

Innovathons and Entrepreneurial Learning: A Pilot Study on the Perceived Impact in University Students at UNITEC Honduras

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Abstract— *In addition to these transformations, higher education is increasingly expected to respond to complex societal challenges by fostering not only technical knowledge but also adaptive, entrepreneurial, and socio-emotional competencies. This shift requires moving beyond traditional lecture-based instruction toward learning environments that simulate real-world uncertainty, ambiguity, and decision-making processes.*

In this sense, experiential learning approaches are not only pedagogical alternatives but necessary strategies to bridge the gap between theoretical knowledge and practical application. Students benefit from opportunities to actively engage with problems, test ideas, and reflect on their own learning processes in dynamic contexts that mirror professional realities.

Within this framework, short, intensive, and challenge-based learning formats—such as Innovathons—are gaining relevance as they allow for rapid immersion into problem-solving scenarios. These experiences can serve as catalysts for student engagement, particularly for those who have not previously been exposed to entrepreneurial thinking.

Keywords— *Entrepreneurship, educational innovation, active learning methodologies, skills development, higher education.*

I. INTRODUCTION

The current teaching context requires creative and autonomous approaches to generate learning from a comprehensive perspective linked to problem solving and the presentation of innovative solutions [1]. Active learning methodologies allow students to engage more dynamically in the learning process, encouraging experimentation, decision-making, and critical thinking in environments where mistakes are part of the learning experience [2].

Recent studies have highlighted how approaches such as gamification and the theory of multiple intelligences can foster the development of significant critical thinking skills and enhance student engagement [3]. In this context, higher education institutions face the challenge of adapting their pedagogical strategies to promote not only knowledge acquisition but also the development of transversal competencies such as creativity, collaboration, and problem-solving abilities [4].

In practical terms, this type of experience reflects real classroom dynamics where students, many of whom have no prior exposure to entrepreneurship, are required to engage with real problems in a structured yet flexible environment. This creates a space where learning is not only theoretical but also experiential, allowing students to test ideas, make decisions,

and reflect on their own capabilities.

Innovation in education has become a key element in responding to these demands. Educational experiences that integrate real-world challenges, collaborative work, and active methodologies allow students to connect theory with practice, fostering deeper and more meaningful learning processes.

A. Innovathons as a Learning Tool

In a changing social and educational environment, there is a growing need to implement teaching methodologies that strengthen soft skills and entrepreneurial thinking. Traditional approaches often limit reflective and innovative learning, reducing opportunities for students to actively engage in problem-solving processes [5].

Innovathons have emerged as an experiential learning strategy that promotes intensive, collaborative, and challenge-based learning environments. These formats combine conceptual instruction with hands-on application, allowing participants to address real problems while developing practical solutions within a limited timeframe [6].

Through these experiences, students are exposed to dynamic and multidisciplinary contexts where they must analyze situations, make decisions under pressure, and communicate ideas effectively. One of the core methodologies applied in innovathons is design thinking, a human-centered approach that facilitates the understanding of user needs and the generation of feasible and innovative solutions through iterative processes [8], [9].

Additionally, tools such as the social business canvas are incorporated to structure value propositions with a social perspective, integrating economic, environmental, and social dimensions. This aligns with the triple impact approach, which emphasizes the balance between People, Planet, and Prosperity [10], [11].

Overall, innovathons can be understood as experiential learning environments that promote the practical application of knowledge, critical thinking, and the development of entrepreneurial competencies in multidisciplinary settings.

Furthermore, Innovathons differ from traditional project-based learning experiences in their intensity and time constraints. The limited duration requires participants to prioritize, synthesize information, and make rapid decisions, which can accelerate learning processes and highlight individual and team dynamics. This compressed format encourages action over perfection, reinforcing a learning culture where iteration and experimentation are valued.

B. Learning through Gamification

Experiential learning is reinforced through pedagogical strategies that integrate cross-disciplinary tools and active participation. Gamification, as a learning approach, contributes to increasing student motivation, creativity, and engagement, transforming traditional learning environments into more interactive and meaningful experiences [12], [13].

