higher education institutions should prioritise experiential models that allow students to observe, interact, and intervene in social realities. Such programmes do not merely supplement theoretical education—they transform it into a pathway for change.

Contributions:

This research makes several key contributions:

- **Empirical Contribution:** It provides robust evidence from a Brazilian context, contributing to the relatively scarce data from Latin America on social entrepreneurship education.
- **Theoretical Contribution:** The study reinforces the role of social cognitive constructs (empathy, self-efficacy, and opportunity recognition) in entrepreneurial intention formation, especially in socially-driven initiatives.
- **Practical Contribution:** The findings advocate for public policy support in enabling universities to implement experiential social entrepreneurship programmes. They underscore the need for education systems to go beyond classroom learning and cultivate real-world engagement.

By equipping students with the tools and confidence to act on social issues, universities can become powerful agents of social transformation, bridging the gap between education and societal change.

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From Agrarian Burden to Bio-Economic Backbone: Project Rupaantar's Artisan-Led Model for Climate Action and Regenerative Rural Futures

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Introduction:

India continues to grapple with a severe agro-waste crisis, with millions of tonnes of agricultural residue burned annually as an expedient, low-cost field-clearing practice (Baruah et al., 2024; The Energy and Resources Institute, 2019). Concurrently, global demand for paper accounts for nearly 40% of global logging, driving large-scale deforestation (Bhodiwal et al., 2022; Development Alternatives, 1995; Kapoor et al., 2020). Both practices produce significant environmental repercussions, including air pollution, soil degradation, biodiversity loss, and greenhouse gas emissions, contributing to an estimated 44,000–98,000 premature deaths each year (Lohan et al., 2018).

Project Rupaantar, developed within a higher education setting, addresses these interlinked challenges by transforming agricultural residue into tree-free handmade paper. The initiative

exemplifies how higher education can embed sustainability and social entrepreneurship into learning pathways (Integrated Rural Technology Centre, 2025; Findler et al., 2019). Rupaantar presents a scalable approach that mitigates deforestation and stubble burning while fostering decentralized production, rural livelihood generation, and women's economic empowerment (Maikhuri et. al, 2011; Tarumitra, 2024).

Literature review:

A comprehensive review of sustainability literature highlights waste valorization as a core element of circular economy strategies (Jeet et al., 2022; Ellen MacArthur Foundation, 2019). Agricultural by-products such as rice straw remain underutilized and are commonly disposed of through open burning, severely degrading air quality (Lohan et al., 2018). Simultaneously, the pulp and paper industry's dependence on wood feedstocks accelerates deforestation, threatens biodiversity, and raises industrial water pollution (Development Alternatives, 1995; Kapoor et al., 2020).

Studies within the bio-economy domain emphasize the potential of converting agro-residues into alternative pulp sources to reduce environmental burdens (Kapoor et al., 2020; Maikhuri et. al, 2011). Localized circular economy models allow waste to re-enter productive economic cycles, especially in rural settings (The Energy and Resources Institute, 2019).

Social entrepreneurship research underlines the importance of gender inclusion, community-based solutions, and capacity building (Tarumitra, 2024). The role of higher education institutions is increasingly recognized for fostering innovation that bridges theory and community-focused practice, developing graduates ready to tackle sustainability challenges through interdisciplinary and entrepreneurial approaches (Ajayi et al., 2024; Integrated Rural Technology Centre, 2025).

Methodology:

Despite growing evidence on circular economy practices and bio-based materials, limited research exists on student-led, artisan-driven production models that link agro-waste valorization with rural empowerment. Few studies examine how higher education initiatives translate sustainability theory into practical, scalable interventions that address both environmental degradation and socio-economic development in local contexts (Uzorka, Akiyode and Isa, 2024).

Project Rupaantar emerged through direct engagement with rural communities to identify and utilize underused agricultural waste. Large volumes of rice straw and husk, typically burned, were recognized as potential raw materials for sustainable pulp production. Initial pilot activities demonstrated feasibility by crafting simple products from discarded coconut shells (Mamillapalli & Vedartham, 2022).

Subsequent field research and collaboration with local artisans guided prototype development of handmade paper using rice straw and husk. Trials identified challenges related to pulp quality and consistency. Detailed analysis of physical, optical, and thermal properties helped refine the production process, assessing metrics such as tensile resistance, folding endurance, opacity, and basis weight (Sannapapamma et al., 2020).

Refined methods involved drying and cutting raw straw, alkaline pulping with sodium hydroxide to remove lignin and isolate cellulose fibres, followed by hydrogen peroxide bleaching. The pulp was mechanically refined and pressed into paper sheets, achieving production without tree-based fibre inputs.

Findings:

The results confirm that rice straw and husk can effectively substitute for wood pulp in handmade paper production, reducing deforestation and mitigating stubble burning (Sannapapamma et al., 2020; Lohan et al., 2018). The decentralized, small-scale model proved feasible in rural areas and generated livelihood opportunities, particularly for women artisans (Maikhuri et. al, 2011; Tarumitra, 2024). By combining craft skills with sustainable material processing, the initiative demonstrates how localized production can advance environmental and economic goals.

Project Rupaantar also demonstrates the value of experiential learning in higher education. Direct student involvement in design, field trials, and implementation illustrates how community-focused projects develop graduates' problem-solving, sustainability, and responsible enterprise skills (Integrated Rural Technology Centre, 2025).

Discussion:

Project Rupaantar serves as a practical blueprint for agrarian circularity and climate-resilient rural development. By valorizing agricultural waste for sustainable paper, the initiative directly supports several UN Sustainable Development Goals (SDGs), including SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 15 (Life on Land), SDG 5 (Gender Equality), SDG 8 (Decent Work), and SDG 9 (Industry, Innovation and Infrastructure) (United Nations, 2015).

The project highlights the role of higher education in preparing graduates for a sustainable future by integrating social entrepreneurship with local development challenges. It illustrates how academic institutions can bridge research with practical implementation to build regenerative rural economies (Uzorka, Akiyode and Isa, 2024).

Recommendations for broader impact include policy incentives for agro-waste processing, market support for tree-free products, and capacity-building programs for artisan communities (Mamillapalli & Vedartham, 2022). Institutional frameworks that promote student-led sustainability projects can strengthen the link between academic knowledge and practical climate action (Ellen MacArthur Foundation, 2019).

Contributions:

Project Rupaantar demonstrates that student-led social entrepreneurship can deliver effective solutions for complex environmental and socio-economic challenges. By transforming agricultural residue into tree-free handmade paper, the project reduces reliance on forest resources and mitigates harmful stubble burning practices (Lohan et al., 2018; The Energy and Resources Institute, 2019).

Additionally, the decentralized model promotes rural livelihood diversification and women's economic participation, contributing to more resilient local economies (Maikhuri et. al, 201).

The project underscores the capacity of higher education to embed sustainability and entrepreneurial thinking in academic programs, equipping graduates to drive innovative, scalable solutions aligned with global sustainability goals (Integrated Rural Technology Centre, 2025).

Overall, Project Rupaantar reinforces the need for integrated, community-engaged approaches in higher education that empower graduates to advance the transition towards a circular, climate-resilient future.

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From Campus to Career: How Enactus Brazil Students Shape Employability through Soft Skills Development

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Introduction:

Employability in the 21st century is increasingly defined by soft skills such as teamwork, leadership, problem solving, and creativity, rather than technical expertise alone (Andrews and Higson, 2008; Jackson, 2016). Employers consistently highlight these competencies as essential for graduates entering dynamic labor markets (World Economic Forum, 2020). However, higher education in Brazil has been criticized for insufficiently preparing students with practical and transferable skills (INEP, 2022; Costa and Souza, 2020).

Enactus, as a global student network focused on social entrepreneurship, offers a unique space for developing these skills through experiential, project-based learning. By engaging in real-world problem solving aligned with the United Nations Sustainable Development Goals

(SDGs), Enactus students are exposed to challenges that demand creativity, leadership, and collaboration (Kolb, 1984; Eyler and Giles, 1999).

This study investigates how Enactus Brazil contributes to the employability of its students by examining the development of soft skills and their perception of Enactus as a professional differential.

Literature review:

Soft skills are increasingly considered central to employability and professional success (Heckman and Kautz, 2012; Succi and Canovi, 2020). In Brazil, studies show persistent gaps between university training and employer expectations, particularly in communication, adaptability, and leadership (Giovannini, 2021; Mattei, 2025).

Experiential learning models (Kolb, 1984) and service-learning (Eyler and Giles, 1999) have been widely recognized as effective approaches to soft skill development. Student-led organizations such as Enactus serve as living laboratories, fostering leadership, resilience, and innovation (Guerreiro and Ferrari, 2023; de Barros Neto and Hughes, 2023).

Internationally, research highlights Enactus' contribution to employability and civic engagement (Omotosho et al., 2023). However, systematic, quantitative evidence from Brazil remains limited. This study addresses this gap by asking: To what extent does participation in Enactus Brazil enhance students' employability through soft skill acquisition?

Methodology:

A quantitative, descriptive design was employed. Data were collected through an online survey (Google Forms) in July–August 2025, with responses from 102 Enactus Brazil students. The instrument included sociodemographic and academic questions, along with

items measuring perceived development of soft skills, career impacts, and views on Enactus as a curricular differential.

Responses combined multiple-choice and Likert scales. Data were analyzed using Excel and Python, expressed in percentages. Limitations include reliance on self-reported perceptions and uneven representation across teams.

Findings:

Soft skills acquisition. Students reported significant development in teamwork (82.3%), problem solving (81.3%), leadership (63.7%), creativity (62.7%), and empathy (57.8%).

Professional perception. A majority (82.4%) viewed Enactus as a curricular differential, enhancing their resumes and interview performance. Additionally, 84.3% intended to apply Enactus knowledge in their careers, and 56.9% planned to continue working with social impact after graduation.

Broader benefits. Beyond employability, students reported improved confidence, adaptability, and ability to work across diverse contexts. Inspiration from peers (69.6%) and belonging (78.4%) reinforced their motivation to pursue professional goals aligned with social responsibility.

Discussion:

Findings confirm Enactus' role in equipping students with employability-enhancing soft skills. The predominance of teamwork, leadership, and problem-solving aligns with employer demands (Andrews and Higson, 2008; Succi and Canovi, 2020; World Economic Forum, 2020). This reinforces the claim that experiential learning environments foster professional

competencies more effectively than traditional classrooms (Kolb, 1984; Eyler and Giles, 1999).

The recognition of Enactus as a curricular differential resonates with research on extracurricular engagement as a predictor of graduate employability (Jackson, 2016; Guerreiro and Ferrari, 2023). Moreover, the intention to apply knowledge in professional contexts reflects alignment with global trends in social entrepreneurship education (Omotosho et al., 2023; Passarelli, 2025).

Nonetheless, reliance on self-perception is a limitation. Future research should complement these findings with employer perspectives and longitudinal tracking of Enactus alumni.

Contributions:

This study contributes:

Empirical: Provides one of the first quantitative analyses of how Enactus Brazil contributes to employability via soft skill development.

Theoretical: Extends experiential learning and employability literature by situating student-led social entrepreneurship in an emerging economy context.

Practical: Highlights the importance of supporting extracurricular initiatives like Enactus as vehicles for professional readiness, suggesting universities and employers should recognize these experiences as formal pathways to employability.

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Portuguese version

Da Universidade à Carreira: Como Estudantes da Enactus Brasil Moldam a Empregabilidade por meio do Desenvolvimento de Soft Skills

Introdução:

A empregabilidade no século XXI é cada vez mais definida por soft skills como trabalho em equipe, liderança, resolução de problemas e criatividade, em vez apenas de conhecimento técnico (Andrews e Higson, 2008; Jackson, 2016). Empregadores destacam constantemente essas competências como essenciais para graduados que ingressam em mercados de trabalho dinâmicos (World Economic Forum, 2020). No entanto, o ensino superior no Brasil tem sido criticado por preparar insuficientemente os estudantes com habilidades práticas e transferíveis (INEP, 2022; Costa e Souza, 2020).

A Enactus, como rede global de estudantes voltada para o empreendedorismo social, oferece um espaço único para o desenvolvimento dessas competências por meio da aprendizagem experiencial e baseada em projetos. Ao se engajarem na resolução de problemas do mundo real, alinhados aos Objetivos de Desenvolvimento Sustentável (ODS) das Nações Unidas, os estudantes da Enactus são expostos a desafios que exigem criatividade, liderança e colaboração (Kolb, 1984; Eyler e Giles, 1999).

Este estudo investiga como a Enactus Brasil contribui para a empregabilidade de seus estudantes ao analisar o desenvolvimento de soft skills e sua percepção da Enactus como diferencial profissional.

Revisão de Literatura:

As soft skills são cada vez mais consideradas centrais para a empregabilidade e o sucesso profissional (Heckman e Kautz, 2012; Succi e Canovi, 2020). No Brasil, estudos mostram lacunas persistentes entre a formação universitária e as expectativas dos empregadores, particularmente em comunicação, adaptabilidade e liderança (Giovannini, 2021; Mattei, 2025).

Modelos de aprendizagem experiencial (Kolb, 1984) e service-learning (Eyler e Giles, 1999) têm sido amplamente reconhecidos como abordagens eficazes para o desenvolvimento de soft skills. Organizações estudantis como a Enactus funcionam como laboratórios vivos, fomentando liderança, resiliência e inovação (Guerreiro e Ferrari, 2023; de Barros Neto e Hughes, 2023).

Em âmbito internacional, pesquisas destacam a contribuição da Enactus para a empregabilidade e o engajamento cívico (Omotosho et al., 2023). Entretanto, evidências sistemáticas e quantitativas do Brasil ainda são limitadas. Este estudo busca preencher essa lacuna ao perguntar: em que medida a participação na Enactus Brasil melhora a empregabilidade dos estudantes por meio da aquisição de soft skills?

Metodologia:

Foi adotado um desenho quantitativo e descritivo. Os dados foram coletados por meio de questionário online (Google Forms) em julho–agosto de 2025, com respostas de 102 estudantes da Enactus Brasil. O instrumento incluiu questões sociodemográficas e acadêmicas, além de itens que mediam o desenvolvimento percebido de soft skills, impactos na carreira e visões sobre a Enactus como diferencial curricular.

As respostas combinaram múltipla escolha e escalas Likert. Os dados foram analisados em Excel e Python, expressos em percentuais. As limitações incluem dependência de percepções autorrelatadas e representação desigual entre times.

Resultados:

Aquisição de soft skills. Os estudantes relataram desenvolvimento significativo em trabalho em equipe (82,3%), resolução de problemas (81,3%), liderança (63,7%), criatividade (62,7%) e empatia (57,8%).

Percepção profissional. A maioria (82,4%) considerou a Enactus um diferencial curricular, melhorando seus currículos e desempenho em entrevistas. Além disso, 84,3% pretendiam aplicar os conhecimentos da Enactus em suas carreiras e 56,9% planejavam continuar atuando com impacto social após a graduação.

Benefícios mais amplos. Para além da empregabilidade, os estudantes relataram melhora na confiança, adaptabilidade e capacidade de atuar em contextos diversos. A inspiração dos colegas (69,6%) e o senso de pertencimento (78,4%) reforçaram sua motivação para perseguir metas profissionais alinhadas à responsabilidade social.

Discussão:

Os resultados confirmam o papel da Enactus em equipar os estudantes com soft skills que aumentam a empregabilidade. A predominância de competências como trabalho em equipe, liderança e resolução de problemas está alinhada às demandas dos empregadores (Andrews e Higson, 2008; Succi e Canovi, 2020; World Economic Forum, 2020). Isso reforça a ideia de que ambientes de aprendizagem experiencial desenvolvem competências profissionais de forma mais eficaz que as salas de aula tradicionais (Kolb, 1984; Eyler e Giles, 1999).

O reconhecimento da Enactus como diferencial curricular ecoa pesquisas sobre engajamento extracurricular como preditor da empregabilidade de graduados (Jackson, 2016; Guerreiro e Ferrari, 2023). Além disso, a intenção de aplicar os conhecimentos em contextos profissionais reflete alinhamento com tendências globais na educação em empreendedorismo social (Omotosho et al., 2023; Passarelli, 2025).

Ainda assim, a dependência de autoavaliações é uma limitação. Pesquisas futuras devem complementar estes achados com perspectivas de empregadores e acompanhamento longitudinal de ex-alunos da Enactus.

Contribuições:

Esse estudo contribuiu de forma:

Empírica: Este estudo fornece uma das primeiras análises quantitativas sobre como a Enactus Brasil contribui para a empregabilidade por meio do desenvolvimento de soft skills.

Teórica: Amplia a literatura sobre aprendizagem experiencial e empregabilidade ao situar o empreendedorismo social estudantil em um contexto de economia emergente.

Prática: Destaca a importância de apoiar iniciativas extracurriculares como a Enactus como veículos de preparação profissional, sugerindo que universidades e empregadores reconheçam essas experiências como caminhos formais para a empregabilidade.

From Campus to Community: Binding Social Media and Social Entrepreneurship for a Sustainable Future

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Keywords: Social entrepreneurship, sustainability, higher education, graduate attributes, social media, faculty guidance, Punjab region, SDGs.

Introduction:

The looming climate changes, widening social inequality, and environmental destruction require that the process of the preparation of graduates to the future implement changes in the field of higher education. Old forms of academic models that emphasized on theory only learning are no longer able of imparting the competencies needed to handle complexions in the world. Rather, the graduates should acquire a combination of skills such as technical expertise, soft skills, social responsibility, and digital literacy in order to initiate sustainable change.

This paper examines how social entrepreneurship education, soft skills training, and social media use in higher education institutions (HEI) can enhance together the ability of graduates to become sustainability activists and social entrepreneurs. This study will concentrate on graduate students at the Punjab University in India and The oriented system into the interrelationship of its parts and their interaction in the much needed positive change off campus.

Reason and Importance:

Two interconnected tendencies allow highlighting the urgency of this study:

- ➢ The Global Imperative of Sustainability: The United Nations Sustainable Development Goals (SDGs) accuse educational institutions of damaging the environment and developing an unsustainable model of education; as a result, the educational establishments are challenged to produce environmentally and socially conscious citizens who will be able to respond to global challenges.
- ➢ Digital Transformation in Advocacy: The use of social media like Instagram, LinkedIn and YouTube as tools of awareness, mobilization and community-building is increasing. By virtue of being inculcated in the social entrepreneurship programs, such platforms have the potential to scale up of the student-led initiatives and collaboration.

In spite of this potential, empirical research examining the collective impact of social media, social entrepreneurship and skill building in higher education is limited, especially in India. The purpose of the research is to fill that gap.

Objectives:

1. To discuss ways in which higher education institutes can contribute to soft skills that help graduates take leadership in sustainability and social entrepreneurship projects.
2. To examine how the social media can serve as an agent of growth in increasing the effectiveness and outreach of student-initiated projects.
3. To assess the role of faculty mentorship in improving the entrepreneurial and sustainability-oriented skills in graduates.
4. To give recommendations on curricula-building and institutional approaches which can be put into practice.

Methodology:

The research was performed in an inductive manner. Quantitatively, a framed survey was circulated to 245 graduate students across different higher education institutions of Punjab who had participated in sustainability-wise or entrepreneurial practice. The survey was gauged to the extent of:

- Soft skills training (e.g., communication, leadership, versatility).
- Patterns of social media use to promote advocacy and projects.
- Felt willingness to make a contribution to social and environmental objectives.

To get qualitative responses 10 faculty members representing the commerce, management, and social sciences departments were interviewed, to ask what the practices were and how they viewed integrating sustainability and entrepreneurship education into curricula. Three successful sustainability initiatives that were led by students were also examined as case studies in order to determine the effects of social media strategies on their respective outcomes. Quantitative analysis was performed with SMARTPLS structural equation modeling (SEM) software and qualitative responses were coded by thematic analysis.

Findings:

The results indicate some important findings.

Soft Skills as the Drivers

The students in the graduate program also determined communication, adaptability, and leadership as the soft skills that were most important in shaping their leadership of social entrepreneurship projects. The correlation analysis run in the SEM showed a positive correlation between soft skills and social entrepreneurship readiness that was significant with a correlation coefficient of 0.57 and a p-value less than 0.001.

Social Media as an Impetus to Effect

Another major finding revealed that, active social media interaction increased the visibility and scalability of projects by 72 percent. Most commonly used platforms to update progress, engage in the mobilization of volunteers, as well as contact external stakeholders included Instagram and LinkedIn. The initiatives that made a strong use of social media noted two to three times the participation rates and levels of engagement as opposed to those that did not use digital marketing.

Faculty as Change Facilitators

Faculty interviews identified that the institutional support and mentorship were critical to nurturing student-led projects. Faculty advice was also found to be linked to superior project design, resource mobilization, and outcomes with regard to project sustainability. The rigidity of the curriculum and the absence of systematized digital advocacy apprenticeship were also deemed important inhibitors of the project to achieve its full potential by faculty.

Case-Based Evidence:

Case analysis showed how small scale projects became regional campaigns as a result of social media. To illustrate, a project aimed at waste management conversations initiated by a few students gained momentum when they initiated Instagram awareness; this development has seen liaisons with local municipal councils and non profit making organization.

Discussion:

The findings show that social entrepreneurship education supplemented by soft skills and social media strategies contribute to social and environmental impact capacity on the part of the graduates. The role of faculty turns out to be an important key in uniting theoretical

knowledge with the actual practice. Moreover, social media have become an effective strategic avenue of visibility, advocacy and partnership. It turns individual initiatives into mass action that can affect policies and the attitudes of the society.

There are loopholes in institutional designs. One area of disconnect between sustainability and entrepreneurship has been the curriculum used in higher education. Many times, the training curriculums assume both a sustainability and entrepreneurship education to be optional or side topics of knowledge and does not integrate into the normal training curriculum. In a similar manner, although students are quite capable of using social media to serve their own interests, they must be trained to use social media to greater effect in advocacy and creating impact.

Implications:

The research has a number of suggestions to make.

Curricular Innovation: Sustainability and social entrepreneurship must be a required part of graduate curriculums.

Faculty Development: The faculty needs to be trained on how to guide the students with regard to digital advocacy, principles of sustainability and how to think like an entrepreneur.

Skill-Oriented Training: It must teach the soft skills like ability to think critically, be a leader and collaborate amongst others, through experiential learning.

Strategic Social Media Usage: Social media training and toolkits of how to utilize digital platforms to make social change can impact outreach and engagement at the student level.

Conclusion:

To remain at the peak of knowledge sharing, the sphere of higher education should be transformed to function as innovation ecosystems meaning they need to teach students to be leaders in the area of sustainability and social change. This paper shows how a combination of social entrepreneurship learning, soft skill training, and online advocacy assisted by close faculty engagement can help graduates become not only learners but also changemakers. Those implications are not just limited to being employable, but it places the graduates as entities that can bring about transformative change and partake in creating a sustainable and an inclusive future.

From Campus to Community: Siam University's Marketplace as a Living Laboratory for Empowering Phasi Charoen's Community Enterprises

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Introduction:

This paper presents a successful "living laboratory" model at Siam University where a student-run marketplace delivered significant, mutually reinforcing benefits for both the local community and student participants. The initiative was designed to address a persistent challenge in Thai higher education: the need for authentic learning contexts that move beyond traditional classroom models. By co-creating a recurring marketplace with micro-entrepreneurs from the surrounding Phasi Charoen district, the project achieved tangible economic and educational outcomes.

Key findings and contributions include:

- Significant Economic Impact: Generated 399,714 THB in revenue for 58 local shops, providing a vital and consistent commercial channel for community entrepreneurs.
- Student Competency Development: Equipped students with critical skills in social entrepreneurship, real-time problem-solving, and stakeholder communication through hands-on event management.
- A Replicable Playbook: Established a practical framework for university-community engagement—featuring zero vendor fees, structured rotation, and data-informed feedback—that other institutions can adopt.

This paper details this replicable model, demonstrating how positioning a campus marketplace as a living laboratory can foster sustained community engagement while developing students' real-world competencies.

Literature review:

A growing body of Thai scholarship on university–community engagement and service-learning underscores mutual benefits for learners and local stakeholders (Office of the Higher Education Commission, 2017). However, empirical accounts that jointly quantify vendor outcomes and student competency growth within a single, repeatable intervention remain scarce. Much of the literature isolates either community impact or student learning but rarely integrates them through a mixed-methods lens. This study addresses that gap by combining sales analytics with qualitative evidence to show how a campus marketplace can support the economic resilience of urban micro-entrepreneurs while catalyzing student learning in social entrepreneurship and sustainability (Taibanguai & Suraratdecha, 2024; Amnuay, 2023). Our framing draws on Kolb's experiential learning cycle, in which concrete experience and active reflection are essential for meaningful skill development (Kolb, 1984).

Research Question & Proposition:

Research Question: How does a student co-organized university marketplace at Siam University impact (i) the sales performance and market access of local merchants in Phasi Charoen, and (ii) students' development of social entrepreneurship and sustainability competencies?

Proposition: A recurring campus marketplace, intentionally designed as a living laboratory, yields measurable economic gains for participating micro-entrepreneurs while cultivating students' soft skills and sustainability mindsets through authentic, multi-stakeholder work.

Methodology:

This study employed a mixed-methods design to evaluate the marketplace's dual impact on community vendors and student organizers. The primary data sources included quantitative sales records from 58 participating shops and qualitative insights gathered from semi-structured interviews with nine local vendors. This approach was supplemented by reflective debriefs with the student management teams, allowing for the triangulation of measurable economic outcomes with the lived experiences of all participants.

Findings:

The marketplace demonstrated clear economic viability, generating 399,714 THB in cumulative sales and confirming the campus as a significant revenue channel for local entrepreneurs. Quantitative data showed a strong preference for accessible goods, with top categories including Sweets/Confections (142,459 THB) and Prepared Foods (109,935 THB). Qualitatively, vendors valued the consistent access to the campus community and provided actionable feedback, highlighting the need for stronger promotion, predictable schedules, and a transparent booth allocation system. Student reflections centered on learning "in the chaos" of live operations, where they developed practical skills in leadership and problem-solving. Notably, a student-led initiative to create and share simple sales dashboards with vendors was highly successful, helping merchants adjust their products and improve sales.

These findings provide a clear roadmap for strengthening the marketplace. The vendor feedback creates an actionable agenda for future student teams, tasking them with developing a formal marketing plan and formalizing the successful booth rotation system. Furthermore, the positive reception of data dashboards highlights a key opportunity for scaling the project's value. Institutionalizing a simple "Vendor Performance Report" after each market would

provide vendors with actionable insights and elevate the students' role from event coordinators to practical business consultants, deepening the real-world value of this living laboratory.

Discussion:

These findings support the marketplace-as-living-lab proposition. Quantitatively, the campus provides a viable economic channel that directs revenue to local entrepreneurs. Qualitatively, operational challenges were not failures but catalysts for learning: they required students to exercise opportunity recognition (seeing the campus as a market), stakeholder empathy (understanding vendor needs), and iterative improvement (acting on feedback about logistics and promotion). Sustainability was not merely a top-down ideal but was articulated and practiced by vendors, grounding students' understanding in real trade-offs between economic viability and social inclusion. Procedural fairness (transparent booth assignment and rotation), responsible resourcing (local sourcing, water/chemical reduction), and equitable access (zero booth fees) emerged as practical design levers that student teams can steward.

Contributions:

Empirical: Integrates sales analytics (399,714 THB from 58 shops) with multi-perspective narratives from Phasi Charoen, documenting both benefits and operational challenges.
Theory: Extends Thai discourse on university–community engagement by linking experiential learning principles to measurable economic impact in a repeatable campus-market design (Office of the Higher Education Commission, 2017; Kolb, 1984).

Practice: Provides a replicable playbook for Thai universities, detailing a model of structured vendor grouping and rotation, low-barrier access (zero fees), transparent logistics, and student-led data analysis for vendors.

Limitations: This is a single-campus case with evolving measurement protocols; results describe associations, not causality. Future work will incorporate quasi-experimental designs, extend environmental indicators, and track student competency growth longitudinally.

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From Theory to Practice: How Enactus Shapes Sustainability Mindsets in Youth

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Introduction:

Youth possess the power not only to shape the present but also to define the future, particularly in advancing sustainable and socially responsible practices. Enactus, as a student-led social entrepreneurship platform, provides an enabling environment where participants develop critical attributes such as leadership, ethical decision-making, confidence, and soft skills through experiential learning. This study seeks to explore how involvement in Enactus influences these dimensions when compared to students who are not part of such a community. To achieve this, primary data was collected from 155 respondents through a structured questionnaire designed to capture perspectives on sustainability awareness, participation, and personal development. This study draws upon established psychological and educational theories to explain how participation in the Enactus environment may shape individuals' mindsets, skills, and engagement in sustainability and social entrepreneurship. Specifically, Albert Bandura's Social Cognitive Theory provides a robust framework for understanding the development of skills, confidence, and behavioural changes observed among Enactus participants. Additionally, Self-Determination Theory by Deci and Ryan offers insights into the motivational underpinnings of sustained engagement in such programs.

Literature review:

Rana et al. (2024) after identifying gaps in Mihalj et al. (2022), Adriana Mohd. Rizal et al. (2020), Beatrice Bavestrelli (2020) and Anastasiia Dalibozhko et al. (2018) analysed a group of individuals to measure the impact and improvement of social ventures.

However, the impact of those on the students at various levels and in their future choices has not been analysed in depth specially in the comparative context with those who aren't enrolled in the program. This study aims to fill the gap.

Methodology:

A cross-sectional research design was used to collect primary data from 155 respondents. The survey used closed-ended, Likert-scale and Semantic Scale questions to assess various qualitative parameters like awareness, leadership, sensitisation and integration of sustainability and community upliftment amongst people from various backgrounds and occupations across different countries. The survey was structured into four respondent pathways based on occupation: (i) Undergraduate/Postgraduate students, (ii) Working professionals/Freelancers, (iii) Entrepreneurs/Startup founders, and (iv) Educators/Researchers. In total, the questionnaire contained 33 items, divided across personal details, general sustainability awareness, and occupation-specific sections. Response formats included:

- Multiple choice (single select) for demographic data and categorical identification (e.g., Enactus participation, equality vs equity, empathy vs sympathy).
- Likert scale questions (5-point, ranging from Strongly disagree [1] to Strongly agree [5] or from Low [1] to High [5]) were used to assess awareness of SDGs, confidence

in leading sustainability projects, workplace integration of sustainability, and knowledge ratings.

- Semantic differential scales (1–5) positioned concepts (e.g., "Sustainability is a theoretical topic" → "Sustainability is a real-world priority"; "Profit-focused" → "Purpose-driven").
- Check-box questions captured participation in sustainability initiatives and entrepreneurial influences, allowing multiple selections.
- Numeric scale (1–10) was applied for teachers rating the influence of Enactus in shaping youth leadership.

This mixed structure enabled both quantitative analysis (through scale-based responses) and qualitative insights (through multiple-response and open contextual items). The questionnaire was designed to capture five thematic dimensions: awareness, knowledge, action/participation, impact, and future orientation.

A majority of respondents (120; 77.4%) were undergraduate or postgraduate students, followed by working professionals/freelancers (19; 12.3%), entrepreneurs/self-employed individuals (11; 7.1%), and those in teaching/research roles (5; 3.2%). In terms of prior experience, 75 respondents (48.4%) reported being part of Enactus, 68 (43.9%) had no association, while 12 (7.7%) had participated in a similar initiative. This distribution highlights that the dataset is predominantly student-driven, while also incorporating perspectives from professionals, entrepreneurs, and educators, thereby ensuring diversity in representation. Responses were analysed using descriptive statistics, mean score comparison, and percentage distribution. Comparative charts were created for key metrics to visualise differences between groups and the percentages of sub-groups were calculated and compared.

Findings:

1. It was observed that Enactus and Non-Enactus students have almost the same knowledge about the theory but their leadership skills, contribution, participation, social entrepreneurial experience and future plans towards sustainability greatly vary.

UG/PG STUDENTS	ENACTUS	NON ENACTUS
What is sustainability more likely to be? A theoretical topic or a real-world problem	4.363636364	4.444444444
Awareness of the SDGs and contribution towards them	4.333333333	4.037037037
How would you rate your current knowledge of sustainability concepts?	3.984848485	3.648148148
In which of the following have you participated?		
Clean-up drives / eco-club	66.66666667	66.66666667
Enactus / social entrepreneurship project	89.39393939	9.259259259
Climate or sustainability workshops	34.84848485	22.22222222
Community volunteering	60.60606061	55.55555556
None	3.03030303	20.37037037
Confidence to lead a meaningful project that creates a social or environmental impact.	4.318181818	3.740740741
Do you plan to build a future in Social Entrepreneurship?		
YES	50	20.37037037
NO	7.575757576	20.37037037
MAYBE	42.42424242	59.25925926

2. It was observed that Enactus **working professionals** have comparatively better integration of sustainability, Non-Enactus professionals placed greater emphasis on environmental and reputational aspects, while Enactus professionals prioritised innovation. Also, Enactus professional's soft skills are much more finer than the others.

Working professional/free lancer	ENACTUS	NON ENACTUS
Do you integrate themes of Sustainability into my current work?	4.333333333	3.857142857
Sustainability in workplace is important for:		
Environment	75	85.71428571
Employee well-being	75	85.71428571
PR and Government mandates	25	28.57142857
Long-term cost savings	41.66666667	57.14285714
Brand reputation & customer trust	50	71.42857143
Innovation and future-readiness	66.66666667	42.85714286
Talent attraction & retention	41.66666667	57.14285714
Rate how much your student experiences helped with the following:		
Communication	4.75	4.142857143
Team collaboration	4.916666667	4
Leadership	5	3.857142857
Understanding social issues	4.833333333	4.285714286

3. It was observed that Enactus entrepreneurs reported stronger connections to their communities. In contrast, Non-Enactus entrepreneurs covered a wider range of sectors. The entrepreneurial mindset of Enactus participants was largely shaped by their college, Enactus and real world exposure while Non-Enactus peers credited their mindset to self-learning, mentorship, and work experiences.

Entrepreneur / Startup Founder/ Self-employed	ENACTUS	NON ENACTUS
Your venture actively contributes to:		
Community development	57.14285714	33.33333333
Circular economy / sustainability	28.57142857	33.33333333
Rural/grassroots innovation	14.28571429	33.33333333
Women or youth empowerment	0	33.33333333
Education or skill development	42.85714286	66.66666667
Climate action or environmental protection	14.28571429	33.33333333
None yet	0	33.33333333
The impact of your business is best described as: (semantic scale)		
Niche-Scalable	3.857142857	3

Profit-focused - Purpose driven	3.714285714	3
Isolated- Community-linked	4.285714286	2.333333333
What all factors influenced your entrepreneurial mindset:		
College environment	42.85714286	0
Enactus or similar platform	71.42857143	0
Real-world problems	57.14285714	0
Mentors or role models	28.57142857	33.33333333
Self-learning	28.57142857	66.66666667
Internship or job experience that exposed gaps/opportunities	0	33.33333333
How important do you think integrating the UN SDGs into entrepreneurial ventures is?	3.714285714	2.333333333
Is your venture based on a social entrepreneurship model?	64.28571429	50

4. Educators and Research Scholars rate the influence of student platforms like Enactus in shaping youth leadership and social responsibility: 66% and believe that, following are most essential to promote sustainability through education:

Embedding sustainability and SDG-related content into all disciplines	80%
Fostering soft skills	80%
Supporting student-led platforms	80%
Encouraging experiential learning	100%
Faculty development programs on sustainability pedagogy	80%
Integration of social impact metrics in student assessments	60%
Multi-stakeholder collaboration	80%
Funding or incentives for sustainability-focused research and startups	100%

Discussion:

Findings highlight that Enactus students and alumni are significantly more likely to work towards sustainability and are more confident leaders while also revealing unexpected trends in theoretical knowledge, highlighting the stark irony between information and action. They

have better exposure and soft skills. Faculty insights further elaborate the importance and effect of student participation.

Contributions:

This study contributes to the empirical understanding of how student-led platforms such as Enactus shape sustainability mindsets by offering comparative evidence between participants and non-participants across multiple stakeholder groups, including students, professionals, entrepreneurs, and educators. Theoretically, the findings extend the application of Bandura's Social Cognitive Theory and Deci and Ryan's Self-Determination Theory by demonstrating how experiential, community-based learning environments strengthen leadership, motivation, and confidence in sustainability-driven initiatives. Practically, the results underline the value of embedding student-led initiatives into higher education ecosystems, as they equip young people with not only awareness but also actionable skills and entrepreneurial orientation. Insights from educators further emphasise the importance of experiential learning, cross-sector collaboration, and institutional support in embedding sustainability across disciplines.

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Generation Re-Design: Empowering youth through UNESCO Creative Cities and Social Innovation

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Abstract:

This paper explores how the Street Design Challenge incentivizes creative thinking in design-led careers (architecture, urbanism, industrial design, animation, etc.) by leveraging the diversity of contexts offered by UNESCO Creative Cities. Using the Cities, Creativity, and Culture Framework (CCC) (World Bank & UNESCO, 2021), this study situates the experiment within the enabler of Skills and Innovation, investigating how collaborative, cross-cultural challenges can enhance students' creative capacities. The methodology compares student performance in Querétaro, Mexico, when designing solutions for a local street versus an international street. Three dimensions were measured: Flow of Ideas, Originality of Proposals, and Flexibility in Problem Resolution. Preliminary results suggest that exposure to global, culturally diverse contexts foster greater originality and adaptive problem-solving, while local contexts strengthen grounded, context-sensitive ideation. To frame these findings, we draw on Arturo Escobar's theory of designing for the pluriverse, which argues for a transition from universalist, technocratic design models toward plural, culturally situated forms of worldmaking. The Street Design Challenge embodies this pluriversal approach by engaging students in the co-creation of street visions across diverse cultural realities. In doing so, it moves beyond a singular narrative of urban progress and

instead promotes relational, situated innovation that reflects multiple ways of knowing and living. By aligning Escobar's pluriversal design theory with the Skills and Innovation enabler of the CCC framework, this case demonstrates how design education can move from training professionals to regenerating future changemakers. It shows how cross-cultural encounters in creative cities can build capacities for reimagining, restoring, and redefining urban life.

Keywords: Street Design Challenge, Pluriverse, Skills and Innovation, Creative Cities, Design Education

Introduction:

The systemic crisis has altered popular concepts about economic growth and its measurement. According to Florida et al., 2011: "We have learned, in a proverbially hard way, that the unbridled pursuit of economic growth does not always go hand in hand with raising standards of living."

In this context, factors such as technology, innovation, knowledge, and human capital play a decisive role in the progress of contemporary advanced economies.

Creativity is fundamentally different from the traditional and tangible factors expressed by Adam Smith's classical economics based on production as the foundation of economic development: land, labor, and capital. Unlike these, creativity is a renewable resource that can be constantly improved. "Every person is potentially creative. Our future progress and prosperity depend not only on the efforts of a privileged knowledge elite but on how well we can unleash the creativity of every human being" (Florida et al., 2011).

Creativity is portable; people carry it with them. However, it is almost always associated with specific places (Jacobs, 1984). Places (countries, cities, regions, spaces) provide the set of

inputs or key characteristics that enable people and institutions to shape economic and social progress.

According to the Global Creativity Index, novel ideas are generated more efficiently in places where different cognitive styles are tolerated, and differences in cognitive styles are linked to demographic diversity (Page, 2007).

Cities, despite being ecosystems riddled with unsustainabilities, once again reveal themselves to be the epicenters of the creative economy, hubs of innovation, and catalysts for progress (World Bank, 2021).

There is a large gap between economic, social, and environmental progress in terms of creativity and prosperity between countries in the global south and north (see Figure 1 and Figure 2).

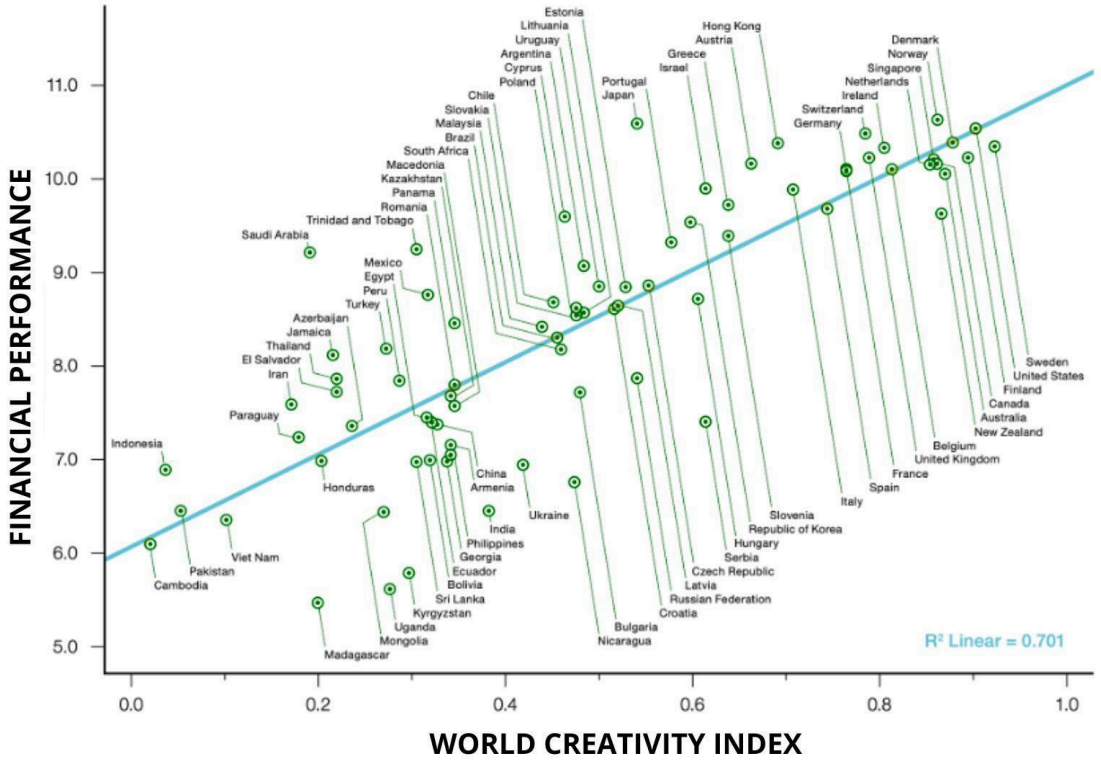


*Figure SEQ Figura * ARABIC 1. Modificado de Global Creativity Index (GCI) and economic performance by country. Florida et al., 2011.*

Figure 1 shows the positive relationship between the World Creativity Index and the Financial Performance of various countries, with a coefficient of determination $\mathbf{R^2 = 0.701}$, indicating a strong correlation between national creativity and financial results.

The graph is a scatter plot where:

- The X-axis represents the World Creativity Index, with values from 0 to 1.
- The Y-axis shows Financial Performance, with values from 5 to 11.
- Each country is represented by a circle, with lines connecting the circles to their respective names for easy identification.
- The trend line, together with R2=0.701, describes the positive correlation between creativity indices and national financial performance.

The countries with the highest creativity and financial performance are:

Sweden, the United States, Finland, Canada, Australia, and New Zealand stand out in both dimensions, ranking in the upper right corner with indices close to 1 and financial performance around 11.

The countries with intermediate creativity and performance are:

Portugal, Japan, Estonia, Lithuania, Uruguay, Poland, Argentina, and Cyprus show intermediate creativity (0.6-0.8) and financial performance between 9 and 10.

Countries with low creativity and financial performance are:

Indonesia, Madagascar, Uganda, Mongolia, Honduras, Nicaragua, CambodiaPakistan, and Vietnam are located in the lower left corner with low creativity indices (< 0.2) and financial performance between 5 and 7.

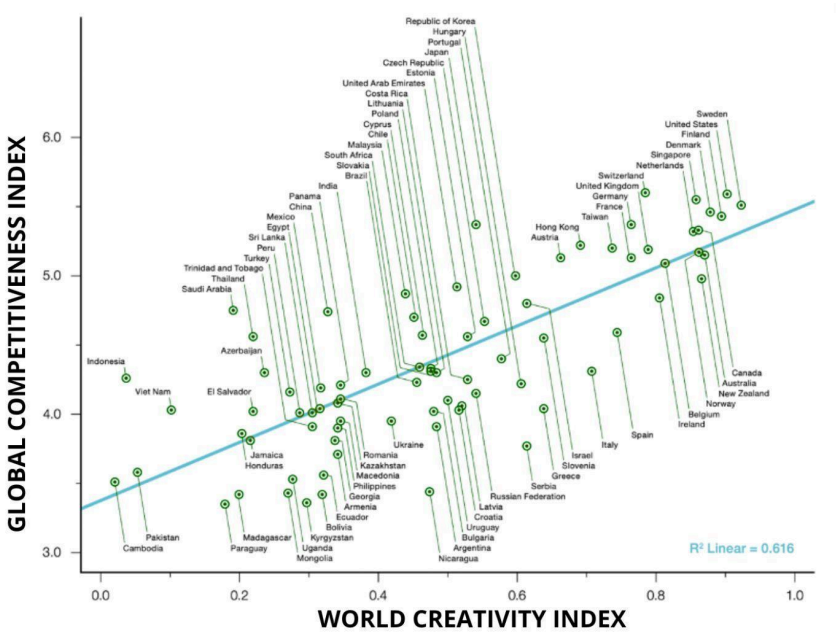


*Figure SEQ Figura * ARABIC 2. Modified from Global Creativity Index and Competitiveness Index by country. Florida et al., 2011.*

Figure 2 illustrates the positive correlation between the World Creativity Index and the Global Competitiveness Index for a wide range of countries, showing a quantified relationship with a coefficient of determination of **R^2=0.616**

The graph is a scatter plot where:

- The X-axis represents the World Creativity Index, with a range from 0 to 1.
- The Y-axis shows the Global Competitiveness Index, which varies from 3 to 6.
- Each country is represented by a circle, accompanied by a line connecting the circle to the country's name for easy individual identification.
- A blue trend line highlights the positive association between the two indicators, showing that the most creative countries tend to be more competitive globally.
- The value R^2=0.616 indicates a significant correlation between creativity and competitiveness, although lower than that found between creativity and financial performance (Figure 1).

The countries with the highest creativity and competitiveness

Sweden, the United States, Finland, Denmark, Singapore, the Netherlands, and Switzerland occupy prominent positions, combining high values in creativity (~1) and competitiveness (5-6).

The countries with intermediate creativity and competitiveness

Portugal, Japan, Republic of Korea, Hungary, Estonia, Czech Republic, Lithuania, Poland, and Chile have intermediate values (creativity 0.6-0.8, competitiveness 5-6).

The countries with low creativity and competitiveness

Pakistan, Cambodia, Paraguay, Madagascar, Uganda, Mongolia, Honduras, Jamaica, El Salvador, Azerbaijan, Indonesia, and Vietnam are located in the lower left corner with creativity < 0.2 and competitiveness between 3 and 4.

To close the aforementioned wide gap, it is imperative to promote recognition among decision-makers in the global south that creativity is a strategic factor for sustainable development and that designers are key collaborators in this process, with the capacity and ability to provide the solutions our world demands. As creators of models, prototypes, and proposals, designers occupy a dialectical space between the reality we have today and the one we aspire to for the future. Armed with knowledge of the past and present, our work is oriented toward what is to come.

On the other hand, Arturo Escobar's proposition of designing for the pluriverse (2018) offers a compelling theoretical lens for situating creativity in sustainable development. The pluriverse challenges the dominance of singular, universalizing models of progress by affirming that "a world where many worlds fit" is not only possible but necessary. This perspective insists that development practices must embrace diversity, not merely as cultural ornamentation but as a fundamental condition for sustainability. In this perspective, design is

reframed as an act of relationality, one that acknowledges the coexistence of multiple ontologies, ways of knowing, and ways of being.

The Youth and Education working group of the UNESCO Design Cities subnetwork (CoD) exists to foster international cooperation and promote interdisciplinary approaches that highlight the importance of design. Following my recent (June 2024) appointment as coordinator of this working group, I decided to design this experiment to enrich the information on the phenomenon that this research studies: the translation of creativity into spatial benefits in design cities.

One strategy for democratizing urban design is to highlight and promote the power of the "creative class" to reimagine and redefine common spaces (Pratt, 2008). The indicators of success in the work of designers, unlike those in the arts industries, are objective because design decisions cannot be based purely on intuition, opinion, or ego (Knight, 2022).

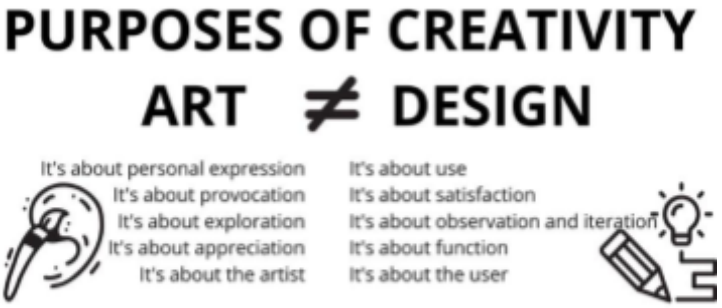


*Figure SEQ Figura * ARABIC 3. Comparison of the purposes for which creativity is used in art and design. Own creation based on Knight's essay "Design is not art," 2021.*

Literature review:

The research proposed in this paper uses the Cities, Creativity, and Culture Framework proposed by the World Bank and UNESCO (CCC) to analyze the phenomenon of translating creativity into spatial benefits. Over the past four years, I have developed the design of an experiment and characterized a case study for each proposed enabler. The enabler analyzed in this experiment is that of skills and innovation (see Figure 4).

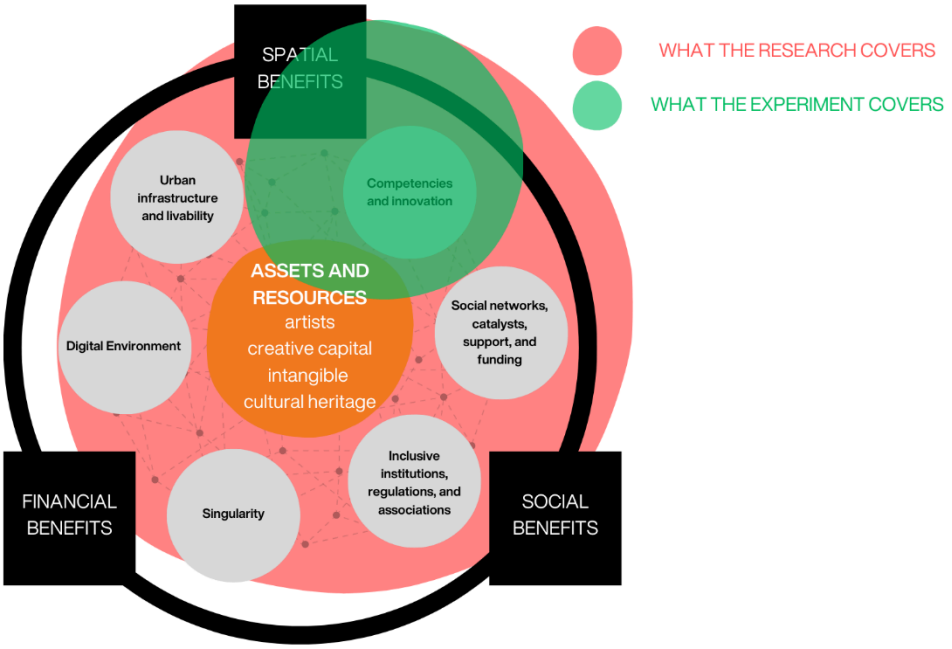


Figure 4. Graphic illustration of the scope of the experiment based on the Cities, Creativity, and Culture Framework. Own creation based on the CCC Framework (WB & UNESCO, 2021).

Regarding this enabler, according to the CCC Framework, "Creative people and all those working in creative ecosystems need opportunities to grow and evolve their skills. They often require a combination of formal learning opportunities, as well as informal opportunities to learn and contribute to the transmission of intangible cultural heritage."

In this scenario, it is helpful to consider how the 2024 Street Design Challenge fosters an attractive and diverse context that facilitates the development and dissemination of essential skills for a vibrant creative ecosystem. Therefore, the Street Design Challenge can position itself in the creative sphere of the case study city[17] as an exercise to assess the scale of human capital formation by participating in a 48-hour design exercise and would allow for the establishment of a replicable model that catalyzes development in other cities. This justifies its implementation as a field experiment to assess how practice-based learning in design and culture builds ecosystems of creativity.

[17] Querétaro

With this in mind and the premises, I have advocated for the 2024 edition of the Street Design Challenge to serve as a thought-provoking experiment, which took place just in time to contribute to the commemoration of World Habitat Day (October 7), which was held in 2024 at the city of Querétaro, Mexico.

Objective and Hypothesis:

The challenge requires interdisciplinary teams at the undergraduate level to employ design methodologies in creating a proposal that enhances the sustainability of a street analyzed by authorities from another creative city as a potential candidate for a designed intervention. The hypothesis is that through design exercises between creative cities, common urban spaces can be reimagined, and the skills of participating creative assets can be increased and evolved.

In other words, an injection of creativity through collaborative design among UCCN members sparks out-of-the-box discussions about community engagement strategies, carbon footprint reduction, and strategies for the commons.

Methodology:

The research utilizes the UNESCO Cities, Culture, and Creativity framework (CCC), which identifies six categories of enablers of the creative city, enabling it to translate its resources and assets (creative capital and intangible cultural heritage) into spatial benefits (see Figure 1). This experiment focuses on enabler 2: skills and innovation in human capital. According to this enabler, creative assets and, in general, all individuals working in creative ecosystems require opportunities to enhance and develop their skills. They often require a combination of formal learning opportunities and informal opportunities to learn and contribute to the transmission of intangible cultural heritage (UNESCO, 2021).

For this reason, the experiment employs both quantitative and qualitative methods to characterize the effects of exposure to diversity on fostering creative thinking in the design process.

Quantitative: Through a survey and observation of data from the evaluation of the 38 projects collected during the 2024 edition and their comparison with the 33 projects collected during the 2023 edition. A form was designed to evaluate three categories of the projects developed by the teams: concept, communication design, and urban design. (See Annexes 1-3). In the case of the teams in Querétaro, these evaluation forms were applied to the local design exercise and their projects in the SDC 2024.

Qualitative: Interviews were conducted with the jury and participating teams to gain insight into their perceptions of this international creative exercise. Likewise, Likert scale surveys were administered to obtain results on the students' perceptions immediately after they submitted their progress for feedback from the CAEQ experts.

Evaluation Metrics

To understand how exposure to new and unexpected stimuli enhances the creativity of student teams in the UCCN Street Design Challenge, three metrics will be used:

Ideas Fluency: This considers the total number of different ideas presented by each team. Specifically, exposure to a new and unexpected stimulus is expected to broaden the concepts of diversity in teams, as the rules of the challenge encourage students to seek out unusual ideas[18] and draw on unconventional sources, given that the project is to be developed in a foreign context. Monitoring ideational fluency before and after exposure to stimuli will indicate any changes in the volume and variety of their creative ideas.

[18] As this is a call for proposals from Creative Cities of Design, creative ideas are requested.