According to recent studies, gamification has demonstrated positive effects on academic performance, the development of social skills, and the promotion of problem-solving abilities, all of which are essential competencies in contemporary professional contexts [7], [14].

Beyond motivation, gamification also contributes to structuring the learning experience by introducing elements such as challenges, time limits, and feedback loops. These components align closely with the dynamics of Innovathons, where engagement is sustained through continuous interaction and problem-solving. As a result, gamification not only enhances participation but also supports deeper cognitive processing and collaborative learning.

C. Entrepreneurship among University Students

From an academic perspective, promoting entrepreneurship in higher education is essential for connecting universities with societal needs and fostering sustainable economic development. Universities play a key role in developing entrepreneurial skills and mindsets, particularly by exposing students to real-world challenges and innovation processes [15].

Entrepreneurial intention among university students is influenced by multiple factors, including their educational environment, exposure to entrepreneurial experiences, and opportunities to apply knowledge in practical contexts [16]. Therefore, designing educational strategies that go beyond traditional instruction and actively engage students in entrepreneurial processes is crucial.

In this context, Innovathons emerge as experiential learning environments that allow students to engage with real-world challenges through structured, time-constrained, and collaborative dynamics. Rather than measuring definitive changes in entrepreneurial mindset, this study focuses on understanding how students perceive their learning experience after participating in such an intervention. The Innovathon is therefore approached as a pilot educational strategy that enables the exploration of its potential contributions to entrepreneurial learning and soft skill development in multidisciplinary contexts.

Additionally, exposure to experiential formats such as Innovathons may play a relevant role in shaping students' perceptions of entrepreneurship as an accessible and actionable pathway. Rather than viewing entrepreneurship as a distant or complex endeavor, students can begin to perceive it as a process that starts with identifying problems and taking incremental steps toward solutions.

II. GENERAL OBJECTIVE

To analyze the Innovathon as a pilot educational innovation strategy, focusing on students' perceived learning experience and its potential contribution to entrepreneurial and

collaborative skill development in multidisciplinary university contexts.

III. PROCEDURE

The Innovathon was designed and implemented as a pilot experiential educational intervention aimed at promoting active learning, multidisciplinary collaboration, and the exploration of entrepreneurial skill development in university students.

The structure of the event followed a sequential instructional design, where participants progressed from identifying a problem — which they could already have identified from their courses — to formulating and communicating a solution proposal with an impact focus. This design was based on innovative methodologies widely used in educational and entrepreneurial contexts, integrating principles of learning by doing and working under time constraints.

Prior to the start of the event, participants were invited from different faculties. Teams were formed from different courses and required to be multidisciplinary, with the aim of promoting diversity of perspectives and collaborative work. Each team received a brief introduction to the purpose of the Innovathon, the rules of participation, and the general evaluation criteria.

The Innovathon was structured in four methodological phases, each associated with a specific tool, as illustrated in Fig. 1.

Fig. 1. Sequential Methodological Phases of the Innovathon

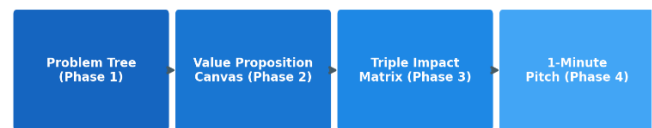


Fig. 1. Sequential methodological phases of the Innovathon.

The design of Innovathon was intentionally structured to balance guidance and autonomy. While participants were provided with tools and a clear sequence of activities, they were also encouraged to make independent decisions, negotiate ideas within their teams, and adapt their approaches based on time constraints. This balance aimed to simulate real entrepreneurial environments, where structure coexists with uncertainty.

The role of facilitators was primarily that of guides rather than instructors. Their function was to support teams through questioning, feedback, and clarification, without directly intervening in decision-making processes. This approach sought to reinforce student ownership of learning and promote reflective thinking.