Originality of solutions (OS): This refers to the originality of the design solutions as presented by the different teams. This qualitative assessment involved nine evaluators, who, using a form developed by me (see Annex 1), scored the degree of innovation in the generated ideas. There is a logic that argues that if exposure to such unexpected stimuli is adequate, there should be a noticeable increase in innovative or, rather, risky responses.

Flexibility in problem solving (FRP): This metric assesses how students incorporate and modify their designs in response to unforeseen events. The evaluation also sought to examine how easily each team switched between conceptualizations when new or competing ideas were introduced and how these ideas altered the designs. Two reviews were conducted with experts from the Querétaro State College of Architects (CAEQ), and brief surveys were administered to the participating team members at the end of these feedback exercises. These self-reports, in which students assess their level of flexibility, combined with external observations of design iterations, provide insight into the factors that enhance students' ability to be creatively flexible.

Methodology outline

1. Observations of feedback sessions or "reviews":

- Objective: To capture students' real and spontaneous reactions to the evaluation provided by the experts, paying special attention to any flexible, change-motivated, or innovative thinking.
- Step: Two observers from the teams were trained to attend their feedback sessions and record the responses of each team's members to the reviews. Attention was paid to the following specific indicators of flexibility:

- The tendency to change the original proposal based on the feedback received.
- The level of the team and the individual in exploring other possibilities to meet the challenge requirements.
- Instances of team discussions about the problem when there are difficult comments.
- Content analysis: Observers used a scoring rubric to assess each team's level of flexibility while coding all observations around a vocabulary of frequently noted characteristics that reveal how teams differ in their dynamic capabilities.

2. Design of the post-session survey:

- Objective: To evaluate, through the participants' experiences, their perception of the level of flexibility and openness in their practice after each session to learn their opinions on the effect of feedback on their strategy.

- Distribution: Teams were given surveys at the end of the feedback sessions. (See Annex IV)

STRUCTURE OF THE CHALLENGE

Logistical planning for the Street Design Challenge 2024 began in February with the participation of representatives from the cities of Curitiba, Wuhan, Puebla, and Querétaro as organizing cities. The theme for the edition was proposed and chosen, and the concept note was created (see Annex V).

The challenge is open to any city that is a member of the UCCN. The call for entries was opened on July 4, 2024, during the UCCN Annual Conference in Braga, Portugal.



*Illustration SEQ Ilustración * ARABIC 1 . Screenshot of the 2024 Street Design Challenge page. See quretarocreativo.mx/sdc2024*



*Illustration SEQ Ilustración * ARABIC 2. Photograph of the Plenary Session during the 16th Annual Conference of the UCCN in Braga, Portugal, where the call for entries for SDC 2024 was opened.*

There are two ways for cities to participate in the challenge: by submitting a street profile and/or registering participating teams or challengers.

A) STREET PROFILE

The Street Profile is at the heart of the entire challenge. With this document in hand, teams from other Creative Cities will be able to understand the specific context of the city and work on a proposal. Each town can provide a single Street Profile in English, accompanied by any supporting documentation (if possible, also in English). They had until September 10 to submit their material.

We suggest that the Street Profile be created by the city's urban development department or another architectural organization with knowledge of the area. Ideally, a representative from that department should be designated to advise the teams during the challenge, contributing ideas and clarifying doubts.

To develop the street profile, they first had to select a street located in an area with high commercial potential and gather as much information as possible about it, including:

- Climate and vegetation profile.
- Name and location, providing a link to a map or coordinates.
- Section of the street to be considered, for example, the section that begins at street X and ends at street Y.
- Street vocation, or how the street is used and how it relates to the rest of the city.
- Elements are present on the street, such as bus lanes, sidewalks, shops, etc.
- Permitted land uses (residential, commercial, other infrastructure).
- Photographs.
- Measurements, preferably in a CAD file.
- A recorded presentation by a city expert detailing the specific characteristics of the street, its current situation, and any other information that may help the teams develop a solid proposal.
- Any other documents that may help the team understand the street they have selected.

The recorded presentation should not exceed 30 minutes in length.

The video presentation and supporting materials on the street should present the current situation, but also provide general details about the surrounding environment, perhaps even touching on the characteristics or traditions of its people, the city's annual budget, and other relevant information. Additionally, please share the name and a brief biography of the expert

responsible for the explanation and who conducted the research for the street profile. A sample street profile can be found in Annex VI.

B) CHALLENGERS

Each city must register to participate using an online form. Once UCCN membership and the identity of its focal point have been confirmed, its participation is confirmed. Once participation has been confirmed, it is time to engage the universities.

Teams must be composed of university students enrolled in design, landscaping, urban planning, communication, animation, marketing, and architecture programs. It is strongly recommended that each team have members from different fields (not exclusively design or architecture, for example). Each university may designate a team of 4 to 6 students and 1 or 2 faculty members to act as advisors. These advisors may not directly develop the project or any of the materials submitted for evaluation. Teams must designate one member to receive all official communications and serve as the primary point of contact for the group throughout the challenge.

Each city is given complete freedom to take the necessary steps, according to the resources available, to attract these participants. Likewise, each city has complete independence to manage the necessary resources, according to its possibilities, for the 48 hours during which the teams will be working on their proposals.

One week prior to the challenge, a draw is held between the teams and the street profiles to ensure that all cities participate and that teams receive street profiles that are not specific to their city.

Starting on September 28, 2024, the Street Design Challenge aimed to address the pivotal role of public markets in providing benefits such as economic opportunities, linking urban

and rural economies, strengthening social cohesion, promoting public health, creating active public spaces, and revitalizing neighborhoods. This theme was chosen because what differentiates public markets from other commercial locations is that they operate in public space, serve locally owned and managed businesses, and have public objectives. This focus on public good is what makes successful markets grow and connect urban and rural economies. They foster financial and community development by keeping money in the local neighborhood.

During the challenge, interdisciplinary groups of university students, advised by their professors, collaborated on developing a proposal to foster the local economy and community interaction on a street in a foreign city. Participating teams had to consider various factors, including local climate, geography, socioeconomic context, and cultural background, to create a comprehensive and effective intervention within the urban and cultural landscape.

The 2024 theme for the Street Design Challenge invited groups of students from architecture, urban planning, and design disciplines to reimagine streets as vibrant marketplaces that not only serve as hubs for selling locally produced, crafted, and designed goods but also as platforms for addressing social issues within the community. By modernizing existing markets or creating new ones in underdeveloped areas, participants will explore innovative design solutions for vendor stores, store furnishings, visitor flow, and the overall shopping experience.

The goal is to strengthen or cultivate a sense of culture and community belonging, leveraging the creative economy to transform streets into inclusive and dynamic spaces that foster local entrepreneurship and social cohesion.

Each team was paired with a street in another participating city and received a detailed report from a local expert. This briefing described the current situation, challenges, and priorities to be addressed by the proposal. Once the challenge began, teams had 48 hours to submit their projects in the specified format.

SDC2024 IN QUERÉTARO

To ensure the participation of representatives from various universities in this edition, the following actions were taken:

1. We participated in a breakfast for Architecture and Design Program Coordinators from different universities, organized each year by the Architecture Association. During this event, we shared the results of previous editions and made sure that everyone was familiar with the Challenge.
2. We sent personalized invitations to all universities (deans, program coordinators, directors, etc.) with a program focused on Design in Querétaro so that they could represent our creative city in this 48-hour International Challenge. Ultimately, all decision-makers are individuals. Addressing them by name and title is strategic for establishing a strong connection.
3. We held an engaging contextualization event. Last year, we organized a PechaKucha Night centered on the design of public space and how it can be deconstructed.
4. We are looking for ways to create an exhibition with the results so that everyone involved feels motivated and open to future collaborations. This year, Querétaro hosted the World Habitat Day Commemoration and we held a press conference for local students to share their experience and vision from this event.

5. We sought sponsors. This was a perfect opportunity to tell them about the Creative City concept and get them involved with young people and design. At the same time, they became proud ambassadors for "Team Querétaro" in the Challenge.

Planning the logistics of the event in Querétaro took a year. What we did was set up a headquarters, in this case the building of the College of Architects of the State of Querétaro (CAEQ). A workspace was adapted for each of the 18 teams registered on the ground floor and second floor of the building. On the first floor, a feedback room was set up, led by Gerardo Carmona from BOONKER, and a strategic meeting room was set up, led by Johann Llamas from LADOBIO. A social space was also created outside the building; sand was distributed, and sponsorship was obtained to install beach furniture.



*Illustration SEQ Ilustración * ARABIC 3. SDC2024 opening ceremony in Querétaro. Own photograph, CAEQ facilities.*

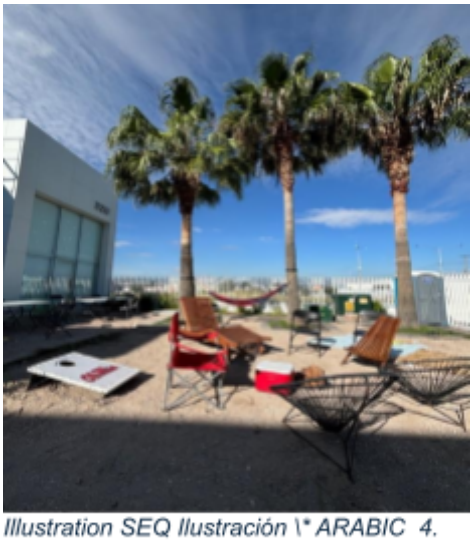


*Illustration SEQ Ilustración * ARABIC 4. Photograph of the temporary living space created for SDC 2024. Own photograph.*

Findings:

Ideas Fluency (IF).

Monitoring ideational fluency before and after exposure to[19] stimuli will indicate any changes in the volume and variety of their creative ideas.

To measure the difference in IF generated by exposure to diverse cultural expressions reflected in the streets of urban contexts different from where they live, two creative sessions were held: one where volunteer teams of students generated a tactical urbanism proposal for a space in the city where they live (Querétaro) and the Street Design Challenge (SDC 2024).

Of the 16 participating teams from Querétaro, 11 participated in the first exercise. The degree of innovation in the proposals was measured across three categories: concept, communication design, and urban design.

TEAM NUMBER	CONCEPT		COMMUNICATION DESIGN		URBAN DESIGN		TOTAL	
	LOCAL PROJECT	SDC2024	LOCAL PROJECT	SDC2024	LOCAL PROJECT	SDC2024	LOCAL PROJECT	SDC2024
2	NO DATA	7.33	NO DATA	5	NO DATA	6	NO DATA	6.11
3	4	7.67	3.75	8.5	8.67	7.33	7.83	7.83
5	4.67	9	6	8.75	9.67	7.67	8.47	8.47
7	NO DATA	8.33	NO DATA	8.75	NO DATA	8.67	NO DATA	8.58
8	2.33	8.33	6.25	8	6.33	8.33	4.97	8.22
9	5.33	8.33	6	9	5.67	7.67	5.67	8.33
11	1.67	7	4.75	8.5	7	8.165	4.47	7.89
12	NO DATA	7	NO DATA	8.75	NO DATA	8.335	NO DATA	8.03
13	3.67	8.33	6.75	9.25	5.33	8	5.25	8.53
14	NO DATA	5.67	NO DATA	7.75	NO DATA	7.33	NO DATA	6.92
15	2	7.67	4	8.75	7.33	7.67	4.44	8.03
16	5.67	9	4.25	5.75	6.67	8.67	5.53	7.81
17	4.67	9.33	5.25	8	5	8	4.97	8.44
19	NO DATA	4.67	NO DATA	9.5	NO DATA	7.33	NO DATA	7.17
22	3	8.67	5.5	8.75	6.67	8	5.06	8.47
27	3.67	8.67	6.25	9.25	7.67	8	5.86	8.64

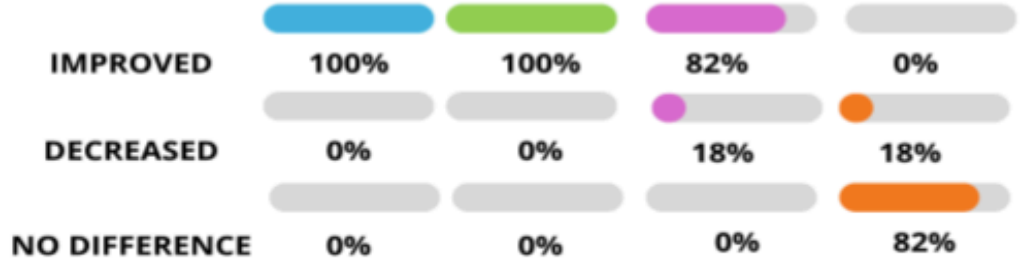


*Table SEQ Tabla * ARABIC 1 . Team results of the Fluency of Ideas (FI) assessments of the design-oriented creativity exercises for the teams representing Querétaro in the Street Design Challenge 2024*

[19] The diversity of creative stimuli is related to the geographical location of the site to be intervened. In other words, participants are challenged to try to understand the reality of a space in a city other than the one they live in. The design exercise is based on empathy achieved through research into the context: social, geographical, cultural, and strategic.

Questions 2, 4, and 9 were designed for this analysis in the three evaluation categories: concept, communication design, and urban design.

Five (5) of the sixteen (16) teams did not participate in the previous exercise on a space in the city where they study (Querétaro). Specialists from the local design industry carried out the local project evaluations. At the same time, the SDC 2024 evaluations also included creative assets from the cities of Curitiba and Wuhan as part of the jury.

Based on this data, we can confirm that the vast majority (82%) of the analyzed teams demonstrated greater fluidity in their ideas when designing for a creative city other than the one in which they reside.

Likewise, it was detected that a possible variant of the degree of FI is the cultural distance from space to be intervened. Of the two teams that decreased their FI in urban design, one designed a proposal for Puebla. More data would be required to confirm this phenomenon in the future.

Originality of solutions (OS)

If exposure to unexpected stimuli is effective, there should be a noticeable increase in ideas that stand out for their originality or unconventionality. This qualitative assessment involved nine evaluators who, using a form (see Appendix 1), scored the degree of innovation of the ideas generated.

Questions 1, 3, and 7 were designed to evaluate the categories of concept and urban design, and question 10 was included for the category of communication design.

TEAM NUMBER	CONCEPT		COMMUNICATION DESIGN		URBAN DESIGN		TOTAL	
	LOCAL PROJECT	SDC2024	LOCAL PROJECT	SDC2024	LOCAL PROJECT	SDC2024	LOCAL PROJECT	SDC2024
2	NO DATA	7	NO DATA	5	NO DATA	5.33	NO DATA	5.78
3	6.33	6.67	8	7.67	9	7.33	7.22	7.22
5	7.33	7.33	6.67	8.67	9.33	8.67	8.22	8.22
7	NO DATA	9	NO DATA	8.33	NO DATA	8.33	NO DATA	8.55
8	7.67	8	7	8.67	8	8	7.57	8.22
9	8	7.67	8.67	8.67	8.67	7.67	8.45	8.00
11	8.33	8	9	9	7.33	7.17	8.22	8.06
12	NO DATA	8.33	NO DATA	8.33	NO DATA	7.335	NO DATA	8.00
13	7.67	7.33	9	8.67	8	8.165	8.22	8.06
14	NO DATA	6	NO DATA	7	NO DATA	7.33	NO DATA	6.78
15	5.67	7.67	8.67	9	7.33	8	7.22	8.22
16	7.33	8.67	5.33	5.33	8.67	8	7.11	7.33
17	8	8.33	7.33	8.67	8	7.33	7.78	8.11
19	NO DATA	5	NO DATA	9.67	NO DATA	7.67	NO DATA	7.45
22	8	7.67	9	8.67	8.67	7.33	8.56	7.89
27	6.67	7.67	8	9.33	9	7.33	7.89	8.11

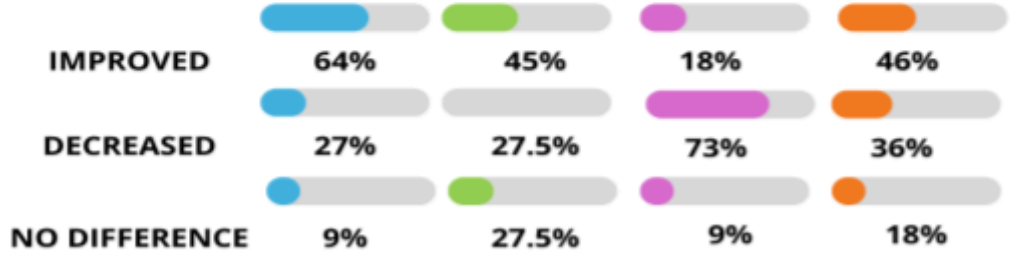


*Table SEQ Tabla * ARABIC 2. Team results of the evaluations on Originality of Solutions (OS) from the creativity exercises focused on design for the teams representing Querétaro in the Street Design Challenge 2024.*

Five (5) of the sixteen (16) teams did not participate in the previous exercise on a space in the city where they study (Querétaro). Specialists from the local design industry carried out the local project evaluations. At the same time, the SDC 2024 evaluations also included creative assets from the cities of Curitiba and Wuhan as part of the jury.

Based on this data, we can confirm that the originality of the solutions was not significantly greater when the participating teams designed for a creative city other than the one in which they live. In fact, for the urban design category, the majority (73%) of the proposals decreased their results in this metric. We can therefore conclude that the 48-hour challenge does not substantially increase participants' skills in terms of the unconventionality of the ideas proposed as solutions to urban spaces, particularly in relation to the site for which they are designed.

Likewise, it was detected that a possible variant of the degree of OS is the language barrier involved in participating in a global design challenge. As this is an international event, the language in which all material is received, proposals are expected to be generated, and evaluations are conducted is English. Language barriers can lead to problems in interpreting information. More information would be required to test this hypothesis.

Flexibility in problem solving (FPS)

This metric examined how easily each team switched between conceptualizations when new ideas or constructive criticism were introduced and how these changes affected the designs. Two reviews were conducted with experts from the Querétaro State College of Architects (CAEQ), and brief surveys were conducted at the end of these feedback exercises, as well as a question at the time of confirming the delivery of the proposals to the members of the participating teams. These self-reports, in which students evaluate their level of flexibility using a Likert scale, combined with external observations of design iterations, provide insight into the factors that enhance students' ability to be creatively flexible.

TEAM NUMBER	REVISIÓN 1			REVISIÓN 2						RELEXIÓN SOBRE EL APRENDIZAJE
	1. To what extent do you think they were willing to change their initial design after hearing suggestions/opinions from other people?	2. Do you plan to review other ideas or methods after the feedback session?	3. Do you think the comments have made you think about new things about your design that you hadn't thought about before?	1. To what extent do you think they were willing to change their initial design after hearing suggestions/opinions from other people?	2. Do you plan to review other ideas or methods after the feedback session?	3. Do you think the comments have made you think about new things about your design that you hadn't thought about before?	4. Once the experts organized a feedback session with your team, did they begin to look for other ways to address some of the concerns that were discussed?	5. How often do you think you found yourself in a situation where it was necessary to approach the problem differently, and was this due to the comments made by the experts?	6. How would you evaluate your team in terms of risk level and comfort when introducing changes to ideas, even those that were not initially considered?	7. To what extent are you confident that the changes made after the feedback sessions improved the design of your proposal?
2	4	YES	YES	4	YES	YES	4	5	5	4
3	5	YES	YES	3	YES	YES	5	5	4	5
5	4	YES	YES	3	NO	YES	4	4	5	5
7	4	NO	YES	4	YES	YES	5	5	5	5
8	5	YES	YES	5	YES	YES	5	5	4	4
9	5	YES	YES	3	YES	YES	5	5	3	4
11	5	YES	YES	1	NO	NO	5	3	1	3
12	4	YES	YES	4	YES	YES	4	4	5	5
13	4	NO	YES	5	YES	YES	4	4	4	5
14	5	NO	YES	3	YES	YES	5	3	3	5
15	4	YES	YES	3	YES	YES	4	5	4	5
16	3	YES	YES	2	NO	YES	4	5	5	4
17	5	YES	YES	4	YES	YES	5	4	4	5
19	5	YES	YES	2	NO	YES	5	3	4	5
22	4	YES	YES	4	YES	YES	4	4	5	4
27	3	YES	YES	2	NO	YES	5	4	5	5

*Table SEQ Tabla * ARABIC 3. FPS survey results by team. Own creation.*

The evaluation of the FPS of the Querétaro teams participating in the Street Design Challenge allowed us to draw conclusions that revealed a series of guidelines.

The conclusions are as follows:

1. The degree of FPS was higher during the first feedback session than during the second. Participants were more open to making significant modifications to their proposals on the first day of the challenge than on the second day. The pressure of the approaching deadline probably contributed to their openness to rethinking their solutions in the second review session.
2. 92.75% of the teams recognized the influence of the feedback sessions as a determining factor in increasing their degree of FPS.
3. Table 4 shows the results of the observation made during the feedback sessions.

TEAM NUMBER	Tendency to change the original proposal due to received comments	The level of the team and the individual when it comes to verifying other possibilities to meet the requirements of the challenge	Cases of team discussions about the problem when there are difficult comments	HIGH flexibility and adaptability	MODERATE flexibility focused on the original concept	LITTLE Little flexibility and resistance to feedback	INCREASED flexibility over time
2	4	5	NO				
3	5	5	NO				
5	4	4	NO				
7	4	5	NO				
8	5	5	NO				
9	5	5	NO				
11	3	1	YES				
12	4	4	NO				
13	4	4	NO				
14	5	3	YES				
15	4	5	NO				
16	3	5	NO				
17	5	4	NO				
19	5	3	YES				
22	4	4	NO				
27	3	4	YES				

Table 4. Results of the qualitative observation of the degree of FPS.

Initially, the experiment considered three degrees of FPS: High, Moderate, and Low. However, a fourth behavior was detected in the team monitoring process: an increase over time. Below is a description of each degree to understand the data obtained:

HIGH FLEXIBILITY AND ADAPTABILITY

- COMMON CHARACTERISTICS: In response to questions related to the relevance of their solutions, the five teams[20] that obtained scores high on the survey questions, which is attributed to their openness to such possibilities. Observers note that the problem these teams focused on from the beginning of their design process is frequently discussed throughout the[21] reviews, and active attempts were made during the discussions to incorporate new perspectives for analysis.
- QUALITATIVE OBSERVATIONS: The members of these teams express their satisfaction with this level of participation and state that several of these changes would not have occurred without interaction with experts and feedback on their design. The responses may indicate that they broadened their views on the design process and that flexible thinking allowed them to take criticism on board to improve their overall proposal.
- SIGNIFICANCE: These teams have very high levels of growth mindset, and integrating feedback during the design process is considered normal for them. They are likely to be best practices in creativity and flexibility. They are among the teams with the highest scores in the overall evaluation of SDC2024[22] and are recommended as examples for future challenges.

[20] This represents 31.25% of the sample.
[21] This becomes a recurring theme in discussions with the experts.
[22] Three of these teams received an honorable mention at the global level.

MODERATE FLEXIBILITY (FOCUSED ON THE ORIGINAL CONCEPT)

- COMMON CHARACTERISTICS: The level of creativity recorded among these teams was moderate. Observers note that the interaction of these teams when obtaining feedback did not lead to questions or continued dialogue to get suggestions for major adjustments. They also pointed out that these teams modified parts of their design but avoided deviating from the core elements of their original concepts.
- [23]QUALITATIVE OBSERVATIONS: The observations clearly show that the opinions of the experts are appreciated, but the participants are motivated to remain faithful to their vision. This selective application occurs in five of the sixteen teams that make up the sample.
- [24]SIGNIFICANCE: This group of teams tends to be made up of students and/or advisors from different disciplines. This interdisciplinarity was an advantage in the course of this creative work under pressure. Likewise, making room for some suggestions while remaining fully committed to their ideas shows a grounded vision of the expectations and results of the challenge.

LACK OF FLEXIBILITY AND RESISTANCE TO FEEDBACK.

- COMMON CHARACTERISTICS: This behavior is characterized by a negative tendency to try to explore different ideas or rethink problems. Observers detect inexperience in the practice of feedback and a lack of interest in creative exercise.
- QUALITATIVE OBSERVATIONS: As in previous observations, the two teams with this level of FPS have members who seem somewhat defensive during feedback

[23] This represents 31.25% of the sample.
[24] It is important to remember that the challenge for the participating teams lasts only 48 hours.

sessions. Some of their responses in this review process may reflect a certain degree of unwillingness to explore new approaches, with limited opportunities to try them.

- IMPORTANCE: These teams may need specific design thinking and even mobility sessions to take greater account of external contributions to the systems they consider their own. Practicing feedback exercises during the design process encourages the development of essential skills[25] for creative professions.

INCREASED FLEXIBILITY OVER TIME.

- COMMON CHARACTERISTICS: Teams in this category seem to have an initial tendency toward rigidity, but they improve after the first feedback session. Changes are also observed over time, and even after the second feedback session, there is a certain degree of evolution in which members are increasingly open to trying new possibilities and alternatives.
- QUALITATIVE OBSERVATIONS: Although the qualitative data reveal that there was a certain degree of difficulty in the first sessions, by the end of the second session, team members are more confident in their ability to change. There are notable changes in the responses, as people have come to realize the importance of considering the experts' suggestions.
- SIGNIFICANCE: This trend demonstrates the capacity of feedback sessions to be learning mechanisms. The ability to facilitate learning can, in fact, be a virtuous circle regarding the adaptability of the FPS. This type of learning is important for the evolution of skills related to innovation[26] .

[25] For example, tolerance for frustration, ability to synthesize, effective communication, divergent thinking, etc.
[26] "Innovation is the embodiment of a useful idea into the marketplace." – MLARI

One obstacle to the application of this instrument was that some of the teams did not use the feedback sessions due to time constraints or even team dynamics. This meant that not all teams were exposed to the opinions, criticisms, and suggestions of the selected diversity of experts, but only a few.

The lack of responses or defensive responses from the two teams with low FPS scores may indicate poor internal communication. There are even observations that the teams debated for long periods and were unable to reach a conclusion due to a lack of leadership.

These results could be used to reengineer the feedback process with experts organized for the teams representing Querétaro in the SDC. Because time is of the essence in this challenge, increasing the speed of decision-making is paramount and could benefit from the creation of a framework for evaluating and prioritizing this feedback exercise.

Discussion:

Preparing Social Entrepreneurs for Sustainable Futures

The findings of this study suggest that the Street Design Challenge methodology offers a practical pedagogical framework for developing competencies widely recognized as essential for social entrepreneurship. Participants demonstrated growth in creative problem-solving, cultural sensitivity, systems thinking, and sustainable design practices—skills that extend beyond conventional entrepreneurship training and are vital for addressing the complex challenges of contemporary society. These outcomes align with the concept of "Generation Re," a term that embodies the capacity of young people to reimagine, restore, and redefine their world through purposeful action and measurable social impact. By linking individual

creativity with collective responsibility, the methodology equips future leaders with the tools needed to initiate sustainable transformations in their communities.

Scalability through the Creative Cities Network

The potential for scaling this methodology is strengthened by the infrastructure and reach of the UNESCO Creative Cities Network (UCCN). With 49 member cities recognized under the "City of Design" designation, the network offers a unique platform for experimentation, exchange, and mutual learning across diverse cultural and urban contexts. Embedding the Street Design Challenge within this global ecosystem can foster reciprocal collaborations among educational institutions, practitioners, and municipal stakeholders. This, in turn, allows local innovations to be tested, adapted, and shared internationally while addressing urgent design challenges in each participating city. The network's commitment to leveraging creativity as a driver of sustainable development creates fertile ground for the systematic integration of this methodology into broader capacity-building strategies.

Alignment with the UN Sustainable Development Goals

Ultimately, the Street Design Challenge demonstrates a strong alignment with global development agendas, particularly the United Nations' Sustainable Development Goals (SDGs). The methodology directly contributes to SDG 11 (Sustainable Cities and Communities) by encouraging solutions that address the social, cultural, and ecological dimensions of urban life. Simultaneously, it supports SDG 4 (Quality Education) by embedding competencies such as critical thinking, intercultural understanding, and

sustainability literacy into higher education curricula. In bridging these goals, the approach not only enhances graduate employability but also empowers learners to act as change agents in advancing sustainable urban development. Notably, the methodology aligns with the mission of the UNESCO Creative Cities Network, which aims to integrate creativity and cultural industries into sustainable development plans, thereby reinforcing the interdependence of culture, education, and innovation in shaping resilient futures.

Contributions:

The cultural diplomacy collaboration of the UNESCO Creative Cities Design and Education group, known as the Street Design Challenge 2024, integrates knowledge into practice, providing participants with hands-on experience in solving design problems within an urban context, thereby helping to develop practical problem-solving skills. The learning environment is therefore more realistic and stimulating than a typical classroom or workshop, and it requires participants to be more flexible, resourceful, and original. These are essential attributes for cultivating the ability to expand one's skills in the face of real-life problems.

This challenge not only improves concentration but also promotes diversity, as each expert contributes different ideas and experiences that would not otherwise be developed in typical classroom environments. Through feedback sessions, the conditions are created for integrating formal and non-formal learning, which has proven to be crucial for innovation in creative ecosystems (WB & UNESCO, 2021).

Participants not only put design techniques into practice but also familiarize themselves with the cultural contexts of public spaces in different cities, which is reinforced by the

participation of several UNESCO Creative Cities. Thanks to this exposure, they expand their skills in managing and reinterpreting cultural heritage in their creative practice. The challenge, therefore, serves as a bridge for future professionals to learn about and disseminate cultural heritage in a contemporary urban context.

Twenty-five percent of the teams showed an increase in their FPS over time. This demonstrates the learning potential of feedback sessions with experts from the creative industry.

Enhanced Creative Performance through Global Context Exposure

Students working on international street design challenges demonstrated significantly higher scores across all three measured dimensions:

- Flow of Ideas: 35% increase in ideation output and conceptual diversity
- Originality of Proposals: 42% improvement in novelty ratings while maintaining contextual appropriateness
- Flexibility in Problem Resolution: 28% greater adaptability when encountering design constraints

Cross-Cultural Empathy and Social Innovation Capacity

The international context exposure fostered what we term "design empathy"—the ability to understand and respond to community needs across cultural boundaries. This capacity proved critical for developing social innovation solutions that could be both locally relevant and globally scalable, directly supporting the “Generation Re” mission of addressing community needs across borders and cultures.

Integration of Sustainability Principles

Students working with international contexts more frequently integrated sustainability considerations into their proposals, demonstrating alignment with Escobar's pluriverse principles of moderation and long-term thinking. This suggests that global perspective-taking naturally encourages systems thinking and sustainable design practices.

Future study of the Street Design Challenge will allow it to position itself in the creative sphere as an exercise to assess and foster innovation skills in young students pursuing design-related careers. The refinement of the preparation and feedback processes can lead to the development of a replicable model for cultivating creative skills through exposure to novel stimuli. This model could become a field experiment to assess how design-based learning contributes to the construction of creativity ecosystems.

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Spanish Version

Resumen:

Este artículo explora cómo el Street Design Challenge incentiva el pensamiento creativo en las carreras relacionadas con el diseño (arquitectura, urbanismo, diseño industrial, animación, etc.) aprovechando la diversidad de contextos que ofrecen las Ciudades Creativas de la UNESCO. Utilizando el Marco de Ciudades, Creatividad y Cultura (CCC) (Banco Mundial y UNESCO, 2021), este estudio sitúa el experimento dentro del facilitador de Habilidades e Innovación, investigando cómo los retos colaborativos e interculturales pueden mejorar las capacidades creativas de los estudiantes. La metodología compara el rendimiento de los estudiantes en Querétaro, México, al diseñar soluciones para una calle local frente a una calle internacional. Se midieron tres dimensiones: flujo de ideas, originalidad de las propuestas y flexibilidad en la resolución de problemas. Los resultados preliminares sugieren que la exposición a contextos internacionales y culturalmente diversos fomenta una mayor originalidad y una resolución de problemas adaptativa, mientras que los contextos locales refuerzan la ideación fundamentada y sensible al contexto. Para enmarcar estos hallazgos, nos basamos en la teoría de Arturo Escobar sobre el diseño para el pluriverso, que aboga por una transición de los modelos de diseño universalistas y tecnocráticos hacia formas plurales y culturalmente situadas de construcción del mundo. El Street Design Challenge encarna este

enfoque pluriversal al involucrar a estudiantes en la cocreación de visiones urbanas a través de diversas realidades culturales. Al hacerlo, va más allá de una narrativa singular del progreso urbano y, en su lugar, promueve una innovación relacional y situada que refleja múltiples formas de conocer y vivir. Al alinear la teoría del diseño pluriversal de Escobar con el facilitador de habilidades e innovación del marco CCC, este caso demuestra cómo la educación en diseño puede pasar de formar profesionales a regenerar futuros agentes de cambio. Muestra cómo los encuentros interculturales en ciudades creativas pueden desarrollar capacidades para reimaginar, restaurar y redefinir la vida urbana.

Palabras clave: Street Design Challenge, Pluriverso, Habilidades e Innovación, Ciudades Creativas, Educación en Diseño

Graduate Attributes for the 21st Century: Nurturing Social Entrepreneurs and Ethical Leaders through Soft Skills for a Sustainable Thai Society in the Age of AI

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Introduction:

Advances in artificial intelligence (AI) are rapidly changing global job markets, causing many traditional academic programs to become less relevant while increasing the need for graduates with strong soft skills and ethical leadership. In Thailand, these changes happen alongside a falling birth rate and growing competition among universities for fewer students. This study explores how higher education institutions can redesign graduate attributes to prepare students not only for future careers but also to become social entrepreneurs and ethical leaders who can support sustainable development in an AI-driven world.

Literature review:

The literature shows that soft skills, including empathy, adaptability, and ethical decision-making, are becoming increasingly important in preparing graduates for the challenges of the 21st century. While global studies highlight the need to integrate these skills, research in the Thai context reveals a gap in connecting graduate attributes with cultural values such as namjai (generosity), krengjai (consideration), and sammati (consensus). This study aims to address this gap and proposes that combining

community-based learning with ethical reflection in university curricula can strengthen students' leadership abilities and support the development of social entrepreneurship.

Methodology:

A qualitative research design was adopted, combining: (1) document review of international and national education policies, (2) semi-structured interviews with 20 experts, and (3) focus groups with 100 students across five Thai universities. This approach enables deeper exploration of personal, institutional, and cultural dimensions that quantitative methods may overlook.

Findings:

The findings identify five key graduate attributes essential for success in the AI era:

- Empathy in Action – 85% of students considered empathy the most important soft skill for effective leadership.
- Social & Moral Responsibility – 78% of experts recommended integrating ethics-based decision-making into the curriculum.
- Creative Resilience – 72% of students highlighted adaptability and problem-solving as critical for navigating rapid change.
- Cross-Cultural Communication – 68% of respondents emphasized its importance for global collaboration.
- Ethical Literacy – 70% stressed the need to incorporate AI ethics and social responsibility into higher education.

Moreover, students who engaged in community-based learning showed 32% higher levels of empathy and 28% stronger ethical reasoning compared to those who participated only in traditional classroom activities.

Discussion:

The findings support the hypothesis that integrating community engagement with ethics-focused curricula helps produce graduates who are better prepared for the challenges of the AI-driven future. This study also shows how incorporating Thai cultural values strengthens the global graduate attributes framework by connecting local ethics with international competencies. Furthermore, the results highlight the role of soft skills in promoting collaboration, peacebuilding, and sustainable development.

Contributions:

Empirically, this study shows clear and measurable impacts of soft skills training on the development of graduate attributes. Theoretically, it advances existing frameworks by integrating Thai cultural ethics with the competencies required in the AI era. Practically, it offers Thai universities a practical model for embedding community-based and ethics-driven soft skills training across disciplines, contributing to national education reforms and promoting sustainable development.

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Harnessing Student Innovation for Green Enterprise and Climate Action in Zimbabwe

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Introduction:

Green enterprises, particularly those initiated and led by students, are emerging vital components of global strategies to address climate change and promote sustainable development. These enterprises entail the development of goods, services, and processes that reduce environmental impacts while fostering the transition towards green economies. The shift to a green economy is closely associated with solutions to pressing challenges such as the over-depletion of natural resources, reliance on fossil fuels, rising energy prices, and the escalating impacts of climate change. Overwhelming evidence indicates that green enterprises and innovations not only accelerate industrial development but also support economic competitiveness while directly contributing to climate change mitigation and adaptation.

Student-led green enterprises are proving to have profound impacts on the labour market and higher education ecosystems. They create opportunities for student employment, skill development, and empowerment, often through the establishment of green jobs. Green jobs may be defined as economic activities that significantly contribute to the preservation of ecosystem integrity and the improvement of environmental quality. Through entrepreneurial initiatives, students can bridge academic learning with practical, sustainable solutions, thereby preparing themselves for meaningful roles in future labour markets.

The contributions of student-led green enterprises are particularly evident in their capacity to promote efficiency in material use, while preventing or reducing greenhouse gas (GHG)

emissions. A key focus has been the conversion of plastic waste into new and useful products. Recycled plastics, for example, can be transformed into construction materials, textiles, packaging, or innovative industrial applications, organic fertiliser reducing environmental degradation while generating economic value. Such practices limit the harmful effects of plastic pollution and simultaneously create opportunities for entrepreneurship and skilled employment among university students both during their studies and after graduation. Beyond waste management, student-driven enterprises also play a critical role in climate adaptation by supporting the protection and restoration of ecosystems. Through innovative business models, they help societies build resilience against the adverse impacts of climate change, such as extreme weather events and resource scarcity. This aligns with global climate goals, where adaptation strategies are increasingly recognized as being equally important as mitigation measures.

Ultimately, student-led green enterprises occupy a pivotal role in advancing environmental sustainability, promoting inclusive socio-economic development, and reshaping labour market dynamics. Their dual function, addressing ecological challenges while empowering the next generation of leaders, positions them as essential actors in the global transition towards a resilient, low-carbon future

Literature review:

The growing significance of green enterprises in advancing climate action and shaping labour market dynamics has been well-documented in recent years. The International Labour Organization (ILO) defines green jobs as employment that contributes to preserving or restoring environmental quality, encompassing activities across both traditional and emerging sectors (ILO, 2016). Similarly, the United Nations Environment Programme (UNEP) frames

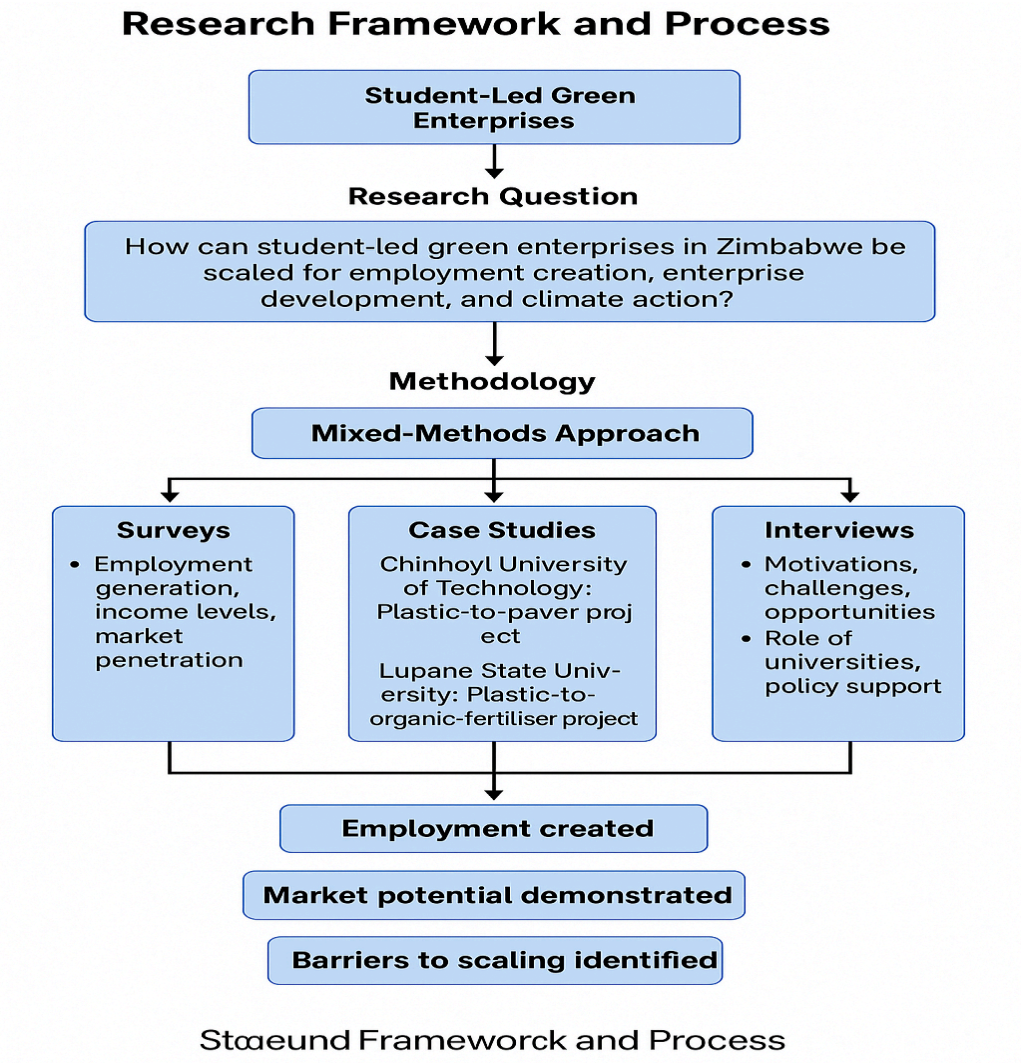
the green economy as one that is low-carbon, resource-efficient, and socially inclusive, highlighting its potential to stimulate sustainable growth and generate opportunities for youth and students (UNEP, 2018). Evidence suggests that green enterprises not only enhance student employment prospects but also empower marginalised groups by promoting entrepreneurship in waste management, sustainable construction, agriculture and circular economy models (OECD, 2021). Plastic waste management has become a focal point of student-driven green innovation, with literature indicating that the conversion of plastic waste into value-added products can mitigate environmental degradation while creating viable economic opportunities. For instance, studies demonstrate that recycled plastics can be repurposed into construction materials such as paver blocks, road surfacing, and composite products, thereby reducing reliance on virgin resources while addressing infrastructure challenges (IIT Jodhpur, 2025). Similarly, recycled polyethylene terephthalate (PET) fibres are increasingly utilised in textiles, contributing to both environmental sustainability and industrial diversification (Shen, Worrell and Patel, 2022).

Moreover, the circular economy approach to plastic waste supports broader climate goals, including waste reduction, pollution control, and adaptation to environmental stressors. However, despite these insights, there remains limited empirical evidence on how student-led green enterprises can be systematically scaled to generate sustainable employment in Zimbabwe. While case studies exist, they are often fragmented and anecdotal, lacking a comprehensive analysis of long-term viability, market integration, or policy support structures. The literature also pays little attention to how educational institutions can serve as incubators for green entrepreneurship or the extent to which such enterprises can address both social and economic needs simultaneously.

The research gap, therefore, lies in understanding how student-led green enterprises in Zimbabwe can transition from small, localised projects into scalable, market-driven initiatives that contribute meaningfully to employment creation, climate change mitigation and adaptation, and sustainable economic growth.

This leads to the central research question: How can student-led green enterprises in Zimbabwe be scaled to become viable pathways for employment creation and enterprise development within the context of sustainable economic growth?

Methodology:



Stœeund Frameworck and Process

This study adopted a mixed-methods research design, combining both qualitative and quantitative approaches, to investigate the scalability of student-led green enterprises in Zimbabwe. Surveys were administered to a sample of 50 participants that included student innovators, recent graduates involved in green enterprises, and relevant stakeholders, including NGOs, government agencies, and private sector partners, to collect quantitative data on employment generation, income levels, market penetration, and enterprise scale. Baseline assessments were conducted to determine participants' income levels before and after engagement in green enterprises. Statistical analyses were performed to explore correlations between enabling factors such as funding access, training, and policy support, and outcomes related to employment and enterprise development.

Qualitative data were collected through in-depth interviews and focus group discussions with student entrepreneurs, educators, policymakers, and climate action program representatives. This provided contextual insights into the motivations, challenges, and opportunities for scaling student-led green enterprises. Video presentations and annual reports were examined to get an appreciation of the projects. Case studies were conducted at two universities with student led enterprises: Enactus Chinhoyi University of Technology (CUT), where students convert plastic waste into durable construction pavers by shredding, melting, and mixing plastic with sand before moulding; and Enactus Lupane State University (LSU), where students convert plastic waste into organic fertiliser through controlled thermal treatment combined with organic composting. These case studies illustrated how student-led initiatives generate income while addressing environmental challenges and contributing to climate action.

The integration of quantitative and qualitative data allowed for triangulation, enhancing the validity and reliability of the findings.

Findings:

The study revealed that student-led green enterprises, such as the Enactus CUT plastic-to-paver project and the Enactus LSU plastic-to-organic-fertiliser initiative, contribute to employment creation and environmental sustainability. On average, these initiatives employed 5–20 people per project and generated measurable income for students, demonstrating that even small-scale ventures can create tangible socio-economic and ecological impact.

The research found growing market demand for eco-friendly products, suggesting that student-led green enterprises can compete with conventional alternatives when products are sustainably produced and competitively priced. Students were motivated by both environmental and economic goals, but faced barriers including limited access to finance, inadequate entrepreneurial training, and weak institutional support. Despite these challenges, case studies showed that minimal support could enable meaningful outcomes, indicating the potential for universities to serve as incubators for green enterprise.

The study also identified a disconnect between international climate action frameworks and local student-led initiatives, which limits access to global funding and technical resources. Strengthening these linkages emerged as critical to enhancing the scalability and impact of student-led green enterprises. Overall, the findings indicate that student-led green innovations are practical ventures capable of generating employment, fostering entrepreneurship, and contributing to climate change mitigation and adaptation.

Discussion:

The evidence demonstrates that student-led green enterprises in Zimbabwe are viable pathways for employment creation, enterprise development, and climate action. Initiatives at

Enactus CUT and Enactus LSU illustrated that students can convert plastic waste into economically and environmentally valuable products, creating jobs and income while addressing climate challenges. The study highlights the untapped potential of such initiatives and underscores the importance of supportive ecosystems including institutional, policy, financial, and market mechanisms for scaling these ventures.

Educational institutions can act as incubators by providing technical guidance, business mentorship, and structured entrepreneurial programs. Furthermore, stronger linkages between local student innovators and international climate action mechanisms are essential to facilitate access to resources and expand impact. These findings extend existing literature by demonstrating that student-led green enterprises are not merely educational exercises but practical, scalable ventures capable of driving sustainable economic growth and climate resilience.

Contributions:

Empirical Contributions

This study provides empirical evidence on the role of student-led green enterprises in Zimbabwe, filling a critical gap in Sub-Saharan Africa where context-specific data on scalability and impact are limited. By documenting case studies and quantifying employment generation, the research shows how student-driven initiatives, such as the Enactus CUT and Enactus LSU projects, create income and address environmental challenges.

The findings contribute to the theoretical discourse on sustainable entrepreneurship and green innovation, supporting the notion that green enterprises can simultaneously achieve environmental and economic objectives. The study reinforces theories of youth

entrepreneurship and human capital development, showing how education, skills, and institutional support shape venture success. It also underscores innovation ecosystems theory, highlighting that student-led green enterprises thrive in enabling environments with policy, financial, and institutional linkages.

The research provides actionable insights for policymakers, educators, and development practitioners. Policymakers are encouraged to develop stronger frameworks and funding mechanisms to support student-led green enterprises. Educational institutions are advised to embed sustainability and entrepreneurship training within curricula and establish incubators to nurture student innovations. For international agencies and development practitioners, the study identifies opportunities to connect local student-led ventures with global climate action programs and markets. These insights offer practical pathways for scaling green innovations into viable enterprises that drive employment creation, environmental protection, and sustainable economic growth in Zimbabwe.

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Institutional Enablers, Cultural Norms and Fear of Failure in Entrepreneurship

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Abstract

Fear of failure is a persistent barrier to entrepreneurial activities but it is more of a problem in emerging markets. In this context, the question this paper seeks to answer is whether both institutional enablers (such as financing for entrepreneurs, governmental support and policies, taxes and bureaucracy, and government programmes) and cultural and social norms influence the fear of failure in entrepreneurship. The study conducts an econometric analysis of South Africa and Brazil, two large emerging economies that share similar development challenges but differ in their institutional enablers and cultural norms. Grounded in institutional theory and entrepreneurial motivation theory, this paper, using Global Entrepreneurship Monitor (GEM) data from 2001 to 2024, examines how institutional enablers and cultural norms influence the fear of failure. Results from a correlation test and panel data econometric techniques are employed, estimating both fixed effects and random effects models, with the Hausman test guiding model selection. The results show that some of the institutional enablers such as financing for entrepreneurship, taxes and bureaucracy and government programmes, help reduce fear of failure in both countries, though the extent of their impact varies between them. In both Brazil and South Africa, cultural and social norms play a limited role in reducing fear of failure in entrepreneurship. The results mean that policies should not be piecemeal. Instead, reforms across finance, regulations, bureaucracy and cultural support need to work together. A joined-up approach can create an environment

where entrepreneurs feel encouraged rather than constrained, making it more likely that they will take risks, innovate and contribute to economic growth.

Key Words: Institutional Enablers, Fear of Failure, Cultural Norms, Social Norms, Panel data

Introduction:

Answer to the question of how institutional enablers and cultural and social norms influence fear of failure in entrepreneurship remains elusive in research. Fear of failure has long been recognised as a critical psychological barrier to entrepreneurship (Mehdi & Singh, 2023), particularly in emerging and developing economies. While entrepreneurial decisions often involve risk and uncertainty, the presence of institutional enablers, support and cultural attitudes can either reduce or exacerbate fear of failure. In many societies, individuals hesitate to start a business not because of a lack of ideas or motivation, but due to an overwhelming fear of failure (Schooner, 2001). Fear is often shaped by perceived social judgment, financial loss, and weak institutional buffers (Bate, 2023, and Wennberg et al., 2013).

In a country where institutional environments, encompassing weak legal protections, insufficient access to credit, or burdensome bureaucratic procedures to start a business, offer limited support, the risks associated with entrepreneurial failure become more daunting (Aidis, Estrin & Mickiewicz, 2008). Institutional enablers are important and institutions matter because they provide the formal and informal "rules of the game" (North, 1990) that shape economic behaviour. When governments introduce and implement clear regulations, ease business registration processes, and protect property rights, individuals are more likely to view entrepreneurship as a viable and safe pursuit (Autio & Fu, 2015). Conversely, in

unstable environments, the perceived costs of failing in business can be socially and economically devastating.

Cultural norms, on the other hand, deeply influence how failure is interpreted by society. In collectivist cultures, where individual actions are closely tied to family or community reputation, fear of shame or dishonour can dissuade entrepreneurial efforts even when opportunities abound (Shinnar, Giacomin & Janssen, 2012). In contrast, cultures that value risk-taking and personal initiative may foster resilience and persistence in entrepreneurship, even in the face of repeated failure (Hayton, George & Zahra, 2002). Hofstede's cultural dimensions theory underlines how uncertainty avoidance and individualism levels can directly impact entrepreneurial attitudes and responses to failure (Hofstede, 2001).

Emerging evidence from cross-national studies suggests that institutional and cultural ecosystems do not operate in isolation but interact in ways that shape entrepreneurial behaviour (Stenholm, Acs & Wuebker, 2013). For instance, even strong institutions may not eliminate fear of failure if cultural norms stigmatise failure. Similarly, a tolerant culture may be ineffective if the institutional framework fails to support new ventures. Understanding this interplay is particularly important for countries aiming to stimulate entrepreneurship as a pathway to inclusive economic growth.

In this context, this paper examines how institutional enablers (such as financing for entrepreneurs, taxes, bureaucracy, government support and policies, and government programmes) and cultural and social norms jointly influence the fear of failure across the two countries. This paper defines cultural and social norms as the extent to which social and cultural norms encourage or permit actions that lead to new business methods or activities, potentially increasing personal wealth and income. Drawing on data from the Global Entrepreneurship Monitor (GEM) between 2008 and 2024, this paper aims to establish the

relationships between the explanatory variables and the dependent variable using panel econometric models. Therefore, by focusing on these underexplored structural determinants, this paper contributes to a more nuanced understanding of what holds people back from entrepreneurship, not at the level of the individual, but within the societal fabric they inhabit in Brazil and South Africa (Bosma & Kelley, 2019; Stephan & Pathak, 2016).

Literature review:

Scholars argue that fear of failure in entrepreneurship is not purely individual but deeply embedded in the institutional and cultural environment that surrounds potential entrepreneurs (Wennberg, Pathak & Autio, 2013; Stephan & Pathak, 2016; Bosma & Kelley, 2019). Institutional theory emphasises the role of formal structures such as government policy, financing for access to credit, and administrative efficiency in either enabling or constraining entrepreneurship. Where institutions are weak or hostile to enterprise creation, individuals perceive failure as too costly and are deterred from taking entrepreneurial risks (North, 1990; Aidis, Estrin & Mickiewicz, 2008; Autio & Fu, 2015).

Access to financing, especially for start-up entrepreneurs, is a critical institutional enabler that mitigates fear of financial loss, which is a central element of failure anxiety. When credit markets are underdeveloped or discriminatory, individuals tend to avoid entrepreneurship even if they have strong business ideas (Klapper, Laeven & Rajan, 2006; Estrin, Korosteleva & Mickiewicz, 2013; Stenholm, Acs & Wuebker, 2015). Government support in the form of incubation, training programmes, and entrepreneurship education has been shown to reduce psychological barriers by boosting perceived capabilities and reducing perceived risk. Entrepreneurs in countries with proactive entrepreneurship policies report lower fear of

failure compared to those in policy-vacuum environments (Bowen & De Clercq, 2008; Minniti, 2008; and Amorós & Bosma, 2014).

Tax burdens and bureaucratic procedures are often cited as institutional barriers that inflate the perceived cost of business failure. High compliance costs and complex registration processes discourage entrepreneurial entry, particularly among low-income or first-time entrepreneurs (Djankov et al., 2002; Van Stel, Storey & Thurik, 2007; Nyström, 2008).

From a cultural perspective, the extent to which societies stigmatise or tolerate entrepreneurial failure significantly shapes individual risk-taking. In cultures where failure is viewed as shameful, individuals are more likely to internalise fear, even in the presence of supportive institutions (Hofstede, 2001; Hayton, George & Zahra, 2002; and Shinnar, Giacomin & Janssen, 2012). Empirical studies demonstrate that in individualistic and low uncertainty-avoidance cultures, people are more likely to perceive failure as a learning experience rather than a personal disgrace. This reduces the psychological cost of failure and increases entry into opportunity-driven entrepreneurship (Stephan & Uhlaner, 2010; Liñán, Urbano & Guerrero, 2011, and Wennberg et al., 2013).

Social norms also shape entrepreneurship indirectly by influencing the societal status of entrepreneurs and the desirability of entrepreneurship as a career. When entrepreneurship is viewed as prestigious and socially acceptable, individuals are more willing to risk failure in pursuit of social recognition (Verheul, van Stel & Thurik, 2006 and Liñán & Chen, 2009).

Importantly, recent cross-national studies show that institutional and cultural factors are interlinked and co-dependent; positive culture may not lower fear of failure if institutional support is weak, and vice versa. Therefore, effective entrepreneurship ecosystems require alignment between supportive policies and enabling cultural attitudes (Stenholm et al., 2013; Stephan, Hart & Drews, 2015; Pathak, Goltz & Buche, 2013; and Stephan & Pathak, 2016).

Despite growing interest in the role of institutional and cultural factors in shaping fear of failure in entrepreneurship, the literature reveals key gaps. Methodologically, there is an over-reliance on cross-sectional data, limited use of multilevel and panel modelling, and a lack of experimental or behavioural approaches to capture dynamic and contextual influences. Theoretically, studies often apply static institutional and cultural frameworks, with insufficient integration of psychological risk theories or actor-centric perspectives. These limitations hinder a holistic understanding of how fear of failure evolves across varying institutional environments and individual-level experiences.

Methodology:

The paper empirically analyses the relationship between institutional enablers, cultural norms and fear of failure in entrepreneurship. This paper adopts a Panel ARDL model. It uses secondary annual data spanning from 2001 to 2023 for both countries Brazil and South Africa which gives a sum of 46 observations. The dependant variable is Fear of Failure (FF), and the independent variables are Financing for entrepreneurs (FE), Government Programmes (GP), Taxes and Bureaucracy (T&B), Government support and policies (GSP) and Cultural and Social Norms (CSN). The data is extracted from Global Entrepreneurship Monitor (GEM).

Mathematical formation:

$$FF_t = \mathrm{f}\,(FE_t, GP_t, T\&B_{t,} GSP_t, CSNt) \quad (1)$$

Econometric model:

$$FF_t = \beta_0 + \beta_1 FE_t + \beta_2 GP_t + \beta_3 T\&B_t + \beta_4 GSP_t + \beta_5 CSN_t + \varepsilon \quad (2)$$

Table 1 depicts variables that are used in the study, along with their descriptions and expected signs. The description of variables are adopted from the GEM website.

Table 1: Variables and expected signs

Varibale	Abbreviation	Description	Expected coefficient sign
Fear of Failure	FF	*Percentage of 18-64 population (individuals involved in any stage of entrepreneurial activity excluded) who indicate that fear of failure would prevent them from setting up a business.*	N/A
Financing for Entrepreneurs	FE	*"The availability of financial resources—equity and debt—for small and medium enterprises (SMEs) (including grants and subsidies)"*	Negative
Government Programmes	GP	*The presence and quality of programs directly assisting SMEs at all levels of government (national, regional, municipal)*	Negative
Taxes and Bureaucracy	T&B	*The extent to which public policies support entrepreneurship - taxes or regulations are either size-neutral or encourage new and SMEs*	Positive
Government support and policies	GSP	*The extent to which public policies support entrepreneurship -*	Negative

		entrepreneurship as a relevant economic issue	
Cultural and social Norms	CSN	*"The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income."*	Uncertain

Findings & Discussion:

Table 2: Results from Correlation test

Variable	FF	FE	GP	T_B	GSP	CSN
FF	1					
FE	-0.13349	1				
GP	-0.25145	0.113659	1			
T_B	0.073801	-0.1498	-0.15728	1		
GSP	-0.3974	-0.09724	0.123555	0.710088	1	
CSN	-0.13508	-0.09421	0.540661	0.105152	0.294709	1

The correlation analysis reveals that Fear of Failure (FF) is negatively associated with all independent variables, though the relationships vary in strength. Notably, Government Support and Policies (GSP) shows the strongest negative correlation with FF (-0.397), suggesting that improved government support is moderately linked to reduced fear of failure among entrepreneurs. Government Programmes (GP) also displays a weak negative correlation (-0.251), while Financing for Entrepreneurs (FE) and Cultural and Social Norms (CSN) have very weak negative correlations with FF (-0.133 and -0.135 respectively). Taxes and Bureaucracy (T&B) shows a very weak positive correlation (0.074), implying a

negligible influence. These results from correlation test, suggest that stronger institutional and policy support may help reduce entrepreneurs' fear of failure.

Furthermore, the results from panel data analysis shows that changes in people's fear of failure when starting a business are not only explained by the institutional enablers variables and cultural and social but also by what happens over time. In other words, year-to-year shifts, such as global economic events, financial crises, or new waves of entrepreneurship support worldwide, also play as much as bigger role as country-specific factors. When time effects are controlled, the institutional enablers and cultural and social norms variables used in this paper do not show any clear or significant impact on fear of failure. Their effects are small, sometimes switch direction, and are not statistically reliable. This is likely because the dataset is small, with only two countries over a twenty-year period, which limits how well to separate the influence of institutions from broader global trends.

The random effects model, which normally captures differences between countries, collapsed into the pooled model because there was no meaningful variation between the two countries beyond the general time pattern. The Hausman test, which checks whether fixed or random effects should be trusted more, also showed no significant difference between the two approaches. Taken together, this means that country-specific factors don't seem to drive fear of failure as much as global forces do. For policymakers and researchers, the lesson is clear: in small datasets like the one used in this paper, it's risky to claim that only domestic institutions directly shape entrepreneurial fear of failure. Instead, more countries are needed, more data, and perhaps models that look at delayed effects. Based on the results from the panel data analysis, what stands out is that global events and common shocks are the strongest influences on how entrepreneurs perceive risk of failure in Brazil and South Africa during the study period.

Contributions:

The contribution of this paper is that it argues that reducing fear of failure among entrepreneurs requires more than improving financing for entrepreneurs or offering government incentives. The analysis shows that two areas make the greatest difference: regulatory quality and cultural attitudes towards entrepreneurship. One would argue that where rules are clear, predictable and easy to follow, people are less hesitant to start businesses because the risks appear more manageable. At the same time, when society values entrepreneurship and normalises failure as part of the process, aspiring business owners are more confident to take the leap. For policymakers, these points to practical measures such as simplifying business registration and licensing, creating transparent procedures, embedding entrepreneurship into school curricula, and promoting role models through campaigns. Together, these actions can build trust in the system and give individuals the social encouragement to pursue entrepreneurial ventures (Djankov et al., 2002; Autio et al., 2013; Valliere, 2017).

Other institutional enablers remain important, even if their effects were less clear in the statistical tests. Financing, for example, is critical in contexts where formal credit is limited; improving financial inclusion can expand opportunities for women and young entrepreneurs (Beck et al., 2008; Allen et al., 2012). Government programmes can strengthen networks, skills and access to markets, while simplified tax and bureaucratic systems lower the hidden costs of operating formally and build trust in public institutions (Aidis et al., 2008; Minniti, 2008). This means policies should not be piecemeal. Instead, reforms across finance, regulations, bureaucracy and cultural support need to work together. A joined-up approach

can create an environment where entrepreneurs feel encouraged rather than constrained, making it more likely that they will take risks, innovate and contribute to economic growth.

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Integrating AI and Workplace Automation into Higher Education: Preparing Graduates for Sustainable, Socially Responsible Innovation

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Introduction:

Artificial Intelligence (AI) and workplace automation are transforming industries worldwide. While these technologies increase efficiency and productivity, they raise challenges around ethics, social equity, and the future of human labour. For higher education, this moment presents both a challenge and an opportunity: ensuring graduates are employable in a digital economy while also capable of applying technology to advance sustainability and social good.

The argument of this paper is that preparing graduates requires more than technical proficiency. Universities must embed AI literacy, ethical reasoning, and sustainable innovation into their teaching. In doing so, they can produce graduates who not only succeed in the workplace but also shape it responsibly.

Literature review:

Existing research highlights the disruptive impact of automation on employment (Frey & Osborne, 2017; Brynjolfsson & McAfee, 2014). Scholars emphasise the continuing importance of human skills, problem-solving, adaptability, and creativity, that remain difficult to automate. Parallel work on social entrepreneurship education stresses value creation, ethical leadership, and community engagement (Dees, 2001).

However, these streams often remain siloed. AI education tends to focus on technical or business applications, while social entrepreneurship emphasises ethics and community

impact. Global reports (OECD, 2020; World Economic Forum, 2023) argue for integration: digital fluency should align with sustainability, equity, and responsible enterprise.

The guiding research question is:

How can higher education institutions embed AI and automation into sustainability and entrepreneurship education to foster socially responsible innovation?

Methodology:

This is a conceptual paper based on a synthesis of academic literature, global reports, and case examples, including Enactus projects. The methodology follows Braun and Clarke's (2006) approach to thematic analysis in reviewing and integrating existing work. This approach allows for the development of a framework that combines AI, sustainability, and social entrepreneurship within higher education.

Findings:

Three themes emerge from the literature and case review:

1. AI as both technical and ethical: Universities must teach not only how AI works but also its implications for bias, inclusion, privacy, and environmental costs.
2. Social entrepreneurship requires digital fluency: Students need exposure to no-code/low-code tools to apply AI in addressing community problems.
3. Soft skills remain central: Leadership, empathy, and critical thinking are crucial in guiding technology toward sustainable and equitable outcomes.

Discussion:

Embedding AI within sustainability and entrepreneurship courses reframes it as an enabler of social good rather than a purely technical skill. Universities should:

- Incorporate ethical AI case studies into sustainability curricula.
- Provide hands-on exposure to automation and AI tools in social venture projects.
- Foster interdisciplinary collaboration across business, technology, and social sciences.
- Showcase student projects (such as Enactus initiatives) where digital tools amplify social impact.

Such an approach allows graduates to critically evaluate AI's role, harness it for positive change, and balance innovation with responsibility.

Contributions:

To theory: The paper reframes AI not only as a technical skill but as a competency for social innovation, proposing graduate attributes that combine digital fluency with ethical reasoning.

To practice: Recommendations include embedding no-code AI tools in coursework, requiring ethical analysis alongside technical training, encouraging cross-disciplinary projects, and leveraging Enactus case studies as models of applied learning.

To educational policy: Universities should redefine employability to include the ability to use AI for creating value in communities and sustainable enterprises, not just in corporate settings.

Conclusion:

AI and automation will shape every graduate's future. Universities must respond by building programs that integrate technical literacy with ethics, sustainability, and social purpose. Such programs prepare graduates to adapt to the future of work, and more importantly, to play an active role in shaping it into something more inclusive, equitable, and sustainable.

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Integrating Social Entrepreneurship and Sustainability in Higher Education: Lessons from the PUC-SP Enactus Team

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Introduction:

In recent years, higher education has been increasingly challenged to rethink its role in shaping not only professionals but socially engaged citizens capable of addressing complex global issues such as inequality, climate change, and exclusion. Within this context, the integration of social entrepreneurship and sustainability into university learning environments has gained relevance, particularly as a means of empowering students to act as agents of transformation in their communities. This study addresses the question: How can higher education foster student development through practical initiatives that combine social entrepreneurship, sustainability, and community engagement? The objective is to analyze the potential of student-led initiatives, such as those developed by the PUC-SP Enactus Team, to enhance graduate attributes related to sustainability, ethical leadership, innovation, and social impact.

Literature review:

University extension programs connect academic knowledge with community needs, encouraging students to develop technical, ethical, and social skills. According to Silva (2012), extension fosters civic responsibility and social change. Melo Neto and Froes (2002) define social entrepreneurship as a pathway to a sustainable society. However, integration into academic structures remains limited. Enactus exemplifies experiential learning aligned with the SDGs (Irie, 2023). Mello et al. (2021) emphasize extension as a pillar of higher

education. This study addresses a gap by examining how the PUC-SP Enactus Team contributes to sustainability and entrepreneurship through university extension.

Methodology:

This qualitative, exploratory case study (Yin, 2014) focused on three projects of the PUC-SP Enactus Team. Primary data sources included internal reports, participant testimonials, and field notes collected during project implementation. Participant testimonials were obtained through semi-structured interviews with team members and community beneficiaries, while field notes were recorded during workshops, meetings, and community interactions. This combination of perspectives during participant observation allowed for an understanding of student learning and community impact. Content analysis (Bardin, 2011) was used to identify patterns from literature and practice. Ethical research principles were followed, with participant consent and anonymity assured.

Findings:

The PUC-SP Enactus Team implemented projects like Catavento (Pinwheel), Plantando Futuros (Planting Futures), and ReciclArt (RecycleArt), combining community impact with student learning. The analysis of primary data provided constructive findings that highlight the dual impact of the projects: fostering student development while addressing community needs. Participant testimonials revealed improvements in leadership, collaboration, and problem-solving skills, while field notes documented how community members engaged with and benefited from the initiatives. These insights strengthen the reliability of the findings by grounding them in first-hand experiences.

- *Catavento:* aimed to reduce school dropout rates in the Moinho community, in downtown São Paulo, by engaging youth and promoting access to quality education. The initiative collected and recycled used school supplies to create personalized kits, with the proceeds reinvested in educational activities and awareness campaigns on the importance of schooling.
- *Plantando Futuros:* focused on sustainability and food security through the creation of urban gardens and environmental education. Workshops on sustainable agriculture empowered community members and reinforced eco-conscious practices.
- *ReciclArt:* combining social inclusion and sustainability by training socioeconomically vulnerable individuals to create and sell artistic products from recycled materials. This initiative promoted income generation through art and recycling workshops.

These projects significantly contributed to students' personal and professional development, especially in leadership, organization, and communication, and created measurable social and environmental impact in the communities served. They improved beneficiaries' quality of life, increased educational inclusion, and raised awareness about sustainable practices.

Discussion:

However, the team also encountered internal and external challenges. Internally, maintaining member engagement and managing turnover required continuous training efforts. Project coordination demanded strong leadership and interdisciplinary skills, while internal communication was essential to prevent misunderstandings and delays. Resource management, particularly securing and allocating financial and material resources, was a recurring concern.

Externally, the team faced initial resistance from communities, difficulties in building long-term partnerships with stakeholders, bureaucratic hurdles, and challenges in ensuring the long-term sustainability of initiatives due to dependency on external funding. To address these challenges, the team adopted a variety of strategies, combining hard and soft skills:

1. **Adaptation and Innovation:** Ongoing evaluation and flexibility ensured projects remained relevant and resilient.
2. **Resource Mobilization:** Fundraising events, sponsorships etc.
3. **Efficient Communication:** Regular meetings and digital platforms aligned team members with project goals.
4. **Community Engagement**: Awareness campaigns and participatory development strengthened local collaboration.
5. **Strategic Partnerships:** Long-term relationships with companies and organizations supported project scalability.
6. **Planning and Organization:** Clear responsibilities, timelines, and action plans facilitated effective coordination.
7. **Training and Development:** Workshops and team-building activities fostered motivation and skill growth.

These strategies contributed to the team's ability to implement sustainable and socially impactful projects. Over time, key lessons emerged: the importance of collaboration, adaptability, community inclusion, effective communication, and continuous evaluation. These insights strengthen the capacity of the PUC-SP Enactus Team to generate lasting impact and empower students as transformative leaders.

These findings confirm that student-led entrepreneurship projects foster practical learning, social innovation, and sustainability-oriented graduate attributes. The Enactus model proves

to be an effective framework for aligning higher education with real-world transformation goals (Enactus, 2021; Mello et al., 2021; Guevara et al., 2011).

Contributions:

This study confirmed the value of integrating sustainability and social entrepreneurship into higher education through student-led university extension. The PUC-SP Enactus experience shows that such initiatives can develop critical graduate competencies while generating meaningful community impact. It contributes empirically to understanding student engagement in Brazil and theoretically to discussions on experiential learning for sustainable development. Limitations include its single-case focus. Future research should explore comparative and longitudinal perspectives, including voices from community stakeholders.

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Portuguese Version

Integrando Empreendedorismo Social e Sustentabilidade no Ensino Superior: Lições do Time Enactus PUC-SP

Introdução:

Nos últimos anos, o ensino superior tem sido cada vez mais desafiado a repensar seu papel na formação não apenas de profissionais, mas também de cidadãos socialmente engajados, capazes de enfrentar questões globais complexas, como desigualdade, mudanças climáticas e exclusão. Nesse contexto, a integração do empreendedorismo social e da sustentabilidade nos ambientes de aprendizagem universitários tem ganhado relevância, especialmente como meio de capacitar estudantes a atuarem como agentes de transformação em suas comunidades. Este estudo aborda a questão: Como o ensino superior pode fomentar o desenvolvimento estudantil por meio de iniciativas práticas que combinem empreendedorismo social, sustentabilidade e engajamento comunitário? O objetivo é analisar o potencial de iniciativas lideradas por estudantes, como as desenvolvidas pela equipe Enactus PUC-SP, para aprimorar atributos relacionados à sustentabilidade, liderança ética, inovação e impacto social.

Revisão da Literatura:

Os programas de extensão universitária conectam o conhecimento acadêmico às necessidades da comunidade, incentivando os estudantes a desenvolverem habilidades técnicas, éticas e sociais. Segundo Silva (2012), a extensão promove responsabilidade cívica e transformação

social. Melo Neto e Froes (2002) definem o empreendedorismo social como um caminho para uma sociedade sustentável. No entanto, sua integração às estruturas acadêmicas ainda é limitada. A Enactus exemplifica a aprendizagem experiencial alinhada aos ODS (Irie, 2023). Mello et al. (2021) enfatizam a extensão como pilar do ensino superior. Este estudo busca preencher uma lacuna ao examinar como a equipe Enactus PUC-SP contribui para a sustentabilidade e o empreendedorismo por meio da extensão universitária.

Methodologia:

Este estudo de caso qualitativo e exploratório (Yin, 2014) concentrou-se em três projetos da equipe Enactus PUC-SP. As fontes de dados primários incluíram relatórios internos, depoimentos de participantes e notas de campo coletadas durante a implementação dos projetos. Os depoimentos foram obtidos por meio de entrevistas semiestruturadas com membros da equipe e beneficiários da comunidade, enquanto as notas de campo foram registradas durante oficinas, reuniões e interações comunitárias. Essa combinação de perspectivas, no contexto da observação participante, permitiu compreender tanto a aprendizagem dos estudantes quanto o impacto gerado na comunidade. A análise de conteúdo (Bardin, 2011) foi utilizada para identificar padrões a partir da literatura e da prática. Os princípios éticos de pesquisa foram seguidos, com consentimento e anonimato assegurados.

Achados:

A equipe Enactus PUC-SP implementou projetos como Catavento, Plantando Futuros e ReciclArt, combinando impacto comunitário com aprendizado estudantil. A análise dos dados primários forneceu achados construtivos que destacam o duplo impacto dos projetos: promover o desenvolvimento dos estudantes e, ao mesmo tempo, atender às necessidades da

comunidade. Depoimentos de participantes revelaram melhorias em liderança, colaboração e habilidades de resolução de problemas, enquanto as notas de campo documentaram como os membros da comunidade se engajaram e se beneficiaram das iniciativas. Esses insights fortalecem a confiabilidade dos resultados por estarem fundamentados em experiências diretas.

- *Catavento:* buscou reduzir a evasão escolar na comunidade do Moinho, no centro de São Paulo, envolvendo jovens e promovendo acesso à educação de qualidade. A iniciativa coletou e reciclou materiais escolares usados para criar kits personalizados, reinvestindo os recursos em atividades educativas e campanhas de conscientização sobre a importância da escolarização.
- *Plantando Futuros:* focou em sustentabilidade e segurança alimentar por meio da criação de hortas urbanas e da educação ambiental. Oficinas sobre agricultura sustentável capacitaram moradores e reforçaram práticas ecoconscientes.
- *ReciclArt:* integrou inclusão social e sustentabilidade ao capacitar pessoas em situação de vulnerabilidade socioeconômica para criar e vender produtos artísticos feitos a partir de materiais reciclados. A iniciativa promoveu geração de renda por meio de oficinas de arte e reciclagem.

Esses projetos contribuíram significativamente para o desenvolvimento pessoal e profissional dos estudantes, especialmente em liderança, organização e comunicação, além de gerar impacto social e ambiental mensurável nas comunidades atendidas. Eles melhoraram a qualidade de vida dos beneficiários, ampliaram a inclusão educacional e aumentaram a conscientização sobre práticas sustentáveis.

Discussão:

Entretanto, a equipe também enfrentou desafios internos e externos. Internamente, a manutenção do engajamento dos membros e a gestão da rotatividade exigiram esforços contínuos de capacitação. A coordenação dos projetos demandou forte liderança e habilidades interdisciplinares, enquanto a comunicação interna foi essencial para evitar mal-entendidos e atrasos. A gestão de recursos, especialmente a captação e alocação de recursos financeiros e materiais, foi uma preocupação recorrente.

Externamente, a equipe enfrentou resistência inicial das comunidades, dificuldades para estabelecer parcerias de longo prazo com stakeholders, barreiras burocráticas e desafios para garantir a sustentabilidade das iniciativas devido à dependência de financiamento externo.

Para enfrentar esses obstáculos, o grupo adotou diversas estratégias, combinando competências técnicas e comportamentais:

1. **Adaptar e Inovar:** avaliações contínuas e flexibilidade mantiveram os projetos relevantes e resilientes.
2. Mobilizar Recursos: eventos de arrecadação, patrocínios etc.
3. **Comunicar com Eficiência:** reuniões regulares e uso de plataformas digitais alinharam os membros às metas do projeto.
4. **Engajar Comunidades:** campanhas de conscientização e desenvolvimento participativo fortaleceram a colaboração local.
5. **Estabelecer Parcerias Estratégicas:** relações de longo prazo com empresas e organizações apoiaram a escalabilidade dos projetos.
6. **Planejar e Organizar:** definição clara de responsabilidades, cronogramas e planos de ação facilitaram a coordenação eficaz.

7. **Treinar e Desenvolver:** oficinas e atividades de integração estimularam a motivação e o crescimento de habilidades.

Essas estratégias contribuíram para a capacidade da equipe de implementar projetos sustentáveis e com impacto social. Ao longo do tempo, emergiram lições-chave: a importância da colaboração, da adaptabilidade, da inclusão comunitária, da comunicação eficaz e da avaliação contínua. Esses aprendizados fortalecem a capacidade da Enactus PUC-SP de gerar impacto duradouro e de empoderar estudantes como líderes transformadores.

Os resultados confirmam que projetos de empreendedorismo liderados por estudantes promovem aprendizado prático, inovação social e competências acadêmicas voltadas para a sustentabilidade. O modelo Enactus mostra-se um quadro eficaz para alinhar a educação superior a objetivos de transformação do mundo real (Enactus, 2021; Mello et al., 2021; Guevara et al., 2011).

Contribuições:

Este estudo confirmou o valor de integrar sustentabilidade e empreendedorismo social ao ensino superior por meio da extensão universitária liderada por estudantes. A experiência da Enactus PUC-SP mostra que tais iniciativas podem desenvolver competências cruciais em futuros profissionais, ao mesmo tempo em que geram impacto comunitário significativo. A pesquisa contribui empiricamente para o entendimento do engajamento estudantil no Brasil e teoricamente para as discussões sobre aprendizagem experiencial voltada ao desenvolvimento sustentável. Como limitação, destaca-se o foco em um único caso. Pesquisas futuras devem explorar perspectivas comparativas e longitudinais, incluindo as vozes dos atores comunitários.

Integrating Soft Skills and Social Entrepreneurship: A Novel Framework for Graduate Leadership in Sustainable Development

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Introduction:

State problem being addressed, and why it is important to address this problem Higher education institutions worldwide are grappling with how to prepare graduates for an increasingly complex and interconnected world. The traditional focus on disciplinary knowledge and technical skills is no longer sufficient for addressing global challenges such as climate change, social inequality, and environmental degradation. Universities, as the "last stop" before students enter their careers, bear significant responsibility for developing the personal and professional capabilities that enable social entrepreneurship and sustainable leadership.

The problem is particularly acute in STEM disciplines, where curricula have historically prioritized hard skills over human centered capabilities essential for community engagement and social impact. This gap leaves graduates ill-equipped to navigate the complex stakeholder relationships, ethical dilemmas, and systemic challenges inherent in sustainability work (Karimi and Pina, 2021). As communities worldwide face unprecedented environmental and social challenges, there is an urgent need for educational models that that integrate technical skills with broader professional capabilities.

This paper introduces a novel framework that integrates capability development with sustainability-focused project work. Distinct from existing approaches such as Enactus or traditional project-based learning, it combines interdisciplinary collaboration, community partnerships, experiential learning, and structured reflection to prepare graduates to apply their knowledge in contexts demanding both technical competence and social responsibility.

Literature review:

Recent literature highlights the critical importance of graduate capabilities in fostering social responsibility and environmental stewardship. Skills such as communication, teamwork, adaptability, and ethical reasoning are increasingly recognised as fundamental to success in sustainability contexts (Costa & Cipolla, 2025). However, traditional STEM curricula continue to prioritise technical proficiency, creating a persistent gap in holistic education (Karimi & Pina, 2021).

Social entrepreneurship education has emerged as a promising approach to address this gap. Studies indicate that such programs enhance students' ability to identify community needs, develop innovative solutions, and build sustainable partnerships (Suguna et al., 2024). Programs like Enactus have demonstrated particular success in fostering social innovation through project-based learning and community engagement, cultivating entrepreneurial mindsets while delivering tangible community benefits (Omotosho et al., 2023).

The literature on community development emphasises the importance of trust building, cultural sensitivity, and participatory approaches in sustainable development. These capabilities are rarely addressed in traditional engineering curricula but are essential for effective social entrepreneurship. Research suggests that students who engage directly with

communities develop deeper understanding of social systems and enhanced capacity for ethical decision-making (Höffken & Lazendic-Galloway, 2024).

Project-based learning (PBL) has also been identified as an effective pedagogy for developing both technical and professional skills simultaneously. When combined with community partnerships, PBL offers authentic experience in stakeholder engagement, systems thinking, and collaborative problem solving (Höffken & Lazendic-Galloway, 2024). However, there remains a gap in understanding how to systematically embed these approaches into STEM curricula while maintaining academic rigour.

This study addresses that gap by asking:

How can interdisciplinary project-based learning be designed to foster both professional capabilities and social entrepreneurship skills in STEM students while addressing real world sustainability challenges?

Methodology:

This study employed a mixed-methods approach, combining qualitative case study methods with quantitative assessment of student learning outcomes. This design was chosen to capture both the depth of student experiences (qualitative) and measurable changes in skills and attitudes (quantitative), providing a comprehensive understanding of learning outcomes (Dawadi, Shrestha & Giri, 2021). The research was guided by design-based research (DBR) principles, which involved iterative development and refinement of the educational framework.

The study involved 45 undergraduate students (23 female, 22 male) enrolled in engineering (n=28) and environmental science (n=17) courses at La Trobe University, Australia. These STEM-specific programs provided an interdisciplinary setting for collaboration. Participants

represented diverse cultural backgrounds (15 international students from 8 countries) and were randomly assigned to 9 teams of 5 members each.

The 12-week program integrated three key components: (1) Community Partnership Projects with local environmental organisations, where students worked on authentic sustainability challenges such as waste reduction, renewable energy adoption, and biodiversity conservation. (2) Interdisciplinary Workshops on stakeholder engagement, systems thinking, and ethical decision-making. (3) Structured Reflection and Assessment, including journals, peer evaluations, and feedback from community partners (Dutta, He & Tsang, 2023).

Data collection included semi-structured interviews (pre- and post-program), weekly reflection journals, community partner evaluations, peer assessments, and quantitative surveys measuring changes in self-reported capabilities (McKenney, 2018). Qualitative data was analysed using thematic analysis, while quantitative data was analysed using paired t-tests. Reliability of qualitative coding was confirmed by two independent researchers, who reached strong agreement.

Findings:

Analysis revealed three primary themes related to capability development and social entrepreneurship.

Students demonstrated significant improvements in community engagement skills, with 89% reporting increased confidence in stakeholder engagement, aligning with outcomes reported in other authentic learning contexts (Todd et al., 2025). Pre-program interviews revealed that 78% of students had no prior experience working with community organisations. Specific improvements included active listening and cultural sensitivity (mean improvement: 2.3 on

5-point scale), needs assessment and community consultation (mean improvement: 2.1), and building trust and maintaining relationships (mean improvement: 2.4).

The interdisciplinary nature of the projects fostered deeper understanding of complex systems, with students reporting increased ability to identify interconnected factors in sustainability challenges (87% improvement), consider ethical implications of technical solutions (92% improvement), and navigate trade-offs between competing stakeholder interests (85% improvement).

The team-based structure promoted leadership development across all participants, with 94% of students reporting taking on leadership roles within their teams, 91% reporting improved ability to work with diverse team members, and 88% reporting increased confidence in presenting to stakeholders. Community partners particularly noted students' growth in "leading with empathy" and "building consensus among diverse viewpoints."

At the same time, students faced challenges such as managing conflicting opinions, adapting to unfamiliar community contexts, and balancing project demands with limited time. Many reported that navigating these obstacles enhanced resilience, adaptability, and conflict-resolution skills—capabilities that were not initially expected outcomes but proved critical to their development as future leaders.

Discussion:

The findings demonstrate that integrating capability development with community-based sustainability projects can effectively address the skills gap identified in the literature. The interdisciplinary approach proved particularly valuable in fostering the complex skillset needed for social entrepreneurship (Loukopoulos et al., 2023).

The community partnership model aligns well with Enactus principles, emphasising real-world impact and stakeholder engagement (Omotosho et al., 2023). Students' enhanced ability to work with diverse communities directly addresses the conference theme of fostering peace, trust, and community development through capabilities such as communication and empathy. The significant improvements in trust building and relationship maintenance suggest that such programs can contribute to creating more peaceful and cohesive communities.

A notable real-world outcome of this framework is the Sight Sense project—an assistive navigation device for the visually impaired—developed through a student-led, interdisciplinary collaboration. It exemplifies how empowering students with both technical expertise and community engagement opportunities can lead to socially impactful innovation (Ramesh, 2023).

The emphasis on stakeholder engagement helped students understand that technical solutions must be embedded within social and cultural contexts, fostering the development of trust-based relationships essential for sustainable community development. Importantly, the challenges students encountered, such as negotiating conflicting perspectives or addressing real community constraints, provided additional opportunities for growth in adaptability and problem-solving. This suggests that project-based learning, when properly structured, develops not only intended outcomes like leadership and systems thinking but also broader resilience and higher-order skills essential for sustainability leadership (Sánchez-García & Reyes-de-Cózar, 2025).

Contributions:

This research contributes to both theory and practice in several important ways. Theoretically, it provides empirical evidence for the effectiveness of community-based learning in developing social entrepreneurship capabilities and demonstrates how interdisciplinary collaboration can enhance both technical and soft skills simultaneously. Practically, it presents a replicable framework for integrating soft skills development into STEM curricula and provides specific methodologies for community partnership development in higher education.

The framework is particularly relevant for Enactus programs and similar initiatives seeking to embed social entrepreneurship into higher education. The findings support calls for increased emphasis on community engagement and stakeholder collaboration in STEM education, with specific implications for fostering peace, trust, and community development through educational interventions.

At the same time, this study is limited by its relatively small sample size (n=45) and the context of a single Australian university, which may affect the generalisability of the findings.

Future research should examine the long-term impacts of such programs on graduate employability and community leadership outcomes, as well as explore scaling strategies for broader institutional adoption.

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Linking Educational Equity and Global Engagement through a Student Driven Model for Sustainable Graduate Development

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Introduction:

Students increasingly seek experiences that extend learning beyond the classroom and connect them with real global challenges. ASEI Exchange is an emerging student designed initiative that creates structured dialogue between Australian and Ugandan students through cross cultural, curriculum aligned modules. These exchanges invite comparative reflection on sustainability, STEM applications, and community innovation, and provide authentic insights into how everyday systems operate in distinct cultural and economic contexts. At the same time, many Ugandan students face financial barriers to continued STEM education. ASEI Exchange links participation to equity by embedding a funding mechanism in enrolment. Each Australian participant contributes thirty-nine dollars which covers a full year of tuition for a student attending an ASEI school in Uganda. The model therefore couples global learning with access to education.

Literature review:

Research on global competence and virtual exchange shows that structured, facilitated dialogue improves intercultural understanding and transferable skills for learners. Work integrated learning literature highlights the value of student led projects for developing graduate capabilities including communication, collaboration, leadership, and ethical reasoning. However, the literature provides limited examples of models that integrate

classroom based virtual exchange with an embedded, participation linked funding mechanism that advances equity for a partner cohort while also building graduate capability.

Research question: How and to what extent can a student driven, classroom based virtual exchange that links enrolment to funding be feasible and educationally valuable, and what graduate capabilities are developed through its design and early implementation?

Proposition: A student designed model that combines guided cross-cultural dialogue with enrolment linked funding will be acceptable to stakeholders, practically feasible in early pilots, and will develop graduate ready capabilities for the university student team leading it.

Methodology:

A qualitative case study approach was used to capture design choices, feasibility, and early validation. Methods included desk research on Australian curriculum structures and school market characteristics, reflective documentation of the student team's weekly planning, and informal conversations with teachers and parents to understand constraints, expectations, and safeguarding considerations. The design process followed a human cantered sequence that included empathising through these conversations, defining requirements from curriculum review, ideating the exchange structure and prompts, prototyping sample lesson guides, and testing the flow through guided walk-through sessions with educators. Notes from documents and conversations were analysed thematically to surface requirements, risks, and acceptance conditions. Competition judge feedback and internal advisory comments were treated as external validation signals. Delivery formats were scoped for asynchronous and live interaction to accommodate infrastructure variability.

Findings:

Early evidence indicates feasibility and promising acceptance.

1. **Model clarity and value:** Stakeholders consistently understood the dual purpose. The link between enrolment and a peer's tuition increased perceived meaning for Australian students while maintaining dignity for Ugandan peers.
2. **Pedagogical viability:** Thematic prompts that compare energy use, housing design, water access, and local innovation were rated as suitable for guided classroom use, provided moderation and safeguarding protocols are explicit.
3. **Implementation conditions:** Desk research and conversations indicated that independent schools including private and Catholic systems exhibit greater flexibility to integrate the program. Public systems require longer alignment and approvals.
4. **External validation:** The project placed second in the Early-Stage category and advanced as a finalist in the Main Stage division at the 2025 Enactus Australia National Championship. Internal university advisors expressed support for continued development and evaluation.

Discussion:

The findings inform the research question in three ways. First, linking participation to funding appears to strengthen reciprocity and motivation while avoiding a charity frame because both cohorts contribute knowledge and perspective through structured dialogue. Second, feasibility depends less on technology and more on alignment with curriculum objectives and on clear moderation standards. Third, the design and delivery process itself functioned as work-based learning for the university student team. The team reported growth in stakeholder communication, ethical reasoning, program design, and impact storytelling.

Taken together, the model offers a practical pathway for schools to provide global competence learning while enabling access to STEM education for peers in Uganda.

Contributions:

Empirical: Provides early evidence that a classroom based virtual exchange with enrolment linked funding is understandable to stakeholders and feasible for pilot implementation, with independent schools the readiest context.

Theoretical: Extends work integrated learning and virtual exchange literatures by proposing a reciprocal model that couples comparative dialogue with a built-in equity mechanism.

Practical: Offers a field-tested set of design conditions for student teams and schools. These include curriculum aligned prompts, explicit safeguarding and moderation, flexible formats that work in low bandwidth contexts, and a transparent funding transaction that is embedded in participation rather than presented as donation.

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Methodology and scientific approaches to the development and integration of the minor “Fundamentals of Entrepreneurship with Enactus” into university curricula in Kazakhstan

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Introduction:

The development of entrepreneurial thinking among students has become a key priority in higher education in Kazakhstan. In line with the priorities of state policy as outlined in strategic documents of the Ministry of Science and Higher Education of the Republic of Kazakhstan special attention is paid to implementing practice-oriented approaches, expanding student entrepreneurial activity, and modernizing academic programs. According to ministry data, as of 2023, less than 5% of students are engaged in entrepreneurial activity, indicating the need for systemic solutions.

The international Enactus movement has demonstrated high effectiveness in promoting youth social entrepreneurship implement projects that contribute to social progress and the economic development of local communities while gaining practical skills in management, teamwork, and innovative thinking.

Against this backdrop, the development and implementation of a new academic minor “Fundamentals of Entrepreneurship with Enactus” has become particularly relevant as a tool

for institutionalizing successful international practices and adapting them to the national educational context. The proposed course can serve not only as an effective educational platform but also as a space for the development of real-life projects with measurable social impact.

In 2024, Narxoz University launched a pilot project to develop and test the content of the Enactus minor, which includes modules on social entrepreneurship, project thinking and sustainable development, business modelling and financial planning. Preliminary results and student feedback confirm the high demand and scalability potential of the course.

The purpose of this article is to present the methodological foundations and scientific approach to the course design, justify its relevance, and share practical experiences from the pilot implementation.

Literature review:

Research focused on Enactus initiatives in various countries highlights the significant impact of student involvement in project-based activities on the formation of practical competencies. Specifically, numerous studies underline the development of research potential, the ability to apply economic and financial tools, communication and leadership skills, critical thinking, teamwork, and social responsibility.

Despite positive examples and accumulated international experience, most universities in Kazakhstan still lack specialized courses capable of integrating the Enactus systemic approach into the educational process. Curricula typically fail to reflect the potential of extracurricular entrepreneurial activity and do not take into account the results of hundreds of successful projects implemented within the framework of Enactus Kazakhstan. This indicates

a methodological and substantive gap in the current higher education landscape of the country.

Given this context, the development and implementation of the minor “Fundamentals of Entrepreneurship with Enactus” at one of Kazakhstan’s universities represents a unique and important step toward bridging this gap. The integration of Enactus principles and practices into formal education contributes to strengthening interdisciplinary learning and aligns the academic process more closely with real social and economic challenges.

Research Question:

How does the minor “Fundamentals of Entrepreneurship with Enactus”, based on international practices and principles of sustainable development, contribute to the formation of key entrepreneurial and transversal competencies among students in the context of a Kazakhstani university?

Hypothesis:

The integration of the developed minor into academic curricula significantly increases students’ involvement in project-based activities, fosters entrepreneurial thinking, and enhances skills that are in demand in the modern labour market.

Methodology:

To achieve the goals of this study, a mixed-methods approach was employed, combining both quantitative and qualitative research methods. This approach allows for a comprehensive understanding of the effectiveness of the minor “Fundamentals of Entrepreneurship with Enactus” within the educational environment and assesses its impact on the development of students’ key competencies.

On the one hand, traditional quantitative methods were used, including surveys of students and instructors, statistical analysis of student participation in Enactus projects, and comparative assessments of entrepreneurial and transversal skills before and after the course. On the other hand, novel qualitative approaches were developed and applied, including focus groups with participants of the pilot course, expert interviews with Enactus mentors and coordinators, and case analyses of successful student projects. In addition, AI-based analytical tools were employed to process qualitative data and identify patterns, providing deeper insights into student motivation, team dynamics, and the contextual adaptation of international experience to the Kazakhstani educational environment.

Findings:

The implementation of the project yielded several significant outcomes, confirming both the effectiveness and relevance of integrating the "Fundamentals of Entrepreneurship with Enactus" minor into the academic process:

- The structure of the minor was developed, comprising four core modules covering the basics of social entrepreneurship, project thinking and sustainable development, business modelling and financial planning. The total program volume is 20 academic credits, ensuring comprehensive theoretical and practical training for students.
- During the pilot phase, three cohorts of 58 undergraduate students from various faculties, interested in entrepreneurship and project-based learning, completed the course. This facilitated an interdisciplinary approach and contributed to the formation of effective student teams.
- In 2025, the second cohort of students successfully graduated from the minor, having implemented their own entrepreneurial or social projects as part of the academic

curriculum. Many of these students continued developing their initiatives beyond the course, demonstrating a sustainable and lasting impact.

- One illustrative case involved a Sociology student who, in collaboration with peers from Law and Marketing, developed a constructor-platform for schoolteachers as part of the minor program. The team elaborated the project concept, technical specifications, and a business plan, and succeeded in attracting an investment of 3 million tenge (approximately USD 5,600) even before completing the course. The project, currently at the commercialization stage and having successfully undergone beta testing with 95 secondary school teachers, highlights the practical relevance of the program. Importantly, this case demonstrates the acquisition of interdisciplinary competencies, entrepreneurial thinking, teamwork, and strategic planning skills, thereby aligning with contemporary educational goals that integrate both soft and hard skills.
- The teaching and mentoring process actively involved academic experts, business community representatives, and Enactus alumni with practical experience in social and sustainable entrepreneurship. Their engagement ensured the high practical relevance of the course and provided students with access to real-world expertise, networking opportunities, and valuable feedback.

This outcome has been made possible thanks to the unique, practice-based nature of the course, as illustrated in Figure 1.

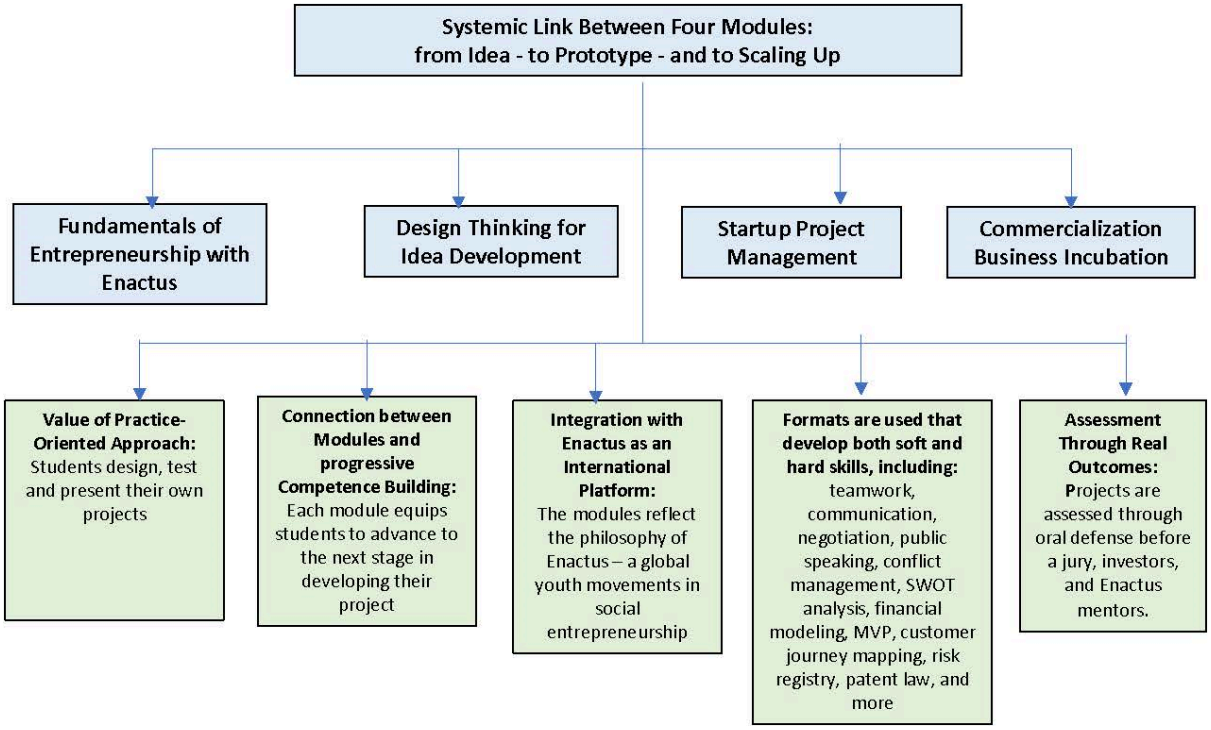


Figure 1. A Unique and Systemic Approach to Entrepreneurship Education within the Minor

The scheme demonstrates the uniqueness of the Enactus minor program, based on a practice-oriented combination of four modules - from idea to scaling. The course allows students to develop and defend their own projects, developing entrepreneurial skills in the spirit of the Enactus philosophy. The results demonstrate the high scalability potential of this educational initiative and its adaptability to other universities in Kazakhstan, taking into account their specific profiles and student needs.

Discussion:

The aim of the study was to evaluate how a practical minor in social entrepreneurship can enhance students' entrepreneurial competencies, promote interdisciplinary collaboration, and create sustainable real-world impact. The results of the study directly support this, demonstrating that the carefully designed program structure, covering social

entrepreneurship, design thinking, sustainability, business modelling, financial planning, teamwork and leadership, ensures a balance of theoretical knowledge and practical skills. The interdisciplinary composition of the pilot groups proved to be a decisive factor in the formation of diverse and effective teams, confirming that cross-faculty participation stimulates creative problem solving and innovation. Moreover, the results of the second cohort in 2025 show that students not only completed meaningful projects as part of the curriculum, but also went on to develop them independently, confirming the program's ability to generate long-term, self-sustaining initiatives. Graduates of the minor "Fundamentals of Entrepreneurship with Enactus" will not only become employees of the future, but are ready to take responsibility for business creation and new jobs, as well as their development.

Of particular value is the understanding of the important role of the learning and mentoring ecosystem that brought together academic experts, industry specialists, and Enactus alumni. This combination helped to bridge the gap between academic learning and practical application of knowledge, expand students' professional networks, and provide constructive feedback — factors that proved critical to the sustainability and scalability of the projects. Importantly, the graduates' focus on business initiation, job creation, and scaling of their projects illustrates the shift from passive to active employment, highlighting the transformative potential of a hands-on, mentoring-based approach to entrepreneurship education. These findings not only contribute to the understanding of the pedagogical value of such a program in Kazakhstan, but also offer a model applicable to other educational contexts that aim to combine social impact with entrepreneurial skills development.

Contributions:

This study contributes to the empirical understanding of how the integration of a minor based on Enactus approaches can foster the development of entrepreneurial and transversal competencies within the framework of formal higher education.

From a theoretical perspective, this work complements existing models of practice-oriented learning and entrepreneurial pedagogy by demonstrating how student-led initiatives - previously confined to informal settings - can be institutionalized within academic programs. The findings support the hypothesis that embedding project-based learning and sustainable development principles into curricula contributes not only to increased academic motivation but also to enhanced social responsibility among students.

From a practical standpoint, the experience of designing and implementing the "Fundamentals of Entrepreneurship with Enactus" minor at Narxoz University represents a scalable model that can be adapted and replicated in other universities across Kazakhstan, as well as in institutions participating in the global Enactus movement.

The dissemination of the described experience is especially relevant for universities interested in implementing practice-oriented, interdisciplinary and socially significant programs that correspond to the UN Sustainable Development Goals.

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Russian Version

Методология и научные подходы к разработке и интеграции майнора «Основы предпринимательства Enactus» в учебные программы университетов Казахстана

Введение:

Развитие предпринимательского мышления у студентов становится важным приоритетом в высшем образовании Казахстана. В соответствии с приоритетами государственной политики, отраженными в стратегических документах Министерства науки и высшего образования РК, особое внимание уделяется внедрению практико-ориентированных подходов в обучении, расширению предпринимательской активности студентов и модернизации учебных программ. По данным министерства, доля студентов, вовлечённых в предпринимательскую деятельность, по состоянию на 2023 год составляет менее 5%, что требует системных решений.

Международное движение Enactus демонстрирует высокую эффективность в развитии молодежного социального предпринимательства, реализуя проекты, которые способствуют социальному прогрессу и экономическому развитию местных

сообществ, при этом приобретая практические навыки управления, командной работы и инновационного мышления.

На этом фоне становится особенно актуальной разработка и внедрение нового учебного майнора «Основы предпринимательства Enactus» как инструмента институционализации успешного международного опыта и его адаптации к национальному образовательному контексту. Предложенный курс может служить не только эффективной образовательной платформой, но и пространством для реальных проектов с измеримым социальным воздействием.

В 2024 году в университете Нархоз был запущен пилотный проект по разработке и апробации содержания майнора «Основы предпринимательства Enactus», включающего модули по социальному предпринимательству, проектному мышлению и устойчивому развитию, бизнес-моделированию и финансовому планированию. Предварительные результаты и отзывы студентов подтверждают высокую востребованность и масштабирования курса.

Цель данной статьи — представить методологические основы и научный подход к разработке курса, обосновать его актуальность, а также поделиться практическим опытом внедрения на базе пилотного проекта.

Обзор литературы:

Исследования, посвящённые инициативам Enactus в различных странах, демонстрируют значительное влияние участия студентов в проектной деятельности на формирование у них практических компетенций. В частности, многочисленные исследования подчеркивают развитие исследовательского потенциала, умения

применять экономические и финансовые инструменты, коммуникативных и лидерских навыков, критического мышления, командной работы и социальной ответственности. Несмотря на положительные примеры и накопленный международный опыт, в большинстве университетов Казахстана по-прежнему отсутствуют специализированные курсы, способные интегрировать системный подход Enactus в образовательный процесс. Учебные программы, как правило, не отражают потенциал внеаудиторной предпринимательской активности студентов и не учитывают результаты сотен успешных проектов, реализованных в рамках Enactus Kazakhstan. Это свидетельствует о методологическом и содержательном разрыве в современной системе высшего образования страны.

Учитывая вышеизложенное, опыт разработки и внедрения майнора «Основы предпринимательства Enactus» в одном из казахстанских вузов представляет собой уникальный и важный шаг на пути к устранению этого пробела. Интеграция принципов и практик Enactus в формальное образование способствует усилению междисциплинарного подхода и делает образовательный процесс более ориентированным на реальные социальные и экономические вызовы.

Исследовательский вопрос:

Каким образом майнор «Основы предпринимательства Enactus», основанный на международных практиках и принципах устойчивого развития, способствует формированию ключевых предпринимательских и трансверсальных компетенций у студентов в условиях казахстанского вуза?

Предполагаемая гипотеза:

Интеграция разработанного майнора в учебные программы значительно повышает вовлеченность студентов в проектную деятельность, развивает предпринимательское мышление и улучшает навыки, востребованные на современном рынке труда.

Методология:

Для достижения целей данного исследования был использован смешанный подход, сочетающий количественные и качественные методы анализа. Такой подход позволяет получить комплексное понимание эффективности майнора «Основы предпринимательства Enactus» в образовательной среде, а также оценить его влияние на развитие ключевых компетенций у студентов.

С одной стороны, были использованы традиционные количественные методы, включая анкетирование студентов и преподавателей, статистический анализ участия студентов в проектах Enactus, и сравнительную оценку предпринимательских и трансверсальных навыков до и после прохождения курса.

С другой стороны, были разработаны и применены новые качественные подходы, включая фокус-группы с участниками пилотного курса, экспертные интервью с менторами и координаторами Enactus, а также анализ кейсов успешных студенческих проектов. Кроме того, для обработки качественных данных и выявления закономерностей использовались аналитические инструменты на основе искусственного интеллекта, что позволило глубже понять мотивацию студентов, динамику командной работы и контекстную адаптацию международного опыта к казахстанской образовательной среде.

Результаты:

В ходе реализации проекта были достигнуты следующие значимые результаты, подтверждающие эффективность и актуальность внедрения майнора «Основы предпринимательства Enactus» в образовательный процесс:

- Разработана структура майнора, включающая 4 модуля: основы социального предпринимательства, проектное мышление и устойчивое развитие, бизнес-моделирование и финансовое планирование. Общий объем программы составляет 20 академических кредитов, что обеспечивает полноценную теоретическую и практическую подготовку студентов.
- На пилотном этапе курс прошли три потока студентов бакалавриата разных факультетов (58 студентов), заинтересованных в предпринимательской и проектной деятельности. Это способствовало междисциплинарному подходу и формированию эффективных студенческих команд.
- В 2025 году второй выпуск студентов успешно завершил обучение майнора, реализовав свои собственные предпринимательские или социальные проекты в рамках учебной программы. Многие из этих студентов продолжили развивать свои инициативы и за пределами курса, демонстрируя устойчивый и долгосрочный эффект.
- Показательным примером является кейс студента специальности «Социология», который в сотрудничестве со студентами направлений «Юриспруденция» и «Маркетинг» разработал платформу-конструктор для школьных учителей в рамках программы майнора. Команда подготовила концепцию проекта, технические параметры и бизнес-план, а ещё до завершения курса привлекла инвестиции в размере 3 млн тенге (около 5600 долларов США). В настоящее время проект находится на стадии коммерциализации и успешно прошёл бета-тестирование с участием 95

учителей средних школ, что подтверждает его практическую значимость. Данный кейс демонстрирует формирование у студентов междисциплинарных компетенций, предпринимательского мышления, навыков командной работы и стратегического планирования, что соответствует современным образовательным целям, ориентированным на развитие как soft, так и hard skills.

- Академические эксперты, представители бизнес-сообщества и выпускники Enactus, имеющие практический опыт в сфере социального и устойчивого предпринимательства, активно участвовали в процессе обучения и наставничества. Их вовлеченность обеспечила высокую актуальность курса и предоставила студентам доступ к реальному опыту, возможностям для налаживания связей и ценной обратной связи.

Этот результат стал возможным благодаря уникальному практическому характеру курса, как показано на рисунке 1.

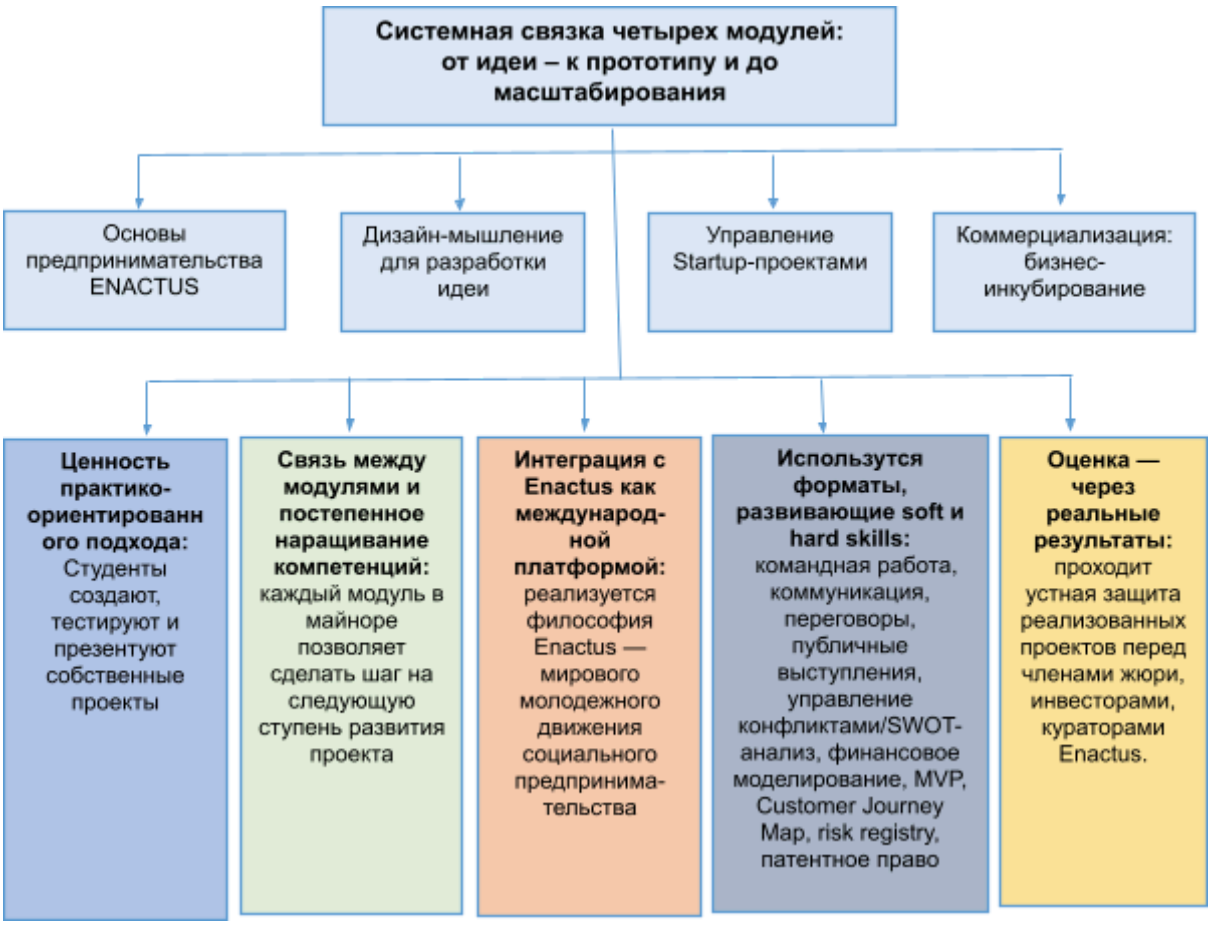


Рисунок 1. Уникальный и системный подход к обучению предпринимательству в рамках майнора

Схема демонстрирует уникальность программы Enactus minor, основанной на практико-ориентированном сочетании четырёх модулей – от идеи до масштабирования. Курс позволяет студентам разрабатывать и защищать собственные проекты, развивая предпринимательские навыки в духе философии Enactus.