Phase 1: Identifying the Problem

In this phase, teams engaged in a structured analysis of real-world situations using the problem tree. Beyond identifying causes and effects, students were encouraged to discuss the relevance and scope of the problem, as well as its impact on different stakeholders. This process fostered critical thinking and allowed participants to move from superficial observations to a more systemic understanding of the issues.

Phase 2: Definition of the Value Proposition

In this phase, participants worked with the value proposition canvas to establish a clear and coherent connection between the

identified problem and the proposed solution. Teams were encouraged to analyze user needs (for human centered solutions), expectations, and potential frustrations to design solutions that were not only innovative but also relevant and meaningful.

This stage emphasized the importance of a user-centered approach, prompting students to reflect on whether their ideas genuinely addressed the problem previously defined. Through this process, participants developed a deeper understanding of the relationship between problem-solution fit and value creation, strengthening their ability to design proposals grounded in real user needs rather than assumptions.

Phase 3: Impact Assessment

During this phase, teams applied the triple impact matrix to evaluate the social, environmental, and economic implications of their proposed solutions. Beyond a simple categorization exercise, students were encouraged to reflect critically on the broader consequences of their ideas and their potential contribution to sustainable development.

This analysis promoted a more holistic and systemic perspective, allowing participants to move beyond short-term or purely economic considerations. By integrating multiple dimensions of impact, students were exposed to the complexity of responsible entrepreneurship, recognizing that viable solutions must balance value generation with social and environmental responsibility.

Phase 4: One-Minute Pitch

As the final stage of the Innovathon, the one-minute pitch functioned as a synthesis and communication exercise, requiring students to present their ideas in a clear, concise, and structured manner. Participants were challenged to prioritize key information, focusing on the problem, the proposed solution, and its expected impact within a limited timeframe. This phase reinforced the development of essential communication skills, particularly the ability to translate complex ideas into accessible messages for non-specialist audiences. The time constraint introduced an additional layer of pressure, encouraging rapid decision-making and effective teamwork.

Moreover, the pitch served as a reflective moment in which students became aware of the importance of clarity, coherence, and persuasion as integral components of the entrepreneurial process, rather than as secondary or purely presentational elements.

IV. METHODOLOGY

A. Study Approach

This approach is particularly relevant in exploratory educational research, where the objective is to capture perceptions and experiences as a first step toward deeper analysis. By focusing on students' interpretations, the study provides insight into how learning environments are experienced, rather than attempting to measure predefined outcomes.

This study adopts a mixed-method approach with a descriptive and exploratory focus, aimed at analyzing students'

perceived learning experience after participating in an Innovathon. Rather than establishing causal relationships, the research seeks to understand how participants interpret and evaluate their experience in terms of entrepreneurial learning, soft skill development, and interest in entrepreneurship.

The methodological design corresponds to a cross-sectional post-intervention study, based on self-reported data collected after the event. This approach is appropriate for examining innovative educational experiences, particularly in pilot contexts where the emphasis is on understanding perceptions and generating preliminary insights rather than testing causal effects.

B. Population and Sample

The population consisted of undergraduate students from a higher education institution in Central America who voluntarily participated in an edition of the Innovathon. The sample was non-probabilistic for convenience, consisting of 19 students, corresponding to the total number of participants who completed the Innovathon and responded to the post-event survey. Participants came from multidisciplinary fields, mainly from the faculties of Engineering (48%), Art and Design (26%), and Administrative and Social Sciences (26%). Given the size and characteristics of the sample, the findings are not intended to be generalized but rather to provide initial insights into the perceived impact of the Innovathon experience.

C. Data Collection Instrument

An anonymous digital post-Innovathon questionnaire was designed, structured in six sections. The tool included closed Likert-type items (scale of 1 to 5) measuring: (a) the experience within the Innovathon; (b) students' perceptions related to entrepreneurial mindset and learning experience; (c) the intention to become an entrepreneur; and (d) the perception of usefulness, replicability, and pedagogical value of the format. Closed-ended multiple-choice questions and open-ended questions to identify significant learnings and opportunities for improvement were also included. Qualitative triangulation was carried out based on direct observation and field notes prepared by the event facilitators.