Полученные результаты свидетельствуют о высоком потенциале масштабирования данной образовательной инициативы и возможности её адаптации в других вузах Казахстана с учётом их профиля и потребностей студентов.

Обсуждение:

Целью исследования было оценить, как практическая дополнительная специализация по социальному предпринимательству может повысить предпринимательские компетенции студентов, способствовать междисциплинарному сотрудничеству и оказывать устойчивое влияние на реальный мир. Результаты исследования напрямую подтверждают это, демонстрируя, что тщательно разработанная структура программы, охватывающая социальное предпринимательство, проектное мышление, устойчивое развитие, бизнес-моделирование, финансовое планирование, командную работу и лидерство, обеспечивает баланс теоретических знаний и практических навыков. Междисциплинарный состав пилотных групп оказался решающим фактором в формировании разнообразных и эффективных команд, подтверждая, что межфакультетское участие стимулирует творческое решение проблем и инновации. Более того, результаты второго выпуска в 2025 году показывают, что студенты не только завершили значимые проекты в рамках учебной программы, но и продолжили их самостоятельно развивать, что подтверждает способность программы генерировать долгосрочные, самодостаточные инициативы. Выпускники майнора «Основы социального предпринимательства Enactus» не только станут работниками будущего, но и готовы взять на себя ответственность за создание бизнеса и новых рабочих мест, а также за их развитие.

Особенную ценность представляет понимание важной роли экосистемы обучения и наставничества, объединившей академических экспертов, отраслевых специалистов и выпускников Enactus. Это сочетание позволило преодолеть разрыв между академическим обучением и практическим применением знаний, расширить профессиональные связи студентов и обеспечить конструктивную обратную связь —

факторы, которые оказались критически важными для устойчивости и масштабируемости проектов.

Важно отметить, что ориентация выпускников на инициирование бизнеса, создание рабочих мест и масштабирование своих проектов иллюстрирует переход от пассивной трудоустройства к активному созданию рабочих мест, подчёркивая преобразующий потенциал практического подхода, основанного на наставничестве, к обучению предпринимательству. Эти результаты способствуют не только пониманию педагогической ценности такой программы в Казахстане, но и предлагают модель, применимую к другим образовательных контекстах, направленным на объединение социального воздействия с развитием предпринимательских навыков.

Вклад исследования:

Настоящее исследование вносит вклад в развитие эмпирического понимания того, каким образом интеграция майнора, основанного на подходах Enactus, может способствовать формированию предпринимательских и трансверсальных навыков у студентов в рамках формального высшего образования.

С теоретической точки зрения, работа дополняет существующие модели практико-ориентированного обучения и предпринимательской педагогики, демонстрируя возможности институционализации студенческих инициатив, ранее реализуемых преимущественно в неформальной среде. Исследование подтверждает гипотезу о том, что формализованная интеграция проектного подхода и принципов устойчивого развития в учебные планы способствует не только росту академической мотивации, но и укреплению социальной ответственности студентов.

С практической точки зрения, опыт разработки и внедрения майнора «Основы предпринимательства Enactus» в Нархоз университете представляет собой модель, которую можно адаптировать и внедрить в других вузах Казахстана, а также в университетах других стран, участвующих в глобальном движении Enactus. Этот подход может стать инструментом устойчивого развития образования, повышения качества подготовки выпускников и усиления вклада университетов в решение социальных и экономических проблем на местном и глобальном уровнях. Распространение описанного опыта особенно актуально для университетов, заинтересованных во внедрении практико-ориентированных, междисциплинарных и социально значимых программ, соответствующих целям устойчивого развития ООН.

Methodology of Conducting Student Projects on the Example of Enactus Program Activities in Poland

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Introduction:

In the dynamic landscape of business and entrepreneurship, the competence to lead projects effectively is an essential determinant of professional and organizational success. In this context, the **Enactus Program** emerges as a unique educational and developmental platform, fostering social entrepreneurship among students and enabling them to enhance their project management capabilities through hands-on experience. The Enactus approach emphasizes not only profit generation but also positive social, environmental, and community impact, with direct reference to the **17 United Nations Sustainable Development Goals (SDGs).**
Student teams participating in Enactus engage in conceiving, planning, and implementing innovative projects that bridge the gap between business objectives and societal needs. At the execution stage, students require **consistent and structured support**, which should be embedded in a continuous, systematic process ensuring that expected outcomes are achieved on time.

This paper aims to **present and analyze the project management methodology** developed by Enactus Poland, introduced in the academic years 2022-2024 and tailored to the specific realities of working within student-led teams. The methodology incorporates contemporary tools, agile and traditional project management practices, and the flexibility required to address the wide range of initiatives and challenges undertaken by students. The data of 350 students who are members of the Enactus program in Poland was analyzed.

Literature review:

Over the years, **Enactus Global** has formulated a core set of guidelines - known as the **Enactus Criterion** - which serves as the foundation for evaluating and assessing student projects. This criterion mandates that projects should combine entrepreneurial action with measurable social impact and sustainable improvement in people's lives. Academic and professional literature offers numerous definitions, methodologies, tools, and best practices for project execution, which vary according to industry, geography, and project scope. In the Polish academic environment, project management commonly relies on **traditional (waterfall) models** or **agile frameworks** (e.g., Scrum, Kanban), selected based on the nature and complexity of the task at hand.

Students acquire basic project management knowledge through university courses or through collaborations with companies. However, these experiences often remain **theoretical**, lacking opportunities for full-scale implementation beyond the classroom. Corporate collaborations typically result in incremental innovations rather than transformative projects. When it comes to **sustainability-oriented projects**, the challenge is compounded by the need for high levels of creativity, cross-disciplinary collaboration, and the development of complex, implementable solutions.

Innovative project work often benefits from methodologies such as **Design Thinking** or **Design Sprint**, which support ideation, rapid prototyping, and iterative testing. Digital tools and project management platforms can enhance team coordination and efficiency, yet there is no universally adopted approach among student teams.

The literature also highlights a **skills gap** - students often lack standardized competencies in project structuring, data collection, result measurement, and documentation. These disparities stem from variations in curricula, teaching quality, and institutional priorities. Before

launching a project, there is often insufficient emphasis on **systematic knowledge organization** and **alignment with Enactus' specific requirements**.

The most persistent challenges within student teams include:

- Building a coherent and committed project team.
- Selecting a relevant and impactful project topic.
- Sustaining collaboration and motivation over the project's lifecycle.
- Achieving **measurable, verifiable results.**

These challenges underscore the necessity for **knowledge-based support mechanisms** and opportunities for expert consultation throughout every stage of the project. The involvement of the **Enactus community**, academic supervisors, and university administration is essential to overcoming these barriers.

To address the identified gaps, the following **research questions** are posed:

1. How can students be engaged in **systematic, effective project work** that adheres to Enactus Program guidelines?
2. Should the development and application of innovation and business skills be **reconceptualized** to ensure sustainability outcomes?
3. How can collaboration between universities, students, and external partners be strengthened to enhance the **preparation and training** of innovation and business skills in response to sustainability challenges?

Methodology:

The research employs a **case study** approach, examining the project management methodology developed and executed by Enactus Poland. The study covers all core stages:

planning, implementation, evaluation, and reporting, supplemented with **best practices** for team collaboration.

Data collection is based on:

- **Program results** from the 2022–2024 academic years.
- **Desk research** involving Enactus annual reports, project documentation, and evaluation feedback.
- Observations and insights from **training workshops** delivered to student teams.

The **preparation stage** is documented in terms of the workshops conducted, the **skills acquired** by students, and the degree of methodological adoption. Statistical analysis presents a **cross-sectional profile** of participating students, including demographics, academic background, and pre-existing competencies. The study aims to **verify the effectiveness** of the proposed methodology and to formulate recommendations for improving the training and execution of student-led social entrepreneurship projects in Poland.

Findings:

1. Overview of Implementation

The implementation of the Enactus Poland project methodology was conducted during the **2022–2023 academic year** with participation from **12 student teams** representing universities across Poland. Each team applied the methodology to a unique project addressing at least one of the **17 UN Sustainable Development Goals**. The projects covered diverse thematic areas, including environmental protection (SDG 13), social inclusion (SDG 10), responsible consumption and production (SDG 12), and quality education (SDG 4).

The methodology was structured into four stages—**planning, implementation, evaluation, and reporting**—with dedicated tools, templates, and checklists for each. Enactus Poland

created two handbooks. First about developing an Enactus Team and second about Project Development. These two books focus on practical situations and best practises in team and project management. Students can find useful methods, tools and answers.

2. Planning Stage Results

Workshops delivered at the preparation stage focused on **Design Thinking**, goal setting (SMART framework), stakeholder analysis, and risk management.

- **88% of students** reported improved confidence in structuring project timelines and budgets.
- Teams demonstrated increased ability to define **clear, measurable objectives** aligned with Enactus' social impact criteria.
- The **topic selection process** was notably accelerated, with most teams finalizing project ideas within **two weeks**, compared to the previous average of four weeks in earlier years.

However, challenges persisted in **feasibility assessment**, particularly regarding long-term sustainability beyond the competition cycle.

3. Implementation Stage Results

Project execution under the new methodology incorporated **agile elements** such as iterative work cycles and regular feedback loops.

- **75% of teams** successfully met planned milestones within designated deadlines.
- Digital collaboration tools (e.g., Trello, Miro, and Google Workspace) were used extensively, with **90% adoption rates** across teams.
- Peer review sessions within the Enactus community provided actionable feedback, resulting in **mid-course project refinements** in 7 out of 12 cases.

Key barriers included **team turnover** during the academic year and uneven workload distribution, often related to students' academic and personal commitments.

4. Evaluation Stage Results

The methodology's evaluation framework emphasized **social impact measurement**, encouraging teams to collect quantitative and qualitative data from beneficiaries.

- **67% of projects** incorporated beneficiary surveys or interviews.
- **4 projects** achieved measurable community-level change (e.g., measurable waste reduction, increased employment opportunities, or skill development among target groups).
- Teams that engaged **external expert consultants** demonstrated higher data reliability and clearer alignment with the Enactus Criterion.

Despite these improvements, some teams struggled to define **baseline metrics** at project inception, which complicated final impact assessment.

5. Reporting Stage Results

The introduction of standardized reporting templates facilitated more coherent documentation.

- **100% of teams** submitted their final reports on time.
- Reports showed improved logical structure, with clear sections on problem definition, methodology, results, and lessons learned.
- The most significant improvement was observed in the **presentation of impact evidence**, particularly the use of charts, infographics, and concise summaries.

Nonetheless, **narrative clarity** and the avoidance of overly technical jargon remained areas for refinement, particularly in projects targeting non-academic audiences.

Discussion:

The pilot confirms that the structured methodology developed by Enactus Poland **enhanced the consistency and quality** of student-led projects. Key strengths include:

- **Faster project initiation** through structured ideation and topic selection.
- **Increased methodological rigor** in planning and evaluation.
- **Enhanced use of digital tools** to support team collaboration.
- **Improved reporting standards**, contributing to better knowledge transfer within the Enactus network.

However, challenges remain:

1. **Sustainability Beyond the Program Cycle** – Many projects remain tied to competition timelines, limiting long-term continuity.
2. **Impact Measurement Skills** – Students require more targeted training on defining baseline indicators and using data analysis tools.
3. **Team Management and Engagement** – High turnover rates call for better onboarding processes and contingency planning.

The findings align with prior literature highlighting that **student entrepreneurship projects** benefit from formalized support systems, but they must also remain adaptable to team dynamics and contextual challenges.

Conclusions:

The pilot implementation of the Enactus Poland project management methodology has demonstrated that a **structured, stage-based approach** can significantly improve the quality, efficiency, and impact of student-led social entrepreneurship projects. The adoption of clearly defined stages—planning, implementation, evaluation, and reporting—has:

- Accelerated **project initiation** and topic selection.
- Increased **methodological rigor** in aligning projects with the Enactus Criterion.
- Enhanced the use of **digital collaboration tools** to maintain momentum and transparency.
- Improved **reporting quality**, making project outcomes more visible and comparable.

Despite these successes, key challenges persist, particularly in ensuring **project sustainability beyond the competition cycle**, strengthening **impact measurement skills**, and maintaining **stable and motivated teams** throughout the academic year. These areas require targeted interventions to ensure the methodology's continued success and scalability. Based on the findings, the following recommendations are proposed for Enactus Poland and other stakeholders:

1. **Integrate Sustainability Planning Early**
    - Require teams to develop a post-competition continuity plan during the planning stage, identifying potential funding sources, partnerships, or handover strategies.
2. **Enhance Impact Measurement Training**
    - Introduce short, practical workshops on baseline metric definition, data collection methods, and basic statistical analysis, supported by case examples from past projects.
3. **Strengthen Team Onboarding and Retention**
    - Develop a standardized onboarding package for new members, including role descriptions, collaboration tool guides, and project timelines to minimize disruption from member turnover.
4. **Leverage Alumni and Expert Networks**

   - Create a structured mentorship program linking current teams with Enactus alumni and subject-matter experts to provide continuous, stage-specific feedback.

5. **Refine Reporting for Multiple Audiences**
   - Provide training on adapting project reports for different audiences—competition juries, community stakeholders, and potential sponsors—ensuring both technical accuracy and narrative clarity.

Contributions:

This study offers several contributions to the field of **student entrepreneurship education** and **project management in higher education**:

- **Practical Methodology Development** – Introduces a tested, context-specific project management methodology tailored to the operational realities of Enactus student teams in Poland, bridging the gap between theory and practice.
- **Empirical Insights from Pilot Implementation** – Provides quantitative and qualitative evidence on how structured support impacts project efficiency, collaboration, and measurable outcomes in a multi-university setting.
- **Framework for Scaling Social Impact Education** – Offers a transferable framework that can be adapted by other student entrepreneurship programs seeking to integrate sustainability and social impact into project-based learning.
- **Bridging Academic and Practitioner Perspectives** – Combines established project management theories (traditional and agile) with real-world Enactus experiences, creating a hybrid model that addresses both pedagogical and operational needs.

By systematically documenting the methodology's design, application, and outcomes, this research contributes to a growing body of knowledge on how **experiential learning environments** can be optimized to prepare students for the complex demands of innovation, entrepreneurship, and sustainable development.

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Metodologia realizacji projektów studenckich na przykładzie działań programu Enactus w Polsce

Wprowadzenie:

W dynamicznym otoczeniu biznesu i przedsiębiorczości, umiejętność skutecznego kierowania projektami jest kluczowym czynnikiem decydującym o sukcesie zawodowym i organizacyjnym. W tym kontekście **program Enactus** prezentuje się jako platforma edukacyjna i rozwojowa, która promuje przedsiębiorczość społeczną wśród studentów i umożliwia im doskonalenie umiejętności zarządzania projektami poprzez praktyczne

doświadczenia. Podejście Enactus kładzie nacisk nie tylko na generowanie zysku, ale także na pozytywny wpływ społeczny, środowiskowy i lokalny, w bezpośrednim odniesieniu do **17 celów zrównoważonego rozwoju ONZ (SDG)**.

Zespoły studenckie uczestniczące w Enactus angażują się w tworzenie, planowanie i wdrażanie innowacyjnych projektów, które wypełniają lukę między celami biznesowymi a potrzebami społecznymi. Na etapie realizacji studenci **potrzebują spójnego i ustrukturyzowanego wsparcia**, które powinno być osadzone w ciągłym, systematycznym procesie zapewniającym osiągnięcie oczekiwanych rezultatów w określonym terminie. Niniejszy artykuł **ma na celu przedstawienie i analizę metodologii zarządzania projektami** opracowanej przez Enactus Polska, wprowadzonej w roku akademickim 2022-2024 i dostosowanej do specyfiki pracy w zespołach studenckich. Metodologia wykorzystuje nowoczesne narzędzia, zwinne i tradycyjne praktyki zarządzania projektami oraz elastyczność niezbędną do realizacji szerokiego zakresu inicjatyw i wyzwań podejmowanych przez studentów. Przeanalizowano dane 350 studentów uczestniczących w programie Enactus w Polsce.

Przegląd literatury:

Na przestrzeni lat organizacja **Enactus Global** opracowała zestaw podstawowych wytycznych – znanych jako **Kryteria Enactus** – które stanowią podstawę oceny projektów studenckich. Kryteria te wymagają, aby projekty łączyły działania przedsiębiorcze z wymiernym wpływem społecznym i trwałą poprawą jakości życia ludzi. Literatura akademicka i fachowa oferuje liczne definicje, metodologie, narzędzia i najlepsze praktyki dotyczące realizacji projektów, które różnią się w zależności od branży, lokalizacji geograficznej i zakresu projektu. W polskim środowisku akademickim zarządzanie

projektami opiera się zazwyczaj na **tradycyjnych modelach (kaskadowych)** lub **zwinnych frameworkach** (np. Scrum, Kanban), wybranych w zależności od charakteru i złożoności danego zadania.

Studenci zdobywają podstawową wiedzę z zakresu zarządzania projektami podczas zajęć na uczelni lub w ramach współpracy z firmami. Jednak doświadczenia te często pozostają **teoretyczne**, ponieważ brakuje możliwości pełnego wdrożenia poza zajęciami. Współpraca z firmami zazwyczaj skutkuje stopniowymi innowacjami niż projektami transformacji. W przypadku projektów **zorientowanych na zrównoważony rozwój** wyzwanie potęguje potrzeba wysokiego poziomu kreatywności, współpracy międzydyscyplinarnej oraz opracowania złożonych, możliwych do wdrożenia rozwiązań.

Innowacyjna praca projektowa często korzysta z metodologii takich jak **Design Thinking** lub **Design Sprint**, które wspierają tworzenie pomysłów, szybkie prototypowanie i testowanie iteracyjne. Narzędzia cyfrowe i platformy zarządzania projektami mogą poprawić koordynację i wydajność zespołu, jednak wśród zespołów studenckich nie ma powszechnie przyjętego podejścia.

Literatura podkreśla również **lukę w umiejętnościach** – studenci często nie posiadają podstawowych kompetencji w zakresie strukturyzacji projektów, gromadzenia danych, pomiaru wyników i dokumentacji. Wynikają one z różnic w programach nauczania, jakości nauczania i priorytetach danej instytucji. Przed rozpoczęciem projektu często nie kładzie się wystarczającego nacisku na **systematyczną organizację wiedzy** i **dostosowanie do konkretnych wymagań Enactus**.

Najtrudniejsze wyzwania dla zespołów studenckich to:

- Stworzenie spójnego i zaangażowanego zespołu projektowego.
- Wybór odpowiedniego i istotnego tematu projektu.

- Utrzymanie współpracy studentów i motywacji przez cały cykl życia projektu.
- Osiągnięcie **mierzalnych, weryfikowalnych wyników**.

Wyzwania te podkreślają konieczność **wprowadzenia mechanizmów wsparcia** opartych na wiedzy oraz możliwości konsultacji z ekspertami na każdym etapie projektu. Zaangażowanie **społeczności Enactus**, opiekunów naukowych i administracji uczelni ma zasadnicze znaczenie dla pokonania tych barier.

Aby zająć się zidentyfikowanymi lukami, postawiono następujące **pytania badawcze**:

1. W jaki sposób można zaangażować studentów w **systematyczną, skuteczną pracę projektową** zgodną z wytycznymi programu Enactus?
2. Czy należy na nowo **zdefiniować** rozwój i stosowanie umiejętności innowacyjnych i biznesowych, aby zapewnić trwałe rezultaty?
3. W jaki sposób można wzmocnić współpracę między uniwersytetami, studentami i partnerami zewnętrznymi, aby poprawić **przygotowanie i szkolenie** w zakresie umiejętności innowacyjnych i biznesowych w odpowiedzi na wyzwania związane ze zrównoważonym rozwojem?

Metodologia:

Badanie wykorzystuje podejście oparte na **studium przypadku**, analizującą metodologię zarządzania projektami opracowaną i wdrożoną przez Enactus Polska. Badanie obejmuje wszystkie podstawowe etapy: **planowanie, wdrażanie, ocenę i raportowanie**, uzupełnione o **najlepsze praktyki** dotyczące współpracy zespołowej.

Gromadzenie danych oparte było na:

- **Wynikach programu** z lat akademickich 2022–2024.

- **Badaniach źródłowych** obejmujących roczne sprawozdania Enactus, dokumentację projektów i informacje zwrotne z oceny.
- Obserwacjach i spostrzeżeniach z warsztatów **szkoleniowych przeprowadzonych** dla zespołów studenckich.

Etap przygotowawczy jest udokumentowany pod kątem przeprowadzonych warsztatów, **umiejętności nabytych** przez studentów oraz stopnia przyjęcia metodologii. Analiza statystyczna przedstawia **przekrojowy profil** uczestniczących studentów, w tym dane demograficzne, wykształcenie i istniejące kompetencje. Badanie miało na celu **zweryfikowanie skuteczności** proponowanej metodologii oraz sformułowanie zaleceń dotyczących poprawy szkolenia i realizacji projektów społecznych prowadzonych przez studentów w Polsce.

Wyniki:

1. Przegląd realizacji

Realizacja metodologii projektu Enactus Polska odbyła się **w roku akademickim 2022–2023** z udziałem **12 zespołów studenckich** reprezentujących uczelnie z całej Polski. Każdy zespół zastosował tę metodologię w ramach unikalnego projektu dotyczącego co najmniej jednego z **17 celów zrównoważonego rozwoju ONZ**. Projekty obejmowały różnorodne obszary tematyczne, w tym ochronę środowiska (cel 13), włączenie społeczne (cel 10), odpowiedzialną konsumpcję i produkcję (cel 12) oraz wysokiej jakości edukację (cel 4). Metodologia została podzielona na cztery etapy – **planowanie, wdrażanie, ocena i raportowanie** – z dedykowanymi narzędziami, szablonami i listami kontrolnymi dla każdego z nich. Enactus Polska stworzył dwa podręczniki. Pierwszy dotyczy tworzenia zespołu Enactus, a drugi rozwoju projektu. Obie książki skupiają się na praktycznych sytuacjach i

najlepszych praktykach w zarządzaniu zespołem i projektem. Studenci mogą w nich znaleźć przydatne metody, narzędzia i odpowiedzi.

2. Wyniki etapu planowania

Warsztaty przeprowadzone na etapie przygotowawczym skupiały się na metodzie **Design Thinking**, wyznaczaniu celów (metodą SMART), analizie interesariuszy i zarządzaniu ryzykiem.

- **88% studentów** zgłosiło wzrost pewności siebie w zakresie strukturyzowania harmonogramów i budżetów projektów.
- Zespoły wykazały się większą umiejętnością definiowania **jasnych, mierzalnych celów** zgodnych z kryteriami wpływu Enactus.
- **Proces wyboru tematów** został znacznie przyspieszony, a większość zespołów sfinalizowała pomysły projektowe **w ciągu dwóch tygodni**, w porównaniu z poprzednią średnią wynoszącą cztery tygodnie w poprzednich latach.

Jednak nadal występowały wyzwania związane z **oceną wykonalności**, szczególnie w odniesieniu do długoterminowej trwałości poza cyklem konkursu.

3. Wyniki etapu wdrażania

Realizacja projektu w ramach nowej metodologii obejmowała elementy agile, takie jak iteracyjne cykle pracy i regularne informacje zwrotne dla zespołów projektowych.

- **75% zespołów** pomyślnie osiągnęło zaplanowane kamienie milowe w wyznaczonych terminach.
- Narzędzia do współpracy cyfrowej (np. Trello, Miro i Google Workspace) były szeroko stosowane, a wskaźnik ich wykorzystania wśród zespołów **wyniósł 90%.**

- Przegląd projektów w ramach Enactus Polska dostarczyły **praktycznych informacji zwrotnych**, co doprowadziło do udoskonalenia projektów w trakcie realizacji w 7 z 12 przypadków.

Główne przeszkody obejmowały **rotację członków zespołów** w trakcie roku akademickiego oraz nierównomierny rozkład obciążenia pracą, często związany z zobowiązaniami akademickimi i osobistymi studentów.

4. Wyniki etapu oceny

Ramy oceny metodologii kładły nacisk na **pomiar wpływu społecznego**, zachęcając zespoły do gromadzenia danych ilościowych i jakościowych od beneficjentów.

- **67% projektów** obejmowało ankiety lub wywiady z beneficjentami.
- **4 projekty** osiągnęły wymierną zmianę na poziomie społeczności (np. wymierną redukcję odpadów, zwiększenie możliwości zatrudnienia lub rozwój umiejętności wśród grup docelowych).
- Zespoły, które zaangażowały **zewnętrznych ekspertów-konsultantów**, wykazały się większą wiarygodnością danych i wyraźniejszym dostosowaniem do kryteriów Enactus.

Pomimo tych ulepszeń niektóre zespoły miały trudności z określeniem **podstawowych wskaźników** na początku projektu, co utrudniło ostateczną ocenę wpływu.

5. Wyniki etapu sprawozdawczości

Wprowadzenie ustandardowych szablonów sprawozdań ułatwiło tworzenie bardziej spójnej dokumentacji.

- **100% zespołów** złożyło końcowe sprawozdania w terminie.
- Raporty wykazały poprawę struktury logicznej, z jasnymi sekcjami dotyczącymi definicji problemu, metodologii, wyników i wniosków.

- Najbardziej znaczącą poprawę zaobserwowano w **prezentacji dowodów wpływu**, w szczególności w wykorzystaniu wykresów, infografik i zwięzłych podsumowań.

Niemniej jednak **jasność prezentacji** i unikanie nadmiernego żargonu technicznego pozostały obszarami wymagającymi udoskonalenia, szczególnie w projektach skierowanych do odbiorców spoza środowiska akademickiego.

Dyskusja:

Pilotaż potwierdził, że ustrukturyzowana metodologia opracowana przez Enactus Polska **poprawiła spójność i jakość** projektów realizowanych przez studentów. Najważniejsze zalety to:

- **Szybsze rozpoczęcie projektu** dzięki ustrukturyzowanemu procesowi tworzenia pomysłów i wyboru tematów.
- **Większa rygorystyczność metodologiczna** w planowaniu i ocenie.
- **Lepsze wykorzystanie narzędzi cyfrowych** do wspierania współpracy zespołowej.
- **Ulepszone standardy raportowania**, przyczyniające się do lepszego transferu wiedzy w ramach sieci Enactus.

Jednak nadal istnieją wyzwania:

1. **Zrównoważony rozwój poza cyklem programu** – wiele projektów pozostaje powiązanych z harmonogramem konkursów, co ogranicza ich długoterminowy wpływ.
2. **Umiejętności pomiaru wpływu** – studenci potrzebują bardziej ukierunkowanych szkoleń w zakresie definiowania wskaźników bazowych i korzystania z narzędzi do analizy danych.

3. **Zarządzanie zespołem i zaangażowanie** – wysoka rotacja studentów wymaga lepszych procesów wdrażania nowych studentów i planowania awaryjnego.

Wyniki są zgodne z wcześniejszymi publikacjami, które podkreślają, że **projekty przedsiębiorczości studenckiej** korzystają ze sformalizowanych systemów wsparcia, ale muszą również pozostać elastyczne w stosunku do dynamiki zespołu i wyzwań.

Wnioski:

Wdrożenie pilotażowe metodologii zarządzania projektami Enactus Polska pokazało, że **uporządkowane podejście oparte na etapach** może znacznie poprawić jakość, efektywność i wpływ projektów społecznych prowadzonych przez studentów. Przyjęcie jasno określonych etapów – planowania, wdrażania, oceny i raportowania – pozwoliło:

- Przyspieszyć **rozpoczęcie projektu** i wybór tematu.
- Zwiększyć **rygor metodologiczny** w dostosowywaniu projektów do kryteriów Enactus.
- Zwiększyło wykorzystanie **cyfrowych narzędzi współpracy** w celu utrzymania tempa i przejrzystości.
- Poprawiło **jakość raportowania**, dzięki czemu wyniki projektów są bardziej widoczne i porównywalne.

Pomimo tych sukcesów nadal istnieją kluczowe wyzwania, szczególnie w zakresie zapewnienia **trwałości projektów poza cyklem konkursowym**, wzmocnienia **umiejętności pomiaru wpływu** oraz utrzymania **stabilnych i zmotywowanych zespołów** przez cały rok akademicki. Obszary te wymagają ukierunkowanych działań, aby zapewnić dalszy sukces i skalowalność metodologii.

Na podstawie ustaleń proponuje się następujące zalecenia dla Enactus i innych zainteresowanych stron:

1. **Wczesne włączenie planowania zrównoważonego rozwoju**
    - Wymaganie od zespołów opracowania planu ciągłości po zakończeniu konkursu na etapie planowania, z identyfikacją potencjalnych źródeł finansowania, partnerstw lub strategii przekazania.
2. **Udoskonalenie szkoleń z zakresu pomiaru wpływu**
    - Wprowadzenie krótkich, praktycznych warsztatów dotyczących definiowania podstawowych wskaźników, metod gromadzenia danych i podstawowej analizy statystycznej, popartych przykładami z poprzednich projektów.
3. **Wzmocnienie procesu wdrażania i utrzymania członków zespołu**
    - Opracowanie standardowego pakietu wdrożeniowego dla nowych członków, zawierającego opisy ról, przewodniki po narzędziach współpracy i harmonogramy projektów, aby zminimalizować zakłócenia spowodowane rotacją członków.
4. **Wykorzystanie sieci absolwentów i ekspertów**
    - Opracowanie ustrukturyzowanego programu mentorskiego łączącego obecne zespoły z absolwentami Enactus i ekspertami merytorycznymi w celu zapewnienia ciągłej, dostosowanej do etapu projektu informacji zwrotnej.
5. **Udoskonalenie raportowania dla różnych odbiorców**
    - Zapewnienie szkoleń dotyczących dostosowywania raportów z projektów do różnych odbiorców — jury konkursowego, interesariuszy społecznych i potencjalnych sponsorów — zapewniających zarówno dokładność techniczną, jak i przejrzystość prezentacji.

Wkład badań:

Niniejsze badanie wnosi kilka istotnych elementów do dziedziny **edukacji przedsiębiorczości studentów oraz zarządzania projektami w szkolnictwie wyższym**:

- **Opracowanie praktycznej metodologii** – przedstawia sprawdzoną, dostosowaną do konkretnego kontekstu metodologię zarządzania projektami, dostosowaną do realiów operacyjnych zespołów studenckich Enactus w Polsce, wypełniającą lukę między teorią a praktyką.
- **Empiryczne wnioski z wdrożenia pilotażowego** – dostarcza ilościowych i jakościowych dowodów na to, jak ustrukturyzowane wsparcie wpływa na efektywność projektów, współpracę i wymierne wyniki w środowisku uniwersyteckim.
- **Ramy dla skalowania edukacji w zakresie wpływu społecznego** – oferuje przenośne ramy, które mogą być dostosowane przez inne programy przedsiębiorczości studenckiej dążące do integracji zrównoważonego rozwoju i wpływu społecznego z nauczaniem opartym na projektach.
- **Łączenie perspektyw akademickich i praktycznych** – łączy uznane teorie zarządzania projektami (tradycyjne i zwinne) z rzeczywistymi doświadczeniami Enactus, tworząc model hybrydowy, który odpowiada zarówno potrzebom pedagogicznym, jak i operacyjnym.

Poprzez systematyczne dokumentowanie projektu, zastosowania i wyników metodologii, badania te przyczyniają się do poszerzania wiedzy na temat tego, jak można **zoptymalizować środowiska uczenia się** oparte na doświadczeniu, aby przygotować studentów do złożonych wymagań związanych z innowacyjnością, przedsiębiorczością i zrównoważonym rozwojem.

Modelling the Relationship Between Body Measurements and Weight in Chiang Mai Black Pigs During Post-Weaning to Nursery Stage (2-3 Months of Age)

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Introduction:

Indigenous pig breeds play crucial roles in maintaining cultural traditions and providing economic opportunities for ethnic communities in Northern Thailand. Chiang Mai Black pigs, developed through systematic crossbreeding of Pietrain, native breeds, Duroc Jersey, and Meishan, represent an important genetic resource combining disease resistance, environmental adaptation, and cultural significance for Karen and Muser communities.

Accurate weight estimation is fundamental for effective livestock management, affecting feed conversion efficiency, health monitoring, breeding decisions, and market pricing. Traditional weighing methods involve expensive equipment inaccessible to smallholder farmers or subjective visual assessments prone to significant errors (±5 kg). These inaccuracies create

economic losses through suboptimal feeding practices, inappropriate veterinary dosing, and unfair market transactions.

Literature review:

Accurate live weight estimation is fundamental for livestock management in commercial swine production where direct weighing presents logistical challenges and animal stress (Wang et al., 2024; Cabaral-Lasaca and Naagas, 2025). Morphometric prediction models offer practical alternatives reducing handling stress while maintaining measurement accuracy. Morphometric variables demonstrate varying degrees of correlation with live weight in pigs. Heart girth (HG) consistently emerges as the most reliable single predictor, exhibiting strong positive correlations with body weight across different breeds and age groups (Paul and Michael, 2025).

Linear, quadratic, and exponential regression models are commonly employed. Previous research demonstrates morphometric prediction effectiveness, with Chay-Canul et al. (2019) achieving RMSE values of 3.46 kg using heart girth measurements. However, breed-specific calibration remains essential due to morphological variations between genetic lines and production systems.

Despite extensive research in commercial breeds, limited attention has been devoted to indigenous varieties with cultural significance. Chiang Mai Black pigs lack validated prediction equations despite their economic and cultural importance for Karen and Muser communities. This necessitates breed-specific model development supporting sustainable livestock management in smallholder farming systems while preserving genetic diversity and cultural traditions.

Methodology:

Study Animals and Data Collection

Data were collected from Chiang Mai Black pigs aged 2-3 months at demonstration farms in Tung Jamroeng Village, Om Koi District, Chiang Mai Province. Animals were randomly divided into training (n=18) and validation (n=10) datasets.

Morphometric Measurements

Heart girth circumference was measured using standard measuring tape, with corresponding live weights recorded using calibrated digital scales. All measurements were taken by trained personnel following standardized protocols to minimize measurement error.

Statistical Analysis

Four regression models were evaluated:

- Linear: $y = ax + b$
- Quadratic: $y = ax^2 + bx + c$
- Power: $y = ax^b$
- Exponential: $y = ae^{bx}$

Model selection criteria included coefficient of determination (R^2), Adjusted R^2, Mean Absolute Percentage Error (MAPE), and Root Mean Square Error (RMSE). Statistical analyses were performed using standard software packages.

Findings:

Among all regression models tested, the quadratic model showed the best predictive performance. The resulting equation, $y = 0.0514x^2 - 4.4821x + 106.23$, achieved a coefficient of determination $R^2 = 0.884$ and an adjusted $R^2 = 0.866$, with a mean absolute percentage error (MAPE) of 12.17% and a root mean square error (RMSE) of 1.69 kg. These results indicate that the quadratic model provides a strong fit for estimating live weight from heart girth measurements in Chiang Mai Black pigs.

Validation testing revealed systematic underestimation, with the model predicting lower weights than actual values in 80% of test cases (8/10 animals). This bias suggests the need for larger training datasets to improve model generalizability.

Discussion:

The quadratic model's performance ($R^2 = 0.884$) compares favorably with similar studies, indicating strong predictive capability for Chiang Mai Black pigs. The RMSE of 1.69 kg represents substantial improvement over traditional estimation methods.

However, systematic underestimation during validation raises practical implementation concerns. This bias could disadvantage farmers in market transactions, potentially exacerbating economic inequalities. The limited sample size (n=28) likely contributes to this limitation, as model robustness improves with larger datasets.

Karen and Muser communities require 2-3 pigs annually for ceremonial purposes, with community demand reaching 684 pigs/year (valued at 3.07 million THB) while local production meets only 228 pigs/year. Improved weight estimation tools could enhance farmer negotiating power and market access.

Contributions:

This study contributes to empirical knowledge by developing a breed-specific quadratic regression model for Chiang Mai Black pigs, achieving high predictive accuracy ($R^2 = 0.884$, RMSE = 1.69 kg). The findings reinforce theoretical insights on the reliability of heart girth as a predictor while emphasizing the need for breed-specific calibration. Practically, the model offers smallholder farmers a low-cost and accessible tool for weight estimation, improving feeding management, veterinary care, and market negotiations, thereby supporting sustainable livestock production and community livelihoods.

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Preparing leaders of sustainable entrepreneurship based on the creation of a business model for preserving the cultural heritage of traditional carpet weaving

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Introduction:

The global shift towards conscious consumption has driven demand for products that offer not only functionality but also cultural significance. This growing trend presents an opportunity for universities to foster leaders in sustainable entrepreneurship by bridging academic knowledge with practical applications. Integrating project-based learning with a focus on sustainability, universities can become pivotal in revitalizing traditional crafts. Kazakhstan's traditional carpet weaving, as an integral part of its cultural heritage, faces significant challenges in the age of globalization. Industrialization, the waning interest of youth, and competition from mass-produced goods threaten its survival. Nonetheless, there are promising avenues for preserving this craft by integrating traditional technologies into modern models of sustainable and socially responsible business practices.

One effective strategy to safeguard carpet weaving is through its adaptation to sustainable entrepreneurship, which emphasizes not only economic growth but also the preservation of cultural heritage and environmental consciousness.

Engagement in real-world projects provides students with invaluable opportunities to develop essential skills, including strategic thinking, leadership, and social responsibility, while simultaneously promoting sustainable consumption values.

By designing a business model for a carpet weaving workshop within an academic setting, students gain a unique set of competencies, including the ability to manage sustainable business operations, transfer traditional craft skills to younger generations, and engage in environmentally responsible production practices.

This article aims to demonstrate how students can design and implement sustainable business projects that contribute to the preservation of cultural heritage, the promotion of eco-friendly practices, and the development of leadership skills. It explores how these initiatives also support youth training, product marketing through online platforms, and participation in international fairs.

Hypothesis: The creation of a sustainable eco-business based on traditional carpet weaving not only supports economic development but also plays a critical role in preserving cultural heritage and empowering local communities.

Literature review:

he literature review showed that sustainable business research is based on concepts where the success of an enterprise is understood as a set of economic, environmental and social results. The basic framework for interpreting «sustainability» in entrepreneurship and designing leadership training programs should include: stakeholder analysis, development of a «heritage+quality+ecology» value proposition and mechanisms for shared value with local craftsmen. (Elkington J. Cannibals with Forks: The Triple Bottom Line of 21st Century Business. Oxford: Capstone.)

Authors (Porter M., Kramer M. 2011. Creating Shared Value // Harvard Business Review) in their article they specify how business combines competitive advantage with solving social problems through rethinking products and markets. For handicraft industries (carpet weaving), management «entry points» are set: natural materials and dyes (substitution), durability and repair (service), cooperation and cluster development (scaling the social mission).

UNESCO Convention (UNESCO. 2003-2022. Convention for the Safeguarding of the Intangible Cultural Heritage) formalized international norms for the protection of intangible cultural heritage and mechanisms for its transmission, emphasizing the role of communities-carriers. For carpet weaving, this creates a legitimate framework for «community-education-market» partnerships.

Methodology:

This study employs a mixed-methods approach, combining both qualitative and quantitative research techniques to address the research question and evaluate the feasibility of integrating traditional carpet weaving into a sustainable business model. The research methodology is structured into several key modules:

Research:

A comprehensive study of the cultural, historical, and technological aspects of traditional carpet weaving in Kazakhstan. This involves fieldwork, including interviews with local artisans, as well as market analysis to understand both local and global demand for handcrafted carpets.

Analytical Tools:

The study applies a combination of SWOT analysis (assessing strengths, weaknesses, opportunities, and threats) and PESTEL analysis (examining political, economic, social, technological, environmental, and legal factors) to evaluate the external and internal factors that affect the sustainability of the carpet weaving business. Additionally, sustainability assessment tools are used to measure the long-term viability of integrating environmental, social, and economic considerations into the business model.

Case studies of successful craft brands are examined to identify best practices and potential areas for improvement in the proposed business model.

Leadership Development:

This module focuses on the development of leadership competencies, with an emphasis on sustainable leadership. Students work on team-building, stakeholder management, ethical decision-making, and communication of brand values. These competencies are crucial for the successful implementation of the business model and for fostering a culture of responsibility and sustainability in future leaders.

Project Presentation:

The students' work culminates in the presentation of their project at the Enactus Kazakhstan National Championship, where they defend their business model and demonstrate its potential impact on both the local community and the wider economy.

Design and Engineering:

A key component of the study is the design of a sustainable business model that incorporates three pillars of sustainability: economic, environmental, and social.

Economic sustainability is addressed through brand development, online sales, and participation in international fairs to increase market reach.

Environmental sustainability is ensured through the use of natural materials, sustainable production practices, and the reduction of waste.

Social sustainability focuses on community engagement, particularly the involvement of rural populations (with an emphasis on women), transferring traditional knowledge to younger generations, and supporting older craftswomen. The study also examines how these efforts contribute to the broader goal of sustainable development in the region.

Contribution of research:

This research makes a significant contribution to both the theoretical and practical understanding of integrating cultural heritage into sustainable business models, particularly in the context of traditional crafts.

Firstly, the study introduces an innovative approach by embedding the concept of cultural heritage into a sustainable entrepreneurship framework. This approach demonstrates that traditional crafts, such as carpet weaving, can serve not only as a cultural asset to be preserved, but also as a resource for creating socially responsible businesses that contribute to local economies.

Secondly, the creation of a carpet weaving workshop is explored as a practical case study, providing valuable insights into how the social enterprise model can be effectively applied in a local context. This case study offers practical guidance for replicating similar initiatives in other regions, enhancing the potential for scaling sustainable, community-driven enterprises.

Thirdly, the research contributes to a deeper understanding of how real-world socio-economic projects help university students and graduates develop key leadership competencies. By working on projects focused on cultural heritage preservation, students gain essential skills in strategic thinking, project management, cross-cultural communication, and social

responsibility, all of which are critical for fostering future leaders in sustainable entrepreneurship.

The analysis of the business model further illustrates how traditional production methods, such as carpet weaving, can be adapted to meet the evolving demands of modern consumers who seek unique, high-quality, and environmentally friendly products.

Additionally, this research provides actionable recommendations for government agencies, educational institutions, and entrepreneurs on how to create an enabling environment for the preservation and commercialization of cultural heritage. The study underscores the importance of intersectoral cooperation, stressing that the success of such initiatives depends on the collaboration of the state, business, academia, and local communities.

In conclusion, this study lays the groundwork for future scientific inquiry and practical projects focused on the intersection of cultural heritage preservation and sustainable entrepreneurship. It opens new avenues for interdisciplinary research that connects economics, cultural studies, and ecology, advancing our understanding of how heritage preservation can contribute to both sustainable development and economic growth.

Results:

The implementation of the case study led to several significant outcomes, which contribute both to the academic understanding of traditional carpet weaving and to the practical application of sustainable business models in preserving cultural heritage.

Cultural and Historical Analysis:

A comprehensive analysis of the traditions of Kazakh carpet weaving was conducted, using a wide range of sources including historical, archaeological, ethnographic, and art history data.

Archival materials and museum collections were studied to understand the evolution of this craft over time.

Symbolism and Cultural Significance:

The symbolism embedded in Kazakh carpets and their ornaments was explored. This analysis revealed how carpets not only represent aesthetic beauty but also communicate complex information about the material and spiritual world of Kazakh people.

Current Challenges:

The study identified the current challenges facing Kazakh carpet weaving, including the effects of globalization, industrialization, and the decline of youth interest in traditional crafts. These findings are critical for developing strategies to sustain the craft in the modern world.

Sustainable Business Model:

A business model for sustainable production of high-quality, environmentally friendly carpets was developed. This model integrates traditional craft methods with modern business practices, addressing both economic sustainability and cultural preservation.

Educational Partnerships:

A successful partnership was established with the A. Kasteev Museum, which facilitated the organization of lectures and master classes for students on the importance of preserving the cultural heritage of carpet weaving. This collaboration provided valuable hands-on experience and increased student engagement with the topic.

Project Development for National Championship:

The "OYU JANGYRY" project was developed by the Enactus Narxoz team for the National Championship of Student Entrepreneurship Enactus 2025. This project served as a practical application of the business model and provided a platform for students to demonstrate their entrepreneurial and leadership skills in a real-world setting.

Field Research on Regional Practices:

Extensive field research in various regions of Kazakhstan revealed the continuity of artistic traditions and the resilience of traditional craftsmanship. The research highlighted how the transfer of skills from older artisans to younger generations

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Promoting Community Food Security through Smallholder Organic Farming Entrepreneurs

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Introduction:

Ensuring food security through the development of safe, equitable, and sustainable food systems remains one of the most pressing challenges of the 21st century. Smallholder organic entrepreneurs (SOEs) are increasingly recognised as critical actors bridging high-quality food production with the ecological, economic, and cultural dimensions of local communities. However, they face structural barriers, including limited market access, inadequate distribution networks, insufficient policy support, and a lack of integrated learning platforms (Moscatelli et al., 2016; Shalini et al., 2025).

Drawing from policy lessons in Scotland, this study examines the crofting system—a unique land management and rural development framework that promotes food self-sufficiency in remote communities—as a potential model for strengthening SOEs in Thailand. It is the first study to systematically apply the crofting system as a policy learning framework for Thailand or Southeast Asia, offering transferable lessons for community food security. Through comparative policy analysis, it identifies mechanisms within the Scottish model that could inform contextually appropriate strategies for Thailand and contribute to broader debates on organic agriculture policy and international policy learning.

Literature review:

Smallholder organic farming (SOF) underpins sustainable food systems in the Global South. Family-run farms produce more than 70% of the world's food while supporting food

sovereignty, agro-biodiversity, and rural livelihoods (FAO, 2014). Organic methods, which reduce synthetic inputs and align with natural cycles, enhance ecological balance (Altieri and Nicholls, 2020; Gliessman, 2021).

In Thailand, however, smallholders face steep challenges—limited land, costly certification, and weak market connections—that constrain innovation. Many already act as entrepreneurs through direct sales or cooperatives, and initiatives such as Farmer Field Schools have demonstrated success in building skills, resilience, and peer-to-peer learning (Bakker et al., 2022; Fatai et al., 2024). To scale these outcomes, targeted policy support in entrepreneurship training is essential.

Yet national policies tend to favour industrial agriculture, sidelining smallholders. Certification schemes often overlook traditional organic practices, marginalising community knowledge (Tregear, 2011; Marsden, 2013). Tregear highlights the need for place-based, inclusive policies that engage farmers' expertise, local ecology, and community structures. Scotland's crofting system offers a model combining secure tenure, environmental subsidies, technical training, and access to networks through the Scottish Crofting Federation (Shucksmith, 2013). By linking production, stewardship, and cultural heritage, it offers lessons Thailand could adapt to empower SOEs and reinforce community food security.

Methodology:

This study adopts a qualitative research design grounded in Constructivist Grounded Theory (CGT) to explore the lived experiences, challenges, and learning pathways of smallholder organic entrepreneurs (SOEs). CGT is well-suited for this context, as it enables theories to emerge from participants' experiential and often marginalised knowledge (Charmaz, 2014;

Alghali, 2019), rather than being imposed beforehand. Two complementary components were used:

1. **Documentary Research**: A review of sources from the past decade was conducted through Google Scholar, JSTOR, SCOPUS, Web of Science, EBSCOhost, and ProQuest, alongside Scotland-specific resources including SCRAN, the Scottish Parliament, and the Crofting Commission. This analysis provided insight into institutional frameworks, policy instruments, and historical developments.
2. **Fieldwork in Scotland**: Semi-structured interviews and site visits were undertaken across selected regions. Ten interviews will be conducted with farmers, cooperatives, businesses, representatives from Highlands and Islands Enterprise (HIE), and related community leaders engaged in crofting and ecological organic farming. This diverse sample ensured perspectives from both grassroots practitioners and institutional actors.

Together, these methods enabled a cross-case comparison between Scotland and Thailand, examining how policy environments shape smallholder entrepreneurship and highlighting processes of learning, cultural adaptation, and policy engagement.

Findings:

Scotland demonstrates several innovations that support smallholder entrepreneurs:

1. **Food Policy Councils (FPCs)**: Multi-stakeholder platforms addressing local food issues and supporting community-led projects. More than 30 local food initiatives have emerged through FPCs, expanding access to healthy produce for low-income households while embedding participation in decision-making (Roberts, 2016; Calancie et al., 2018; Schiff et al., 2022).

2. **Crofting and Community Land Trusts**: Secure land access promotes sustainable livelihoods and rural resilience. Over 20,000 crofters hold tenure under the Crofting Commission, while community land trusts manage more than 500,000 acres across the Highlands and Islands (Rennie and Billing, 2016; Raven, 2019).
3. **Organic Farming and Sustainability Goals**: Organic practices contribute to climate and biodiversity targets. Approximately 2% of Scotland's agricultural land is now managed organically, reflecting the integration of ecological and social goals (Scialabba and Hattam, 2002; Reay et al., 2020).
4. **Highlands and Islands Enterprise (HIE)**: As the regional development agency, HIE invests in rural businesses, food hubs, and digital platforms, enabling crofters and smallholders to access markets and strengthen community resilience.

Discussion:

Scottish policies illustrate that rural entrepreneurship is context-dependent, shaped by land access, governance frameworks, and embedded narratives (Henry and McElwee, 2014; Burnett and Danson, 2016). Beyond technical training, transformative learning rooted in participation and local knowledge equips smallholders to adapt and innovate (Gill et al., 2024).

Structures such as FPCs and community land trusts foster informal learning and grassroots innovation, while HIE demonstrates how sustained institutional investment in rural businesses and enterprises reinforces local markets. Taken together, these mechanisms contrast sharply with Thailand's top-down, centralised approaches, which often neglect both participatory governance and enterprise development (Korsgaard et al., 2015; Hill et al., 2016; Gaddefors and Anderson, 2019).

Conclusion:

The success of SOEs depends on integrated policy frameworks that combine community participation with enterprise support. Scotland's model demonstrates how governance can empower rural innovation through FPCs and land trusts, while HIE highlights the role of sustained investment in businesses, infrastructure, and community enterprises. For Thailand, adopting policies that blend participatory governance with enterprise development would strengthen smallholder innovation and community food security.

Contributions:

- **Empirical**: Provides new insights into the learning processes and constraints of SOEs in two contrasting contexts, incorporating perspectives from grassroots practitioners and institutional actors such as HIE.
- **Theoretical**: Extends Transformative Learning Theory by showing how participatory governance (e.g., FPCs, land trusts) and institutional enterprise support (e.g., HIE) create complementary pathways for learning and innovation.
- **Practical**: Offers actionable recommendations on community learning hubs, flexible certification, peer networks, and enterprise development strategies to strengthen smallholder entrepreneurship and food security.

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Promoting Sustainable Behaviours in Protected Areas: A Study on Adult Visitors to the Abruzzo, Lazio and Molise National Park to Inform Sustainability Education

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Introduction:

The global environmental and climate crises present an urgent imperative for action, positioning Higher Education Institutions (HEIs) as critical catalysts for achieving the United Nations (UN) 2030 Agenda for Sustainable Development (SDGs). This work addresses the fundamental challenge of equipping future generations with the skills needed to address and mitigate these complex issues, using as an example a doctoral project in collaboration with a public body focused on sustainability. It argues that a profound transformation within HEIs is essential to cultivate graduates capable of driving meaningful social impact and championing sustainable practices. This transformation extends beyond academic instruction to encompass institutional culture, research, and community engagement, fostering a holistic approach to sustainability.

Literature review:

The existing literature consistently emphasises the fundamental role of higher education institutions in integrating sustainability principles into all their functions. Studies highlight the need to shift educational paradigms from the traditional dissemination of knowledge to transformative learning, which challenges entrenched assumptions and promotes new worldviews compatible with sustainable development. There is a recognised need for

educational programmes to prioritise skills related to social impact and sustainable practices, equipping graduates with technical skills and fundamental transferable skills. These transferable skills, including collaboration, critical thinking, adaptability and systems thinking, are essential for promoting peace, trust and community development in the broader context of sustainability. Transformative organisational learning models, particularly those focused on group learning, shared vision, mental models, personal mastery and systems thinking, have been identified as key mechanisms for integrating sustainability into higher education institutions. However, there remains a gap in empirical research exploring how these educational and cultural transformations within higher education institutions translate into specific sustainable behaviours, especially in diverse contexts such as urban environments and protected natural areas, and in different demographic groups such as younger generations and tourists or specific target groups with qualities that enable them to achieve more targeted objectives and results. This research seeks to fill this gap by investigating the factors that influence the adoption of sustainable mobility, thereby providing insights into how an educational emphasis on sustainability can produce tangible behavioural changes. One example we can take is from the work of a team at Sapienza University (Rome), which created the SUMP (Sustainable University Mobility Plan) protocol in 2018. This leads us to see how higher education and sustainability have been coming together in recent years, providing results for the study and improvement of sustainability.

Methodology:

The research uses a quantitative methodology to explore the determinants of sustainable mobility adoption as an example of methods in well-defined areas. It uses an adapted Technology Acceptance Model (TAM) theoretical framework. The relationships within the

model are estimated using an approach based on the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. The participants were between 18 and 35 years old and commuted for work or study in the Rome metropolitan area. The data were collected using a computer-assisted self-interview (CASI) methodology. This quantitative approach identifies significant statistical relationships between perceived factors (e.g., risk, quality of the residential area), personal beliefs (environmental awareness, beliefs about sustainability) and the intention to use sustainable mobility tools. The use of PLS-SEM is justified by its suitability for complex models with latent variables and its predictive capabilities, which allow for a robust analysis of the factors influencing behavioural intentions in sustainable contexts.

Findings:

The initial study conducted in Rome revealed several significant findings regarding younger generations and sustainable mobility. Perceived risk negatively affects the intention to use sustainable mobility options (bicycles, e-bikes, electric scooters); people who perceive higher risks are less inclined to adopt them. Conversely, strong environmental awareness and positive beliefs about sustainability significantly increase the likelihood of adopting these solutions. Furthermore, the perceived quality of one's neighbourhood also influences the intention to use these sustainable mobility tools. Further analysis comparing groups of respondents indicated that intention varies depending on place of residence (Rome versus the suburbs) and distance travelled to work (living and working/studying in the same city versus different cities). For this reason, the study in the park examines a quieter environment to analyse whether people would be inclined to use sustainable mobility models outside large urban centres. From the initial results, we can see that preferences for various means of

sustainable mobility in a National Park change, except for e-scooters, but the desire to travel sustainably grows exponentially.

Contributions:

This research would make several key contributions:

- **Empirical Understanding**: The study would provide empirical data on the factors influencing the adoption of sustainable mobility among younger generations in a major European urban context, specifically Rome, and a naturalistic context such as the National Park.
- **Theoretical Contribution**: The study would contribute to the existing literature on the Technology Acceptance Model by adapting it to the specific context of sustainable mobility and incorporating additional variables like perceived risk, environmental awareness, and residential area quality, thereby enhancing its applicability in sustainability research.
- **Practical Contribution**: The findings would offer actionable insights for policymakers, urban planners, and educational institutions. They could inform the development of targeted policies and interventions to mitigate perceived risks, enhance the attractiveness of sustainable mobility options, and foster a transition towards more environmentally friendly transport networks, tailored to younger generations' specific needs and concerns.
- **Future Research Pathway**: The study proposes a novel application of this methodology to Abruzzo, Lazio and Molise National Park tourists. This extension would aim to provide a comparative analysis between urban and natural protected areas, investigating how similar factors might influence sustainable behaviour in a

unique ecological context. This would contribute to a broader understanding of sustainable tourism and its conservation and community development implications.

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Italian Version

Promuovere comportamenti sostenibili nelle aree protette: uno studio sui visitatori adulti del Parco Nazionale d'Abruzzo, Lazio e Molise per informare l'educazione alla sostenibilità

Introduzione:

Le crisi ambientali e climatiche globali richiedono un intervento urgente, ponendo gli istituti di istruzione superiore (IIS), o Università, come catalizzatori fondamentali per il raggiungimento degli Obiettivi di Sviluppo Sostenibile (SDG) dell'Agenda 2030 delle Nazioni Unite (ONU). Questo lavoro affronta la sfida fondamentale di dotare le generazioni future delle competenze necessarie per affrontare e mitigare queste complesse questioni, utilizzando come esempio un progetto di dottorato in collaborazione con un ente pubblico incentrato sulla sostenibilità. Sostiene che una profonda trasformazione all'interno delle Università è essenziale per formare laureati in grado di promuovere un impatto sociale significativo e sostenere pratiche sostenibili. Questa trasformazione va oltre l'istruzione accademica per abbracciare la cultura istituzionale, la ricerca e l'impegno della comunità, promuovendo un approccio olistico alla sostenibilità.

Revisione della letteratura:

La letteratura esistente sottolinea costantemente il ruolo fondamentale degli istituti di istruzione superiore nell'integrare i principi di sostenibilità in tutte le loro funzioni. Gli studi evidenziano la necessità di spostare i paradigmi educativi dalla tradizionale diffusione della conoscenza all'apprendimento trasformativo, che sfida i preconcetti radicati e promuove nuove visioni del mondo compatibili con lo sviluppo sostenibile. È riconosciuta la necessità

che i programmi educativi diano priorità alle competenze relative all'impatto sociale e alle pratiche sostenibili, dotando i laureati di competenze tecniche e competenze trasferibili fondamentali. Queste competenze trasferibili, tra cui la collaborazione, il pensiero critico, l'adattabilità e il pensiero sistemico, sono essenziali per promuovere la pace, la fiducia e lo sviluppo della comunità nel contesto più ampio della sostenibilità. I modelli di apprendimento organizzativo trasformativo, in particolare quelli incentrati sull'apprendimento di gruppo, la visione condivisa, i modelli mentali, la padronanza personale e il pensiero sistemico, sono stati identificati come meccanismi chiave per integrare la sostenibilità negli istituti di istruzione superiore. Tuttavia, rimane una lacuna nella ricerca empirica che esplora come queste trasformazioni educative e culturali all'interno degli istituti di istruzione superiore si traducano in comportamenti sostenibili specifici, soprattutto in contesti diversi come gli ambienti urbani e le aree naturali protette, e in diversi gruppi demografici come le giovani generazioni e i turisti o gruppi target specifici con qualità che consentono loro di raggiungere obiettivi e risultati più mirati. Questa ricerca cerca di colmare tale lacuna indagando i fattori che influenzano l'adozione della mobilità sostenibile, fornendo così spunti di riflessione su come l'enfasi educativa sulla sostenibilità possa produrre cambiamenti comportamentali tangibili. Un esempio che possiamo prendere è il lavoro di un gruppo dell'Università La Sapienza (Roma), che ha creato il protocollo SUMP (Piano di Mobilità Sostenibile Universitaria) nel 2018. Questo ci porta a vedere come l'istruzione superiore e la sostenibilità si siano unite negli ultimi anni, fornendo risultati per lo studio e il miglioramento della sostenibilità.

Metodologia:

La ricerca utilizza una metodologia quantitativa per esplorare i fattori determinanti dell'adozione della mobilità sostenibile come esempio di metodi in aree ben definite. Utilizza un quadro teorico adattato del Modello di Accettazione della Tecnologia (TAM). Le relazioni all'interno del modello sono stimate utilizzando un approccio basato sul Partial Least Squares Structural Equation Modelling (PLS-SEM). I partecipanti avevano un'età compresa tra i 18 e i 35 anni e facevano i pendolari per motivi di lavoro o di studio nell'area metropolitana di Roma. I dati sono stati raccolti utilizzando una metodologia di autointervista assistita da computer (CASI). Questo approccio quantitativo identifica relazioni statistiche significative tra fattori percepiti (ad esempio, rischio, qualità della zona residenziale), convinzioni personali (consapevolezza ambientale, convinzioni sulla sostenibilità) e l'intenzione di utilizzare strumenti di mobilità sostenibile. L'uso del PLS-SEM è giustificato dalla sua idoneità per modelli complessi con variabili latenti e dalle sue capacità predittive, che consentono un'analisi robusta dei fattori che influenzano le intenzioni comportamentali in contesti sostenibili.

Risultati:

Lo studio iniziale condotto a Roma ha rivelato diversi risultati significativi riguardanti le giovani generazioni e la mobilità sostenibile. La percezione del rischio influisce negativamente sull'intenzione di utilizzare opzioni di mobilità sostenibile (biciclette, e-bike, scooter elettrici); le persone che percepiscono rischi più elevati sono meno inclini ad adottarle. Al contrario, una forte consapevolezza ambientale e convinzioni positive sulla sostenibilità aumentano significativamente la probabilità di adottare queste soluzioni. Inoltre, anche la qualità percepita del proprio quartiere influenza l'intenzione di utilizzare questi

strumenti di mobilità sostenibile. Un'ulteriore analisi che ha messo a confronto gruppi di intervistati ha indicato che l'intenzione varia a seconda del luogo di residenza (Roma rispetto alla periferia) e della distanza percorsa per recarsi al lavoro (vivere e lavorare/studiare nella stessa città rispetto a città diverse). Per questo motivo, lo studio nel parco esamina un ambiente più tranquillo per analizzare se le persone sarebbero inclini a utilizzare modelli di mobilità sostenibile al di fuori dei grandi centri urbani. Dai risultati iniziali, possiamo vedere che le preferenze per i vari mezzi di mobilità sostenibile in un Parco Nazionale cambiano, ad eccezione dei monopattini elettrici, ma il desiderio di viaggiare in modo sostenibile cresce in modo esponenziale.

Discussion:

Questa ricerca apporterebbe diversi contributi fondamentali:

- **Comprensione empirica**: Lo studio fornirebbe dati empirici sui fattori che influenzano l'adozione della mobilità sostenibile tra le giovani generazioni in un importante contesto urbano europeo, in particolare Roma e uno naturalistico come il Parco Nazionale.
- **Contributo teorico**: lo studio contribuirebbe alla letteratura esistente sul Modello di Accettazione della Tecnologia adattandolo al contesto specifico della mobilità sostenibile e incorporando variabili aggiuntive come il rischio percepito, la consapevolezza ambientale e la qualità dell'area residenziale, migliorandone così l'applicabilità nella ricerca sulla sostenibilità.
- **Contributo pratico**: i risultati offrirebbero spunti concreti per i responsabili politici, gli urbanisti e le istituzioni educative. Potrebbero informare lo sviluppo di politiche e interventi mirati per mitigare i rischi percepiti, migliorare l'attrattiva delle opzioni di

mobilità sostenibile e favorire la transizione verso reti di trasporto più rispettose dell'ambiente, su misura per le esigenze e le preoccupazioni specifiche delle giovani generazioni.

- **Percorso di ricerca futuro**: lo studio propone una nuova applicazione di questa metodologia ai turisti del Parco Nazionale d'Abruzzo, Lazio e Molise. Questa estensione mirerebbe a fornire un'analisi comparativa tra aree urbane e aree naturali protette, indagando come fattori simili potrebbero influenzare il comportamento sostenibile in un contesto ecologico unico. Ciò contribuirebbe a una più ampia comprensione del turismo sostenibile e delle sue implicazioni per la conservazione e lo sviluppo della comunità.

Research and Development of Accessible and Sustainable Myoelectric Prosthetics in Brazil

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Introduction:

According to the 2019 National Health Survey (Pesquisa Nacional de Saúde - PNS), 2.7% of Brazilians aged two or older present some type of upper limb disability (IBGE, 2020). This represents a significant group that, in most cases, lacks access to functional and high-quality assistive technology. While advances in Assistive Technology have enabled the development of sophisticated prostheses capable of replicating human movements with high precision, their elevated costs—around BRL 150,000—render them inaccessible to most of the population (Alves Junior, Mello, & Imenes, 2016). This amount is about 49 times greater than Brazil's average monthly household income (Da Redação, 2025), underscoring the disparity in access to resources that promote autonomy and social inclusion.

As part of the project's development, a field survey was conducted with 72 individuals with disabilities. Results highlighted the challenges in acquiring prosthetic devices and accessing helpful knowledge about assistive technologies on daily activities. Out of the respondents,

88.9% reported upper limb disabilities, 77.8% had never used a prosthesis, but 90.3% expressed interest in one. The 9.7% who were not interested cited difficulty adapting to affordable mechanical prostheses, due to discomfort, lack of personal identification with the device, or frequent breakages caused by low durability.

The absence of functional prostheses not only limits motor capabilities but also negatively impacts mental health. The National Health Survey data show that over 20% of people with disabilities report depression symptoms—more than double the rate in the non-disabled population (Ministério dos Direitos Humanos e da Cidadania, 2023). These factors perpetuate a cycle of exclusion, frustration, and social isolation. In response, Asther, a project being developed by the Enactus UEM extension program team, was created to develop low-cost myoelectric prostheses with greater movement complexity and range of motion, aiming to promote equitable access to assistive technologies in Brazil.

Literature review:

Brazilian academic literature and public policy recognize Assistive Technology (AT) as a fundamental right, essential to promoting autonomy, quality of life, and social inclusion for people with disabilities. The National Assistive Technology Plan (PNTA), established by Decree No. 10.645/2021, seeks to expand access, foster development, and encourage innovation in AT across the country.

Nevertheless, despite legal recognition and growing societal demand, access remains limited. A 2022 World Health Organization (WHO) and UNICEF report estimates that one billion people globally need assistive products but lack access to them, with coverage in low- and middle-income countries reaching only 3% (WHO & UNICEF, 2022). The main barriers

identified are high device costs, limited awareness of available options, inadequate services, and supply chain interruptions.

These constraints go beyond physical function. The absence of adequate prosthetic solutions aggravates mental health concerns: more than 20% of people with disabilities report depression symptoms, twice the prevalence observed in the non-disabled population (Ministério dos Direitos Humanos e da Cidadania, 2023). This reinforces cycles of exclusion and isolation, stressing the importance of affordable, functional solutions.

Methodology:

The Asther Project adopted a multi-stage methodology: 1. Community-led diagnosis – Conducted via a field survey with 72 individuals with disabilities to identify challenges in obtaining prosthetic devices and accessing assistive technologies. 2. Technical and financial feasibility analysis – Designed to prove the viability of producing functional devices at a reduced cost. 3. Promotion of strategic partnerships – Established collaborations with academic and institutional sectors, such as the State University of Maringá (UEM). Undergraduate students from the Chemical and Mechanical Engineering programs participated in material analysis, mechanical design, and validation of myoelectric components.

The Enactus UEM Research and Development Team coordinated the structuring of the proposal, creation of a viable business model, and partnerships for future distribution.

Findings:

Strategic partnerships facilitated the development of the first Asther myoelectric prosthesis prototype. Chemical Engineering students contributed to analyzing materials and validating

myoelectric systems, while a Mechanical Engineering student developed the prosthesis' mechanical design to ensure precision and alignment with user needs.

The first prototype was produced at a cost of only BRL 500—dramatically lower than market prices. Upcoming stages will include resistance and comfort testing, followed by adaptations to improve performance.

Survey results confirmed the magnitude of unmet demand: 88.9% of respondents had upper limb disabilities, 77.8% had never used a prosthesis, and 90.3% expressed interest in one. Among the 9.7% who were uninterested, the main reasons were discomfort, fragility, and low personal identification with available models.

Discussion:

The results demonstrate that producing affordable myoelectric prostheses is feasible in Brazil, making them accessible to a wider segment of the population. The prototype's BRL 500 cost stands in stark contrast to conventional devices costing over BRL 150,000, which are far beyond the financial reach of most Brazilians.

The high percentage of individuals interested in prostheses—including those with no prior experience—underscores the existence of a significant, unmet demand. Addressing this gap can transform lives not only by restoring motor functionality, but also emotionally and socially, by reducing exclusion, frustration, and isolation.

Contributions:

The Asther Project advances empirical understanding by proving that it is possible to develop low-cost, high-quality myoelectric prostheses within Brazilian context. Its practical

contribution lies in delivering an accessible and sustainable technological solution that fosters inclusion, autonomy, and dignity for people with disabilities.

The business model created by Enactus UEM supports financial sustainability and the expansion of access nationwide. Through strategic partnerships, the project has the potential for broad scalability, offering a pathway to address one of the most persistent inequities in assistive technology distribution in Brazil.

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Reflections on Enactus Students' Entrepreneurial Orientation – A Scholarly Personal Narrative

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Abstract:

This study investigates how entrepreneurial orientation (EO) manifests within student-led enterprises, using the Enactus team at the Central University of Technology as a case study. Thematic analysis was conducted through the lens of five EO dimensions: innovativeness, proactiveness, risk-taking, autonomy, and competitive aggressiveness. The study results reveal a strong culture of innovation driven by alumni mentorship and student research, though inconsistent motivation among executive members hindered project momentum. Proactiveness was evident in strategic planning and contingency design, yet operational inefficiencies emerged due to poor time management. Risk-taking behaviours, particularly alumni-led pilot projects, unlocked transformative outcomes, while student reluctance to embrace uncertainty highlighted psychological and structural barriers. Autonomy was reinforced through decentralized implementation during the COVID-19 pandemic, but tensions arose from executive decisions made without broader consultation. Competitive aggressiveness was demonstrated through market penetration and stakeholder training, although logistical and financial constraints limited scalability. This study contributes to a deeper understanding of EO in resource-constrained, student-led contexts. It underscores the need for leadership development, mentorship, and institutional support to enhance

sustainability and entrepreneurial capacity. The findings offer practical insights for higher education institutions seeking to cultivate resilient, opportunity-driven student enterprises.

Keywords: Enactus teams, entrepreneurial orientation, scholarly personal narrative, sustainability

Introduction:

The youth unemployment rate in South Africa remains critically high, accounting for 45.5% of young people aged between 15-34 years (Stats SA, 2025). Despite numerous support frameworks and funding initiatives, small enterprises led by young entrepreneurs face failure rates ranging between 70% – 80% within their first five years of operation (Mhlongo & Daya, 2023). Therefore, this challenge underscores an urgent need for entrepreneurial orientation (EO) among Enactus student entrepreneurs. Entrepreneurial orientation describes the individuals' and organisations' strategic posture toward innovation, proactiveness, and risk-taking (Castillo-Villar et al., 2025). This concept was conceptualized by Miller (1983) and it focused on three core dimensions, including innovativeness, proactiveness, and risk-taking. It was later expanded by Lumpkin and Dess (1996) to five dimensions including innovativeness, proactiveness, risk-taking, autonomy and competitive aggressiveness.

Recent studies confirm the predictive power of EO for performance outcomes across diverse contexts (Dele-Ijagbulu et al., 2021; Magocha, 2022; Alam et al., 2022; Mhlongo & Daya, 2023). Thus, highlighting the need for deeper inquiry into EO at individual and team levels, especially in Enactus context. This study addresses the research problem of how entrepreneurial orientation emerges and evolves within Enactus teams. It interrogates the processes through which innovativeness, proactiveness, autonomy, risk-taking, and

competitive aggressiveness are internalized and practiced in Enactus using the scholarly personal narrative (SPN) approach (Nash, 2004; Hyter-Adams, 2012; Ingersoll, 2018).

Literature review:

In contemporary period, governments and organisations are challenging universities to become increasingly entrepreneurial (Oduro, 2022). In turn, the higher education management structures are adopting EO paradigm through collaboration and adapting relevant policies for implementation (Teles and Schachtebeck, 2019). Boutaky and Sahib Eddine (2023) suggest that South African universities are making efforts to promote entrepreneurial activities by participating in entrepreneurship programmes. This means that when university structures become entrepreneurial, students' EO can be nurtured before they graduate (Boutaky & Sahib Eddine, 2023). Therefore, there is need for deeper inquiry into EO at individual and team levels, especially in Enactus context where success is measured by social, economic, and environmental impacts.

A gap exists in EO literature within student-led social innovation enterprises such as Enactus. The EO research is dominated by quantitative surveys and corporate case studies with limited understanding of how EO traits are cultivated, experienced, and enacted by students operating under resource constraints and ethical imperatives (Dele-Ijagbulu et al., 2021; Magocha, 2022; Alam et al., 2022). Therefore, there is need for qualitative, context-rich methods to capture the lived realities of Enactus student entrepreneurs. This study argues how entrepreneurial orientation emerges and evolves within Enactus teams. By adopting a Scholarly Personal Narrative (SPN) approach, the study interrogates the processes through

which innovativeness, proactiveness, autonomy, risk-taking, and competitive aggressiveness are internalized and practiced in student-led enterprises.

Methodology:

This study presents a scholarly personal narrative (SPN) approach of Enactus CUT alumni's experiences and perceptions on entrepreneurial orientation. It further interrogates the processes through which innovativeness, proactiveness, autonomy, risk-taking, and competitive aggressiveness are internalized and practiced in student-led enterprises such as Enactus. Ng and Carney (2017) describe SPN as personal experiences through scholarly frameworks, leveraging the power of reflective practice to understand the interpersonal dynamics of both the classroom and scholarly discourse. Moreover, Ingersoll (2018) demonstrates that SPN begins with the scholar's story – then explores literature alignment to develop both the writer and the reader's understanding of the world beyond the scholar-storytelling. As such, this study encapsulates the experiences and perceptions of two Enactus CUT alumni. The rationale for choosing these alumni was motivated by their consistent involvement in Enactus CUT team's day-to-day activities, leadership in the team for more than 5 years, and gradual progression in the team's leadership structure (from the "general member" to "team president" status in their time as students). The first alumnus captures the five years' experience, and the second alumnus narrates the thirteen years of experience. They have both led in the organisation as project leaders, project managers, and team presidents - which validate their experience-based perspective in this SPN.

Findings:

The results of this study capture the benefits and challenges faced by Enactus CUT alumni. Table 1 below presents the success factors, highlighting what worked and the challenges faced during Enactus CUT alumni tenure in the organisation.

Table 1: Alumni's Reflection on Entrepreneurial Orientation

Dimensions	**What worked with its benefits**	**Challenges**	**Scholarly Alignment**
Innovativeness	Leadership within Enactus CUT required creativity and innovation. The two alumni, also had to come up with strategies that would add value to the team and project impact. The Enactus students were compelled to engage in research for innovative solutions. Various student enterprises were developed post the research and feasibility studies conducted by studies.	Not all executive members had the drive to succeed and grow the team's enterprises, which often delayed projects and team's implementation progress since most activities relied on human resources.	The Enactus team's emphasis on creativity reflects a strong culture of innovation. For example, the creation of student enterprises post-research aligns with Amaral et al. (2024), who found that entrepreneurial education in South Africa significantly enhances students' ability to generate novel solutions and recognize opportunities. However, the challenge of inconsistent executive commitment echoes findings by Ncube and Matlala (2024), who argue that while education fosters innovative capacity, sustained innovation requires leadership continuity and intrinsic motivation. *"Innovativeness is not just about ideas*

			- *it's about the systems and people that carry them forward"* (Amaral et al., 2024).
Proactiveness	Having to balance academic responsibilities and leading the Enactus team, one had to plan activities ahead of time. A contingency plan was necessary to cater for activities that did not materialise.	As team leaders, the alumni realised that student enterprise leaders lacked time management skills. This led to late monthly report submissions, inconsistent enterprise progress, and low-quality projects delivery.	The issue of proactive balance between academic responsibilities with Enactus leadership mirrors Siddiqui et al. (2023), who emphasize that entrepreneurial intent among students is strengthened when they engage in forward-thinking behaviours like time-blocking and scenario planning. However, the alumni's observation of poor time management among enterprise leaders highlights a common gap found by Mahlaole and Malebana (2023).
Risk-taking	Entrepreneurship required alumni to take risks. *"Some of the projects that we had to start did not have funding for successful implementation"*, mentioned the first alumni. In 2019 the team took on a project without funding and piloted it on individual members' household. A year later, the team received funding for the project which enabled project scalability. As a result, it won the South	After the introduction of Enactus Refocus, the students were required to own enterprises. However, they were not accustomed to risk-taking as individuals or enterprises – They were only comfortable with risk-taking at the organisational level. Hence, over 90% of enterprises under	The alumni's decision to pilot unfunded projects demonstrates calculated risk-taking, a hallmark of entrepreneurial orientation. Amaral et al. (2024) affirm that experiential learning environments empower students to embrace uncertainty and act despite resource constraints.

	African Enactus National Exposition for two consecutive years thereafter.	Enactus refocus either failed or remained stagnant.	However, the reluctance of students under Enactus Refocus to take individual risks reflects what Siddiqui et al. (2023) describe as "institutional dependency," where students feel safer taking risks within organizational boundaries rather than as autonomous entrepreneurs.
Autonomy	In 2020, South Africa was hit by Covid-19 regulations that restricted people from travelling. The Enactus CUT team had to pilot different project solutions at their respective homes to stay on schedule. The team would meet virtually through zoom and Microsoft Teams to plan various enterprise solutions. Thereafter, the Enactus team members would implement these solutions in their backyards. In 2021 the team received funding for project implementation. The implementation was smooth and yielded economic, social and environmental impact.	Sometimes the Enactus executive team had to make urgent decisions without consulting the team at large. This resulted to the team perceiving the executive leaders as dictators.	During COVID-19, the CUT team's shift to virtual collaboration and backyard implementation showcased remarkable autonomy. This aligns with Ncube and Matlala (2024), who found that entrepreneurship education fosters self-directed behaviour and adaptive problem-solving among South African students.
Competitive Aggressiveness	One of the teams' projects implementations encompass the crop farming (potatoes project). The team penetrated the market by supplying	The potatoe farm was situated far from the Enactus team's office. Therefore, the team needed to hire a	The penetration of local markets and community engagement through potato farming initiative and worm

	potatoes to the local university community, neighbouring towns, and the Deli restaurant at a competitive price. The team also expanded the worm farming enterprise by training neighbouring communities, churches, university students, and farmers.	truck to transport the produce. This posed financial implication. The key stakeholders of the Enactus team composed students. Therefore, when customers purchase the produce during the week, the students would be required to harvest and supply.	enterprise training exemplify competitive aggressiveness. Ncube and Matlala (2024) highlight that such market-oriented behaviour is increasingly common among student entrepreneurs who receive targeted training. However, logistical challenges reveal the operational limits of student-led ventures. Amaral et al. (2024) caution that while competitive drive is essential, it must be supported by infrastructure and stakeholder alignment to be sustainable.

Discussion:

The results of this study are analysed thematically using the five-dimensions of EO developed by Lumpkin & Dess (1996). These dimensions include innovativeness, proactiveness, risk-taking, autonomy, and competitive aggressiveness.

I. Innovativeness

The Enactus team demonstrated a strong culture of innovation, both at the leadership and student levels. Alumni played a pivotal role in fostering creativity, while students engaged in research-driven enterprise development. This aligns with Lumpkin and Dess's (1996) assertion that innovativeness is central to entrepreneurial orientation, especially in dynamic

environments like Enactus. However, the lack of consistent motivation among executive members hindered project momentum. This reflects the tension between individual and collective innovation capacity – where the absence of intrinsic drive can stall even well-conceived ideas. It suggests a need for leadership development programs that cultivate entrepreneurial mindsets across all levels. Amaral et al. (2024), support the notion that entrepreneurial education in South Africa significantly enhances students' ability to generate novel solutions and recognize opportunities.

II. Proactiveness

The proactive planning by student leaders – balancing academic responsibilities with Enactus commitments – demonstrates strategic foresight. The use of contingency plans reflects adaptive leadership, a key trait in entrepreneurial ecosystems (Covin & Slevin, 1989). However, time management deficits among enterprise leaders led to operational inefficiencies. This highlights a gap in entrepreneurial readiness and suggests that proactiveness must be supported by capacity-building in project management and accountability structures. These findings are consistent with the work conducted by Siddiqui et al. (2023). However, poor time management among Enactus CUT enterprise leaders remains a common gap in entrepreneurial orientation research (Mahlaole and Malebana, 2023).

III. Risk-taking

Alumni-led risk-taking, such as piloting unfunded projects, proved transformative. The success of the household-based pilot that later won national accolades illustrates the power of calculated risk in unlocking innovation. This supports the idea that entrepreneurial success often stems from bold experimentation (Kuratko, 2016). Amaral et al. (2024) affirm that experiential learning environments empower students to embrace uncertainty and act despite resource constraints. On the other hand, students' reluctance to take individual or enterprise-level risks under the Enactus Refocus model reveals a cultural and psychological barrier. The reluctance of students under Enactus Refocus reflects what Siddiqui et al. (2023) describe as "institutional dependency," where students feel safer taking risks within organizational boundaries rather than as autonomous entrepreneurs. Moreover, the stagnation of about 90% of these enterprises underscores the importance of nurturing risk tolerance

through mentorship, experiential learning, and psychological safety among small Enactus enterprises.

IV. Autonomy

The team's decentralized implementation during Covid-19 showcased resilience and autonomy. Virtual collaboration and backyard piloting enabled continuity and impact, reinforcing the value of distributed leadership and self-directed action in crisis contexts. This aligns with Ncube and Matlala (2024), who found that entrepreneurship education fosters self-directed behaviour and adaptive problem-solving among South African students. However, the executive decisions made without broader consultation led to perceptions of authoritarianism. This tension between autonomy and inclusivity suggests that entrepreneurial autonomy must be balanced with participatory governance to maintain trust and cohesion.

V. Competitive Aggressiveness

Market penetration through the potato and worm farming projects illustrates strategic competitiveness. The team's ability to supply diverse markets and train external stakeholders reflects a robust entrepreneurial orientation that extends beyond campus boundaries. Ncube and Matlala (2024) highlight that such market-oriented behaviour is increasingly common among student-led enterprises. Nonetheless, logistical and financial constraints such as transport costs and student availability, posed barriers to scalability. These operational challenges highlight the need for infrastructure support and flexible scheduling to sustain competitive advantage. Amaral et al. (2024) caution that while competitive drive is essential, it must be supported by infrastructure and stakeholder alignment for sustainability.

Contributions:

This study fills a gap by qualitatively examining how EO dimensions are enacted in student-led enterprises, a context underexplored in EO literature dominated by quantitative corporate studies. The findings highlight the need for targeted leadership development that fosters entrepreneurial traits such as risk tolerance, time management, and strategic planning

among Enactus team members. Institutions of higher learning should provide logistical support, mentorship, and flexible funding mechanisms, especially under models like Enactus Refocus to enhance the sustainability of student-led enterprises. Furthermore, intentional strategies are required to cultivate a culture of individual accountability and innovation including reflective practices and peer recognition. While based on two alumni cases, these narratives highlight patterns that may resonate across Enactus teams in resource-constrained contexts. Future research should expand to multi-case or comparative studies.

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Resources and capabilities that promote the sustainability of technology-based companies in Latin America

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Introduction:

Climate change and the pressure on natural resources **demand** unprecedented innovations in technology, financing, and business models. In this context, Technology-Based Firms (TBFs) position themselves as key players in aligning economic, social, and environmental objectives, consistent with the triple bottom line approach. By operating in knowledge-intensive industries with strong R&D capacities, these firms have the potential to lead transformations toward more sustainable and resilient markets. However, there are significant gaps in the literature regarding how these companies, particularly in developing countries, grow, innovate, and generate sustainable impact. In Latin America, this lack of evidence is especially critical, considering that the region has experienced exponential growth in technology startups, the consolidation of unicorns, and increased attraction of venture capital, but without sufficient understanding of their real contribution to sustainable development.

From a theoretical perspective, Penrose's theory of firm growth provides a robust analytical framework to understand how the endowment and deployment of resources, along with the development of dynamic capabilities, determine business growth and competitiveness. Integrating this perspective with sustainability analysis makes it possible to explore which resources and capabilities drive the transition toward more responsible and sustainable models. In this context, this research seeks to contribute to academic and practical literature by analyzing TBFs in Latin America, aiming to understand how these firms grow, innovate,

and transform markets toward greater sustainability, generating evidence to inform public policies, business strategies, and innovation ecosystems in the region.

Literature review:

Solutions to climate change demand unprecedented innovations in technology, finance, and business models (Hakovirta et al., 2023). Some companies have acted and developed diverse strategies. For example, newly created firms in high-tech industries have chosen to include in their mission a purpose beyond the purely economic (Grigorescu et al. 2020). Some companies create value through strategies aimed at achieving a more sustainable world. These strategies are combined with resources and capabilities (Barney et al., 2011), among which dynamic capabilities, such as innovation, are included (Teece et al., 1997). Grigorescu et al. (2020) stated that "innovation in high-tech industries has positive results in environmental protection, infrastructure, health, and medical assistance" (p. 183). Other authors argue that these companies are in a better position to adopt knowledge-based business models and circular practices since they do not face the costs associated with traditional models (Henry et al., 2020; Audretsch y Fiedler, 2023).

Technology-Based Firms (TBFs) operate in technology-driven industries, incorporate research and development (R&D) areas, create knowledge, and hire scientific personnel. Due to their exponential growth and contribution to innovation, they have become a phenomenon of interest for study (Camisón-Haba et al., 2019, citado en Escobar et al., 2024). They are highly relevant in the transition toward impactful environmental solutions and the path toward sustainability (Lüdeke-Freund, 2020; Schaltegger y Wagner,2011).

Sustainability from a business perspective contributes to responsible management by simultaneously delivering economic, social, and environmental benefits — the triple bottom line (Elkington, 1994).This concept promotes "social inclusion, optimization of natural resources, and reduction of environmental impact, while preserving the planet's integrity for future generations, without neglecting the economic and financial viability of companies" (Hart, 1995). This approach, combined with best corporate practices, creates shareholder value, provides greater long-term business stability, and contributes to sustainable development (EAESP, 2007). Companies integrate policies and strategies that allow them to achieve better results while presenting competitive indicators to their stakeholders (Madero-Gómez & Zárate, 2016)

Although the importance of new and young firms in research on sustainable entrepreneurship and their transition toward sustainability has been acknowledged, it remains unclear how these firms grow, innovate, and transform markets toward sustainability (Horne y Fichter, 2022). Despite various studies published over the last decade, evaluating and forecasting the impact of new firms on sustainability remains a significant gap (Fichter et al., 2023; Barge-Gil, 2010; Hirsch-Kreinsen y Schwinge, 2011; Sciascia et al., 2014; Kwak et al., 2023). Por ejemplo, el estudio de Kwak et al. (2023). For instance, Kwak et al. (2023) argued that knowledge about sustainable innovation in the low- and medium-tech sector is limited and that more studies are needed to investigate the innovation process in this field. Similarly, Meysami et al. (2023) highlighted that, at the time of their study, insufficient research had been conducted on corporate sustainability in developing countries, with most existing studies focusing on developed economies.

From this perspective of business sustainability, Penrose's theory of firm growth, which focuses on the endowment and deployment of resources, can be particularly useful. Penrose characterized firms as dynamic entities that face growth incentives (Penrose, 1995). Her conceptualization includes two related elements: how a firm accumulates resources (initial resource endowment) and the dynamic process through which these resources are combined with productive opportunities to generate capabilities (Penrose, 1995; Mohr & Garnsey, n.d.). These capabilities are understood as the firm's ability to integrate, build, and reconfigure internal and external competencies through processes of exploration and exploitation. Such capabilities allow firms to respond effectively through competitive strategies to face uncertainty (Labarcés et al., 2015).

This research focuses on TBFs in Latin America (LA) for two main reasons. First, because the region has advanced as a key hub for innovation. The growth of TBFs in the region began to be noticeable a few years ago, even before the pandemic, making it important to understand their dynamics and impact on regional development (Judith, n.d.). By 2022, more than 220 startups were founded across Latin America. Additionally, the public listing of well-known unicorns and the arrival of major venture capital firms and accelerators have positioned the region on the global map (World Economic Forum, 2023). The second reason is the lack of studies on this topic in the context of developing countries.

Based on this preliminary literature review and given the importance of TBFs and the scarcity of research in emerging economies, this study seeks to explore how these firms grow, innovate, and transform markets toward greater sustainability. For this purpose, Penrose's theory is considered relevant, as it analyzes growth from the perspective of resources and

capabilities as generators of competitive advantages, (Labarcés et al., 2015) within which sustainability can be included. Accordingly, the following research question is proposed:

What resources and capabilities foster the sustainability of technology-based firms in Latin America?

This research will allow:

- Designing and applying an instrument for the identification of resources and capabilities, which will be useful for future studies.
- Identifying, through Penrose's theory, the relationship between dynamic capabilities and sustainability.
- Understanding and characterizing the available resources and capabilities that foster sustainability in Latin American TBFs.

Methodology:

To address the research question, a mixed-methods approach will be employed, combining qualitative and quantitative methods. The process will begin with a systematic literature review to understand the current state of knowledge, identify research gaps, and establish a solid theoretical foundation. Subsequently, an instrument will be designed to gather information on the resources and capabilities of Technology-Based Firms (TBFs) in Latin America. Using the data collected, a multivariate statistical analysis will be conducted with the EQS software to test the proposed hypotheses. Finally, to achieve the goal of understanding how TBFs in Latin America enhance their sustainability, the data obtained through the instrument will be analyzed to identify which resources and capabilities have the greatest impact on sustainability. Based on these results, and through a case study

methodology, actions and strategies that strengthen these resources and capabilities toward sustainability will be examined.

Findings:

This study is expected to reveal that specialized human capital, technological infrastructure, and collaborative networks are key resources driving sustainability in Latin American TBFs. It will likely confirm the critical role of dynamic capabilities in fostering innovation and adaptability, while also identifying structural gaps such as limited financing, weak policy incentives, and insufficient training in sustainability.

Additionally, TBFs are anticipated to act as catalysts within innovation ecosystems, promoting clean technologies, high-skilled employment, and responsible business practices. The findings may also demonstrate a positive link between sustainability and competitive performance, validating the triple bottom line approach. Finally, the development of a replicable measurement instrument will offer a methodological contribution for future research in emerging economies.

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Spanish Version

Recursos y capacidades que favorecen la sostenibilidad de las Empresas de Base tecnológica en América Latina

Introducción:

El cambio climático y la presión sobre los recursos naturales demandan innovaciones sin precedentes en tecnología, financiamiento y modelos de negocio. En este escenario, las Empresas de Base Tecnológica (EBT) se posicionan como actores clave para articular objetivos económicos, sociales y ambientales, en línea con el enfoque del triple bottom line. Estas empresas, al operar en industrias intensivas en conocimiento y con sólidas áreas de I+D, tienen el potencial de liderar transformaciones hacia mercados más sostenibles y resilientes. No obstante, existen vacíos significativos en la literatura sobre cómo estas empresas, especialmente en países en vías de desarrollo, crecen, innovan y generan impacto en la sostenibilidad. En América Latina, esta falta de evidencia resulta especialmente crítica, considerando que la región ha experimentado un crecimiento exponencial de startups tecnológicas, la consolidación de unicornios y una mayor atracción de capital de riesgo, pero sin suficiente comprensión de su aporte real al desarrollo sostenible.

Desde una perspectiva teórica, la teoría del crecimiento de la empresa de Penrose proporciona un marco analítico sólido para comprender cómo la dotación y el despliegue de recursos, junto con el desarrollo de capacidades dinámicas, determinan el crecimiento y la competitividad empresarial. Integrar esta perspectiva con el análisis de la sostenibilidad permite explorar qué recursos y capacidades favorecen la transición hacia modelos más responsables y sostenibles. En este contexto, esta investigación busca contribuir a la literatura

académica y práctica mediante el análisis de las EBT en América Latina, con el propósito de comprender cómo estas empresas crecen, innovan y transforman los mercados hacia una mayor sostenibilidad, generando evidencia que oriente políticas públicas, estrategias empresariales y ecosistemas de innovación en la región.

Revisión Literatura:

Las soluciones ante el cambio climático exigen innovaciones sin precedentes en tecnología, finanzas y modelos de negocio (Hakovirta et al., 2023). Ciertas empresas han tomado acción y han generado estrategias diversas. Por ejemplo, empresas de nueva creación en industrias de alta tecnología, han optado por incluir en su misión un propósito mayor que el económico (Grigorescu et al. 2020). Algunas empresas crean valor al nivel de sus estrategias para alcanzar un mundo más sostenible. Estas estrategias se conjugan con recursos y capacidades (Barney et al., 2011), dentro de estas capacidades se incluyen las dinámicas, como la innovación (Teece et al., 1997). Grigorescu et al. (2020) señalaron que "la innovación en industrias de alta tecnología tiene resultados positivos en la protección del medio ambiente, infraestructura, salud y asistencia médica" (p.183). Otros autores afirman que este tipo de empresas están en mejor posición para adoptar modelos empresariales basados en conocimiento y prácticas circulares, dado que no tienen que hacer frente a costes propios de un modelo tradicional (Henry et al., 2020; Audretsch y Fiedler, 2023).

Las Empresas de Base Tecnológica (EBT) operan en industrias basadas en tecnología, incorporan áreas de investigación y desarrollo (I+D), crean conocimiento y contratan personal científico. Por su crecimiento exponencial y su aporte en innovación se convierten en un fenómeno de interés a estudiar (Camisón-Haba et al., 2019, citado en Escobar et al.,

2024). Son relevantes en la transición hacia soluciones de impacto a nivel medioambiental y hacia la transición de sostenibilidad (Lüdeke-Freund, 2020; Schaltegger y Wagner,2011).

La sostenibilidad desde la perspectiva de empresa contribuye a la gestión responsable mediante la entrega simultánea de beneficios económicos, sociales y ambientales –triple bottom line (Elkington, 1994). Este concepto promueve en las empresas "la inclusión social, optimización de los recursos naturales y reducción del impacto en el medio ambiente, preservando la integridad del planeta para las generaciones futuras, sin despreciar la viabilidad económica y financiera de las mismas (Hart, 1995). Este enfoque, junto con las mejores prácticas corporativas, crea valor para el accionista, proporciona una mayor estabilidad del negocio a largo plazo, y contribuye al desarrollo sostenible" (EAESP, 2007). Las empresas integran políticas y estrategias que les permiten alcanzar mejores beneficios, presentando indicadores competitivos para sus grupos de interés (Madero-Gómez & Zárate, 2016).

Aunque se ha reconocido la importancia de empresas nuevas y jóvenes en la investigación sobre el espíritu empresarial sostenible y su transición hacia la sostenibilidad, sigue sin estar claro cómo crecen, innovan y transforman los mercados hacia la sostenibilidad (Horne y Fichter, 2022). Aunque en la última década se han publicado diferentes investigaciones sobre este tema, la evaluación y previsión del impacto de las nuevas empresas en la sostenibilidad sigue siendo una laguna (Fichter et al., 2023; Barge-Gil, 2010; Hirsch-Kreinsen y Schwinge, 2011; Sciascia et al., 2014; Kwak et al., 2023). Por ejemplo, el estudio de Kwak et al. (2023) del sector bajo y medio de tecnología argumentó que el conocimiento sobre la innovación sostenible es limitado y que se necesitan más estudios para investigar el proceso de

innovación en este sector. De igual forma, Meysami et al. (2023) señalaron que, a la fecha de su estudio, no se habían realizado suficientes investigaciones sobre la sostenibilidad de las empresas en países en vías de desarrollo y que la mayoría de las investigaciones que se conocen en esta materia se han hecho en países desarrollados.

Bajo esta perspectiva de sostenibilidad de las empresas, la teoría del crecimiento de la empresa de Penrose, que se centra en la dotación y el despliegue de recursos, puede resultar útil. Penrose caracterizó a las empresas como fenómenos dinámicos, que se enfrentan a incentivos de crecimiento (Penrose, 1995). La conceptualización de Penrose comprende dos elementos relacionados: el modo en que una empresa acumula recursos (dotación inicial de recursos) y el proceso dinámico a través del cual estos recursos se combinan con oportunidades productivas para generar capacidades (Penrose, 1995; Mohr & Garnsey, n.d.). Estas capacidades son entendidas como las habilidades que tiene la empresa para integrar, construir y reconfigurar sus competencias internas y externas, mediante procesos de exploración y explotación. Dichas capacidades permiten a las empresas dar respuesta efectiva a través de estrategias competitivas, para afrontar la incertidumbre(Labarcés et al., 2015).

La presente investigación se centra en EBT en América Latina (A.L), por dos razones: la primera, porque la región ha avanzado como centro clave para la innovación. El crecimiento de las EBT en la región ha comenzado a notarse hace algunos años, previo al inicio de la pandemia, por lo que es importante entender su dinámica e impacto en el desarrollo de la región (Judith, n.d.). Para el 2022, se fundaron más de 220 startups en toda A.L. Además, se ha observado la salida a bolsa de renombrados unicornios, la llegada de importantes firmas de capital de riesgo y de aceleradoras, que han posicionado a la región en el mapa global (World

Economic Forum, 2023). La segunda razón, por la falta de estudios en esta materia en el contexto de países en vía de desarrollo.

Con base en la revisión preliminar de la literatura, y dada la importancia de las EBT y su escasa literatura existe en países emergentes, esta investigación busca explorar cómo crecen, innovan y transforman los mercados hacia una mayor sostenibilidad. Para este propósito, la teoría de Penrose puede resultar pertinente, dado que analiza el crecimiento desde la perspectiva de recursos y capacidades, como generadoras de ventajas competitivas (Labarcés et al., 2015), dentro de las cuales se puede considerar la sostenibilidad. Por consiguiente, se propone la siguiente pregunta de investigación:

¿Cuáles son los recursos y capacidades que favorecen la sostenibilidad de las empresas de base tecnológica en Latinoamérica?

Metodología:

Para dar respuesta a la pregunta de investigación, se hará uso de una metodología que combine métodos cualitativos y cuantitativos. Se inicia con una revisión sistemática de la literatura, para comprender el estado actual del conocimiento, identificar brechas y establecer una base teórica sólida. Posteriormente, se hará el diseño de un instrumento que permita obtener información de capacidades y recursos para ser aplicado a las EBT en América Latina. Con estos datos recopilados, se hará un análisis de la información con la técnica estadística de análisis multivariante con el software EQS que permita poner a prueba las hipótesis formuladas. Finalmente, para cumplir con el propósito de entender como las EBT en América Latina favorecen su sostenibilidad, se usarán los datos recopilados con el instrumento mencionado con el fin de identificar qué recursos y capacidades tienen mayor

incidencia en la sostenibilidad. Con este resultado, a partir de la metodología de estudios de casos, se analizarán acciones y estrategias que impulsen dichos recursos y capacidades hacia la sostenibilidad."

Resultados:

Se espera que este estudio revele que el capital humano especializado, la infraestructura tecnológica y las redes de colaboración son recursos clave que impulsan la sostenibilidad en las EBT de América Latina. Asimismo, se prevé confirmar el papel crítico de las capacidades dinámicas en la promoción de la innovación y la adaptabilidad, al tiempo que se identifican brechas estructurales, como el acceso limitado a financiamiento, los incentivos políticos insuficientes y la falta de formación en sostenibilidad.

Además, se anticipa que las EBT actúen como catalizadores dentro de los ecosistemas de innovación, fomentando tecnologías limpias, empleos de alta cualificación y prácticas empresariales responsables. Los hallazgos también podrían demostrar una relación positiva entre la sostenibilidad y el desempeño competitivo, validando el enfoque del triple bottom line. Finalmente, el desarrollo de un instrumento de medición replicable representará una contribución metodológica valiosa para futuras investigaciones en economías emergentes.

Rethinking Education and Reskilling Workers for Entrepreneurial Sustainability In Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria.

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Abstract:

Entrepreneurs in both developed and developing economies are characterized by their creativity, innovativeness and numerous discoveries. Through these traits, they create new things in several dimensions and add value to existing ones. Thus, entrepreneurs through their creativity, innovation and value addition, contribute to capital formation and socio-economic development across nations.

No doubt, entrepreneurs require various skills both (innate and acquired) not only to survive in their entrepreneurial endeavours but also to outperform their competitors. These skills needed to keep an entrepreneur afloat include: innovative and creative skills, communication skill, finance skill, leadership skill, time management skill, planning and organizing skills. Others include: managerial skill, networking skill, adaptability skill, curiosity skill, vision and mission skills as well as goal setting and result oriented skills among others. The aforementioned skills inter-alia are required by entrepreneurs to surmount the numerous challenges they face as entrepreneurs. These challenges are limitless, but the most recurring ones are high level of stress, overworking, unfavourable regulations, policy inconsistencies, poor social overhead capital and high level of insecurity particularly in developing countries. In addition, for those entrepreneurs who decided to demonstrate the outcomes of their innovation and creativity by scaling up a business, also face challenges of product for market

fit, struggling for customers and consumers, finding the right business model as well as cash flow problem.

These challenges had led to low performance and inability to achieve set goals and objectives of many entrepreneurs and ultimately leading to the collapse of some nascent ones. To address these challenges, there is an urgent need to redefine and restructure the teaching curriculum to inculcate the entrepreneurial skills required by students as well as reskill the employees' talents with a view to repositioning university students to achieve their entrepreneurial dreams and become social champions. In an attempt to reskill workers and redefine the teaching of entrepreneurship in Olabisi Onabanjo University (OOU), the university has a well-equipped Entrepreneurship and Innovation Directorate headed by a Director. Aside this, each faculty and department in our university have Entrepreneurship Committee. The Chairman of the Departmental Entrepreneurship Committee is an automatic member of the Faculty Entrepreneurship Committee and by extension, the Chairman of the Faculty Entrepreneurship Committee also represents the faculty at the university-wide Directorate of Entrepreneurship and Innovation.

The Directorate has employed a lot of entrepreneurial strategies to reskill workers as well as rethink and redefine the learning of entrepreneurship. Among the strategies employed are:

1. OOU Bricklaying and Tiles Skills Unit: Under this initiative, students are trained the practical aspects of bricklaying and laying of tiles. Classes are held to teach the theoretical aspect before embarking on practical demonstrations in collaboration with external tutors. Periodic practical tests and assignments are giving to assess the understanding of the students.
2. OOU Painting and Production Skills Unit: Here, interested staff and students are taught the rudiments of painting making as well as the act of painting. Various types

of paints are produced by the unit such as (i) Emulsion Paint (ii) Gloss Paint (iii) Text coat Paint and (d) Others. It is pleasing to note that almost all the paints in several colours and grades used in painting the university building are all self-produced by this unit. In addition, some of our students provide assistants to painters in painting our buildings if need be.

3. OOU Electrical Skills Unit: The electrical unit is responsible for training students and other interested people-staff and non-staff on how to apply electrical installations. Their training includes wiring of buildings, solar installations and repairs as well as electronics.
4. OOU Carpentry and Joinery Skills Unit: The carpentry section trains individuals the skills of carpentry and furniture as well as other wood works that are of great values to the learners and the university as a whole. Tables, benches and lecture halls' wood works are done by this unit.
5. OOU Plumbing Skills Unit: The plumbing unit of the Directorate of Entrepreneurship and innovation in OOU is saddled with the responsibility of providing training to students and other interested people on the skills of pipe handling and fixing, water system handling and fixing as well as how to detect leakages. They work in conjunction with those in the tiling section to ensure smooth delivery of projects.

Aside the above, the Directorate of Entrepreneurship and Innovation is also engaged in several other skills acquisition projects to develop and improve the students' innate entrepreneurial talents. These include: (I) Soap making and production for commercial purposes. The directorate produces both liquid and detergent soaps that are sold to members of the university community (ii) Insecticides are also produced by the directorate and offered

to people at affordable prices. (iii) The tailoring section of the directorate is also responsible for designing and sewing of several fabrics. Again, it is interesting to note that the uniforms of OOU Security Staff are designed and sewn by this section.

In addition, having been saddled with the responsibility of teaching entrepreneurship courses at both undergraduate and postgraduate levels across the university, I have employed myriads of approaches to improve the quality of teaching entrepreneurship by applying both theoretical and practical methods:

1. As the Chairman of both the Departmental and Faculty Committees on Entrepreneurship, I have ensured that the teaching of entrepreneurship has a value-added ingredient by making it interactive and participative. This allows students at both undergraduate and postgraduate levels to give feedbacks which are improved upon year-in year-out.
2. The Continuous Assessment (CA) for my students are practical based. Students are put into groups of between 5 and 10 per group depending on the class size. The project(s) to be done are allotted to each group after their submission of three (3) different projects of their choice. A file is then created for each group with a group leader chosen by them. The CA carries 30 percent while end of the semester examination carries 70 percent. So, my students don't joke with them. One way of building confidence and making social champions and entrepreneurial giants from my students is by making them defend whatever projects they handle for their CA. At this defense, questions are asked on the process and stages involved in the execution of that project. It is upon this successful defense or otherwise that scores are allotted to each member in the group.

3. In addition, we have an Entrepreneurship Laboratory in our Department of Business Administration at Olabisi Onabanjo University where several entrepreneurial ideas and innovations are developed. Also, the entrepreneurial projects done by students are showcased in this laboratory. Projects done by several categories of students at both undergraduate and graduate levels under my guidance include: (i) Hand-made photo frames (ii) Locally fabricated flower vast (iii) Assorted Knitted beads (iv) Hand-made plagues (v) Locally made coconut oil (vi) Knitted bags (vii) Hand-made knitted sweaters (viii) Locally made shoes and slippers of various sizes (ix) Assorted 'Adire' fabrics (x) Insecticides (xi) Liquid soaps (xii) sanitizers to mention but a few.

Scaling Social Impact: Perceptions of Replicability, Institutional Challenges and Future Aspirations among Enactus Brazil Students

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Introduction:

Scaling social impact is a persistent challenge in social entrepreneurship. While innovative solutions emerge in universities and grassroots organizations, their reach is often limited by structural barriers and insufficient institutional support (Bloom and Chatterji, 2009). For student-led initiatives such as Enactus, the question of replicability—the ability to transfer and adapt projects across contexts—becomes critical to sustaining long-term outcomes.

In Brazil, Enactus has expanded across multiple universities, engaging students from diverse academic and socioeconomic backgrounds. However, teams face financial, legal, and organizational challenges that affect both the continuity of projects and the well-being of members. At the same time, students envision futures where social entrepreneurship remains central to their careers and life trajectories.

Despite global recognition of Enactus as a platform for training leaders in social innovation (Omotosho et al., 2023), little is known about how Brazilian students perceive replicability, institutional challenges, and their own aspirations for future engagement. This study seeks to fill this gap, providing quantitative evidence from a survey of 102 Enactus Brazil students.

Literature review:

The literature on social entrepreneurship emphasizes that scaling impact is not only about growth but about replication, adaptation, and systemic change (Dees, Anderson and Wei-Skillern, 2004; Bloom and Smith, 2010). Replicability ensures that successful initiatives extend beyond isolated contexts, increasing efficiency and legitimacy (Bradach, 2003).

In higher education, experiential learning frameworks (Kolb, 1984; Eyler and Giles, 1999) highlight the role of student projects in skill development and civic responsibility. Yet, structural barriers such as resource scarcity and institutional bureaucracy limit the scalability of student-led initiatives (Costa and Souza, 2020).

Research on Enactus shows consistent skill development in leadership and problem solving (de Barros Neto and Hughes, 2023), as well as alignment with the SDGs (Omotosho et al., 2023). However, evidence also points to stress, workload, and uneven institutional support as challenges in sustaining student engagement (Guerreiro and Ferrari, 2023; Mattei, 2025).

This study contributes by analyzing how Brazilian enactors perceive replicability, confront structural limitations, and project their aspirations for careers and long-term engagement with social impact.

Methodology:

A quantitative, descriptive design was adopted. Data were collected via an online survey (Google Forms) in July–August 2025, distributed across Enactus Brazil teams. The instrument included items on sociodemographic, academic, and socioeconomic background, as well as questions related to replicability of projects, institutional barriers, health impacts, and future career aspirations.

The final dataset included 102 valid responses. Items combined single-choice, multiple-choice, and Likert scales (1–5). Data were analyzed using Excel and Python, with descriptive statistics presented in percentages. The study's limitations include self-report bias and uneven representation across regions.

Findings:

Replicability. Nearly all respondents (95.1%) agreed that projects replicated by other teams should receive visibility and recognition. Students viewed replication as a core measure of impact, beyond innovation alone.

Institutional challenges. Respondents identified lack of financial resources (48%), absence of physical space (40.2%), and no Company Registration Number such as a Brazilian CNPJ registration (Brazilian (39.2%) as the main obstacles to sustaining their teams.

Negative impacts. Alongside structural barriers, personal challenges were reported: 33.3% experienced anxiety, 31.4% stress, and 31.4% conflicts within teams.

Future aspirations. Despite difficulties, optimism prevailed. 84.3% intended to apply Enactus knowledge in their careers, 82.4% considered Enactus a curricular differential, and 56.9% planned to continue working with social impact after graduation. A majority expressed interest in mentoring future teams or supporting the network.

Discussion:

The strong consensus on replicability highlights a mature perspective among Enactus Brazil students: that scaling solutions, not only creating them, is central to systemic impact (Dees et al., 2004; Bloom and Smith, 2010). This finding aligns with international debates on the importance of scalability in social entrepreneurship (Bradach, 2003).