D. Data Collection

Data collection was carried out digitally, using electronic forms distributed at the end of the event. Participation was voluntary, ensuring informed consent, confidentiality, and anonymity for participants.

E. Data Analysis

The data analysis was carried out in three stages. First, the database was exported and cleaned. Next, the Likert scale responses were coded numerically (1 = strongly disagree to 5 = strongly agree) and analyzed descriptively. Finally, the open-ended responses were examined using thematic analysis, identifying recurring patterns and emerging categories. The quantitative and qualitative results were integrated to interpret the learning experience and the perceived effect of the innovathon. Due to the post-event design and the absence of baseline measurements, the analysis does not allow for causal inferences; results are interpreted as descriptive indicators of participants' perceptions and experiences.

The integration of quantitative and qualitative data allowed for

a more comprehensive interpretation of the results, providing both measurable trends and contextual insights. This triangulation strengthens the validity of the findings within the scope of exploratory research.

V. LIMITATIONS

This study presents several limitations. First, the sample size (n=19) is small and based on convenience sampling, which limits the generalizability of the findings. Second, the absence of a pre-test restricts the ability to measure changes over time or establish causal relationships. Third, the data is based on self-reported perceptions, which may be influenced by participants’ subjective experiences. Therefore, results should be interpreted as preliminary and exploratory. The research was conducted in accordance with ethical criteria, ensuring informed consent, absolute voluntariness, and anonymity of participants in the processing of data.

VI. RESULTS

A. Descriptive Analysis

The sample consisted of 19 multidisciplinary university students, of whom 48% belonged to the Faculty of Engineering, 26% to Art and Design, and 26% to Administrative and Social Sciences. In terms of entrepreneurial profile, 74% of participants reported that they did not have an active venture nor had they previously undertaken one, positioning the Innovathon as a relevant introductory experience for exposure to entrepreneurial processes.

The results suggest a positive perception of the Innovathon as an active and experiential learning strategy. A total of 100% of participants considered the Innovathon to be more practical than a traditional class, 95% indicated that they would recommend the experience, and 89.5% reported an increased interest in entrepreneurship after participation. It is worth noting that many participants were engaging with entrepreneurial thinking for the first time, which may explain the strong positive perception of the experience as both practical and meaningful.

Among the opportunities for improvement, participants consistently identified time management as a key aspect, particularly in relation to the preparation of the pitch. Fig. 2 presents the main areas for improvement identified by participants.

These findings suggest that the Innovathon experience may serve as an effective entry point into entrepreneurial learning, particularly for students without prior exposure. The high levels of perceived practicality and engagement indicate that students value learning environments where they can actively participate and apply concepts in real time.

Additionally, the emphasis on soft skill development highlights the relevance of experiential formats in preparing students for complex professional environments, where adaptability, communication, and teamwork are essential.

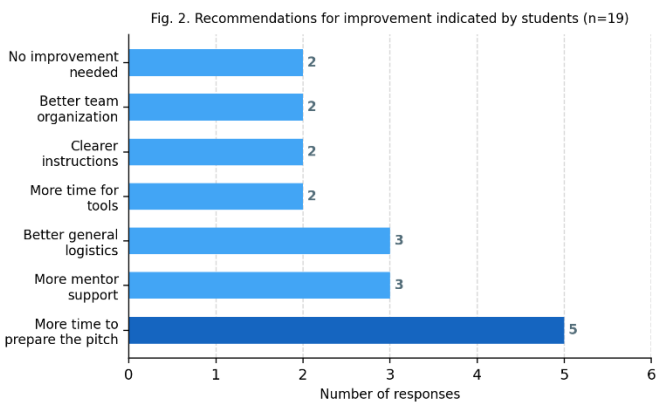


Fig. 2. Recommendations for improvement indicated by students (n=19).

Fig. 3 illustrates participants’ perceptions of confidence in their entrepreneurial abilities after the Innovathon. The data show a concentration of responses in the categories of “Agree” and “Strongly Agree” (89%), suggesting a positive perceived level of confidence related to entrepreneurship.

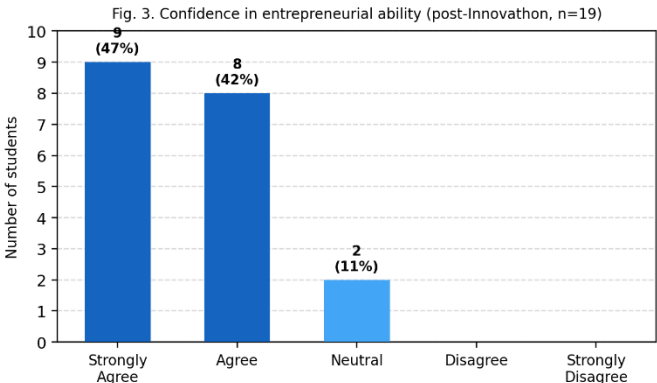


Fig. 3. Confidence in entrepreneurial ability (post-Innovathon, n=19).

Similarly, Fig. 4 shows participants’ reported interest in entrepreneurship following the experience: 52.6% indicated their interest increased a little, and 36.8% reported it increased a lot, reinforcing the perception of the Innovathon as a motivating educational environment.

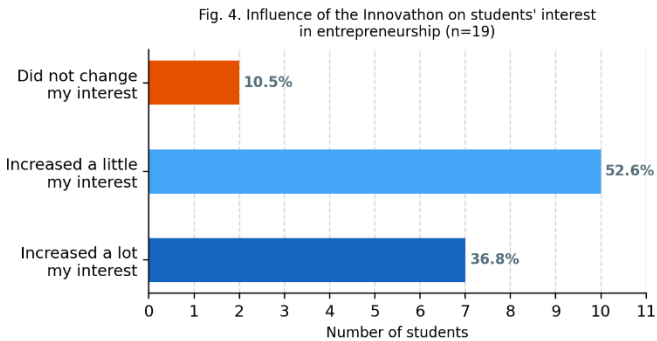


Fig. 4. Influence of the Innovathon on students' interest in entrepreneurship (n=19).

Regarding learning outcomes, Fig. 5 indicates that participants highlighted key takeaways such as the ability to recognize problems and propose solutions (n=6), rapid

decision-making under pressure (n=5), and a greater understanding of the triple impact approach (n=4).

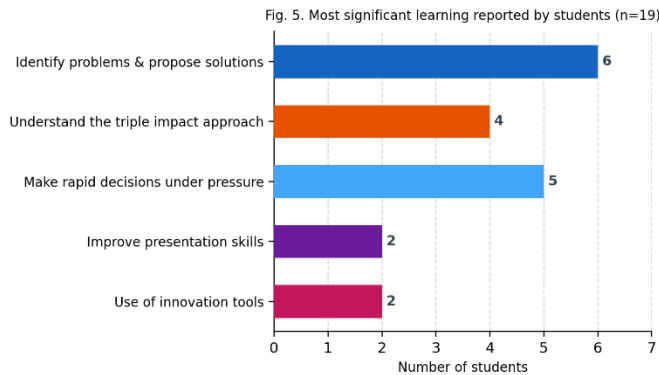


Fig. 5. Most significant learning reported by students (n=19).

The most frequently reported learning outcomes were related to socio-emotional and cognitive skills. Participants highlighted perceived improvements in problem identification, solution development, and rapid decision-making in uncertain contexts. Additionally, they emphasized a broader understanding of entrepreneurship from a triple impact perspective, integrating social, environmental, and economic dimensions.

Overall, the results suggest that the Innovathon was perceived as an effective experiential learning environment that promotes active participation, collaboration, and practical engagement with entrepreneurial concepts. However, these findings should be interpreted as descriptive indicators of participants' perceptions rather than as evidence of causal impact, providing preliminary insights into the potential of the Innovathon as an educational strategy.