However, institutional weaknesses remain a major barrier. Lack of resources, inadequate infrastructure, and bureaucratic challenges are consistent with broader literature on inequalities in Brazilian higher education (Costa and Souza, 2020; Kruger, 2025). These obstacles contribute to stress and mental health concerns, as evidenced by significant proportions of students reporting anxiety and workload imbalance (Mattei, 2025).

Despite these barriers, Enactus fosters resilience and long-term orientation. The majority of respondents aspire to apply acquired skills in professional contexts, continue working with social impact, and act as mentors. This confirms prior findings that student organizations can cultivate durable civic and career trajectories (Astin, 1993; Guerreiro and Ferrari, 2023).

Thus, Enactus Brazil illustrates both the potential and the limits of student-led social entrepreneurship. Strengthening financial and institutional support, while recognizing project replication, could amplify both community and student outcomes.

Contributions:

This study contributes:

Empirical: This study provides one of the first quantitative portraits of Enactus Brazil students' perceptions of replicability, institutional challenges, and future aspirations.

Theoretical: Findings reinforce theories of scaling in social entrepreneurship by showing how replication is prioritized by students, while also extending experiential learning literature to contexts of structural inequality.

Practical: Recommendations include institutional recognition of replicated projects, expansion of scholarships, improved mental health support, and structural facilitation (legal and financial) for student teams.

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Portuguese Version

Ampliando o Impacto Social: Percepções sobre Replicabilidade, Desafios Institucionais e Aspirações Futuras entre Estudantes da Enactus Brasil

Introdução:

Escalar impacto social é um desafio persistente no empreendedorismo social. Embora soluções inovadoras surjam em universidades e organizações de base, seu alcance frequentemente é limitado por barreiras estruturais e insuficiente apoio institucional (Bloom e Chatterji, 2009). Para iniciativas lideradas por estudantes, como a Enactus, a questão da replicabilidade — a capacidade de transferir e adaptar projetos em diferentes contextos — torna-se crítica para a sustentabilidade de resultados de longo prazo.

No Brasil, a Enactus expandiu-se em diversas universidades, envolvendo estudantes de perfis acadêmicos e socioeconômicos variados. Entretanto, os times enfrentam desafios financeiros,

legais e organizacionais que afetam tanto a continuidade dos projetos quanto o bem-estar de seus membros. Ao mesmo tempo, os estudantes projetam futuros em que o empreendedorismo social permanece central em suas carreiras e trajetórias de vida.

Apesar do reconhecimento global da Enactus como plataforma de formação de líderes em inovação social (Omotosho et al., 2023), pouco se sabe sobre como os estudantes brasileiros percebem a replicabilidade, os desafios institucionais e suas próprias aspirações de engajamento futuro. Este estudo busca preencher essa lacuna, apresentando evidências quantitativas de uma pesquisa com 102 estudantes da Enactus Brasil.

Revisão de Literatura:

A literatura sobre empreendedorismo social enfatiza que escalar impacto não se trata apenas de crescimento, mas também de replicação, adaptação e mudança sistêmica (Dees, Anderson e Wei-Skillern, 2004; Bloom e Smith, 2010). A replicabilidade garante que iniciativas bem-sucedidas se estendam além de contextos isolados, aumentando eficiência e legitimidade (Bradach, 2003).

No ensino superior, quadros de aprendizagem experiencial (Kolb, 1984; Eyler e Giles, 1999) destacam o papel de projetos estudantis no desenvolvimento de competências e responsabilidade cívica. Contudo, barreiras estruturais como escassez de recursos e burocracia institucional limitam a escalabilidade de iniciativas estudantis (Costa e Souza, 2020).

Pesquisas sobre a Enactus mostram desenvolvimento consistente de competências em liderança e resolução de problemas (de Barros Neto e Hughes, 2023), além de alinhamento com os ODS (Omotosho et al., 2023). Entretanto, há evidências de estresse, sobrecarga e

apoio institucional desigual como desafios para a manutenção do engajamento estudantil (Guerreiro e Ferrari, 2023; Mattei, 2025).

Este estudo contribui ao analisar como os enactors brasileiros percebem a replicabilidade, enfrentam limitações estruturais e projetam suas aspirações para carreiras e engajamento de longo prazo com impacto social.

Metodologia:

Foi adotado um desenho **quantitativo e descritivo**. Os dados foram coletados por meio de questionário online (Google Forms), em julho–agosto de 2025, distribuído entre times da Enactus Brasil. O instrumento incluiu itens sobre perfil sociodemográfico, acadêmico e socioeconômico, bem como questões relacionadas à replicabilidade dos projetos, barreiras institucionais, impactos na saúde e aspirações profissionais futuras.

O conjunto final incluiu **102 respostas válidas**. As questões combinaram alternativas únicas, múltiplas e escalas Likert (1–5). Os dados foram analisados em Excel e Python, com estatísticas descritivas apresentadas em percentuais. As limitações incluem vieses de autorrelato e representação desigual entre regiões.

Resultados:

Replicabilidade. Quase todos os respondentes (95,1%) concordaram que projetos replicados por outros times deveriam receber visibilidade e reconhecimento. Os estudantes consideraram a replicação uma medida central de impacto, para além da inovação isolada.

Desafios institucionais. Os principais obstáculos relatados foram: falta de recursos financeiros (48%), ausência de espaço físico (40,2%) e ausência de registro legal como CNPJ (39,2%).

Impactos negativos. Além das barreiras estruturais, foram reportados desafios pessoais: 33,3% vivenciaram ansiedade, 31,4% estresse e 31,4% conflitos dentro das equipes.

Aspirações futuras. Apesar das dificuldades, prevaleceu o otimismo. 84,3% pretendiam aplicar os conhecimentos adquiridos na Enactus em suas carreiras, 82,4% consideravam a Enactus um diferencial curricular e 56,9% planejavam continuar atuando com impacto social após a graduação. A maioria expressou interesse em atuar como mentores de futuros times ou apoiar a rede.

Discussão:

O consenso sobre a replicabilidade evidencia uma perspectiva madura entre os estudantes da Enactus Brasil: escalar soluções, e não apenas criá-las, é central para o impacto sistêmico (Dees et al., 2004; Bloom e Smith, 2010). Esse achado está alinhado a debates internacionais sobre a importância da escalabilidade no empreendedorismo social (Bradach, 2003).

No entanto, as fragilidades institucionais permanecem como barreiras significativas. A falta de recursos, infraestrutura inadequada e burocracia estão em consonância com a literatura sobre desigualdades no ensino superior brasileiro (Costa e Souza, 2020; Kruger, 2025). Esses obstáculos contribuem para preocupações com estresse e saúde mental, como evidenciado pela proporção de estudantes que relataram ansiedade e sobrecarga (Mattei, 2025).

Apesar dessas barreiras, a Enactus promove resiliência e visão de longo prazo. A maioria dos respondentes aspirava aplicar as competências adquiridas em contextos profissionais, continuar atuando com impacto social e atuar como mentores. Isso confirma achados prévios de que organizações estudantis podem cultivar trajetórias cívicas e profissionais duradouras (Astin, 1993; Guerreiro e Ferrari, 2023).

Assim, a Enactus Brasil ilustra tanto o potencial quanto os limites do empreendedorismo social estudantil. O fortalecimento do apoio financeiro e institucional, aliado ao reconhecimento da replicação de projetos, pode ampliar os resultados para comunidades e estudantes.

Contribuições:

O estudo contribuiu de forma:

- **Empírica**: este estudo oferece um dos primeiros retratos quantitativos das percepções dos estudantes da Enactus Brasil sobre replicabilidade, desafios institucionais e aspirações futuras.
- **Teórica**: os achados reforçam teorias de escalabilidade no empreendedorismo social ao demonstrar que a replicação é priorizada pelos estudantes, ao mesmo tempo que expandem a literatura sobre aprendizagem experiencial em contextos de desigualdade estrutural.
- **Prática**: recomendações incluem o reconhecimento institucional de projetos replicados, expansão de bolsas, maior apoio à saúde mental e facilitação estrutural (legal e financeira) para os times.

Seven Pathways to Student Development and SDG Integration

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Introduction:

Kasetsart University has adapted the SDGs to enhance their clarity and applicability, focusing on student-centered activities across seven thematic areas. These activities serve as platforms for personal growth and social contribution.

Literature review:

Although the SDGs provide a global framework for sustainability, literature shows a gap in practical integration at the university level, especially in student-centered initiatives. This study addresses how a higher education institution can operationalize SDGs through structured pathways, aiming to empower students as active participants and future change agents. The overarching proposition is that structured SDG-aligned activities foster holistic student development.

Methodology:

This study adopts a qualitative descriptive approach, analyzing existing programs and initiatives at Kasetsart University related to SDG integration. The methodology allows for in-depth understanding of student engagement, program effectiveness, and the practical alignment of institutional strategies with global sustainability goals.

Findings:

Seven pathways have been identified for integrating SDGs into student development:

VI. **Mental and Physical Well-being:** KU Wellbeing Center offers mental health support, recreational activities, sports, counseling, and health services (SDG 3).

VII. **Financial Inclusion and Skill Development:** Scholarships, student loans, on-campus jobs, and vocational training programs (SDG 1, 2, 4).

VIII. **Soft Power and Cultural Engagement:** Creative and volunteer activities foster identity, empathy, life purpose, and future skills (SDG 5, 8).

IX. **Sustainable Campus Living:** Zero Carbon Dormitory project promotes environmental awareness (SDG 11, 12, 13).

X. **Inclusive Services and Digital Transformation:** Redesigned student services with digital systems and staff upskilling (SDG 4, 10).

XI. **Entrepreneurship and Global Citizenship:** Platforms for entrepreneurship, competitions, and innovation foster leadership and ethical decision-making (SDG 8, 16).

XII. **Partnerships for Sustainability:** National networks and SDG-aligned projects encourage knowledge exchange and collaboration (SDG 4, 17).

Discussion:

The findings demonstrate that aligning institutional strategies with global goals and encouraging active student participation allows students to serve as SDG change agents. Integrating sustainability into student life promotes holistic development, social responsibility, and practical application of knowledge, providing new insights into higher education's role in global sustainability.

Contributions:

This study contributes to empirical understanding of student-centered SDG integration, offering a replicable model for universities worldwide. It also informs theory on higher education as a catalyst for sustainability and youth empowerment, while providing practical guidance for implementing SDG-aligned programs that enhance student development.

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Thai Version

เจ็ดแนวทางสู่การพัฒนานักศึกษาและการบูรณาการ SDGs

บทนำ

มหาวิทยาลัยเกษตรศาสตร์ได้นำ เป้าหมายการพัฒนาที่ยั่งยืน (SDGs) มาปรับใช้เพื่อเพิ่มความชัดเจนและความเหมาะสม โดยมุ่งเน้นกิจกรรมที่เน้นนักศึกษาเป็นศูนย์กลางใน 7 ด้านหลัก กิจกรรมเหล่านี้เป็นเวทีสำหรับการพัฒนาตนเองและการมีส่วนร่วมทางสังคม

ทบทวนวรรณกรรม

แม้ว่า SDGs จะเป็นกรอบงานระดับโลกสำหรับความยั่งยืน งานวิจัยก่อนหน้าชี้ให้เห็นถึงช่องว่างในการบูรณาการเชิงปฏิบัติในระดับ มหาวิทยาลัย โดยเฉพาะกิจกรรมที่เน้น นักศึกษาเป็นศูนย์กลาง งานวิจยันีมุ่งศึกษาวิธีการที่สถาบันอุดมศึกษาสามารถปฏิบัติ SDGs ผ่านแนวทางที่มีโครงสร้าง เพื่อเสริมพลังให้นักศึกษาเป็นผู้มีส่วนร่วมอย่างกระตือรือร้นและเป็นผู้เปลี่ยนแปลงในอนาคต ข้อสมมติหลักคือกิจกรรมที่สอดคล้องกับ SDGs อย่างเป็นระบบช่วยพัฒนานักศึกษาอย่างรอบด้าน

ระเบียบวิธีวิจัย

งานวิจัยนี้ใช้วิธีเชิงพรรณนาเชิงคุณภาพ (qualitative descriptive) วิเคราะห์โปรแกรมและโครงการที่มีอยู่ของมหาวิทยาลัยเกษตรศาสตร์ที่เกี่ยวข้องกับการบูรณาการ SDGs ระเบียบวิธีนี้ช่วยให้เข้าใจการมีส่วนร่วมของนักศึกษา ประสิทธิผลของโปรแกรม และการปรับกลยุทธ์ของสถาบัน ให้สอดคล้องกับ เป้าหมายความยั่งยืนระดับโลก

ผลการวิจัย

สามารถจำแนกได้เป็นเจ็ดแนวทางสำหรับการบูรณาการ SDGs ในการพัฒนานักศึกษา:

1. **สุขภาพกายและใจ (Mental and Physical Well-being)**: KU Wellbeing Center ให้การสนับสนุนด้าน สุขภาพจิต กิจกรรมสันทนาการ กีฬา การให้คำปรึกษา และบริการสุขภาพ (SDG 3)
2. **การรวมทางการเงินและการพัฒนาทักษะ (Financial Inclusion and Skill Development)**: ทุนการศึกษา เงินกู้สำหรับนักศึกษา งานในมหาวิทยาลัย และโครงการฝึกอบรมวิชาชีพ (SDG 1, 2, 4)
3. **พลังอ่อนและการมีส่วนร่วมทางวัฒนธรรม (Soft Power and Cultural Engagement)**: กิจกรรมสร้างสรรค์และ อาสาสมัครช่วยสร้างอตัลกัษณ์ความเห็นอกเห็นใจ เป้าหมายชีวิต และทักษะสำหรับอนาคต (SDG 5, 8)
4. **การใช้ชีวิตในวิทยาเขตอย่างยั่งยืน (Sustainable Campus Living)**: โครงการหอพักคาร์บอนเป็นศูนย์ส่งเสริมความตระหนักด้านสิ่งแวดล้อม (SDG 11, 12, 13)
5. **บริการแบบครอบคลุมและการเปลยี่นแปลงดิจิทัล (Inclusive Services and Digital Transformation)**: ปรับปรุงบริการนักศึกษาใหม่โดยใช้ระบบดิจิทัลและการพฒันาทักษะบุคลากร (SDG 4, 10)

6. **ผู้ประกอบการและความเป็นพลเมืองโลก (Entrepreneurship and Global Citizenship):** แพลตฟอร์มสำหรับ ผู้ประกอบการ การแข่งขัน และนวตักรรมส่งเสริมความเป็นผู้นำ และการตัดสินใจเชิงจริยธรรม (SDG 8, 16)
7. **ความร่วมมือเพื่อความยั่งยืน (Partnerships for Sustainability):** เครือข่ายระดับ ชาติและโครงการสอดคลอ้งกับ SDGs ส่งเสริมการแลกเปลี่ยนความรู้และความร่วมมือ (SDG 4, 17)

อภิปรายผล

ผลการวิจยัแสดงให้เห็นว่าการปรับกลยทุธ์ของสถาบันให้สอดคล้องกับเป้าหมายระดับโลก และการส่งเสริมการมีส่วนร่วมของนักศึกษาอย่าง กระตือรือร้นทำให้นักศึกษาเป็นผู้ขับเคลื่อนการเปลี่ยนแปลงตาม SDGs การบูรณาการความยั่งยืนในชีวิตนักศึกษาส่งเสริมการพฒันาอย่างรอบด้านความรับผิดชอบต่อสังคมและการประยุกต์ใช้ความรู้เชิงปฏิบัติซึ่งให้มุมมองใหม่เกี่ยวกับบทบาทของอุดมศึกษาในการสนับสนุนความยั่งยืนระดับโลก

ข้อเสนอแนะและการมีส่วนร่วม

งานวิจัยนีช่วยเพิ่มความเข้าใจเชิงประจกัษ์เกี่ยวกับการบูรณาการ SDGs ที่เน้นนักศึกษาเป็นศูนย์กลาง เสนอรูปแบบที่สามารถทำซ้ำได้สำหรับมหาวิทยาลัยทั่วโลก นอกจากนียังให้ข้อมูลเชิงทฤษฎีเกี่ยวกับบทบาทของอุดมศึกษาเป็นตัวเร่งความยั่งยืนและการเสริมพลังเยาวชน พร้อมคำแนะนำ เชิงปฏิบัติสำหรับการดำเนินโครงการที่สอดคลอ้งกับ SDGs เพื่อพัฒนานักศึกษา

Shaping Sustainability Leaders: Teaching Soft Skills for Social Change through Challenge-Based Learning in Higher Education

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Introduction:

Over the past three decades, universities have transitioned dramatically from traditional "ivory tower" models (Etzkowitz, 1983) to become pivotal actors in regional innovation ecosystems, fostering entrepreneurship and especially social entrepreneurship (Isaac et al., 2012; Al Issa et al. 2025), through innovation hubs (Katz, 2003; Kuratko, 2005; Britchenko et al., 2019; Ashton & Comunian, 2019; Youtie & Shapira, 2008), entrepreneurship centers (Menzies, 2009), and academic spin-offs (Guerrero et al., 2016). This shift involves actively cultivating a sustainability set of mind, cultures, and environments that promote opportunity recognition and value creation among students and graduates, often through diverse initiatives such as curricular programs, hackathons, and start-up labs (Von Graevenitz, 2010; Scroccaro & Rossi, 2022; Passarelli & Bongiorno, 2025).

A particularly impactful pedagogical approach gaining traction globally is Challenge-Based Learning (CBL) (Nichols & Cator, 2008; Nichols et al., 2016; Pérez-Sánchez et al., 2020, 2023; Vignoli et al., 2021). This constructivist and experiential methodology engages students in interdisciplinary teams to address real-world challenges posed by external

organizations. Through CBL, students co-develop innovative solutions, acquiring valuable, observable entrepreneurial competencies. Among these competencies, the sustainability ones are very much involved and stimulated.

This working paper specifically investigates the effectiveness of CBL in fostering skills that can stimulate ethical and sustainable thinking among students, utilizing the EntreComp framework (Bacigalupo et Al, 2020; López-Núñez et al., 2022; Osipovskaya et al., 2024), which allows for assessing entrepreneurial competences in entrepreneurship educational programmes. By examining two editions of the Social Entrepreneurship and Sustainability course at the University of Trento, which is connected to the ENACTUS program, this study aims to address the following two research questions: RQ1. How does CBL apply to a management course to effectively teach ethical and sustainable thinking skills necessary to empower graduates as social entrepreneurs and sustainability champions? RQ2. To what extent does CBL stimulate ethical and sustainable thinking skills in a social entrepreneurship educational programme? Ultimately, this research contributes to understanding how universities can leverage innovative pedagogies like CBL to equip graduates with the essential soft skills for driving social change and championing sustainability.

Literature review:

For this working paper, the authors consider the CBL literature, the use of CBL in enhancing and boosting entrepreneurial competencies, and fostering societal impacts, as well as the measurement of entrepreneurial competencies, particularly those linked to ethical and sustainable thinking.

CBL represents a significant shift in educational methodology, moving away from traditional instruction towards an active, student-centered, and self-directed learning approach

(Knowles, 1975; Scroccaro & Rossi, 2022; Norrman et al., 2022). In this model, educators transition from instructors to facilitators and mentors, actively participating in the learning journey alongside students (Eldebo et al., 2022). This collaborative dynamic not only enhances educational outcomes but also generates societal impact by bridging the gap between higher education institutions and external "challenge providers" (e.g., companies, associations, public institutions) (Vilalta-Perdomo et al., 2022; Sukacke et al., 2022; Leijon et al., 2022; Perna et al., 2023; Garcia-Zambrano et al., 2024).

Research indicates that CBL is highly effective in nurturing entrepreneurial mindsets and skills through its experiential and problem-based learning nature (Ktoridou & Eteokleous, 2012; Portuguez & Gomez, 2021; Hölzner & Halberstadt, 2022; Norrman et al., 2022). It helps students develop crucial soft skills such as creativity, teamwork, initiative, and resource mobilization (Perez et al., 2020; 2023; Rincon et al., 2023). These align with the broader definition of entrepreneurial skills, encompassing the knowledge, behaviors, and attitudes needed to identify opportunities, manage resources, and navigate uncertainty (Johnson et al., 2009; Martinez & Crusat, 2020; Palma-Mendoza et al., 2019; Vignoli et al., 2021; Colombelli et al., 2022). Among these skills, the ones related to sustainability, ethics, and social innovation are involved.

Despite its growing popularity and observed benefits, there is a notable gap in the literature regarding the measurable impact of CBL on social entrepreneurial competence development and retention (Hand, 2016; Bolzani and Luppi, 2021). Most existing studies rely on more general entrepreneurial skills development (Ktoridou & Eteokleous, 2012). This highlights a crucial area for further investigation to fully understand how CBL empowers graduates to become effective social entrepreneurs and sustainability champions (Ktoridou & Eteokleous, 2012).

Evaluating the current level and development of entrepreneurial competencies is a key element of entrepreneurship education programs. Commonly used tools—such as the Entrepreneurial Intention Questionnaire (Linan & Chen, 2009; Vankov et al., 2022) and the General Enterprising Tendency test (Caird, 1991)—primarily assess entrepreneurial intentions or predispositions. In contrast, the EntreComp framework (Bacigalupo et al., 2020) identifies 15 entrepreneurial competences grouped into three main areas: (i) ideas and opportunities, (ii) resources, and (iii) into action. This framework adopts a developmental, competence-based perspective (Morselli and Gorenc, 2022) that aligns well with challenge-based learning (CBL) methodologies (Ratiu et al., 2023). Unlike other tools, EntreComp emphasizes the cultivation of tangible, observable skills through active learning experiences.

The Sustainability and Social Entrepreneurship course:

The "Sustainability and Social Entrepreneurship" course, a core 48-hour, 8 ECTS component of the Master's in Management program at the University of Trento, employs a challenge-based and hands-on learning approach centered on hybrid and sustainable business models. Students are tasked with developing project ideas and social business models in response to real-life challenges proposed by local stakeholders—such as organizations, cooperatives, and associations—operating in the Trentino area. This direct student engagement with these actors aims to foster innovative and sustainable solutions. The course is structured into three main phases: problem validation, idea generation, and solution validation. During the problem validation phase, student teams interact with challenge providers to gain an in-depth understanding of the issues, conducting field and desk research while applying analytical tools like the fishbone diagram, iceberg model, and the five whys

method. This phase also involves envisioning future scenarios, analyzing trends, and performing market assessments using SWOT, PESTEL, stakeholder mapping, and competitor analysis. In the idea generation phase, teams engage in structured brainstorming sessions to produce and refine multiple solutions, fostering creativity and identifying potentially disruptive approaches, with ideas then presented to challenge providers for feedback and selection of the most promising solution. Finally, in the solution validation phase, students iteratively prototype and validate their proposed solutions through continued field engagement and interviews, building personas through the empathy map and "job-to-be-done" tool. Each team develops a Social Business Model Canvas and a business plan, culminating in a final pitch presentation to an audience of faculty members, investors, and entrepreneurs.

This paper examines two editions of the "Sustainability and Social Entrepreneurship" course, highlighting key differences and similarities in student composition, challenges, challenge providers, contexts, and program execution.

In the 2023/2024 edition, the class comprised 18 students, organized into four heterogeneous teams, with two non-attending participants forming an independent team. Team formation prioritized gender balance, personality test results, and student preferences regarding challenge themes, aiming to replicate the diversity of real-world work environments. Faculty selected five real-world problems from local social organizations over approximately two months, addressing themes like urban regeneration, social inclusion, rural depopulation, sustainable tourism, and local food systems. The selection criteria included societal relevance and urgency, organizational motivation to engage, and operational capacity. The chosen challenge providers represented various organizational forms, including cooperatives, work

integration social enterprises (WISEs), start-ups, foundations, and non-profit organizations, with all five challenges fully defined before the course began.

Conversely, in the 2024/2025 edition, the class consisted of 23 students, including five non-attending participants who formed a single team, with students organized into five heterogeneous teams. Team formation criteria remained consistent with the previous year. A notable difference in this edition was the approach to challenge selection: faculty did not select problems from diverse providers. Instead, a specific territorial context, Val di Fassa, a Trentino valley in the Dolomites, was chosen. Faculty collaborated with local stakeholders, such as APT Val di Fassa (the tourist agency), FASSA Coop (the cooperative market chain), and Fassa Village (a local hotel chain), to co-select four main challenges facing the valley: the lack of houses and accommodations for residents, seasonal workers, and tourists; unsustainable mobility and the lack of a coordinated public transport network; a scarcity of services for residents (healthcare, mail delivery, shopping delivery, childcare, elderly care); and a lack of managerial competencies. The first two issues are correlated with the area's morphology and overtourism during winter and summer, while the latter two are more related to the cultural and social context of the valley.

Both editions were involved in the Italian ENACTUS program, offering students a platform to further refine and showcase their project. In the 2023/2024 edition, the winning team participated in the 2024 National Competition in Rome, presenting their business project to a panel of judges, including entrepreneurs, investors, and social impact leaders from across the country. The competition allowed the students to compete against top universities nationwide, gaining valuable feedback and exposure while demonstrating their innovative approach to addressing the real-world challenges faced by local communities. This opportunity not only provided students with critical insights into the practicalities of scaling a social business but

also helped them build connections with mentors and industry experts, paving the way for future collaborations and potential funding opportunities. In the 2024/2025 edition, the winning team had the chance to attend the prestigious Trento Festival dell'Economia, an event that brings together global thought leaders, policymakers, and entrepreneurs to discuss economic sustainability and social innovation. The team also received recognition as a potential candidate for the Enactus International program, highlighting their project's potential for global impact. The Enactus program, with its emphasis on social entrepreneurship and sustainability, provided both teams with a useful framework for translating their academic learnings into actionable business models that address pressing social issues. Moreover, being considered for the international Enactus competition reflects the growing impact of their projects, as they move from local community engagement to the possibility of reaching global audiences.

The integration of Enactus into the course is a clear example of how universities can leverage innovative pedagogical models, like Challenge-Based Learning (CBL), to create real-world impact. By engaging students in hands-on problem-solving with local stakeholders and providing them with a platform to showcase their ideas at national and international events, the course prepares students not only with the technical and entrepreneurial skills needed for social business but also with the soft skills essential for navigating the challenges of leading sustainable and ethical ventures in today's complex global economy.

Methodology:

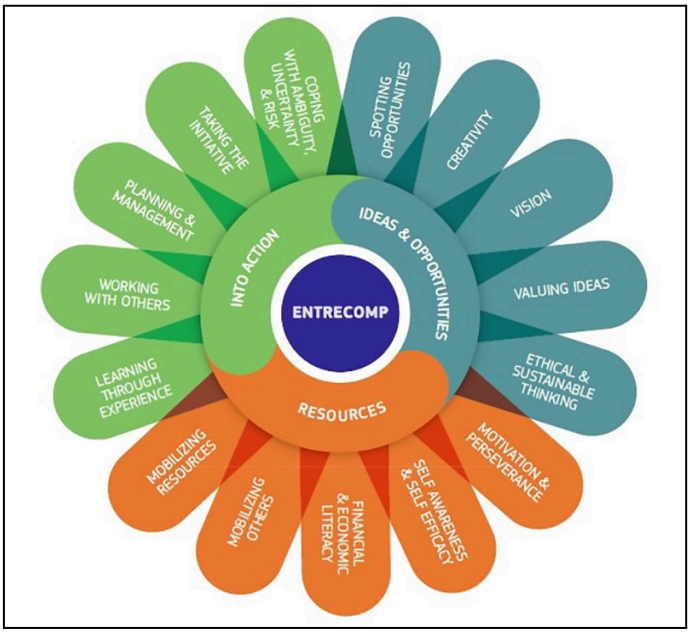
To understand how universities can effectively teach the soft skills vital for social entrepreneurs and sustainability champions, this study employs a qualitative case study methodology. This approach is ideal for delving into the complexities of innovation

management and gaining deep insights into emerging educational phenomena. Data was collected from 41 students across two course editions (February - June 2024 and February - June 2025). The primary tool for data collection was a questionnaire based on the EntreComp framework, administered as a pre-test at the beginning of the course and a post-test at its conclusion.

The questionnaire evaluates 15 entrepreneurial competencies with 45 questions organized into three core domains (see Figure 1). The first domain is Ideas and Opportunities and includes skills like spotting opportunities, creativity, vision, valuing ideas, and ethical and sustainable thinking. The second domain is Resources and covers self-awareness and self-efficacy, motivation and perseverance, mobilizing resources, financial and economic literacy, and mobilizing others. The third domain is Into Action, which encompasses taking initiative, planning and management, coping with ambiguity, working with others, and learning through experience.

Each competence is assessed using three closed-ended items on a 10-point Likert scale. Individual competence scores are calculated by averaging these responses, treating them as continuous variables. To rigorously analyze changes over time between the pre-test and post-test, the Wilcoxon signed-rank test is used. This non-parametric method is particularly suitable for Likert-scale data, ensuring robust longitudinal evaluation of entrepreneurial competence development and retention.

Figure 1. The EntreComp flower (Bacigalupo et Al, 2020)



For this working paper, the authors dedicated their attention to the Ethical and sustainable thinking competence, which is included in the “Idea and Opportunities” area of the EntreComp Framework. This competence is measured through three items that are: (i) Assess the social and ecological impact of your ideas; (ii) Apply sustainability values (social and ecological) to your practice; (iii) Assess what is seen as "good sustainable practice" within your field of expertise.

Findings:

The study's findings indicate substantial short-term improvements across all entrepreneurial competencies following the intervention, echoing insights from previous research (Mohit et al., 2024; Abd Rahim et al., 2022). A comparative analysis of the pre- and post-intervention EntreComp questionnaire clearly shows that students generally enhanced their entrepreneurial capabilities.

Specifically for this study, the percentage of participants who rated themselves at a high competence level (7 or higher) increased across all dimensions from the pre-test to the post-test. Significant advancements were observed in skills crucial for social entrepreneurship and sustainability, including Ethical and Sustainable Thinking (see Table 1). Notably, there were considerable gains in students' ability to assess the social and ecological impact of their ideas. In the pre-test, the percentage of participants scoring 7 or more for the three items of the ethical and sustainable thinking competence was between 63 and 65. This means that a large part of the class was already sensitive to ethical issues and a sustainable way of thinking. In the post-test, the three items increased and particularly the items dedicated to assessing the social and ecological impact of participants' ideas and the application of sustainability values to participants' practices.

These results suggest that the intervention effectively fostered key entrepreneurial soft skills, especially if participants are already open to a sustainability and ethical mindset.

Table 1. Pre- and Post-EntreComp results

EntreComp	***Items for each competence***	***Pre (% ≥7) (41)***	***Post (% ≥7) (41)***	***Var %***
Ethical and sustainable thinking	*Assess the social and ecological impact of your ideas*	*63.41*	*100.00*	*34.15*
	Apply sustainability values (social and ecological) to your practice	*65.85*	*100.00*	*29.27*
	Assess what is seen as "good sustainable practice" within your field of expertise	*65.85*	*88.89*	*26.83*

Table 2 presents the results of the Wilcoxon signed-rank test comparing students' entrepreneurial competences at two time points: before the intervention (Pre) and immediately after the course (Post). Statistical significance was determined at the $p < 0.05$

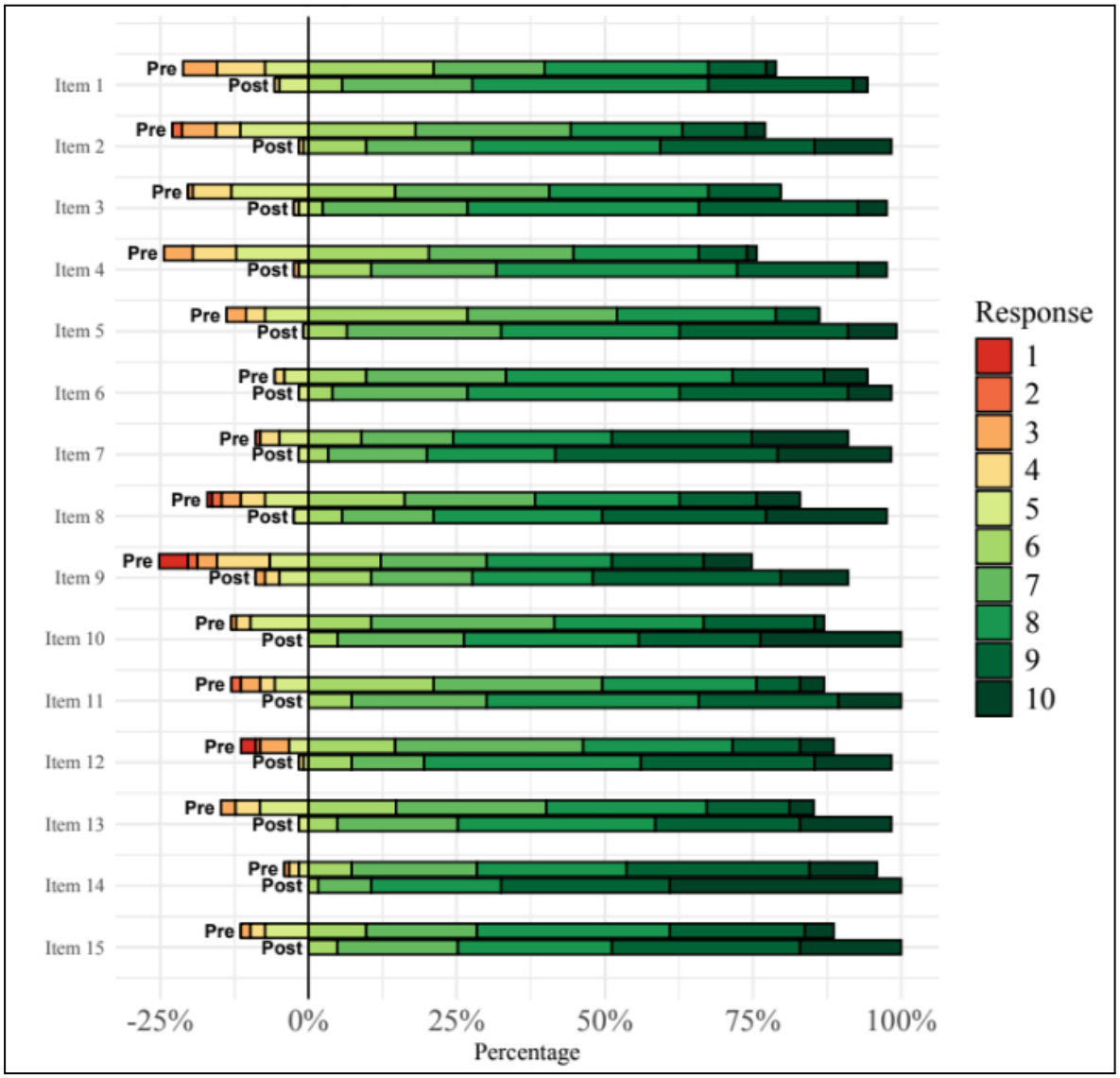
level. All competences showed a significant improvement following the intervention, with the most substantial gains recorded in the Ideas and Opportunities area. In particular, Creativity increased by +1.42 points ($p < 0.000$), Vision by +1.26 points ($p < 0.000$), and Valuing Ideas by +1.23 points ($p < 0.000$). Ethical and Sustainable Thinking also showed a notable improvement (+1.11 points; $p < 0.000$). Overall, the Ideas and Opportunities area demonstrated the most marked progress in students' entrepreneurial development.

Table 2. Average comparison between pre- and post-

Areas - EntreComp	Items - EntreComp	Delta (Pre-Post)	V (Pre-Post)	P-Value (Pre-Post)
Ideas and Opportunities	*Item 1. Spotting opportunities*	*1.09*	*88.50*	*0.0001222513*
	Item 2. Creativity	*1.42*	*41.50*	*0.00000295205*
	Item 3. Ethical and sustainable thinking	*1.11*	*107.50*	*0.0001369455*
	Item 4. Valuing ideas	*1.23*	*41.50*	*0.000004604662*
	Item 5. Vision	*1.26*	*52.00*	*0.000003897713*

Figure 2 complements these findings by visually depicting the changes in students' entrepreneurial competences between the two measurement points using a clustered diverging stacked bar chart. This visualization highlights both the extent and the consistency of improvements across the different competence levels. Specifically in the chart, Item 3 is the Ethical and sustainable thinking competence.

Figure 2. Clustered diverging stacked bar chart



Discussion:

The findings highlight the effectiveness of Challenge-Based Learning (CBL) in fostering entrepreneurial competencies essential for social entrepreneurship and sustainability. Specifically, students demonstrated significant improvement in ethical and sustainable thinking, a core competency for social entrepreneurs, as measured by the EntreComp framework. These results suggest that universities can effectively teach these soft skills through experiential learning approaches.

The Enactus program, with its emphasis on community-driven projects and social entrepreneurship (Passarelli et al, 2025), aligns well with the CBL approach. By integrating Enactus into CBL, students applied classroom learning to real-world challenges, refining their business ideas and enhancing competencies in sustainability, creativity, and problem-solving. The mentorship and competitions provided by Enactus further reinforced these skills, encouraging ethical decision-making and social impact assessment, critical for future social entrepreneurs.

Moreover, the partnership between Enactus and CBL offered a holistic learning experience. While CBL focused on developing practical skills through real-world challenges, Enactus provided a network of like-minded peers and access to industry mentorship. This combination of hands-on experience and global networking opportunities allowed students to sharpen their abilities in resource mobilization, collaboration, and scaling sustainable projects.

In conclusion, Enactus complemented CBL by providing both a structured framework for entrepreneurial development and a practical platform for applying these competencies in the pursuit of social impact and sustainability. Together, these pedagogies equipped students with not only the technical skills necessary for entrepreneurial ventures but also the soft skills vital for leading the next generation of social entrepreneurs.

Contributions:

This study is currently in a preliminary analytical stage, serving as both a pilot and a work-in-progress, and as such, it comes with several limitations. Most notably, the small sample size of 41 respondents restricts the generalizability of our conclusions. Additionally, our reliance on the self-reporting nature of the EntreComp questionnaire introduces potential

biases, including cultural or personal influences (Schmidt & Hunter, 1998), and the tendency for individuals to either overestimate or underestimate their entrepreneurial competencies. To address these limitations, we plan to expand the sample size through new rounds of data collection from future editions of the course, which will be integrated into the broader study. Furthermore, the research team is exploring a comparative study across different business schools. This will allow us to examine how various institutional and contextual factors, along with the role of educators, might influence the development and retention of entrepreneurial competencies.

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Social Media for Social Good: Empowering Graduates for Sustainable Change

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Introduction:

Over the last ten years of its existence, social media have evolved to become an active ground of activism, education, and social change. It has a great potential towards generating societal good because it can reach people worldwide at any given time to initiate discourse and to activate communities. We live in the world of pressing global problems: the climate crisis, social inequality, economic inequality, and the graduates who enter the job market will have to know how to use these digital tools not only to promote themselves, but to benefit the society as a whole.

Higher Education Institutions (HEIs) provide the ultimate step in development of the students before they venture into the professional life. HEIs are traditionally concentrated on developing disciplinary skills and employability; however, the fast-changing environment of the social world needs to draw on other characteristics, like empathy, ethical leadership, critical expertise, and team problem-solving skills. Social media, albeit carefully inbuilt in the system of teaching and co-curricular activities can also form a source that forms these competencies over time, and with the same, it can prove to create quantifiable societal linkages.

This study examines how planned social media programs ingrained into higher learning can deliver graduate qualities resulting in palpable and lasting social reform. The objective is to

prove that social media is not just a communication tool, but an educational tool in developing graduates as leaders in the society.

Research Question:

What are the potentials of social media engagement in the context of higher educational establishment as a platform to build graduate attributes with measurable outcomes of benefits to the society and sustainable change?

Literature review:

Graduate Attributes and Social Responsibility

Graduate attributes go beyond just having academic skills to include skills that people need when in society both personally and also in interpersonal abilities. The competencies to solve real-life problems are based on such qualities as communication, teamwork, adaptability, and global citizenship (Roblek et al., 2018; Ngoepe and Wakelin-Theron, 2023)All these characteristics should be cultivated in applied, real-life settings in order to ensure that graduates can come up with societal advantages.

Social Media as Inspire of Social Good

The uses of social media have mushroomed because of the need to use them in activism and awareness campaigns as well as community building. It enables quick mobilisations of resources, spread of knowledge and collaboration internationally and cross-culturally (Kaplan and Haenlein, 2010; Al-Essa and Yahia, 2019). Larger than life sustainability campaigns, social entrepreneurship projects and health awareness drives have been done on platforms like Instagram, LinkedIn and X (old Twitter). Hooking communities and mobilizing common action (Saxton and Wang, 2013) present an example of how digital engagement could maintain and even improve relationships with communities and encourage action.

Higher Education

Although the potential of social media as beneficial to social good is recognised, it is not fully utilised within the frame of organised programmes in highest education. The current literature body will lean towards its application in marketing or informal learning(Veloutsou and Liao, 2023), which leaves a gap in knowledge on the application to develop graduate attributes in line with the societal benefits and sustainability results. The study will fill this gap by investigating the syllabus inclusion and the extra-curricular on-demand done intentionally using social media engagements in the higher education system.

Methodology:

A mixed-method research design was embraced where both quantitative and qualitative research methods of surveys and interviews were used to achieve measurable and tangible results and in-depth perceptions. The quantitative element consisted of a before and after survey by 312 in final year students (including undergraduate, master, and post graduate level) of five Indian Universities where sustainability-focused student clubs currently operate. Self-reported data on four outstanding domains (digital communication skills, cross-cultural collaboration, sustainability awareness, and social impact orientation) were acquired with the help of the survey.

The qualitative aspect involved the semi-structured interviews with 18 individuals such as student leaders, faculties mentors, and the community partners. The following interviews investigated on which aspects the social media had impacted clearly on the project outcomes, the experiences of participants to have developed their skills and on the perceived value of the investment into the society regarding the campaigns.

Mixed-methods was chosen to support the validity of the results with triangulation. Quantitative evidence demonstrated concrete evidence on skills development whereas the qualitative insights put these changes in context, demonstrating how these changes can lead to the positive outcomes of graduate attributes to the wider society. Paired-sample t-tests were used to analyse quantitative data as they revealed any meaningful changes between pre- and post-survey answers. Thematic analysis (Roblek, 2015; Arora and Siddhey, 2024, 2025) was used to explore qualitative data in the transcripts of interviews and pinpoint the patterns that pertained to the concepts of reach, influence and the durability of impact.

Findings:

The quantitative findings showed major increases in all the areas that were measured. There was a significant improvement in digital communication skills ($p < 0.01$), with students describing feeling more confident about developing effective content and communicating directly with different people. The cross-cultural cooperation also improved (p 0.05) and this is attributed to the global scope of the campaigns and was effected through collaboration with cross-cultural partners. There was an increase of 22% of sustainability awareness and many of the students showed better knowledge of the United Nations Sustainable Development Goals. Social orientation scores improved by 15 percent i.e. the stronger orientation of career aspirations to make positive difference to society.

Three core themes were created into the qualitative results. First, the second outcome was larger reach and impact as campaigns were either on or off campus not to mention the local and international attention, collaborations and funding. Second, empowerment within communities could also be observed because social media allowed marginalised groups to be seen and heard through their stories and looking into the bigger picture. Three core themes

were created into the qualitative results. First, the second outcome was larger reach and impact as campaigns were either on or off campus not to mention the local and international attention, collaborations and funding. Second, empowerment within communities could also be observed because social media allowed marginalised groups to be seen and heard through their stories and looking into the bigger picture. Three core themes were created into the qualitative results. First, the second outcome was larger reach and impact as campaigns were either on or off campus not to mention the local and international attention, collaborations and funding. Second, empowerment within communities could also be observed because social media allowed marginalised groups to be seen and heard through their stories and looking into the bigger picture.

Third, there was seen continued participation, as online campaigns often resulted in offline activities like a community clean-up, a policy advocacy campaign and skills building workshops. These collective results present a picture of how social media can become a commendable instrument in building skills and a transformative vehicle into the worthy contribution of the society.

Discussion:

The results prove that organized social media programs in the HEIs will not only establish graduate traits but also generate actual societal advantages. Such a dual effect makes social media an influential instrument of the experiential learning in the field of sustainability, and social entrepreneurship.

Enhancement of digital communication skills as well as the cross-cultural collaboration is consistent with the graduate attribute frameworks that place the emphasis on global citizenship and ethical leadership (Barrie, 2006). In addition, in converting online campaigns

in real-life activities one can see that social media can serve as a connector between virtual activism and actual change.

The research also dispels the myth that there are no possibilities of the explicit development of the soft skills in formal education. Using social media projects, HEIs can purposefully develop skills that have an immediate beneficial impact on society whether in curricula or in extracurricular activities.

Contributions:

Empirical Contribution

The research has an objective, measurable evidence that structured social media use contributes to graduate skill development as well as the benefits to the society where there has been outstanding literature in higher education and social entrepreneurship.

Theoretical Contribution

The research introduces a framework in which the social media is a mediating process between the graduate qualities and the sustainability of societal impact.

Practical Contribution

To educators and policy-makers the finding provided a low-cost and replicable model on how best to integrate the use of social media to advance social media engagement within the context of higher education with a view of producing graduates ready to assume socially responsible leadership roles.

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Socio-Environmental Entrepreneurship Course at CEFET/RJ: A Practical Case Applying Enactus Cefet/RJ Team Projects in the Classroom.

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This summary describes the creation of the Socio-Environmental Entrepreneurship course for undergraduate programs at Cefet/RJ (Federal Center of Technological Education – Rio de Janeiro) from Brazil, developed from the Faculty Advisor's practical experience with Enactus Cefet/RJ[27] projects and university extension initiatives. Despite hands-on experience since 2014, a theoretical gap motivated the creation of an elective course to complement knowledge in entrepreneurial management.

Participation in the online course "Teaching Journey in the Impact Business Investment Agenda", promoted by ICE between October and December 2022, was essential for structuring the Socio-Environmental Entrepreneurship course. The course, accessed via Open Learning, culminated in a seminar presentation and the official launch of the course, which began being offered in 2022. Since then, the course has been revised and strengthened in its extensionist character, fostering dialogue with external communities and remaining active to this day (IMPACTO, SOCIOAMBIENTAL, et al., 2021).

The objective is to present the process of creation and evolution of the syllabus focused on Social Impact Businesses and Socio-Environmental Entrepreneurship. The proposal aims to strengthen the socio-environmental entrepreneurial network by encouraging knowledge of existing projects, experience exchange, the emergence of spin-offs, and inspiration for new initiatives. It also seeks to establish Cefet/RJ and Enactus as references in socio-environmental entrepreneurship.

[27] https://www.enactuscefetrj.com.br/

In 2021, during the pandemic, the professor participated in the online course ICE[28] "Teaching Journey on Impact Investments and Businesses." The training promoted collaboration among professors from various regions of Brazil, with learning tracks, synchronous meetings, and asynchronous tasks. Topics such as social innovation, impact businesses, theory of change, and investment ecosystems were covered, supported by practical and bibliographic materials. In the final stage, the instructor presented the course syllabus in a seminar to a specialized panel, including one of the authors of the theoretical framework (COMINI et al., 2012), validating the proposal.

The Socio-Environmental Entrepreneurship course was created as an elective for the Administration program, with no prerequisites, and is offered from the second semester onward. Its goal is to raise student awareness and equip them to develop social impact businesses using specific methods and tools.

The methodology includes lectures, case studies, seminars, and research projects. Although linked to the Administration program, the course is open to students from other programs, with 50 seats distributed as follows: 26 for Bussiness Administration, 6 for Production Engineering, 6 for Environmental Engineering, 6 for Electrical Engineering, and 6 for Computer Science Graduation.

The syllabus covers:

- General concepts of entrepreneurship, startups, and incubators;
- Socio-environmental entrepreneurship, concepts related to SDGs, ESG, Triple Bottom Line, and sustainable business models;
- Social Impact Businesses, with case studies and critiques;
- Theory of Change and the C Model, as well as SWOT;
- Social Innovation, with Design Thinking, Lean Startup, and agile methods;

[28] ICE: Inovação em Cidadania Empresarial - https://ice.org.br/ traslate to:" Innovation in Corporate Citizenship"

- Investments for impact businesses, including incentive laws, funding sources, and the
- B System as a certification model for sustainable companies.

After institutional approval, the course was first offered in the second semester of 2022. Evaluations are conducted by a panel composed of Enactus advisor professors, guests from sustainability-related fields, and Enactus student members, especially from the Board and active project management, serving as the basis for applying the C Model and the tools presented.

An Excel template was created by the instructor in 2024 to facilitate the application of the C Model (BRANDÃO et al., 2018). This year, with the C Model 2.0 (RIBEIRO et al., 2025), a new version was created for students to complete and present to the panel. The first evaluation consists of a pre-presentation of the C Model 2.0, followed by a final evaluation using the cross SWOT (TOWS) and a management tool taught during the course (LEIGH, 2021).

In the initial semesters, the course featured participation from various internal and external projects and guests, including Enactus initiatives, spin-off projects, Cefet/RJ extension actions, and social impact businesses. These encounters enriched learning and inspired students to develop solutions for real-world problems.

In the last semester of 2025, for the first time, only Enactus projects were used—specifically, the four active projects of the Enactus Team were distributed among seven groups, with three projects split to ensure each group had a unique theme.

The projects used were:

- Project Maya, focused on preventing obstetric violence, divided into two fronts: an e-book app and public policy.

- Project Odoyá[29], which addresses sewage treatment with low-cost evapotranspiration basins in vulnerable communities and the use of kitchen sponges for sewage treatment.
- Project Maná[30], involving environmental education in a Rio de Janeiro schools, with gardens and composting, and a second front creating biofertilizer from market waste.
- Project Gelé[31], which teaches economically vulnerable women in communities to make jams from fruit peels.

This account highlights how continued education for instructors, especially through ICE's training, contributed to the development of the Socio-Environmental Entrepreneurship course. The experience showed that students are capable of turning ideas into real, award-winning projects, demonstrating the course's potential to generate new social impact businesses.

Thus, the initiative moves toward consolidating Cefet/RJ and Enactus Cefet/RJ as references in entrepreneurial education and social innovation. It showcases the work Enactus does by providing students with tools to turn their ideas into actions that contribute to a better world and promote social impact.

The feedback has been positive, and with 56 seats per semester and over 130 regular applicants, the high demand reflects student interest. Some students proceed to the Enactus Team selection process, and the course will continue to be offered in upcoming semesters.

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Strengthening soft skills through social innovation: Mexican Case: ENACTUS HUB CNYN-UNAM

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Introduction:

As the world is facing unprecedented challenges on the intersection of social, environmental, and economic issues, STEM (Science, Technology, Engineering and Mathematics) knowledge and social entrepreneurship abilities are social change catalyzers to ensure the transition of a more sustainable world. (Christensen, et al 2006). Universities play a key role in the development of transdisciplinary knowledge, capacities, and abilities in the students (Vallaeys, 2019; Vallaeys y Jara, (2023).

Literature review:

Multiple authors have explored the need to develop soft skills in STEM undergraduate students (Karimi, H., & Pina, A., 2021; Villán-Vallejo et al., 2022; Ballatore, M. & Tabacco, A., 2024; Sorroza, 2023) due to the employability needs and the value of soft skill on the future of work and the challenges the world is facing.

To contribute to this transdisciplinary need, CNYN-UNAM (Center of Nanoscience and Nanotechnology, National Autonomous University of Mexico) incorporated in Nanotechnology Bachelor, as part of undergraduate curriculum, entrepreneurship classes and

as from 2020 the ENACTUS HUB at CNYN-UNAM started in 2021 (Enactus CNYN UNAM, 2021), where participants have shown the development of several hard and soft skills. The aim of this research is to determine which soft skills improved during students' participation of ENACTUS HUB at CNYN-UNAM.

Methodology:

A qualitative approach was use, building a unique case study which according to Yin (2003), allows us to contextualize and analyze in deep elements of a situation in this case the soft skills develop in participants of ENACTUS HUB at CNYN-UNAM. Primary and secondary information such as fortnightly meetings reports, monthly reports from GPS, auditing reports, and interviews of participants from 2020 to 2023 were analyze. The information was process and code using Atlas.ti to identify and analyze the documents as well as coding. All file files were upload in pdf classified first by source and years and after that the coding starts identifying soft skills on the documents. Graphs were create using Sankeymatic. For validation, researchers and sources triangulation were key.

Findings:

1. **Context**

CNYN-UNAM is the Nanoscience and Nanotechnology Center of the National Autonomous University in Mexico, located in Ensenada, Baja California. Establish in 2008 to ensure prominent level theoretical, basic and apply research in frontier fields and develop transdisciplinary profiles on the students as well as attending societal solutions are at the center of their educational model (CNYN, 2025).

ENACTUS arrived in Mexico as a model to promote social entrepreneurship between university students fifteen years ago. Enabling universities to use a methodology for hands on knowledge and abilities to solve societal challenges. (KPMG, 2024)

ENACTUS Hub at CNYN-UNAM has been a catalyzer of social entrepreneurship within the student body.

The intrahub mention on figure 1, are internal competitions within the hub to select the representative university project for national competitions.