VII. CONCLUSIONS

This study allowed for the analysis of the Innovathon as a pilot educational innovation strategy from the perspective of participants' post-event experiences. The findings suggest a positive perceived impact on students' interest in entrepreneurship, confidence in their entrepreneurial abilities, and their capacity to identify opportunities within their environment.

The results indicate that the Innovathon can function as an experiential learning environment where methodologies such as design thinking, the social business canvas, and the triple impact approach support students in understanding real-world problems and proposing comprehensive solutions. Additionally, the collaborative and time-constrained dynamics of the experience were perceived as conducive to the development of key soft skills, including decision-making, effective communication, teamwork, and tolerance for uncertainty.

However, these findings should be interpreted with caution. Due to the exploratory nature of the study, the small sample size (n=19), and the absence of baseline measurements, it is not possible to establish causal relationships or confirm long-term changes in entrepreneurial mindset. Instead, the results provide preliminary evidence of how students perceive their learning within a short, intensive educational intervention.

Overall, the Innovathon can be considered a promising and

adaptable pedagogical strategy that complements traditional teaching approaches by promoting active, experiential, and multidisciplinary learning. Its value lies not only in skill development but also in its potential to engage students in meaningful learning experiences connected to real-world challenges and to build confidence through practice rather than solely through theoretical instruction.

From an educational perspective, this study contributes to the growing body of literature that supports the integration of active and experiential methodologies in higher education. It reinforces the idea that learning environments designed around action, collaboration, and reflection can enhance students' engagement and perceived learning outcomes.

VIII. RECOMMENDATIONS

Based on the findings of this exploratory study, several recommendations are proposed to strengthen the design, implementation, and evaluation of Innovathon-based educational experiences:

- Optimize time planning and allocation, particularly in the pitch preparation phase, to enhance the depth and clarity of students' proposals without compromising the intensive nature of the experience.
- Reinforce the experiential learning approach by maintaining a strong emphasis on practical activities, collaborative work, and decision-making under time constraints, as these elements were positively perceived by participants.
- Strengthen the role of mentors and facilitators, ensuring timely and structured support during key stages of the process, including problem definition, solution development, and presentation.
- Promote the curricular integration of Innovathons as complementary strategies within courses related to entrepreneurship, innovation, and problem-solving, fostering active and contextualized learning.
- Encourage the adaptation and replication of the Innovathon model in diverse higher education contexts, considering its flexibility and potential to engage multidisciplinary teams.
- Develop future research designs that incorporate pre- and post-intervention measurements, larger and more diverse samples, and longitudinal follow-up in order to better understand the sustained impact of these experiences and their influence on entrepreneurial behavior.