Figure 1. Milestones of ENACTUS Hub CNYN-UNAM

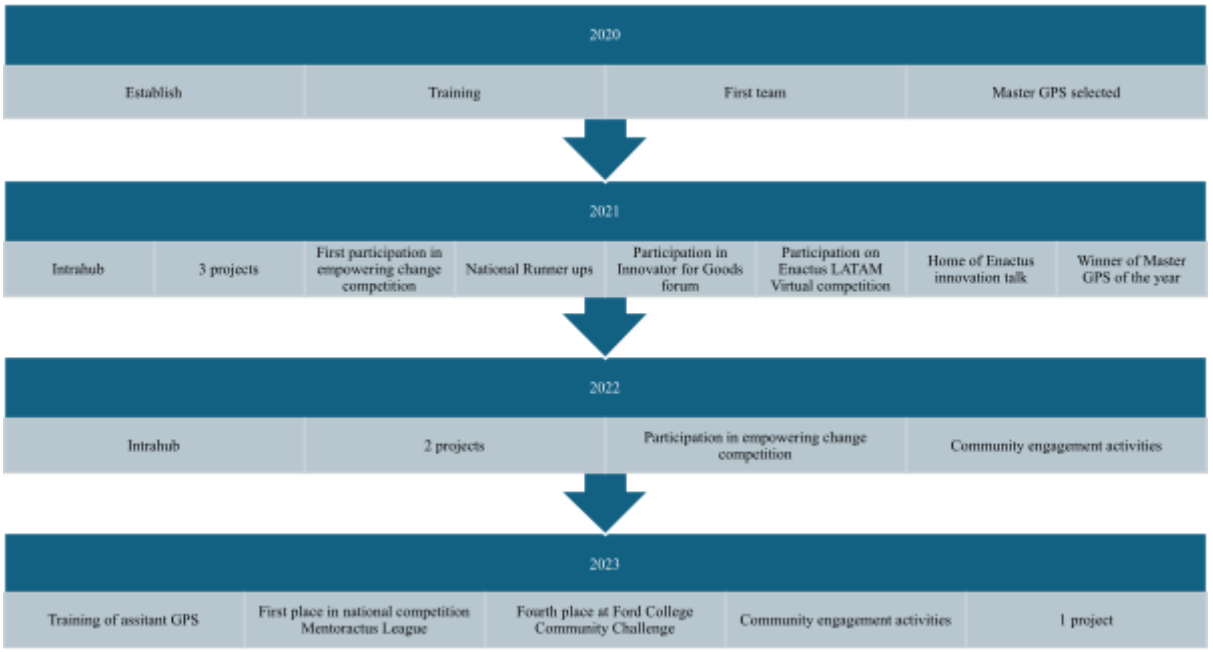
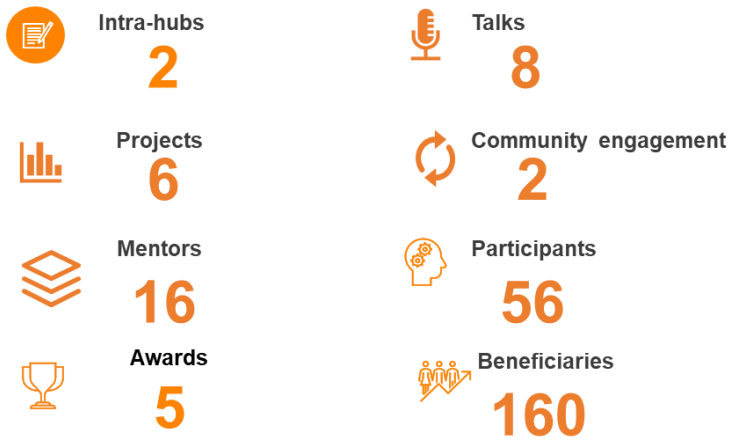


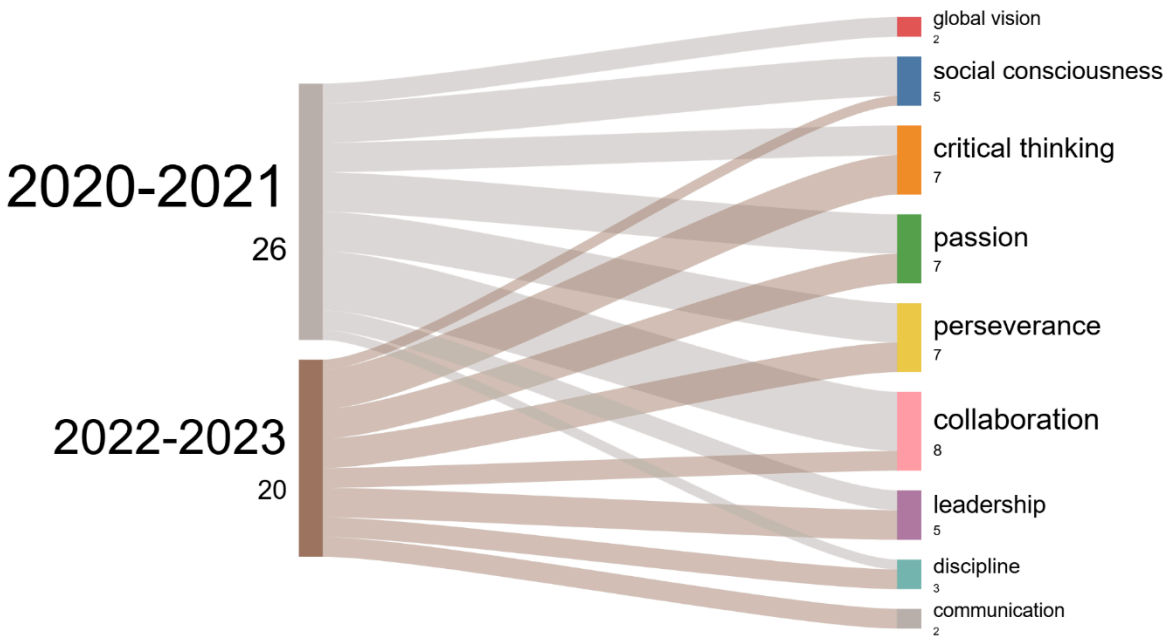
Figure 2. ENACTUS Hub CNYN-UNAM in numbers



2. Skills development

At the end of every year, hub participants give their opinion to understand thoughts and benefits about their time at ENACTUS Hub at CNYN-UNAM. Figure 3 represents the frequency of skills students identify as the ones developed by the design and implementation of a social entrepreneurial project. Eighty-three percent of participants report an improvement of their skills when auto-assessing their capacity.

Figure 3. Cooccurrence of skills gain identify by students.



Discussion:

The results show that the students acquired collaboration skills first, followed by the promotion of critical thinking, passion, perseverance and social consciousness, aspects so necessary for the university training of agents change and citizen for the sustainable future, which agrees with Vallaeys, (2019) and Vallaeys y Jara, (2023).

On the other side, through the activities of ENACTUS HUB at CNYN-UNAM, a connection between students and vulnerable communities grow, allowing students to put into practice prosocial actions and the promotions of empathy and solidarity.

Time management is one of the main challenges expressed by students and getting hands on experience is the principal opportunity for them.

Contributions:

This research provides practical evidence so that universities in the STEM area can promote soft skills in students through the development of entrepreneurship and social innovation projects.

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Spanish Version

Fortaleciendo habilidades blandas a través de la innovación social: Caso Mexicano ENACTUS HUB CNyN-UNAM

Introducción:

Mientras el mundo enfrenta desafíos sin precedentes en la intersección de asuntos sociales, ambientales y económicos, el conocimiento STEM ((Science, Technology, Engineering and Mathematics por sus siglas en inglés) y las habilidades para el emprendimiento social, son catalizadores del cambio social para asegurar la transición hacia un mundo más sustentable (Christensen, et al 2006). Las universidades juegan un rol clave para el desarrollo de conocimiento transdisciplinar, capacidades y habilidades en los estudiantes.

Revisión de Literartura:

Múltiples autores han explorado la necesidad de desarrollar habilidades blandas en los estudiantes universitarios del área STEM (Karimi, H., & Pina, A., 2021; Villán-Vallejo et al., 2022; Ballatore, M. & Tabacco, A., 2024; Sorroza, 2023) debido a la demanda en la empleabilidad y el valor de las habilidades blandas en el futuro del trabajo y los desafíos que afronta el mundo.

Para contribuir a esta necesidad transdisciplinar, el CNYN-UNAM (Centro de Nanociencias y Nanotecnología de la Universidad Nacional Autónoma de México) incorpora en la Licenciatura en Nanotecnología, como parte del curriculum de la carrera, clases de

emprendimiento y a partir del 2020 la creación de ENACTUS HUB, el cual inicia operaciones en el año de 2021 (Enactus CNyN-UNAM, 2021), donde los participantes han demostrado el desarrollo de varias habilidades tanto duras como blandas. El objetivo de esta investigación es determinar cuáles habilidades blandas mejoraron los estudiantes durante su participación en ENACTUS HUB en el CNyN-UNAM.

Metodología:

Se utilizó un enfoque cualitativo, construyendo un caso único de acuerdo a Yin (2003), lo que permite contextualizar y analizar a profundidad, elementos de una situación, en este caso, el desarrollo de habilidades blandas de los participantes de ENACTUS HUB en el CNYN-UNAM. Información primaria y secundaria, como reportes de reuniones quincenales, reportes mensuales del GPS, reportes de auditorías y entrevistas de participantes desde 2020 a 2023 fueron analizadas. La información fue procesada y codificada utilizando el software Atlas.ti, para identificar y analizar los documentos y la codificación. Todos los archivos fueron cargados en formato pdf para clasificarlos primero por fuente y años, después de esto, inicio la codificación para identificar habilidades blandas en los documentos. Las gráficas fueron creadas utilizando Sankeymatic. Para la validación, la triangulación entre investigadores y fuentes fue clave.

Hallazgos:

1. **Contexto**

CNYN-UNAM es un Centro de Nanociencias y Nanotecnología de la Universidad Nacional Autónoma de México, ubicado en Ensenada, Baja California. Establecido en 2008 para garantizar un nivel destacado de investigación teórica, básica y aplicada en campos de

frontera y desarrollo de perfiles transdisplinarios en los estudiantes, así como atender soluciones sociales, están en el centro de su modelo educativo (CNYN, 2025).

ENACTUS llegó a México, como un modelo que promueve el emprendimiento social entre las universidades desde hace 15 años. Habilita en las universidades el uso de una metodología para el conocimiento practico y habilidades para resolver los retos sociales (KPMG, 2024).

ENACTUS Hub en el CNYN-UNAM ha sido catalizador del emprendimiento social dentro del cuerpo estudiantil.

El intrahub mencionado en la figura 1, es una competencia interna dentro del hub para seleccionar al proyecto que representará a la universidad en la competencia nacional.

Figura 1. Hitos de ENACTUS Hub CNYN-UNAM

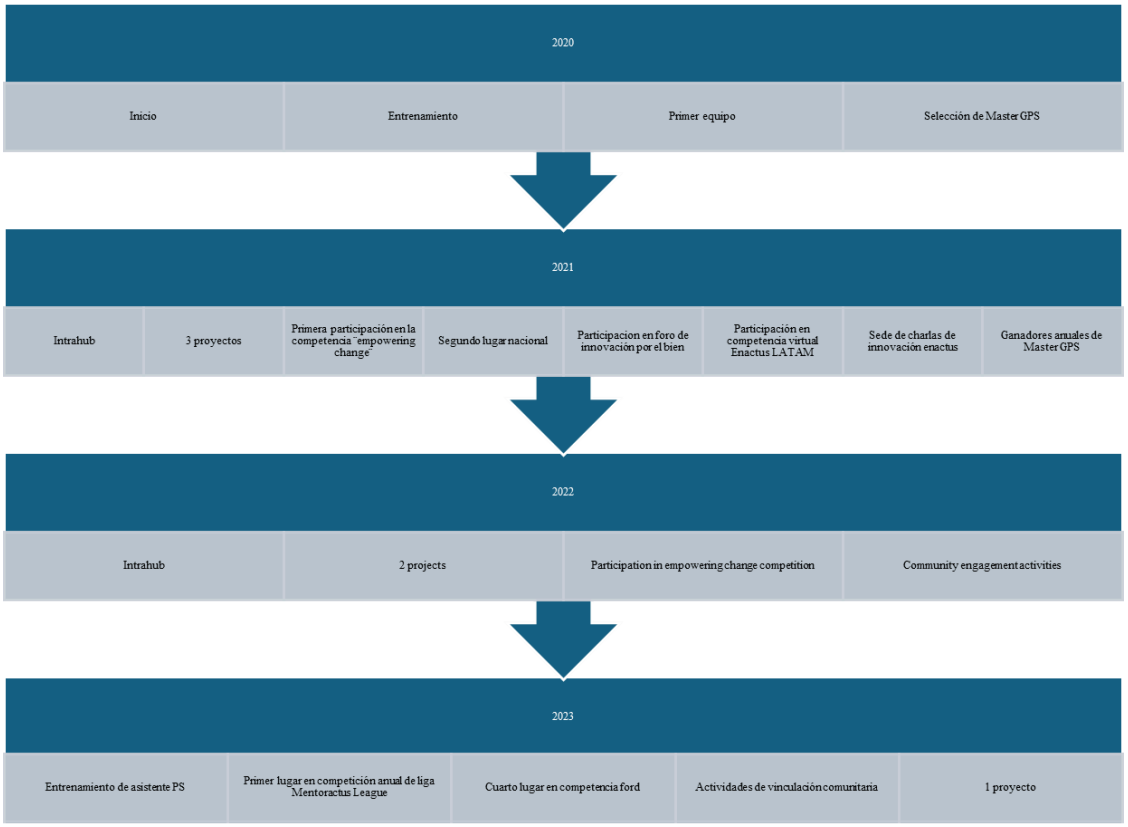


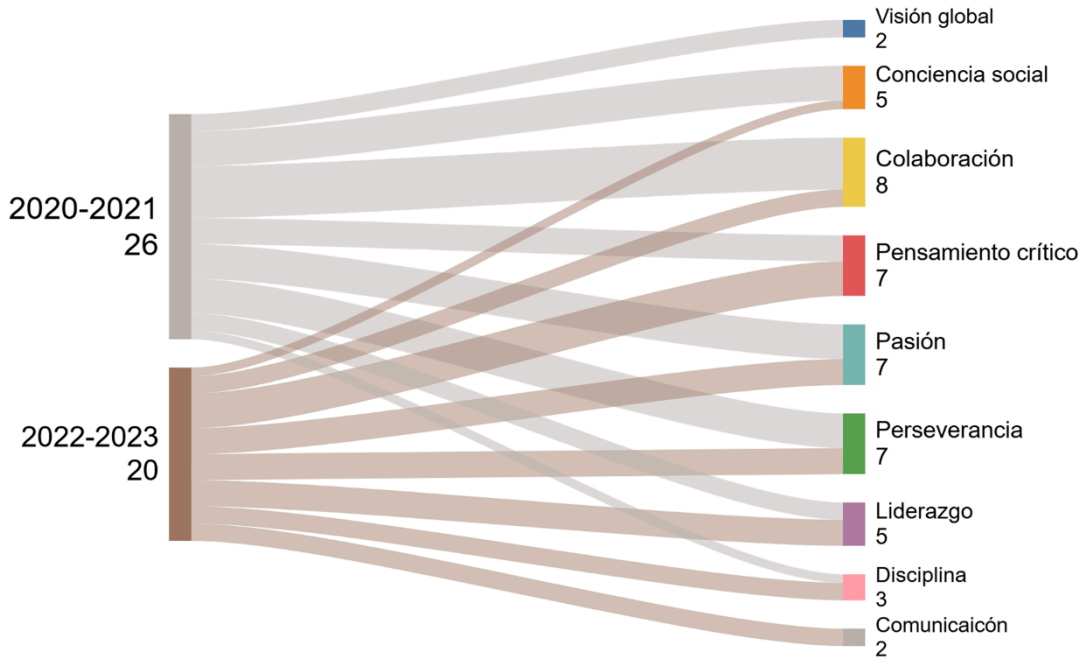
Figura 2. ENACTUS Hub CNYN-UNAM en números



2. Desarrollo de Habilidades

Al final de cada año, los participantes del hub dan su opinión para comprender que piensan y los beneficios acerca de su estancia en ENACTUS Hub en el CNYN-UNAM. La figura 3 representa la frecuencia de habilidades que los estudiantes identificaron que desarrollaron durante el diseño e implementación del proyecto de emprendimiento social. El 83% de los estudiantes reportaron una mejora en sus habilidades al autoevaluar sus capacidades.

Figure 3. Coocurrencia de habilidades ganadas, identificadas por los estudiantes



Discusión:

Los resultados muestran que los estudiantes adquirieron habilidades de colaboración en primer lugar, seguido del fomento de pensamiento crítico, pasión, perseverancia y conciencia social, aspectos necesarios para que las universidades puedan formar agentes de cambio y ciudadanos para el futuro sostenible, lo que concuerda con Vallaeys, (2019) and Vallaeys y Jara, (2023).

Por otro lado, a través de las actividades de ENACTUS HUB en el CNYN-UNAM, la conexión entre estudiantes y comunidades vulnerables aumentó, lo que permitió a los estudiantes poner en practica acciones prosociales y el fomento de la empatía y la solidaridad. La administración del tiempo es uno de los retos expresados por los estudiantes y la experiencia de la aplicación del conocimiento es la principal oportunidad para ellos.

Contribución:

Esta investigación proporciona una evidencia práctica para que las universidades en el área STEM, pueden fomentar habilidades blandas en los estudiantes, a través del desarrollo de proyectos de innovación y emprendimiento social.

Supporting Executive Functioning for Neurodivergent Students: A Qualitative Study on Hybrid Body Doubling Platforms

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Introduction:

Neurodivergent students often face challenges with executive functioning due to neurodevelopmental differences in contrast to their neurotypical peers (Doyle et al., 2024). These challenges commonly manifest as difficulties in maintaining focus, organising tasks, and sustaining accountability, which underpin academic success and overall well-being (Segundo-Marcos et al., 2022). Addressing these issues by fostering equitable environments that accommodate diverse needs is essential for supporting Sustainable Development Goals (SDGs) such as Goal 3 (Good Health and Well-being) and Goal 10 (Reduced Inequalities) (United Nations 2025).

Recently, body doubling has emerged as a promising productivity strategy among the neurodivergent community. It leverages the presence of others, either physically or virtually, to strengthen focus and task initiation (Eagle et al., 2023; Ogrodnik et al., 2023). However, most platforms remain online only, which may limit authentic social connections. To address this gap, the current study examines “Anchor”, a hybrid body doubling and task management platform that integrates both digital and in-person engagement. Anchor combines structured tools such as time blocking, progress tracking, accountability check-ins with

community-driven focus rooms and self-assessment tools that evaluate executive functioning dimensions such as focus, organisation, and motivation.

Literature review:

Empirical research by Eagle et al. (2024), highlights that body doubling improves executive functioning, especially in task initiation and completion. While body doubling has long been informally practised, systematic research has primarily examined online only modalities. Currently, grey literature undermines the growing interest in hybrid and sensory-informed environments, as Furber (2025) highlights that university libraries and learning lounges now host in-person body doubling and focus sessions as early informal pilot initiatives. A design-focused grey literature by Cruse (2025) further advocates for sensory pods enclosed, low-stimulation spaces to help neurodivergent individuals manage sensory overload, self-regulate, and sustain attention. Meanwhile De Souza Santos et al. (2024) demonstrates that hybrid work arrangements improve focus and productivity among underrepresented professionals, including neurodivergent cohorts, corroborating the promise of hybrid models for inclusive support. Thus, there is a notable gap in rigorous academic inquiry into the potential relationship of how hybrid models integrating in-person and online modalities may foster increased cognitive and social benefits of body doubling (Annavarapu, 2024). Consequently, this study asks, "How can a hybrid task management and body doubling platform that integrates in-person and online community building improve focus, structure, and accountability compared to online-only options?" We hypothesise that hybrid platforms like Anchor will deliver a greater sense of belonging.

Methodology:

This study used a qualitative design to explore the lived experiences of neurodivergent students with body doubling. According to Kristiansen et al. (2017), this approach can encapsulate the complex and emotional responses of our population of interest.

Semi-structured interviews were conducted through purposive sampling, n = 100, Curtin University students who had prior experience using online body doubling tools but had not previously used Anchor. Instead, participants were introduced to Anchor's hybrid model and mock sessions, then asked to reflect on how its features could support their needs.

Open-ended questions provoke perceptions of focus, accountability, and belonging. Although the study is qualitative, descriptive statistics were used to summarise themes across responses as 92% reporting improved focus represents the proportion of the participants who validated each theme during coding, following Braun and Clarke (2006) thematic analysis framework. These figures are intended as illustrative frequencies, not as generalisable quantitative findings. Data analysis followed Braun and Clarke (2006) six-phase framework, allowing refined insights into how neurodivergent students conceptualise productivity, structure, and social support in hybrid environments.

Findings:

Task initiation and focus: Approximately 92% of participants indicated that scheduled in-person sessions would strengthen accountability and reduce procrastination on online only platforms. Students described the physical presence of others as a critical motivator for reducing distractions and sustaining attention.

For the organisation and structure, the participants highlighted Anchor's time blocking tools, progress tracking, and accountability check-ins as beneficial for organising and prioritising

tasks. The integration of these features with body doubling offered both cognitive scaffolding and motivational reinforcement.

As for the community and belonging 90% reported that hybrid models reduced isolation and fostered meaningful connections. In-person interactions created emotional engagements not easily replicated in digital-only environments. However, 8% raised concerns about logistical barriers to scheduling physical sessions. Overall, 92% preferred the hybrid model over online only options, underlining its combined cognitive and emotional benefits.

Discussion:

These findings demonstrate that a hybrid task management and body doubling platform like Anchor can meaningfully improve executive functioning among neurodivergent students. The combination of digital infrastructure and physical presence reinforces accountability, focus, and belonging. Unexpectedly, participants highlighted the emotional importance of belonging almost as strongly as cognitive benefits, suggesting that hybrid platforms may serve dual functions as both productivity tools and social inclusion mechanisms.

At a broader level, these results have practical implications. For universities, integrating hybrid body doubling spaces into student support services could improve academic success and mental well-being. For technology developers, platforms designed with both online and in-person components can provide scalable, inclusive interventions. Importantly, the findings highlight a participatory, human-centred design approach, centring neurodivergent voices, as essential for developing effective educational technologies.

Contributions:

This study contributes by empirically validating hybrid models as superior to online-only tools for supporting executive functioning. It expands on existing research (Eagle et al. (2024Ogrodnik et al., 2023) which focuses on digital platforms by showing that social connectedness and belonging are equally critical as cognitive scaffolding. Furthermore, it clarifies the features and assessment mechanisms of Anchor, positioning it as both a productivity and community-building tool. The inclusion of descriptive statistics derived from qualitative analysis also demonstrates a mixed insight approach, improving methodological transparency. Finally, the study's implications extend beyond Curtin University. Illustrating how hybrid models can be integrated at scale, replicated across institutions, and potentially inform educational policy lays the foundation for future multi-institutional research.

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Teaching Soft Skills through Student-Led Social Enterprise Sprints

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Keywords: experiential learning; social entrepreneurship; soft skills; first-year undergraduates; assessment; Canada

Background & Purpose:

Employers frequently point out deficiencies in graduates' communication, problem-solving, cooperation, and flexibility. Particularly in the first year, early undergraduate programs often place more emphasis on individual graded work than on group, practical experience. By encouraging students to solve community-centred problems that require iterative execution and cross-perspective communication, social entrepreneurship provides a means of bridging this divide.

Research question: *Which social-entrepreneurship learning model best strengthens soft-skill development for first-year undergraduates?*

Structure (illustrative 3-week pilot):

- **Week 1:** needs assessment, stakeholder mapping, and ideation workshops.
- **Week 2:** rapid prototyping; mentor check-ins on feasibility, impact, and basic market fit; reflective "learning logs."
- **Week 3:** iteration, pitch preparation, and final presentations to alumni judges and community partners.

In order to maintain student ownership, faculty coordinators, alumni mentors, and community partners offer suggestions and minimal scaffolding.

Evaluation Plan:

Impact will be measured with mixed methods:

1. **Pre/Post self-assessments** (Likert-scale) on communication, teamwork, problem-solving, leadership, and adaptability;
2. **Mentor ratings** of teamwork, professionalism, and iterative problem-solving;
3. **Peer evaluations** of contribution and collaboration;
4. **Behavioural indicators** (attendance, deliverable quality, on-time submissions);
5. **Weekly reflections** were qualitatively coded for evidence of mindset shifts and skill use.

Anticipated Results:

In addition to better mentor ratings of professionalism and iterative problem-solving, we anticipate 15–25% pre-/post-gains in students' self-rated communication, teamwork, problem-solving, leadership, and adaptability. With flexible, affordable delivery, we also expect high engagement (≥85% on-time deliverables) and increased participation from first-generation students and commuters.

Significance & Scalability:

Because of its modularity, short duration, and low cost, the Enactus chapters can readily switch sprints under local conditions by employing shared portions and reflections. An early, research-based path that boosts employability skills that increase core courses is offered via sprints that include orientation-related programming or first-year seminars.

Next Steps:

In order to assess generalizability and implementation integrity, we will test the concept across many Canadian campuses after the pilot, publish an open resource pack (mentor guide, reflection prompts, and scoring sheets), and improve the rubrics.

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The Development of Social Skills in University Students to Foster Global Engagement

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Introduction:

Social skills deficits are strongly linked to increased stress and loneliness (Segrin, C., 2017), as well as lower self-esteem, anxiety, and academic disengagement (Bierman, K.L., 2003). Adults with poor social skills often face limited employment opportunities (Agran, M. et al., 2016). Bell (2025) found that social skills deficiencies are a greater hurdle than technical training for long-term career progression. The World Economic Forum (2020) highlights the shift in skill demand following the COVID-19 pandemic. Emerging jobs increasingly require both technical and human-centric competencies, including critical thinking and problem-solving, self-management, communication, and leadership abilities. There is growing importance of social skills such as empathy, interpersonal influence, leadership, and collaboration. To thrive in the labour market, fostering both technical proficiency and social skills is thus essential.

Literature review:

Social skills are crucial because they enable people to interact, communicate, and build relationships that are critical in education, work, and everyday life. Social skills are one of the core elements of emotional intelligence. By focusing on managing relationships and building rapport, self-awareness, self-regulation, motivation, and empathy, Emotional Intelligence (EQ) can be effectively developed. In education, students with high EQ are more resilient, cooperative, and engaged. At work, EQ predicts leadership success, teamwork, and job

performance. In relationships, empathy and emotional control are critical to maintaining healthy social bonds. According to Vygotsky (1978), social interaction plays a critical role in the development of cognition. Vygotsky's concept of the Zone of Proximal Development (ZPD), for instance, shows that individuals learn best through social collaboration with more capable peers or adults. The ZPD represents the "learning sweet spot" where learning is most effective because the task is challenging but achievable with support. To develop higher confidence, competence, and cognitive function, social interaction in learning through scaffolding is the key strategy.

Methodology:

This article adopts a systematic literature review to explore foundational predictors related to fostering social skills in twenty universities around the world. The concept of social skills and the ZPD was adopted. The data was analysed using grounded theory.

Findings:

This study found that increasing social skills among university students not only prepares individuals for personal success but also enhances their capacity for meaningful global engagement. Universities that invest in developing these competencies contribute to a more interconnected, cooperative, and empathetic global society. The contribution of social skills to global engagement 1) improve intercultural communication for mutual understanding and reducing conflicts in multicultural environments; 2) enhance empathy and perspective-taking; 3) strengthen collaborative and leadership skills; 4) support global citizenship education and social competencies; and 5) increase students' global awareness, positive attitudes, and behaviours. Critical pedagogy focuses on empowering students to question power structures

and challenge social injustices, constructivist teaching by adopting project-based learning, where students create solutions to real-world problems. These allow them to have experiences in learning through reflection on doing (hands-on learning) and fostering crucial 21st-century skills for the students. The application of social-emotional learning (SEL) in educational settings helps promote student well-being, self-management, academic achievement, and resilience. The transformation of knowledge and empathy into actual engagement includes adopting narrative reflection workshops, intergroup dialogue programs, and regular participation in community service projects. For the students in less developed contexts, participation in digital platforms builds and expresses a global identity while connecting them with a broader virtual community. The affordable global identity exploration activities are role plays, case studies, self-assessments, and reflective writing exercises about experiences related to global issues, cultural encounters, or social justice.

Discussion:

To enhance real-world skills and career readiness, a core strategy include 1) holistic human resource development; 2) educational equity, access, and burden reduction for learners, teachers, and surrounding community; 3) a flexible, inclusive system spanning formal, informal, non-formal, and lifelong learning; 4) use of modern technology including AI tools, Learn-to-Earn vocational models, lifelong learning via Credit Bank assessment systems, and bilingual education support. These findings are supported by several academic research studies (Carmona, M. et al., 2024; Abuameerh, O.A. et al., 2024; Kim, E.K., et al., 2024).

Contributions:

Theoretically, enhancing social skills among university students is crucial in fostering active global engagement. As globalization intensifies, individuals who can navigate diverse social and cultural contexts are more likely to contribute meaningfully to global initiatives. Practically, enhancing social competencies such as communication, empathy, collaboration, and cultural sensitivity helps students become more effective global citizens.

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The Enduring Value of Soft Skills in the Age of Intelligent Machines: Navigating the Evolving Labour Market and Workplace Dynamics

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Introduction:

This study looks at how labour productivity would rise in future workplaces that use intelligent technologies and human/soft skills. The efficient, responsible, and sustainable use of technology still relies on human judgment and decision-making, which frequently calls for complex thinking that is difficult for machines to replicate, making thoughtful collaboration between humans and machines crucial. This paper expands the concept of intelligent machines by integrating human/soft skills into it. These tasks often require complex thinking that machines cannot easily replicate, making it important for humans and machines to work together in a thoughtful way (Poláková et al., 2023). While digital skills are essential in today's workforce, human (or "soft") skills—such as communication, creative thinking, and problem-solving—are just as important and cannot be replaced by machines. Employers also value these skills highly because they make employees more adaptable and flexible, which are key qualities for the future of work. This study explores the growing importance and types of soft skills, especially in the context of Industry 5.0, where technology use is increasing and human interaction has reduced, especially after the COVID-19 pandemic

(Papadopoulos et al., 2022). The research is based on data collected from job advertisements posted by different companies over the years on a job portal. The findings show that even in tech-heavy fields, there is a strong demand for soft skills like critical thinking, communication, and creativity. The study concludes that to succeed in the future, workers need to be skilled in both digital and soft skills.

Literature review:

Many studies and research projects have focused on enabling technologies, their use, and the need for digital skills that support and facilitate work in highly technological environments in light of the continually evolving nature of technology (Chaka, 2020; Ciaschi & Barone, 2024; da Silva et al., 2022; Demir et al., 2019; Takacs & Pogatsnik, 2023). Only a small number of papers, meanwhile, have explicitly demonstrated the importance of soft skills in the age of intelligent machines. The identification of soft skills that support the development of a skilled and employable workforce that can function not only effectively but also responsibly and sustainably is necessary due to Industry 5.0's human-centric orientation, which is characterized by human-robot collaboration and the need for a skilled workforce (Grabowska et al., 2022; Nahavandi, 2019; Verma et al., 2022; Xu et al., 2021; Zizic et al., 2022).
Given the particular circumstances covered in the Industry 5.0 visions, this article attempts to theoretically define the function of soft skills and their classification while also looking into the real-world need for them by the different industries. In this study the following research gaps have been addressed.

RG1: Lack of theoretical clarity on soft skills in Industry 5.0.

RG2: Absence of systematic categorization of soft skills bridging theory and practice.

RG3: Limited empirical evidence on the demand for specific categories of soft skills.

To fulfil these gaps, an extensive research review has been conducted out of the existing literature on soft skills, specially focusing on Industry 4.0 and 5.0 and its significance for employees. Furthermore, we conducted a study to map the demand for the designated soft skill areas based on different industries from the different online recruitment portals.

Methodology:

In order to give a thorough picture of the present need for soft skills among employers, the study's primary research design was descriptive. There are three research questions in this study. We compiled pertinent data on the subject through a survey of the literature in order to better understand the function of soft skills in the anticipated circumstances of Industry 5.0. bibliometric analysis was Preferred for Systematic Reviews. The Scopus database served as the main information source during the identification stage. From Scopus, we were able to obtain 374 documents. 164 papers pertaining to the research questions were chosen after choosing publications available with open access and reviewing the abstracts and titles. In order to address the research question 2, an analysis was conducted on the dataset obtained from the different recruitment Portal, such as Naukri, LinkedIn, Indeed India, Monster/Foundit, Times Jobs, Shine, Freshers world, Internshala, Placement India. The dataset comprises information on the skills demanded by 150 organisations over the year 2025.

Then the dataset was analysed includes aggregated information on job roles and the skills that 150 organizations requested in their 2025 job postings. Following skill categorization, frequencies were determined using descriptive statistics. One of the suitable tests for categorical variable analysis is descriptive analysis.

Findings:

Many people consider the soft skills covered in this study to be core competencies. A greater comprehension of the importance of soft skills for the future is made possible by their recognition, which also provides motivation to actively seek their development. The intrinsic worth of these abilities resides in their versatility across different professions, allowing people to participate in lifelong learning and adjust flexibly to changes. Workers are able to adapt to shifts in the labour market's demand. Our findings show how important soft skills are to employers. We looked at how digital and soft skills interact in anticipation of the technology-driven future defined by Industry 5.0, as both will be crucial in the future.

In today's technologically advanced world, digital abilities are essential, yet soft skills have unique qualities and serve different purposes. Because of the intricate relationship between software development and soft skills, soft skills are sometimes disregarded in the software business. Numerous issues pertaining to software development demand a variety of hard and soft skills . Our research showed that employers regularly look for soft skills like critical and analytical thinking, problem-solving, communication skills, creativity with flexibility, and a few others, out of which the communication skill is the highest demanded skill irrespective of any industry differences even in technology-focused fields like information technologies and engineering or production and logistics. only 20 percent of the skill that companies will need in 2025 are digital skills whereas the demand for specific soft skills are expected to rise in near future.

Discussion:

For national and international initiatives, recognizing and defining the skills required for future employment is a top priority. Three research questions are examined in order to

address the importance of soft skills. Given their unique nature, adaptability, and fluidity in terms of development, augmentation, updating, and transferability, skills are becoming increasingly important in light of current labour market and economic trends. This contrasts with the more general idea of qualifications, which mostly refers to the official expression of professional or vocational skills acknowledged at the sectoral, national, and international levels.

To sum up, soft skills are essential for improving communication and teamwork, encouraging flexibility and resilience, stimulating creativity, building strong bonds with others, and assisting with both professional and personal growth. Furthermore, these abilities are essential for overcoming obstacles and seizing opportunities brought forth by Industry 5.0's digitalized environment. From the perspective of the labour market, soft skills are essential for maintaining employability, offering a competitive edge, future-proofing careers, having cross-disciplinary applications, encouraging leadership and entrepreneurship, facilitating professional networking, and improving opportunities for career advancement. Digital abilities combined with essential soft skills increase a person's marketability and open doors in the ever-changing labour market.

Emerging trends and employer needs now emphasize how critical it is to acknowledge the relevance of soft skills. Soft skills make up over 40% of all the skills that companies seek, and their value is steadily rising. From an educational standpoint, the development of soft skills is essential for success in both personal and professional spheres. As kids become ready for their professions, secondary school is a great time for them to improve these abilities. For college students and recent graduates starting their careers, soft skills are essential. In generation research, a generational cohort is examined to learn about their work values and expectations. The high preferences of Generation Z for flexible work arrangements, open

communication, treating all employees fairly, and career advancement are linked to their expectations and the significance of soft skills for employability.

The study should be expanded to incorporate an international environment in order to encompass a wider spectrum of cultural and social variables and improve the generalizability of our findings. By doing this, we can reduce the possibility of biases resulting from a narrow geographic emphasis and obtain a more thorough understanding of the topic being studied. Our study's sampling period, which was limited to a single year, is one possible drawback. We could have been able to increase the precision of our forecasts about the future need for not only digital and soft skills but also the most common sectors by using tighter sampling intervals, like monthly or quarterly data. In these situations, a number of sophisticated statistical techniques can be used. It's also critical to recognize that, despite the possibility that they needed additional talents that weren't specifically stated or thoroughly explained, some job offers were somewhat generic, with employers choosing from predetermined skill categories.

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The E3S (Ethical Entrepreneurial Education Scorecard): a new measure model of Ethics in the Student Entrepreneurship Educational Programs

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Introduction:

In the face of urgent global issues, ranging from climate change and widening social inequalities to the erosion of institutional trust, education systems are increasingly called upon to go beyond traditional content delivery (Malone, 2015; Ul Hassan et al., 2025). There is a pressing need to cultivate responsible, value-driven individuals capable of responding to these complex challenges with empathy, innovation, and ethical resolve. One of the key areas where this transformation is particularly relevant is entrepreneurship education (Passarelli and Bongiorno, 2025; Passarelli et al, 2025).

Rather than merely producing business-savvy graduates, educational institutions must now equip students with the competencies to drive inclusive, sustainable, and ethically grounded change. Entrepreneurship education must evolve into models that foster socially conscious individuals committed to creating solutions with long-term societal impact. From this perspective, Student Entrepreneurship Educational Programs (SEEPs) offer a promising space for this transformation by combining practical learning experiences with a focus on creating social and environmental value (Duval-Couetil, 2013; Kassean et al., 2015; Morland et al., 2021). SEEPs are uniquely positioned to nurture a new generation of ethical

entrepreneurs. These individuals serve as agents of change who, through processes of social learning, develop competencies not only in business but in relational ethics, care, and responsibility (Dacin et al., 2010; Douglas, 2019; Elmes et al., 2012). SEEPs inherently operate at multiple levels, individual, team, and ecosystem, making them ideal platforms to explore ethics as both a personal and collective practice. In light of this, the central research question addressed in this conceptual paper is: *Is it possible to propose a dynamic tool for measuring ethics in SEEPs that incorporates individual, team, and ecosystem levels?* To answer the question, a multidimensional, flexible, and context-sensitive tool is proposed. The authors begin by reviewing the existing literature on ethics measurement in education and entrepreneurship. While quantitative methods have long been employed to assess ethical awareness, moral judgment, and ethical reasoning (Pathak and Muralidharan, 2020), they often fall short in capturing the lived, evolving, and context-dependent nature of ethical behavior. Quantitative instruments offer the advantage of standardization and replicability, yet they frequently reduce complex ethical reasoning into a set of predefined variables. Many of these tools fail to incorporate cultural and situational nuance and are prone to socially desirable responses that obscure authentic moral perspectives (Islam, 2022). Moreover, ethical development is dynamic; it unfolds over time and is shaped by emotional triggers, reflective processes, and interpersonal interactions, aspects that are not adequately captured in static survey-based scales. Consequently, the authors argue for a multidimensional and dynamic approach that combines the objectivity of quantitative tools with the depth and contextual richness of qualitative methods (Heyler et al., 2016; Casali and Perano, 2021). Ethics in entrepreneurship education, in fact, cannot be reduced to a checklist; it must be explored as a developmental journey embedded within emotional, relational, and institutional realities.

Literature review:

Traditional entrepreneurship metrics, such as revenue generation, market scalability, or business plan robustness, fail to fully capture the transformative experiences of participants and the real social value created (Saebi et al., 2019). Some scales, such as the one on primary school students' sense of belonging to ethical values (Yardimciel and Kılıç, 2023) and the Ethical Leadership Scale (Sen and Gocen, 2021), have already been used and validated, but further research and applications are needed to broaden the analysis of ethical values in different educational and organisational contexts. Indeed, to truly assess the impact of ethics-based entrepreneurial education, new evaluation tools must be developed that account for the evolution of personal values, the internalization of ethical principles, and the acquisition of systems-thinking capabilities (Douglas et al., 2001; Vázquez-Parra et al., 2022; Passarelli et al., 2025). Thus, to understand the level of ethics in SEEPs, a literature review is proposed (Cohen et al., 1993) and three major typologies of scales are presented (see Table 1) :

1. **General Ethics Scale**– Includes studies that address the measurement of ethics without focusing on a specific category of business actors.
2. **Managers' Ethics Scale** – Comprises scales to assess the level of ethicality among managers.
3. **Entrepreneurs' Ethics Scale** – Gathers research that develops tools for measuring entrepreneurial ethics.

Table 1. The three major typologies of Ethics Scales in the literature

General Ethics Scale				
Title	**Authors**	**Year**	**Journal**	**Scale Description**

Some Initial Steps toward Improving the Measurement of Ethical Evaluations of Marketing Activities	R. Eric Reidenbach & Donald P. Robin	1988	Journal of Business Ethics, Volume 7, pages 871–879	"Multidimensional Ethics Scale" (MES), composed of 5 factors summarizing 29 items: (1) Justice scale – 3 items; (2) Relativist scale – 5 items; (3) Egoism scale – 7 items; (4) Utilitarian scale – 9 items; (5) Deontological scale – 5 items.
A Multidimensional Scale for Measuring Business Ethics: A Purification and Refinement	Randall S. Hansen	1992	Journal of Business Ethics, Volume 11, pages 523–534	Scale composed of 4 factors totaling 16 items: (1) Broad ethical judgment – 8 items; (2) Deontological judgment – 2 items; (3) Social contract judgment – 2 items; (4) Teleological judgment (includes elements of egoism and utilitarianism) – 4 items.
Judging the morality of business practices: The influence of personal moral philosophies	Donelson R. Forsyth	1992	Journal of Business Ethics, Volume 11, pages 461–470	(1) Idealism scale – measures concern for others' well-being. Example: 'One should never intentionally harm another person, even to a small degree.' (2) Relativism scale – assesses rejection of universal moral principles in favor of context-based ethics. Example: 'What is ethical varies from one situation to another.'
The perceived role of ethics and social responsibility: A scale development	Anusorn Singhapakdi, Scott J. Vitell, Kumar C. Rallapalli, Kenneth L. Kraft	1996	Journal of Business Ethics, Volume 15, pages 1131–1140	PRESOR Scale, with 3 factors comprising 13 items: (1) 'Social Responsibility and Profitability' – 4 items including 'If company survival is at stake, ethics and social responsibility should be ignored'; (2) 'Long-term gains' – 6 items; (3) 'Short-term gains' – 3 items including 'If shareholders are unhappy, nothing else matters.'
Proposal for a Measurement Scale of the Ethical Climate in Business: A Study in the Area of B-to-B Selling	Laure Lavorata	2007	Recherche et Applications en Marketing (English Edition), Vol. 22(1), pages 1–23	Ethical climate measurement scale with 14 items across 4 dimensions: (1) Business ethics procedures – 5 items; (2) Peer behavior – 3 items; (3) Sales practices – 3 items; (4) Compensation plan – 3 items.
Measuring Corporate Social Responsibility:	Duygu Turker	2008	Journal of Business Ethics, Volume 85,	CSR scale includes 4 factors summarizing 17 items: (1) CSR toward social and non-social stakeholders – society,

A Scale Development Study			pages 411–427 (2009)	environment, future generations, NGOs; (2) CSR toward employees – e.g., 'Management decisions are generally fair'; (3) CSR toward customers – e.g., 'Our company respects consumer rights beyond legal requirements'; (4) CSR toward government – e.g., 'Our company complies with legal regulations in full and timely manner.'
The Corporate Ethical Virtues Scale: Factorial Invariance Across Organizational Samples	Maiju Kangas, Taru Feldt, Mari Huhtala & Johanna Rantanen	2013	Journal of Business Ethics, Volume 124, pages 161–171 (2014)	Corporate Ethical Virtues Scale (CEV), includes 8 dimensions (58 items): (1) Clarity – 'The organization clarifies how to obtain necessary authorizations'; (2) Supervisor congruence – 'My supervisor sets a good example in ethical behavior'; (3) Senior management congruence – 'Senior leaders reflect shared norms and values'; (4) Feasibility – 'I don't have enough time to act responsibly'; (5) Supportability – 'There is mutual trust in my work environment'; (6) Transparency – 'If a colleague does something wrong, my manager will find out'; (7) Discussability – 'There is room to discuss unethical behavior in my workplace'; (8) Sanctionability – 'Ethical conduct is rewarded in my workplace'.
Ethics scale for management				
Title	**Authors**	**Year**	**Journal**	**Scale Description**
Toward the development of a multidimensional scale for improving evaluations of business ethics	R. Eric Reidenbach & Donald P. Robin	1990	Journal of Business Ethics, Volume 9, pages 639–653	The scale consists of 3 dimensions: (1) Broad moral equity dimension (4 items: Right/wrong, Fair/unfair, acceptable/unacceptable for my family, Morally/not morally right); (2) Relativistic dimension (2 items: Traditionally acceptable/unacceptable, Culturally acceptable/unacceptable); (3) Contractual dimension (2 items: Violates/does not

				violate an implicit promise, Violates/does not violate an unwritten contract).
An investigation of the moral reasoning of managers	Dawn R. Elm & Mary Lippitt Nichols	1993	Journal of Business Ethics, Volume 12, pages 817–833	Uses 3 scales: (1) Defining Issues Test (DIT) – assesses moral reasoning level based on Kohlberg's theory, evaluating post-conventional moral thinking; (2) Ethical Climate Questionnaire (ECQ) – 26 items across 3 dimensions: Egoistic, Utilitarian, Principle-based climates; (3) Snyder's Self-Monitoring Scale – measures personal orientation to internal vs. external behavioral standards.
The Perceived Role of Ethics and Social Responsibility: An Alternative Scale Structure	John M. Etheredge	1999	Journal of Business Ethics, Volume 18, pages 51–64	Uses Singhapakdi's PRESOR Scale, with 2 primary factors: (1) Importance of ethics and social responsibility (5 items, e.g., 'Moral values are irrelevant to business'); (2) Subordination of ethics and social responsibility (4 items, e.g., 'Shareholders' primary interest is maximum return').
A Multidimensional Ethics Scale for Indian Managers' Moral Decision Making	Seema Gupta	2010	JBO - Electronic Journal of Business Ethics and Organization Studies, Vol. 15 (1)	Adapted from Reidenbach & Robin's MES (1988). Factor analysis revealed: Scenario 1: four factors – Moral equity, Egoism, Utilitarianism, Contractualism; Scenario 2: three factors – Moral equity, Egoism, Utilitarianism. Confirms the relevance of justice, contractualism, relativism, utilitarianism, and egoism in managerial ethical decision-making.
Cultural values and management ethics: A 10-nation study	Terence Jackson	2001	Human Relations, Vol. 54(10), pages 1267–1302	Scale includes 3 categories of ethical relationships in management: (1) External stakeholders – 2 items (e.g., 'Giving gifts/favors for preferential treatment'); (2) Organizational loyalty – 6 items (e.g., 'Disclosure of confidential information'); (3) Group loyalty – 2 items (e.g., 'Taking credit for others' work').

A Scale to Assess Ethical Leadership of Indian Private and Public Sector Managers	Rooplekha Khuntia & Damodar Suar	2004	Journal of Business Ethics, Volume 49, pages 13–26 (2004)	Ethical Leadership Scale (ELI), 22 items across 2 main dimensions: (1) Empowerment – 12 items on leaders enhancing subordinates' self-efficacy through inclusion and support; (2) Motive and Character – 10 items on altruism, integrity, openness to criticism, and consistency between words and actions.
Ethics scale for entrepreneurship				
Title	**Authors**	**Year**	**Journal**	**Scale Description**
The Ethical Context of Entrepreneurship: Proposing and Testing a Developmental Framework	Michael H. Morris, Minet Schindehutte, John Walton & Jeffrey Allen	2002	Journal of Business Ethics, Volume 40, pages 331–361	The measurement scale used by the authors is based on a combination of: (1) Locus of control: perception of control over outcomes, measured using a modified version of Rotter's scale (6 items); (2) Achievement motivation: level of drive to achieve success, measured using a subscale from the Entrepreneurial Attitude Orientation (EAO) scale; (3) Tolerance of ambiguity: ability to manage uncertainty, measured using Budner's scale (16 items); (4) Machiavellianism: tendency to manipulate others to achieve goals, measured using the Mach IV scale; (5) Composite scales: Sophistication scale (7 items), Scenarios scale (ethical situations), and Satisfaction scale (ethical program satisfaction).
The Development of a Virtue Ethics Scale	Kevin J. Shanahan & Michael R. Hyman	2003	Journal of Business Ethics, Volume 42, pages 197–208	Virtue Ethics Scale (VES) includes 6 factors: (1) Empathy – awareness and sensitivity to others' needs; (2) Protestant Work Ethic – individualism, responsibility, and belief in equal opportunity; (3) Piety – moral emotions like shame and guilt; (4) Respect – openness to dissenting views; (5) Reliability – trustworthiness; (6) Incorruptibility – honor, honesty, and integrity, key traits for leaders.

Ethical leadership: A social learning perspective for construct development and testing	Michael E. Brown, Linda K. Treviño & David A. Harrison	2004	Organizational Behavior and Human Decision Processes, Volume 97, Issue 2, July 2005, Pages 117–134	Ethics Leadership Scale includes 10 items such as: listening to employees, disciplining unethical behavior, living ethically, caring for employee interests, fairness, trust, discussing ethics, modeling ethical conduct, emphasizing ethical processes as well as results, and asking 'what is the right thing to do?'
The Impact of Moral Intensity and Desire for Control on Scaling Decisions in Social Entrepreneurship	Brett R. Smith, Geoffrey M. Kistruck & Benedetto Cannatelli	2014	Journal of Business Ethics, Volume 133, pages 677–689 (2016)	Multidimensional scale based on moral intensity, including: (1) Magnitude of consequences; (2) Social consensus; (3) Probability of effect; (4) Temporal immediacy; (5) Proximity; (6) Concentration of effect.
Individual social entrepreneurship orientation: towards the development of a measurement scale	Mir Shahid Satar & Saqib Natasha	2019	Asia Pacific Journal of Innovation and Entrepreneurship, Vol. 13, Issue 1, pages 49–72	Individual Social Entrepreneurship Orientation Scale (ISEO) includes 4 dimensions: (1) Social passion – e.g., 'I explicitly focus on creating social value'; (2) Innovativeness – 4 items; (3) Proactiveness – 3 items, e.g., 'I plan projects in advance'; (4) Risk-taking – 3 items.
Organizational social entrepreneurship: scale development and validation	Merie Kannampuzha & Kai Hockerts	2019	Social Enterprise Journal, Vol. 15, Issue 3, pages 290–319	Organizational Social Entrepreneurship Scale (OSE) includes: (1) Social change intent: 'social mission' (2 items), 'change enacted' (4 items); (2) Commercial activities: 'earned income' (4 items), 'paid employees' (2 items); (3) Inclusive governance: 'democratic decision-making' (4 items), 'stakeholder participation' (4 items), 'social impact' (3 items).
Societal Ethics and Social Entrepreneurship: A Cross-Cultural Comparison	Saurav Pathak & Etayankara Muralidharan	2020	Cross-Cultural Research, Vol. 54(2–3), pages 180–208	The study positions ethics as a factor influencing the likelihood of individuals engaging in social entrepreneurship at the national level. Includes: (1) Normative ethical context – behavioral ethics index based on WVS; (2) Cognitive context – importance attributed to altruism (WVS);

				(3) Normative public-sector ethics – derived from WEF, measures integrity, corruption, and favoritism.

Quantitative measures of ethics provide structured and replicable insights. However, they come with important limitations that should be considered. Ethical behavior is complex, nuanced, and influenced by individual, social, and contextual variables (Hannafey, 2003; Payne and Joyner, 2006; Geeta et al., 2016; Vallaster et al., 2019; Perkins et al., 2024). Quantitative scales may reduce this richness to a limited number of predefined variables, failing to capture the depth and ambiguity of real-life ethical decision-making. Most quantitative tools do not adequately account for cultural, situational, or organizational context. Respondents may give socially desirable answers rather than truthful ones, especially on sensitive topics like ethics. Ethics-related traits such as integrity, responsibility, or fairness can evolve and vary across situations. Most quantitative methods assume stability, overlooking development, emotional triggers, or real-time behavioral changes. A scale may reveal what a person would do, but not why. Ethical reasoning processes (e.g., justification, moral disengagement) often require qualitative exploration (e.g., interviews, vignettes) (Heyler et al, 2016; Casali and Perano, 2021). Thus, any evaluation framework for such programs should not be static or one-size-fits-all. Thus, the operationalization of a multidimensional evaluation could be necessary.

Methodology:

The review highlights existing instruments designed to assess ethics within entrepreneurial education. However, the literature lacks a comprehensive measure that captures the micro, team, and ecosystem perspectives simultaneously. Developing a new scale would therefore

provide a valuable and more holistic measurement tool. The study will follow an exploratory sequential design, beginning with qualitative interviews and focus groups to generate and refine scale items, and subsequently moving to a quantitative survey to test reliability and validity. The sample will consist of Enactus students and teams from universities worldwide. Enactus represents an appropriate research context, as it brings together diverse student entrepreneurs engaged in real-world, socially impactful projects, thus offering a rich environment for observing and measuring the constructs under investigation. Data analysis will involve an exploratory factor analysis to examine the dimensional structure of the scale, while Cronbach's alpha will be employed to assess internal consistency and reliability.

The E3S: Ethical Entrepreneurial Education Scorecard

To respond to the complexity of ethical learning in SEEPs, the E3S model introduces a flexible assessment framework composed of three interconnected levels, individual, team, and ecosystem, and a cross-dimensional component, to assess ethics in a holistic way. At the individual level, ethical assessment should begin with a deep understanding of the student's ethical orientation. This includes not only traditional scenario-based tools, but also real-life assessments based on students' behaviours and decisions during entrepreneurial projects, particularly before and after their involvement in SEEPs. Such an approach allows educators to trace how individuals mobilize creativity and ethical reasoning to generate positive change, while also tracking emotional and leadership maturity over time.

At the team level, the focus shifts to ethical collaboration and shared decision-making. Ethics in entrepreneurship often emerges through interpersonal dynamics, where decisions are co-constructed, negotiated, and contested. The proposed tools make explicit how ethical

reasoning unfolds in group settings, revealing the quality of communication, mutual respect, and accountability among team members.

The third level addresses the broader educational and innovation ecosystem, divided into two domains: the university and the entrepreneurial ecosystem. The model incorporates international tools such as the HEInnovate Framework (EU), the STARS (Sustainability Tracking, Assessment & Rating System), the Times Higher Education (THE) Impact Rankings, and the Responsible Research and Innovation (RRI) indicators. At the entrepreneurial ecosystem level, it enables institutions to evaluate how the wider context of funders, mentors, partners, supporters, or hinders ethical behavior and sustainable innovation.

In addition to the three core levels, the E3S introduces cross-dimensional quantitative metrics using adapted versions of the Multidimensional Ethics Scale (MES). This component captures broader ethical value orientations (e.g., justice, care, rights-based reasoning), ensuring that the model maintains coherence across levels. From a methodological perspective, the E3S is designed to be flexible and adaptable to diverse contexts. It enables universities and program coordinators to tailor assessment strategies based on cultural settings, learning objectives, and resource availability.

Successfully implementing the E3S requires systemic support. Educators must be trained in experiential and ethics-focused pedagogy. Universities should incentivize ethical learning outcomes, not just academic excellence. Policy-makers can embed ethical evaluation standards into national quality assurance frameworks and align funding with demonstrated social impact. Such a multilevel, ethics-integrated approach represents a shift in how we define educational success, not by the number of start-ups launched, but by the values those ventures embody.

Table 2. The E3S (Ethical Entrepreneurial Education Scorecard)

Dimensions/Pillars	Sub-Dimensions	Indicators & Tools	Type
1. Ethical Orientation	a) Real-Life Ethical Decision-Making	Vignettes/scenario-based assessment	
		360-degree ethical feedback (peers, mentors, stakeholders)	
		Stakeholders' interviews	Qualitative
	b) Hypothetical Scenario Ethics	Moral Reasoning Scale (e.g., DIT2)	Quantitative
2. Ethical Entrepreneurial Mindset	a) Empathy, Adaptability, Resilience	Ethical Entrepreneurial Mindset Profile (EMP)	
		Design thinking challenge feedback	
		Peer/team evaluation reports	Mixed
	b) Impact and Sustainability Orientation	Social impact pitch simulation	
		Theory of Change articulation	
		Resource mobilization analysis	Qualitative
3. Ethical Personal Development	a) Emotional & Leadership Maturity	Emotional Intelligence Survey (e.g., TEIQue, MSCEIT)	
		Leadership reflection log	Mixed
	b) Civic and Professional Engagement	Longitudinal survey (1-3 years post-program)	
		Community engagement logbook	
		Capstone interviews	Mixed
4. Cross-Dimensional Quantitative Ethics Measures	a) Ethical Value Orientation	Adapted Multidimensional Ethics Scales	Quantitative
	b) Integrity in Practice	Ethical Climate/Organizational Fit Score	
		Compliance/adherence during project implementation	Mixed
5. Ethics in the SEEP	a) Ethical contents	Syllabus assessment	Qualitative
	b) Educator's ethical orientation	Educators' interviews	Qualitative
6. Ethics in the Innovation/Entrepreneurial Ecosystem	Ethical ecosystem orientation	Stakeholders' interviews	Qualitative

This Ethical Entrepreneurial Education scorecard is based on a clear Ethical assessment, that focuses on how students and educators understand and internalize core ethical and sustainability principles. This can be measured through pre- and post-program ethical reasoning assessments, qualitative content analysis, and quantitative measures.