REFERENCES

- [1] [1] E. Banegas and F. Duarte, "Key competences and curricula integration of the SDGs," in Proc. 23rd LACCEI Int. Multi-Conf. Eng., Educ. Technol., Mexico City, Mexico, 2025.
- [2] [2] L. Uceda, B. Reyes, R. Lopez, and L. Lujan, "Videogames and their impact on education as a teaching-learning tool: A systematic review of the literature between the years 2012–2022," in Proc. 21st LACCEI Int. Multi-Conf. Eng., Educ. Technol., Buenos Aires, Argentina, 2023.
- [3] [3] M. A. Cardoza-Sernaqué, G. Soriano, L. A. Paz-Jauregui, C. A. Díaz-Calderón, J. V. Paz-Vidalón, and A. M. Morales-López, "Innovación educativa a través de tecnologías de la información y comunicación: Estudio de caso en un curso de investigación formativa," in Proc. 1st LACCEI Int. Multiconf. Entrepreneurship, Innov. Reg. Dev., Virtual, 2021.
- [4] [4] UNESCO, "43rd General Conference: UNESCO convenes ministers of education to define competencies of the future," Nov. 4, 2025. [Online]. Available: <https://www.unesco.org>
- [5] [5] C. Guevara, "ACDEA: Plataforma para la innovación pedagógica en carreras STEM mediante gamificación," in Proc. 5th LACCEI Int. Multiconf. Entrepreneurship, Innov. Reg. Dev., Virtual, 2025.
- [6] [6] I. C. Schulten and C. Coto, "How do we learn in and from hackathons? A systematic literature review," Educ. Inf. Technol., vol. 29, pp. 1–28, 2024.
- [7] [7] M. Kalogiannakis and S. Papadakis, "Gamification in education," in Frontiers in Education, Lausanne: Frontiers Media, 2023.
- [8] [8] C. Peralta, "Influencia de la metodología pensamiento de diseño en la mejora del desempeño docente," Rev. Electron. Invest. Educ., vol. 7, no. 14, pp. 854–878, 2025.
- [9] [9] G. C. Arushi and A. G. Bhakar, "Evaluación comparativa del design thinking como herramienta para la educación: Una revisión sistemática y agenda de investigación futura," Benchmarking: Int. J., vol. 32, no. 3, pp. 965–991, 2024.
- [10] [10] A. R. Qastharin, "Business model canvas for social enterprise," in Proc. 7th Indonesia Int. Conf. Innov., Entrepreneurship, Small Bus., Bandung, Indonesia, 2015.
- [11] [11] G. M. Villalobos, M. G. Martínez, and G. G. González, "Reutipiña-Bromé: An innovative triple impact entrepreneurship," Liceu, vol. 12, no. 1, pp. 125–145, 2022.
- [12] [12] L. Olórtégui, "Student engagement and academic innovation as drivers of university entrepreneurship in metropolitan Lima," in Proc. 5th LACCEI Int. Multiconf. Entrepreneurship, Innov. Reg. Dev., Virtual, 2025.
- [13] [13] M. L. Zambrano, K. Lagos, A. León, and A. Leiva, "La gamificación: Herramientas innovadoras para promover el aprendizaje autorregulado," Dominio Cienc., vol. 6, no. 3, pp. 349–369, 2020.
- [14] [14] J. L. Lema, L. T. Daza, A. E. Paz, and J. L. Jiménez, "La gamificación educativa, alternativa para la enseñanza creativa: Su empleo en la educación superior en Ecuador," Rev. Latinoam. Cienc. Soc. Humanidades, vol. 5, no. 6, p. 2112, 2024.
- [15] [15] O. M. Medina, L. J. Morillo, and A. E. Esteves, "El emprendimiento en el sistema universitario," Didáctica y Educación, vol. 8, no. 1, pp. 163–178, 2017.
- [16] [16] J. Q. Mora, G. Á. García, and J. C. Pérez, "Jóvenes universitarios y su apuesta al emprendimiento social," Rev. Econ. Política, no. 30, pp. 3–27, 2019.
- [17] [17] I. S. Otache, J. E. Idoko, K. U. Iliya, and I. Usman, "Entrepreneurship education and entrepreneurial intentions: Do entrepreneurial self-efficacy, alertness and opportunity recognition matter?" Int. J. Manage. Educ., vol. 22, no. 1, 2024.
- [18] [18] L. E. Estrada, Y. S. Jiménez, J. P. Aguilar, "Los procesos de innovación educativa: Resultados en el Centro Universitario de Guisa," Rev. Atlante: Cuad. Educ. Desarrollo, no. 2, 2020.
- [19] [19] T. A. Quintana, S. P. Espinoza, E. L. Estévez, and M. B. Brito, "El impacto del hackathon en la Universidad de Guayaquil," Ciencia Latina Rev. Cient. Multidiscip., vol. 7, no. 3, pp. 945–962, 2024.
- [20] [20] D. C. García, J. R. Ramírez, T. G. Torres, and J. García, "El ideatón como instrumento para la educación emprendedora en contextos universitarios," Int. J. Manage. Educ., vol. 22, no. 1, 2024.
- [21] [21] P. S. Tsou, O. O. Ekpo, and E. Lim, "The relationship between entrepreneurial intention and behavior: A meta-analytic review," Int. J. Entrepreneurship Innov., 2023.