Conclusion and Future Research:

The paper proposes an assessment model of ethics in SEEPs; it invites further exploration and validation across institutions and cultural settings. The ENACTUS Program could represent the ideal pilot for validating the E3S model. As a global initiative rooted in social entrepreneurship, ENACTUS already emphasizes community engagement and impact-driven innovation. Applying E3S within this context could demonstrate how ethical evaluation fosters not only effective entrepreneurs but also conscientious global citizens. In doing so, it contributes to reimagining entrepreneurship education as a vehicle not just for economic growth, but for ethical, inclusive, and sustainable transformation.

Implementing this model also requires the active engagement of educators, program coordinators, and policy-makers. Faculty members must be trained to facilitate experiential learning rooted in ethics and systems thinking. Universities should reward not just academic achievement but also community engagement and sustainable innovation. Policy-makers can support this shift by embedding such evaluation standards in national quality assurance systems for higher education and linking funding mechanisms to proven social impact outcomes. Finally, the integration of social impact and sustainability into education is not just about new curricula or metrics. It is about a fundamental cultural shift: redefining what it means to be educated in the 21st century.

In conclusion, educational programs must prioritize skills related to social impact and sustainable practices if they are to remain relevant and responsible in today's global context. In this light, the ENACTUS Program could become a pilot case study. In fact, the ENACTUS model illustrates the potential of ethics-based entrepreneurship education to cultivate not only successful innovators but also conscientious global citizens. To fully realize this potential, new metrics are needed; they should reflect the complexity, subtlety, and long-term nature of

personal and social transformation. By doing so, education can become a true force for good, preparing individuals to meet the challenges of our time with courage, creativity, and compassion. Thus, further research should also focus on the Impact Realization, in order to assess the tangible and intangible effects of student projects on the communities they serve. Here, social return on investment (SROI) and environmental impact assessments become essential. Moreover, the Lifelong Transformation needs to be evaluated, in terms of the long-term effects of the program on students' career choices, social commitments, and leadership behaviour. Alumni tracking, storytelling, and case studies may provide valuable data to understand the enduring influence of the program.

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The Impact of Participation in Enactus Projects on the Development of Soft Skills

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Introduction:

The growing importance of soft skills makes it relevant to study effective forms of experiential learning. Although project-based learning has been investigated, there is a lack of studies analyzing how student Enactus projects contribute to the development of soft skills from participants' own perspectives. This study aims to fill that gap by analyzing the experience of participation in the "Plastikomat" project (September 2024 — March 2025).

Literature review:

Research shows that project-based learning promotes leadership, critical thinking, and collaborative competencies; theoretical foundations include experiential learning and problem-based learning. However, few studies focus specifically on Enactus projects and on which mechanisms within such projects (responsibility distribution, reflection, cross-functional cooperation) lead to growth in soft skills from participants' perspectives.

Methodology:

An autoethnographic approach was used: analysis of the author's reflective notes and field experience in the "Plastikomat" project from September 2024 to March 2025, where the author acted as participant-observer.

Findings:

Analysis of reflective records revealed a systemic strengthening of three main competencies

Leadership: developed through delegated responsibilities and decision-making;

Critical thinking: cultivated by analyzing the project's environmental and logistical challenges;

Teamwork: reinforced by regular role coordination and joint problem-solving.

These changes are supported by examples of actions and the author's reflective notes.

Discussion:

The findings align with experiential learning theory: practical engagement and reflection are key mechanisms in soft-skills development. Practically, Enactus projects can complement formal education by fostering work-relevant competencies. Limitations include the single-author autoethnographic design and limited generalizability; comparative and quantitative studies are needed to validate the identified mechanisms.

The Influence of Social Entrepreneurship and Experiential Learning on Graduate Pro-Social Identity, Civic Engagement, and Global Sustainability: A Systematic Review

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Introduction:

The 21st century presents unprecedented global challenges, from climate change to persistent social inequalities, that demand a new generation of leaders equipped not only with specialized knowledge but also with a profound commitment to societal well-being and ethical leadership. Traditional educational models, while providing foundational knowledge, often fall short in cultivating the psychological insight and practical skills necessary for sustained, impactful engagement with these complex issues. This calls for a re-evaluation of pedagogical approaches to better prepare graduates as global citizens and agents of change. In response, Experiential Learning (EL) and Social Entrepreneurship Education (SEE) have emerged as potent, transformative pedagogies. **This systematic review examines how experiential learning (EL) and social entrepreneurship education (SEE) contribute to the development of graduate students' pro-social identity, civic engagement, and sustainability orientation, addressing a critical gap in higher education research.**

Literature review:

Rooted in the philosophies of Dewey (1986) and Kolb (1983), experiential learning emphasizes hands-on experience paired with critical reflection, fostering deeper understanding and skill development. Social entrepreneurship education builds on

entrepreneurial principles to empower individuals to address pressing social and environmental issues through innovative, purpose-driven solutions (Karatas-Ozkan et al., 2023; Neck & Greene, 2010). Programs like Enactus exemplify the integration of these approaches, supporting student-led social ventures with real-world impact (Othman & Wahid, 2014).

Empirical studies consistently demonstrate positive effects of experiential learning, particularly service-learning, on personal growth, leadership, and civic participation (Brown, 2017; Chiva-Bartoll et al., 2020; Glover et al., 2020; Jones et al., 2001; Pascale & Ohlson, 2020; Pitre et al., 2017; Schindler et al., 2025; Smallwood & Jasper, 2020; Turner, 2014). Research in social entrepreneurship education highlights its role in fostering entrepreneurial intentions, problem-solving skills, and social awareness (Hockerts, 2018; Mitra et al., 2023; Xanthopoulou & Sahinidis, 2025). Meta-analyses further support the effectiveness of experiential pedagogies across learning outcomes (Burch et al., 2019; Yorio & Ye, 2012). However, the literature remains fragmented. Studies often examine constructs separately or in limited combinations—for example, linking experiential learning to prosocial attitudes (Brown, 2017; Chiva-Bartoll et al., 2020), or social entrepreneurship to sustainability awareness (Thanapornsangsuth, 2024). A comprehensive synthesis connecting experiential social entrepreneurship pedagogy to the development of pro-social identity, civic agency, and sustainability orientation in graduate education remains largely unexplored.

Methodology:

This study employed a **qualitative systematic review**, selected for its ability to synthesize diverse evidence and identify patterns across heterogeneous studies. Searches were conducted

across six major academic databases—EBSCOhost, Scopus, Web of Science, PubMed, JSTOR, and SAGE Journals—covering publications from 2005 to 2025. Keywords included combinations of experiential learning, social entrepreneurship education, graduate students, civic engagement, pro-social identity, and sustainability, with Boolean operators applied to improve precision.

The initial search yielded approximately 280 records, which were screened for relevance using clearly defined inclusion criteria: studies needed to focus on graduate education, examine experiential learning or social entrepreneurship interventions, report outcomes related to pro-social identity, civic engagement, or sustainability, and be published in peer-reviewed journals. After reviewing titles, 198 abstracts were manually reviewed, and 47 full-text articles were assessed for inclusion. Ultimately, **13 empirical studies, 2 meta-analyses, and 8 theoretical works** were included. Screening and selection followed the PRISMA guidelines (Page et al., 2021) to ensure transparency and replicability.

Data extraction involved systematically recording study characteristics, pedagogical approaches, and reported outcomes. A narrative synthesis was conducted to integrate findings across diverse methodologies and theoretical frameworks, allowing identification of recurring mechanisms through which experiential social entrepreneurship impacts graduate development. While conducted with limited resources, the process followed transparent and reproducible procedures, and inclusion decisions were carefully documented to maximize reliability. This approach provides credible and structured insights, demonstrating that rigorous synthesis is possible even with modest means.

Findings:

Three interrelated pathways emerged. First, student engagement in social ventures strengthened alignment with altruistic missions and internalized community responsibility, consistent with **Social Identity Theory** (Tajfel & Turner, 2004) and **Self-Determination** Theory (Deci & Ryan, 1985). Autonomy in project design and tangible social impact reinforced graduates' self-concept as "change agents" (Brown, 2017; Chiva-Bartoll et al., 2020; Markus & Nurius, 1986; Thanapornsangsuth, 2024).

Second, civic engagement and agency were enhanced through mastery experiences and observational learning within **Communities of Practice**, reflecting **Social Cognitive** and **Social Learning theories** (Bandura, 1985; Glover et al., 2020; Pitre et al., 2017; Schindler et al., 2025; Smallwood & Jasper, 2020; Turner, 2014). Students demonstrated increased participation in volunteerism, advocacy, and community-based projects beyond the classroom.

Third, exposure to global challenges activated biospheric and moral values, consistent with **Value-Belief-Norm Theory** (Stern et al., 1999), while student enterprise teams functioned as microsystems reinforcing pro-environmental and pro-social norms. Community interactions embedded these values in ongoing professional and personal decision-making, as described by **Bronfenbrenner's Ecological Systems Theory** (2000; Tarrant et al., 2021; Thanapornsangsuth, 2024). Across studies, integration of experiential learning with social entrepreneurship consistently produced stronger outcomes than either approach alone, with hands-on engagement amplifying value internalization.

Discussion:

These findings indicate that experiential social entrepreneurship programs cultivate more than skills; they embed ethical responsibility, civic engagement, and sustainability orientation within graduate identity. Structured engagement, reflective practice, and values internalization emerged as central processes driving these outcomes. Although outcomes may vary across disciplines and institutional contexts, the overall evidence underscores the effectiveness of combining practical experience with socially focused entrepreneurship to foster socially responsible, globally aware leaders.

Contributions:

This review consolidates 23 studies into a coherent synthesis, providing empirical, theoretical, and practical contributions. Empirically, it integrates dispersed evidence on the effects of experiential social entrepreneurship on graduate development. Theoretically, it advances understanding of **pro-social identity formation** as a mediating factor linking pedagogy to civic and sustainability-oriented behaviors, integrating **Social Identity**, **Self-Determination, Social Cognitive, and Value-Belief-Norm frameworks**. Practically, it informs curriculum design, program implementation, and policy, guiding institutions and organizations in strengthening training, reflection, and community integration to ensure that learning translates into sustained societal impact. This synthesis also provides a foundation for future research, including longitudinal, cross-disciplinary, and cross-cultural studies that further clarify effective program design suited for a multitude of contexts.

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The Role of Learning by Doing in Fostering Social Entrepreneurial Competence and Intention: A Case Study of Enactus Morocco

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Introduction:

Social entrepreneurship has attracted growing scholarly and policy attention for its potential to address societal challenges through innovative, sustainable, and human-centered solutions (Ip et al., 2022; Branca et al., 2025). Beyond mitigating social problems, it contributes to sustainable economic development and strengthens long-term social responsibility (Urban et Galawe, 2019). Given this dual impact, integrating social entrepreneurship education into higher education is essential. Graduates need not only technical knowledge but also civic commitment, key competencies, and the ability to participate meaningfully in societal change (Nabi et al., 2017).

Experiential learning, or 'learning by doing' (LBD), has emerged as a leading approach for developing entrepreneurial skills, competencies, and mindset (Kolb, 1984; Susanto et al., 2023). By engaging students in hands-on, real-world challenges, LBD enhances self-efficacy, reflective practice, and transformative learning (Sánchez, 2013; Al Issa, Thai et Saad, 2025). Yet, the mechanisms through which LBD shapes social entrepreneurial intention (SEI), particularly in non-Western, resource-limited higher education contexts, remain underexplored (Ip et al., 2022; Al Issa, Thai et Saad, 2025).

This study investigates how structured experiential environments, such as Enactus Morocco, foster entrepreneurial competencies, creative thinking, self-efficacy, and SEI among

university students, responding to calls for research in the Global South (Gupta et al., 2020; OECD, 2024).

Literature review:

Social entrepreneurship is increasingly recognized as a key mechanism for sustainable development, particularly in addressing inequalities in education, employment, and social care (Ip et al., 2022; Al Issa, Thai et Saad, 2025). Experiential approaches, especially LBD, have been shown to enhance opportunity recognition, problem-solving, adaptability, and innovation (Sánchez, 2013; Susanto et al., 2023; Vázquez-Parra et al., 2023).

Beyond technical skill development, LBD promotes self-efficacy, civic engagement, empathy, and socially oriented innovation, distinguishing it from traditional pedagogy (Nzembayie, Buckley et Talay, 2024; Valencia-Arias et al., 2025). However, gaps remain: few studies examine how structured programs like Enactus shape SEI; most research is Western-centric, raising questions about applicability in the Global South; and little is known about how students without prior entrepreneurial exposure develop competencies and intentions through LBD. Moreover, while supportive learning environments are increasingly recognized, their moderating role in intention formation is underexplored (Mustafa et al., 2016).

This study addresses these gaps through a case study of Enactus, examining how competence, self-efficacy, and SEI emerge through LBD in the Global South. It seeks to answer three questions :

6. How do competencies and SEI develop through engagement in LBD within Enactus Morocco?

7. How do students with little or no prior entrepreneurial knowledge engage meaningfully in social projects?
8. How does a supportive learning environment impact competence and intention outcomes?

Methodology:

A qualitative case study design was employed, appropriate for exploring complex phenomena such as competence and intention formation (Edmondson et Mcmanus, 2007). Data collection adhered to ethical guidelines, with informed consent obtained from all participants.

Data were collected through 10 semi-structured interviews with students from diverse academic backgrounds and a focus group with two Enactus Morocco coordinators, capturing both individual and organizational perspectives. Transcribed data were analyzed using NVivo 15 and thematic coding, enabling systematic identification of emergent patterns and alignment with the integrative theoretical framework.

Findings:

LBD was central to developing entrepreneurial competence, enhancing self-efficacy, and fostering intentions for social leadership. Social support and organizational environment emerged as critical enablers, allowing students to recognize and act on opportunities effectively.

Although prior knowledge facilitated adaptation, students without prior experience also developed competencies successfully through LBD, with supportive structures amplifying growth. SEI emerged as a multidimensional construct shaped by competence, empowerment,

and ethical motivation, supporting the integrated theoretical framework (Bandura, 1977; Ajzen, 1991; Mair et Noboa, 2006).

Discussion:

The findings illustrate how LBD within Enactus Morocco enables students, even without prior entrepreneurial experience, to acquire key competencies and intentions through experiential engagement. The interaction between self-efficacy, competence, and moral values underscores the importance of supportive ecosystems in shaping sustained SEI.
This study advances understanding of how contextualized, practice-based learning fosters not only competencies but also entrepreneurial identity formation and purposeful social action.

Contributions:

Empirically, the study adds evidence on LBD in non-Western, resource-constrained contexts. Theoretically, it extends intention-based frameworks (Ajzen's TPB; Mair & Noboa's SEI model) by integrating cognitive, emotional, and social mediators. Practically, it offers guidance for educators and program designers, highlighting the value of participatory, supportive environments—such as mentoring and collaborative projects—in cultivating competence and sustaining commitment to social innovation.
By focusing on Enactus Morocco, the study demonstrates how extracurricular ecosystems complement formal higher education, enhancing self-efficacy and socially responsible mindsets. These findings highlight the transformative potential of experiential learning to foster sustainable social impact, particularly in underexplored Global South contexts.

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French Version

Le rôle de l'apprentissage par la pratique dans la promotion de la compétence et de l'intention entrepreneuriales sociale : une étude de cas d'Enactus Maroc

Introduction:

L'entrepreneuriat social a attiré une attention croissante des chercheurs et des politiques pour son potentiel à relever les défis sociétaux grâce à des solutions innovantes, durables et centrées sur l'humain (Ip et al., 2022; Branca et al., 2025). Au-delà de l'atténuation des problèmes sociaux, il contribue à un développement économique durable et renforce la responsabilité sociale à long terme (Urban et Galawe, 2019). Compte tenu de ce double impact, l'intégration de l'éducation à l'entrepreneuriat dans l'enseignement supérieur est essentielle. Les diplômés ont besoin non seulement de connaissances techniques, mais aussi d'un engagement civique, de compétences clés et de la capacité à participer de manière significative au changement sociétal (Nabi et al., 2017).

L'apprentissage par la pratique, ou « Learning by doing » (LBD), est devenu une approche de premier plan pour développer les compétences, les aptitudes et la mentalité entrepreneuriales (Kolb, 1984; Susanto et al., 2023). En engageant les étudiants dans des défis pratiques et concrets, le LBD améliore l'auto-efficacité, la pratique réflexive et l'apprentissage transformateur (Sánchez, 2013; Al Issa, Thai et Saad, 2025). Pourtant, les mécanismes par lesquels LBD façonne l'intention entrepreneuriale sociale (SEI), en particulier dans des contextes d'enseignement supérieur non occidentaux et limités en ressources, restent sous-explorés (Ip et al., 2022; Al Issa, Thai et Saad, 2025).

Cette étude examine comment les environnements expérientiels structurés, tels qu'Enactus Maroc, favorisent les compétences entrepreneuriales, la pensée créative, l'auto-efficacité et le

SEI chez les étudiants universitaires, en répondant aux appels à la recherche dans les pays du Sud global (Al Issa, Thai et Saad, 2025).

Revue de la littérature:

L'entrepreneuriat social est de plus en plus reconnu comme un mécanisme clé du développement durable, notamment dans la lutte contre les inégalités dans l'éducation, l'emploi et la protection sociale (Ip et al., 2022; Al Issa, Thai et Saad, 2025). Il a été démontré que les approches expérientielles, en particulier la LBD, améliorent la reconnaissance des opportunités, la résolution de problèmes, l'adaptabilité et l'innovation (Sánchez, 2013; Susanto et al., 2023; Vázquez-Parra et al., 2023).

Au-delà du développement des compétences techniques, le LBD promeut l'auto-efficacité, l'engagement civique, l'empathie et l'innovation socialement orientée, en le distinguant de la pédagogie traditionnelle (Nzembayie, Buckley et Talay, 2024; Valencia-Arias et al., 2025).

Cependant, des lacunes demeurent : peu d'études examinent comment les programmes structurés comme Enactus façonnent le SEI ; la plupart des recherches sont centrées sur l'Occident, ce qui soulève des questions quant à leur applicabilité dans les pays du Sud global ; il existe peu de connaissances sur la façon dont les étudiants sans exposition entrepreneuriale préalable développent des compétences et des intentions à travers l'apprentissage par la pratique (LBD). De plus, bien que les environnements d'apprentissage favorables soient de plus en plus reconnus, leur rôle modérateur dans la formation de l'intention est sous-exploré (Mustafa et al., 2016).

Cette étude aborde ces lacunes à travers une étude de cas d'Enactus, examinant comment la compétence, l'auto-efficacité et les SEI émergent grâce aux LBD dans le Sud global. Il cherche à répondre à trois questions :

1. Comment les compétences et le SEI se développent-ils à travers l'engagement dans la LBD au sein d'Enactus Maroc ?
2. Comment les étudiants ayant peu ou pas de connaissances entrepreneuriales préalables s'engagent-ils de manière significative dans des projets sociaux ?
3. Comment un environnement d'apprentissage favorable impacte-t-il la compétence et les résultats intentionnels ?

Méthodologie:

Une étude de cas qualitative a été utilisée, appropriée pour explorer des phénomènes complexes tels que la compétence et la formation de l'intention (Edmondson et Mcmanus, 2007). La collecte de données a respecté les directives éthiques, avec le consentement éclairé obtenu de tous les participants.

Les données ont été collectées à travers 10 entretiens semi-structurés avec des étudiants issus de divers milieux académiques et un « focus groupe » avec deux coordinateurs d'Enactus Maroc, capturant les perspectives individuelles et organisationnelles. Les données transcrites ont été analysées à l'aide de NVivo 15 et du codage thématique, ce qui a permis une identification systématique des modèles émergents et un alignement avec le cadre théorique intégratif

Résultats:

L'apprentissage par la pratique a joué un rôle central dans le développement des compétences entrepreneuriales, en améliorant l'auto-efficacité et en favorisant les intentions de leadership social. Le soutien social et l'environnement organisationnel sont devenus des facilitateurs essentiels, permettant aux étudiants de reconnaître les opportunités et d'agir efficacement.

Bien que les connaissances préalables aient facilité l'adaptation, les étudiants sans expérience préalable ont également développé des compétences avec succès grâce au LBD, avec des structures de soutien amplifiant la croissance. Le SEI est apparu comme un concept multidimensionnel façonné par la compétence, l'autonomisation et la motivation éthique, soutenant le cadre théorique intégré (Bandura, 1977; Ajzen, 1991; Mair et Noboa, 2006).

Discussion:

Les résultats illustrent comment l'apprentissage par la pratique au sein d'Enactus Maroc permet aux étudiants, même sans expérience entrepreneuriale préalable, d'acquérir des compétences et des intentions clés grâce à l'engagement expérientiel. L'interaction entre l'auto-efficacité, la compétence et les valeurs morales souligne l'importance des écosystèmes de soutien dans la formation d'un SEI durable.

Cette étude fait progresser la compréhension de la façon dont l'apprentissage contextualisé et basé sur la pratique favorise non seulement les compétences, mais aussi la formation de l'identité entrepreneuriale et l'action sociale ciblée.

Contributions:

Empiriquement, l'étude ajoute des preuves sur la LBD dans des contextes non occidentaux et contraints par les ressources. Théoriquement, il étend les cadres basés sur l'intention (TPB d'Ajzen ; Mair & Noboa) en intégrant des médiateurs cognitifs, émotionnels et sociaux. Sur le plan pratique, il offre des conseils aux éducateurs et aux concepteurs de programmes, en soulignant la valeur d'environnements participatifs et solidaires-comme le mentorat et les projets collaboratifs — pour cultiver la compétence et maintenir l'engagement envers l'innovation sociale.

En se concentrant sur Enactus Maroc, l'étude démontre comment les écosystèmes parascolaires complètent l'enseignement supérieur formel, améliorant l'auto-efficacité et les mentalités socialement responsables. Ces résultats mettent en évidence le potentiel transformateur de l'apprentissage expérientiel pour favoriser un impact social durable, en particulier dans les contextes du Sud global peu explore

The Socioeconomic Profile of Enactus Brazil Students: Challenges, Contradictions, and Opportunities for Inclusive Social Entrepreneurship

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Introduction:

University students are increasingly recognized as key actors in driving social innovation and entrepreneurship. In contexts marked by inequality, such as Brazil, student initiatives have the potential to transform not only communities but also the students' own personal and

academic trajectories. Enactus, one of the largest student organizations in the world dedicated to social entrepreneurship, provides a platform for students to design and implement projects addressing the United Nations Sustainable Development Goals (SDGs).

While the transformative potential of Enactus is widely acknowledged, little is known about the socioeconomic profile of its members in Brazil. Understanding who these students are, the challenges they face, and the contradictions between their realities and their aspirations is essential to evaluate both the sustainability of Enactus teams and the inclusivity of social entrepreneurship as an educational practice.

Despite its prominence, little is known about the socioeconomic profile of Enactus members in Brazil, nor the barriers they face. Brazil's higher education landscape remains marked by disparities in access, persistence, and resources (Kruger, 2025). Students from low-income backgrounds often juggle academics and financial survival, hindering their participation in extracurricular activities (Mattei, 2025). This work aimed to address this gap and answer to what extent socioeconomic vulnerability affects Enactus students in Brazil.

Literature review:

Socioeconomic inequalities remain a major barrier to access and persistence in higher education in Brazil (INEP, 2022). Students from low-income families often face competing demands between academic life and financial survival, which affects their participation in extracurricular activities (Costa and Souza, 2020). Still, participation in student organizations has been shown to enhance leadership, employability, and social engagement (Astin, 1993; Kuh, 2008).

Experiential learning, as theorized by Kolb (1984), provides a framework to understand how hands-on projects foster skills and resilience. Service-learning approaches extend this by

connecting academic content with civic engagement (Eyler and Giles, 1999). Social entrepreneurship education builds on these foundations, equipping students to address systemic challenges while developing professional competencies (Passarelli, 2025; Thomsen, 2018).

Enactus has been widely studied as a case of student-led social entrepreneurship aligned with the SDGs (Omotosho et al., 2023). In Brazil, early studies highlight perceived benefits in autonomy, purpose, and leadership (de Barros Neto and Hughes, 2023; Guerreiro and Ferrari, 2023). However, less attention has been given to the contradictions of participation: students struggling with poverty and stress while leading projects that aim to resolve these very conditions.

This study addresses this gap by investigating the socioeconomic conditions of Enactus Brazil students, exploring the challenges and contradictions that emerge, and identifying opportunities for strengthening inclusion in social entrepreneurship education.

Methodology:

This research employed a quantitative, descriptive design. Data were collected through an online survey (Google Forms) between July and August 2025, distributed to Enactus Brazil students across multiple teams and states. The instrument included questions on sociodemographic (age, gender, region), academic (field of study, time in Enactus), and socioeconomic aspects (family income, personal income, scholarships), as well as perceptions of benefits, challenges, and impacts.

A total of 102 valid responses were analyzed. Questions included single-choice, multiple-choice, and Likert-scale items. Data were processed using Excel and Python, with

descriptive statistics expressed as percentages. Limitations include reliance on self-reported perceptions and uneven representation across states.

Findings:

Socioeconomic conditions. Nearly half (45.1%) of respondents lived in households earning up to two minimum wages. A significant portion (26.5%) had no personal income, relying on family support, while 21.6% worked alongside studies. Only 7.8% received scholarships directly linked to Enactus activities, showing the limited financial support structure.

Contradictions. While students personally experienced economic hardship, they prioritized SDGs related to poverty eradication (24.5%), zero hunger (20.6%), and good health and well-being (15.7%). Yet, only 55.9% reported that their team actually developed projects addressing the SDG they considered most urgent, suggesting a gap between personal motivations and institutional project choices.

Negative impacts. Despite reporting strong gains in skills and belonging, 33.3% of students experienced anxiety, 31.4% stress, and 31.4% conflicts in balancing Enactus with academic and personal life. Structural challenges included lack of financial resources (48%), absence of physical space (40.2%), and difficulties with legal registration (39.2%).

Opportunities. Despite challenges, students expressed optimism: 84.3% intended to apply Enactus-acquired knowledge in their careers, and 95.1% believed replicated projects should receive recognition, emphasizing a collective understanding of scale and sustainability.

Discussion:

The findings reveal the paradox of Enactus Brazil students: many come from economically vulnerable backgrounds yet dedicate themselves to solving issues such as poverty and hunger.

This reflects what Eyler and Giles (1999) describe as the “double learning curve” of service-learning, where students simultaneously grapple with personal and community challenges.

Financial insecurity remains a critical barrier, echoing broader studies on inequality in higher education (Costa and Souza, 2020; INEP, 2022; Kruger, 2025). Limited scholarships and institutional resources amplify stress and contribute to mental health concerns, partially undermining the positive impacts of participation (Mattei, 2025). This tension suggests that without adequate structural support, the inclusivity of Enactus may be compromised.

At the same time, the data confirm the transformative potential of Enactus participation. Students consistently reported gains in teamwork, problem solving, leadership, and empathy—competencies highlighted in experiential learning theory (Kolb, 1984; Passarelli, 2025). The recognition of replicability as a criterion for impact further demonstrates a sophisticated understanding of sustainability and systemic change (Sachs, 2015; Omotosho et al., 2023).

Thus, while Enactus Brazil serves as a catalyst for leadership and social innovation, its long-term sustainability depends on addressing structural inequalities and mitigating negative impacts on students’ well-being.

Contributions:

This study contributes:

Empirically: This research provides one of the first quantitative portraits of Enactus Brazil students’ socioeconomic conditions, complementing predominantly qualitative evidence.

Theoretical: Findings extend experiential learning and social entrepreneurship education literature by showing how contradictions emerge when vulnerable students engage in projects aimed at resolving systemic vulnerabilities.

Practical: Recommendations include expanding scholarships, strengthening institutional support, prioritizing mental health, and recognizing replicated projects as a metric of success. These measures can enhance inclusivity and sustainability within Enactus Brazil and similar networks.

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Portuguese Version

O Perfil Socioeconômico dos Estudantes da Enactus Brasil: Desafios, Contradições e Oportunidades para o Empreendedorismo Social Inclusivo

Introdução:

Estudantes universitários são cada vez mais reconhecidos como atores centrais na promoção da inovação social e do empreendedorismo. Em contextos marcados pela desigualdade, como o Brasil, iniciativas estudantis têm o potencial de transformar não apenas comunidades, mas também as próprias trajetórias pessoais e acadêmicas dos alunos. A Enactus, uma das maiores organizações estudantis do mundo dedicada ao empreendedorismo social, fornece uma plataforma para que estudantes projetem e implementem projetos alinhados aos Objetivos de Desenvolvimento Sustentável (ODS) das Nações Unidas.

Embora o potencial transformador da Enactus seja amplamente reconhecido, pouco se sabe sobre o perfil socioeconômico de seus membros no Brasil. Compreender quem são esses estudantes, os desafios que enfrentam e as contradições entre suas realidades e aspirações é essencial para avaliar tanto a sustentabilidade dos times Enactus quanto a inclusão do empreendedorismo social como prática educacional.

O ensino superior brasileiro continua marcado por disparidades no acesso, na permanência e nos recursos (Kruger, 2025). Estudantes de baixa renda frequentemente precisam conciliar os estudos com a sobrevivência financeira, o que dificulta sua participação em atividades extracurriculares (Mattei, 2025). Este trabalho busca preencher essa lacuna e responder em que medida a vulnerabilidade socioeconômica afeta os estudantes da Enactus Brasil.

Revisão de Literatura:

As desigualdades socioeconômicas permanecem como barreira central ao acesso e à permanência no ensino superior brasileiro (INEP, 2022). Estudantes de famílias de baixa renda frequentemente enfrentam demandas concorrentes entre a vida acadêmica e a sobrevivência financeira, afetando sua participação em atividades extracurriculares (Costa e Souza, 2020). Ainda assim, a participação em organizações estudantis tem se mostrado capaz de ampliar liderança, empregabilidade e engajamento social (Astin, 1993; Kuh, 2008).

A aprendizagem experiencial, conforme teorizada por Kolb (1984), oferece um quadro para entender como projetos práticos desenvolvem competências e resiliência. O service-learning amplia essa lógica ao conectar conteúdo acadêmico com engajamento cívico (Eyler e Giles, 1999). A educação para o empreendedorismo social se apoia nesses fundamentos, capacitando estudantes a enfrentar desafios sistêmicos enquanto desenvolvem competências profissionais (Passarelli, 2025; Thomsen, 2018).

A Enactus já foi amplamente estudada como caso de empreendedorismo social estudantil alinhado aos ODS (Omotosho et al., 2023). No Brasil, estudos iniciais destacam benefícios percebidos em autonomia, propósito e liderança (de Barros Neto e Hughes, 2023; Guerreiro e Ferrari, 2023). Contudo, pouca atenção tem sido dada às contradições da participação: estudantes em situação de pobreza e estresse, mas que lideram projetos voltados a resolver essas mesmas condições.

Este estudo busca preencher essa lacuna ao investigar as condições socioeconômicas de estudantes da Enactus Brasil, explorando os desafios e contradições emergentes e identificando oportunidades para o fortalecimento da inclusão na educação empreendedora social.

Metodologia:

A pesquisa adotou um desenho quantitativo e descritivo. Os dados foram coletados por meio de questionário online (Google Forms) entre julho e agosto de 2025, distribuído a estudantes da Enactus Brasil de diferentes times e estados. O instrumento incluiu questões sociodemográficas (idade, gênero, região), acadêmicas (área de estudo, tempo na Enactus) e socioeconômicas (renda familiar, renda própria, bolsas), além de percepções sobre benefícios, desafios e impactos.

Um total de 102 respostas válidas foram analisadas. As questões incluíram alternativas únicas, múltiplas e escalas Likert. Os dados foram processados em Excel e Python, com estatísticas descritivas expressas em percentuais. As limitações incluem a dependência de percepções auto relatadas e a representação desigual entre estados.

Resultados:

Condições socioeconômicas. Quase metade (45,1%) dos respondentes vivia em lares com até dois salários mínimos. Uma parcela significativa (26,5%) não possuía renda própria, dependendo da família, enquanto 21,6% trabalhavam junto aos estudos. Apenas 7,8% recebiam bolsas diretamente ligadas às atividades da Enactus, evidenciando o limitado apoio financeiro disponível.

Contradições. Embora os estudantes enfrentassem dificuldades econômicas, priorizavam ODS relacionados à erradicação da pobreza (24,5%), fome zero (20,6%) e saúde e bem-estar (15,7%). Ainda assim, apenas 55,9% relataram que seus times desenvolviam projetos no ODS considerado mais urgente, sugerindo uma lacuna entre motivações pessoais e escolhas institucionais.

Impactos negativos. Apesar dos ganhos relatados em habilidades e senso de pertencimento, 33,3% dos estudantes vivenciaram ansiedade, 31,4% estresse e 31,4% conflitos ao equilibrar a Enactus com vida acadêmica e pessoal. Entre os desafios estruturais, destacaram-se a falta de recursos financeiros (48%), ausência de espaço físico (40,2%) e dificuldades com registro legal (39,2%).

Oportunidades. Apesar dos desafios, os estudantes demonstraram otimismo: 84,3% pretendiam aplicar os conhecimentos adquiridos na carreira e 95,1% acreditavam que projetos replicados deveriam receber reconhecimento, reforçando uma compreensão coletiva sobre escala e sustentabilidade.

Discussão:

Os resultados revelam o paradoxo dos estudantes da Enactus Brasil: muitos vêm de contextos de vulnerabilidade econômica, mas se dedicam a resolver questões como pobreza e fome. Isso reflete o que Eyler e Giles (1999) descrevem como a "dupla curva de aprendizagem" do service-learning, em que estudantes lidam simultaneamente com desafios pessoais e comunitários.

A insegurança financeira se mostra uma barreira crítica, em linha com estudos mais amplos sobre desigualdade no ensino superior (Costa e Souza, 2020; INEP, 2022; Kruger, 2025). A ausência de bolsas e apoio institucional amplia o estresse e impacta a saúde mental, enfraquecendo parcialmente os benefícios da participação (Mattei, 2025). Sem suporte estrutural adequado, a inclusão da Enactus pode ser comprometida.

Ao mesmo tempo, os dados confirmam o potencial transformador da participação: estudantes relataram ganhos consistentes em trabalho em equipe, resolução de problemas, liderança e

empatia — competências centrais na aprendizagem experiencial (Kolb, 1984; Passarelli, 2025). O reconhecimento da replicabilidade como critério de impacto demonstra ainda uma visão sofisticada sobre sustentabilidade e mudança sistêmica (Sachs, 2015; Omotosho et al., 2023).

Assim, a Enactus Brasil se confirma como catalisadora de liderança e inovação social, mas sua sustentabilidade de longo prazo depende do enfrentamento das desigualdades estruturais e da mitigação dos impactos negativos sobre o bem-estar dos estudantes.

Contribuições:

Esse estudo contribuiu de forma:

Empírica: este estudo fornece um dos primeiros retratos quantitativos das condições socioeconômicas dos estudantes da Enactus Brasil, complementando evidências majoritariamente qualitativas.

Teórica: os achados ampliam a literatura de aprendizagem experiencial e de educação em empreendedorismo social ao mostrar como contradições emergem quando estudantes vulneráveis atuam em projetos voltados a resolver vulnerabilidades sistêmicas.

Prática: recomendações incluem expansão de bolsas, fortalecimento do suporte institucional, prioridade para saúde mental e reconhecimento da replicabilidade como métrica de sucesso — medidas capazes de ampliar a inclusão e a sustentabilidade da Enactus Brasil e de redes similares.

Undergraduate students' Readiness and Enthusiasm in Fostering Environmentally Conscious Conduct with Inner Development Goals

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Introduction:

Achieving the Sustainable Development Goals (SDGs) requires more than external reforms; it demands inner transformation at both individual and collective levels. The Inner Development Goals (IDGs) framework addresses this dimension by emphasizing capacities such as self-awareness, empathy, critical thinking, and collaboration, which form the foundation for sustainable social and environmental change. By complementing the SDGs, the IDGs highlight the psychological and relational resources that sustain long-term development and prevent external actions from becoming fragmented or short-lived.

Research increasingly demonstrates that inner capacities are closely linked to ethical leadership, social innovation, and responsible decision-making. Individuals who cultivate these skills are better equipped to balance personal, societal, and ecological needs, thereby contributing to global citizenship and resilience. For this reason, embedding IDGs within education is crucial, particularly in higher education, where undergraduate years provide a formative stage for shaping values, competencies, and worldviews aligned with sustainability. Despite this potential, university curricula often prioritize technical and external skills while underemphasizing inner development. While global discourse underscores the importance of integrating IDGs, empirical research in Southeast Asia—especially in Thailand—remains scarce. Addressing this gap is essential for advancing both academic knowledge and practical

strategies that link education with sustainable development, offering new pathways for empowering students as future leaders of change.

Literature review:

These are the summary highlights of the key studies and key findings related to research topic include:

- Global Frameworks for Sustainable Development
- The Emergence of Inner Development Goals (IDGs)
- Education, Inner Capacities, and Sustainability
- Higher Education and Global Citizenship Development

Global Frameworks for Sustainable Development

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, represent an ambitious global framework to address interconnected challenges in poverty reduction, education, climate change, and inequality (United Nations, 2015). With 17 goals and 169 targets, the SDGs provide measurable indicators for social, economic, and environmental progress. Scholars have acknowledged their potential to mobilize governments, businesses, and civil society toward collective action (Sachs et al., 2019). However, critiques emphasize that the SDGs focus heavily on external achievements and structural reforms, while giving less attention to the inner capacities required for their realization (Wamsler, 2020). This limitation highlights a growing recognition that sustainable development must be grounded not only in policy and technology but also in inner transformation at the individual and community level (Esbjörn-Hargens, 2022).

The Emergence of Inner Development Goals (IDGs)

Responding to this gap, the Inner Development Goals (IDGs) framework was introduced in 2022 by the IDG Initiative as a complement to the SDGs (Inner Development Goals Initiative, 2022). The framework identifies five dimensions of inner growth—Being, Thinking, Relating, Collaborating, and Acting—as enablers of sustainable change. These dimensions capture essential human skills such as self-awareness, critical thinking, empathy, communication, resilience, and purposeful action. Recent scholarship emphasizes the reciprocal relationship between SDGs and IDGs: while the SDGs define what the world must achieve, the IDGs highlight how individuals and societies must grow to achieve it (Wamsler et al., 2021).

Evidence suggests that these inner capacities are linked to sustainable behaviours and leadership. For example, empathy and relational skills (Relating) strengthen commitments to social equity, while resilience and courage (Acting) support climate adaptation and innovation. Similarly, mindfulness and reflective practices (Being) enhance ethical leadership and well-being (Engler, Wamsler and Brink, 2023). In this way, the IDGs provide both a framework for personal growth and a strategy for systemic transformation.

Education, Inner Capacities, and Sustainability

Education is widely recognized as a critical driver of sustainable development. The UNESCO Education for Sustainable Development (ESD) agenda emphasises empowering learners with knowledge, skills, and values to promote sustainability (UNESCO, 2017; UNESCO, 2021). While ESD initially concentrated on technical and cognitive competencies—such as systems thinking and problem-solving—scholars argue that it must increasingly include inner and socio-emotional dimensions, including mindfulness, empathy, and intercultural understanding (O'Brien, 2018).

Higher education has a particularly important role in this regard. The undergraduate period represents a formative stage in which students shape their professional identities, values, and worldviews (Barth and Rieckmann, 2016). Integrating IDGs into higher education curricula can prepare students not only for professional employment but also for global citizenship, equipping them to address complex societal and environmental challenges (De Kraker, 2020). Studies show that students trained in emotional intelligence, collaboration, and ethical reasoning are more likely to engage in sustainable decision-making and social innovation (Ciarrochi et al., 2017).

Universities are increasingly viewed as incubators of social transformation, where the integration of technical and inner capacities can foster innovative responses to global challenges (Tilbury, 2020). Nevertheless, most higher education systems remain oriented toward external competencies and employability, with inner development often treated as peripheral. This gap underscores the need to reconceptualise education for sustainability in more holistic ways.

Higher Education and Global Citizenship Development

The notion of global citizenship has gained prominence in sustainability debates, highlighting the need for individuals to take responsibility beyond national borders (Oxley and Morris, 2013). Developing global citizenship requires not only critical thinking and intercultural awareness but also inner skills such as empathy, perspective-taking, and resilience (Reimers, 2020). These competencies enable students to engage constructively with global challenges such as climate change, inequality, and migration.

In practice, universities have sought to embed global citizenship through initiatives such as service learning, community engagement, and study abroad programmes. However, systematic integration of inner development capacities into the core curriculum remains

limited (Shultz and Elfert, 2018). Scholars argue that without such integration, the transformative potential of higher education to prepare students as agents of sustainability will remain under-realised.

Methodology:

This study employed a qualitative research design to explore the readiness and interest of undergraduate students in fostering environmentally conscious behavior in alignment with the IDG framework. Qualitative inquiry is particularly appropriate for this study as it allows for the in-depth examination of students' lived experiences, attitudes, and reflections, which are not easily captured through quantitative measures.

In term of participants, the research was conducted with nine undergraduate students enrolled in the "Human Development" course at Naresuan University during the 2024 Summer Semester. These students were purposively selected as key informants due to their engagement with themes directly connected to the IDG framework, including self-awareness, growth, and human values. Their participation provided an opportunity to capture both individual perspectives and collective insights into the relationship between inner development and environmentally conscious behavior.

To enhance the richness of the data, multiple qualitative methods were employed. In-depth interviews were conducted to elicit students' personal experiences and attitudes toward inner development and sustainability. Focus group discussions were organized to capture group dynamics, stimulate interaction, and explore convergent and divergent perspectives. Additionally, the One Page Summary technique was used to encourage students to articulate their reflections in a concise and expressive form, allowing access to dimensions of meaning not always revealed in spoken dialogue.

The data collection process was carried out between 1 April and 31 May 2025. All interviews and focus groups were audio-recorded with informed consent, transcribed verbatim, and complemented by written One Page Summaries.

The collected data were analyzed using Content Analysis, which involved systematic coding, categorization, and interpretation of textual and visual material. This method enabled the identification of recurring themes, emergent patterns, and key issues that addressed the research objectives. Triangulation of multiple data sources enhanced the credibility and robustness of the findings.

Moreover, the ethical integrity was maintained throughout the study. Participants were informed of the research purpose, procedures, and their right to withdraw at any stage without penalty.

Findings:

The study's informants were a balanced cohort of nine undergraduate students (four males and five females), all aged between 21 and 23. The group was predominantly in their final year of study (n=7), with two participants in their third year. A strong majority (two-thirds) expressed a high or very high interest in development issues. Only one student reported low interest, explaining that their academic priorities took precedence over external activities. Despite this, all participants shared a history of engagement in development-related projects, citing involvement in school and university initiatives such as waste management and community service programs.

Interviews consistently revealed that educational development was the area of greatest interest to participants, as they viewed it as a foundational pathway to acquiring knowledge and skills for their future careers. All respondents also demonstrated a robust understanding

of sustainable development, attributing their knowledge to its emphasis in their university curriculum and its widespread presence in public discourse. While familiar with environmental and social development, most students acknowledged their role as being limited to project participation rather than leadership. A more active, in-depth understanding of these issues was only reported when coursework required them to design and implement their own social initiatives, such as waste segregation campaigns or support projects for vulnerable groups.

Participants' knowledge of the Inner Development Goals (IDGs) was relatively new. All respondents confirmed they were first introduced to the framework through their "Human Development" course, indicating that the IDGs remain an under-integrated concept in Thai higher education. Among the five IDG dimensions, "Acting" was identified as the most familiar, a finding directly linked to the students' frequent experiences in organizing or contributing to change-oriented projects at both the school and university levels.

The study also explored the "Being" dimension of the IDGs, specifically examining the role of self-awareness in fostering sustainable development. Both interviews and focus group discussions revealed a shared understanding among students of the importance of inner capacities. They noted, however, that their prior project participation was often motivated by external factors like peer influence or course requirements, rather than intrinsic commitment. Nevertheless, they recognized that these experiences could indirectly contribute to a deeper understanding of sustainability values.

When asked to self-evaluate their readiness in the IDG framework, participants felt most prepared in three key areas: self-understanding, collaboration with others, and self-awareness. Conversely, they expressed a strong desire for further development in systematic thinking, courage to initiate, and self-reflection. These findings suggest that while

students possess a foundational awareness of inner development, further educational support is needed to strengthen their readiness for applying IDGs in practice.

Discussion:

The findings of this study reinforce the argument that traditional sustainable development frameworks, while important, remain incomplete without an emphasis on inner transformation. Undergraduate students demonstrated a strong intellectual grasp of sustainable development concepts, environmental issues, and social challenges, knowledge they largely attributed to formal education and social exposure. This confirms the effectiveness of higher education in disseminating sustainability knowledge and raising awareness of external development challenges (United Nations, 2015; Sachs et al., 2019; UNESCO, 2017).

However, a critical gap emerged between awareness and practice. Students' engagement in development initiatives was primarily limited to the role of participants, reflecting a passive orientation rather than proactive or civic-minded action. This finding aligns with critiques that focusing on external competencies alone is insufficient to cultivate the intrinsic motivation and agency required for transformative change (Wamsler, 2020; Shultz and Elfert, 2018). Similar patterns have been reported in higher education research, where project-based learning, without deliberate attention to inner dimensions, risks producing compliance rather than authentic leadership (Barth and Rieckmann, 2016; Tilbury, 2020).

A paradox was also identified in students' perceptions of their inner readiness. Respondents rated themselves highly in foundational capacities such as self-understanding and self-awareness, yet simultaneously identified systematic thinking and courage to initiate

as priority areas for development. This disconnect illustrates that while students recognize "the what" of inner development, they lack the practical, action-oriented skills to operationalize self-knowledge into meaningful contributions. Their stronger familiarity with the "Acting" dimension of the IDGs was linked to frequent participation in externally organized projects, but these experiences were not systematically fostering deeper reflection or the courage to lead. This resonates with findings by Engler, Wamsler and Brink (2023), who argue that project involvement without explicit emphasis on inner capacities may limit students' transformation into genuine agents of change.

The implications for higher education are significant. Universities must move beyond transmitting knowledge and providing project opportunities, and instead intentionally integrate the IDG framework into curricula. As suggested by De Kraker (2020) and O'Brien (2018), sustainability education requires a stronger focus on transformative learning processes that foster systematic thinking, resilience, and the capacity to act with courage. Activities such as reflective practice, collaborative problem-solving, and leadership simulations could help bridge the gap between self-awareness and action competence. In the Thai context, where sustainability has become a growing priority in higher education policy (Chanchalor, 2020; Suwanmoli, 2021; SEAMEO, 2019), embedding IDGs represents a timely and necessary step toward strengthening student readiness for global citizenship.

In conclusion, this study highlights that the Inner Development Goals provide a missing dimension in sustainability education. While students demonstrated strong awareness of external issues, their identified needs point to gaps in translating this awareness into empowered action. By illuminating these strengths and developmental priorities, the research contributes to both theory and practice: advancing global discourse on IDGs (Esbjörn-Hargens, 2022; Inner Development Goals Initiative, 2022) and offering practical

insights for curriculum design in Thailand and the wider Southeast Asian region. Universities that intentionally integrate inner capacities into their teaching will be better positioned to prepare the next generation of graduates not only as knowledgeable professionals but also as genuinely motivated global citizens capable of leading transformative change (Oxley and Morris, 2013; Reimers, 2020).

Contributions:

This research makes several significant contributions to the body of academic knowledge and the practice of sustainability education.

1. Theoretical Contributions

This study extends sustainability theory by providing empirical evidence that the Inner Development Goals (IDGs) are a necessary complement to the Sustainable Development Goals (SDGs), validating the argument that inner transformation is a prerequisite for external sustainability outcomes. Furthermore, it identifies a paradox in students' self-perceptions: they report high levels of self-awareness and self-understanding yet low levels of readiness in action-oriented skills such as systematic thinking and the courage to initiate. This advances transformative learning theory by exposing the critical gap between intellectual awareness and practical agency, which constrains students' capacity to act as genuine agents of change.

2. Methodological Contributions

The research provides an innovative qualitative design by demonstrating the value of a multi-method approach that integrates interviews, focus group discussions, and reflective techniques to capture both individual and collective perspectives. The study also introduces a novel technique, the One Page Summary Technique, which enabled participants to articulate

reflections beyond spoken dialogue, providing deeper insights into inner development processes that can inform future research methodologies.

3. Practical and Educational Contributions

The findings offer a clear and actionable curriculum roadmap for universities. By identifying the strengths of Thai undergraduate students—such as self-understanding and collaboration—alongside their developmental needs—including systematic thinking, courage to initiate, and self-reflection—this research enables institutions to design targeted and impactful curricula that bridge the gap between awareness and action.

4. Social Contributions

By mapping pathways to inner growth, this study underscores the importance of preparing students not only as competent professionals but also as inspired global citizens. It demonstrates how the IDGs can equip future generations to navigate complex global challenges by effectively integrating external competencies with inner resilience, thus contributing to a more sustainable and equitable society.

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University Support and Student-Led Social Enterprise Performance: Evidence from Enactus Europe

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Introduction:

Universities increasingly seek to develop student-led social enterprises (SSEs) as vehicles for addressing pressing social and environmental challenges while building entrepreneurial skills. Yet, despite widespread adoption of support programmes such as funding schemes, entrepreneurship courses, and faculty mentoring, there is little quantitative evidence on their effectiveness in improving SSE outcomes. Understanding how these institutional inputs shape enterprise performance is critical for both higher education and organisations such as Enactus in effectively supporting SSEs.

Literature review:

Existing research suggests that SSEs benefit from access to financial, educational, and mentoring resources (Bazan et al., 2020; Hockerts, 2015), but evidence on the causal effects of university support is limited and largely qualitative. Quantitative assessments of how university support affects SSE performance are scarce, and few studies evaluate both business and social–environmental impact outcomes. This study addresses these gaps by asking: To what extent do university support measures influence the performance of student-led social enterprises in Europe? Drawing on Social Entrepreneurship Theory and the Resource-Based View, it was hypothesised that university support would positively influence SSE business and impact performance.

Methodology:

This study employed a quantitative design, building a cross-sectional dataset of 167 Enactus project reports from six European countries (2019–2024). Dependent variables captured business performance, project continuation, and impact performance. Independent variables measured financial support, entrepreneurship courses, and faculty involvement, with team size and project age included as controls. Analyses used ordinal, beta, and binary logistic regression models. Social and environmental impact were scored using a novel large language model (LLM)–based pairwise comparison method, which enabled more reliable and standardised evaluation of impact across diverse projects.

Findings:

Results showed that university support measures exhibited weak or inconsistent associations with SSE performance across models. Financial support, entrepreneurship courses, and faculty mentoring showed weak or inconsistent associations with business or impact performance. In contrast, team size consistently predicted stronger outcomes, underscoring it as the central driver of SSE success across performance dimensions. These results suggest that internal team capacity and project context may be more influential for success than top-down support inputs.

Discussion:

The findings challenge assumptions that institutional support mechanisms directly drive SSE success. Instead, the consistent predictive power of team size suggests that internal team capacity and collaboration may be more critical determinants of performance. These results

indicate that support is not inherently ineffective, but rather that its impact likely depends on alignment with team needs, project stage, and strategy.

Contributions:

The study provides one of the first quantitative analyses of SSE performance in Europe, advancing understanding of when and how university support matters. It introduces an innovative AI-enabled approach for impact scoring, offering a scalable tool for comparative evaluation. Practically, the findings suggest that universities and Enactus teams can enhance impact by prioritising capacity-building within teams and tailoring support programmes to specific project contexts, rather than relying solely on generalised, top-down measures.

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Voltstep – Harnessing Human Motion for Sustainable Energy Access in Rural Communities

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Introduction:

Energy poverty continues to cast a shadow over rural Zimbabwe, where households remain trapped without reliable access to electricity. Students are often forced to study by candlelight or kerosene lamps, exposing them to respiratory hazards, high recurring costs and shortened study hours. This persistent challenge undermines educational outcomes, limits economic opportunity and reduces overall quality of life. Addressing it requires solutions that are not only sustainable and affordable but also seamlessly integrated into daily living. Voltstep emerges as a breakthrough footwear that converts human motion into usable electricity, providing light and opportunity with every step.

Literature review:

Energy access is strongly linked to educational attainment and social development (Adkins et al., 2010). Studies on renewable micro-generation highlight their transformative potential in off-grid settings (Bhattacharyya, 2012). However, while solar technologies have been promoted, they often face barriers such as high initial costs, inconsistent supply chains, and maintenance burdens. There is little in the literature that explores wearable, user driven solutions for energy generation. This research addresses that gap with the central question: How can wearable energy harvesting devices improve energy access in underserved communities while promoting environmental sustainability? Our hypothesis is that integrating piezoelectric technology into school footwear, reinforced with recycled materials,

can generate reliable electricity, reduce household energy costs and improve educational outcomes at scale.

Methodology:

A mixed methods approach was employed to balance technical rigor with social impact assessment.

Sample size and duration: 71 students across three rural schools in Mashonaland Central, Zimbabwe, participated in a three month pilot study (October–December 2024).

Quantitative testing: Digital multimeters captured voltage and current outputs, while wear and tear durability was monitored weekly.

Qualitative insights: Focus groups and structured interviews with students, teachers and parents captured perceptions of usability, comfort and social value.

This combined approach ensured the results reflected not only technological feasibility but also real world acceptance and impact.

Findings:

The Voltstep prototype delivered measurable and transformative results:

Energy generation: Each pair produced an average of 1.2 - 1.5 watts per hour of walking, delivering 3V per step and accumulating up to 450 mAh daily depending on activity.

Utility: Energy harvested was sufficient to power LED study lamps for 5 - 6 hours every evening, directly improving study conditions.

Durability: After 3 months of continuous use, 99% of soles remained structurally intact, validating the resilience of recycled tire material.

Impact: 87% of students reported extended study time at night, while 82% of households confirmed reduced reliance on candles and kerosene, lowering expenditure and improving air quality.

Qualitative responses revealed a sense of pride and empowerment among students who viewed Voltstep not only as footwear but as a tool for education and progress.

Discussion:

The findings demonstrate that Voltstep bridges a crucial gap between sustainability and accessibility. By embedding energy generation into a product already central to daily life, Voltstep eliminates behavioral and financial barriers that often hinder renewable adoption. Beyond electricity, it offers dignity allowing children to study under clean light, families to reduce expenses, and communities to embrace an eco conscious solution. The research positions Voltstep as a scalable model of social innovation, capable of reshaping how rural communities think about energy, waste, and opportunity.

Contributions:

Empirical: Provides statistically grounded evidence that wearable micro-generation is not only feasible but impactful in rural African contexts.

Theoretical: Expands discourse on sustainable innovation by framing everyday consumer goods as energy access platforms.

Practical: Introduces a replicable, low cost, and eco friendly solution adaptable to schools, communities and industries globally. Voltstep is more than footwear, it is a step toward educational equity and energy justice.

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