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Application of Design Thinking in University Social Responsibility: Strengthening Entrepreneurial Competencies in University Students in Metropolitan Lima, Peru

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Abstract*– This study examines the integration of the Design Thinking approach into University Social Responsibility (USR) projects, and its relationship with the development of entrepreneurial competencies among university students in Metropolitan Lima, Peru. A quantitative explanatory approach was applied using covariance-based structural equation modeling (CB-SEM) under a non-experimental, cross-sectional research design. The sample consisted of 385 undergraduate and graduate students who participated in USR initiatives. The results reveal statistically significant associations between empathy and entrepreneurial creativity ($\beta = 0.63$; $p < 0.001$), prototyping and problem-solving capabilities ($\beta = 0.56$; $p < 0.01$), and idea validation and sustainable innovation development ($\beta = 0.47$; $p < 0.05$). However, several implementation barriers were identified, including lack of practical training in the methodology (40%), academic time constraints (35%), and limited access to technological resources (24%), which hinder full implementation. The study proposes institutional strategies to overcome these challenges, such as the creation of innovation laboratories, interdisciplinary academic programs, and strengthened faculty training. Additionally, policy recommendations are presented to promote strategic partnerships among universities, the productive sector, and civil society. In conclusion, Design Thinking is suggested as a transformative pedagogical tool that fosters socially oriented entrepreneurship, strengthening students' holistic development and the territorial impact of universities.

Keywords: Design Thinking; University Social Responsibility; Entrepreneurial Competencies; Social Innovation; Higher Education.

I. INTRODUCTION

In a global context characterized by rapid technological transformation, climate crisis, social polarization, and structural inequality, higher education institutions face a growing responsibility: to train professionals with not only technical skills, but also ethical, social, and civic skills [1]-[2]. In this scenario, University Social Responsibility (USR) can no longer be conceived solely as a set of extracurricular activities, but rather as a cross-cutting strategy that redefines the relationship between the university and society [3]. Through USR, the aim is to promote education aligned with the Sustainable Development Goals (SDGs), in which students become active agents of social change [4]-[5].

To achieve this goal, it is essential to incorporate pedagogical approaches that allow students not only to learn content but also to address real-world problems from a transformative perspective [6]. One of the most effective methodological approaches in this context is Design Thinking. This user-centered strategy integrates creative thinking, critical analysis, and collaboration to develop innovative solutions to complex challenges [7]-[8]. This methodology is a powerful tool for operationalizing USR principles in university education, particularly in contexts where social gaps require contextualized, empathetic, and sustainable responses [9]-[10].

Design Thinking in higher education has evolved beyond its traditional application in product or service design. Its pedagogical use enables the development of skills such as in-depth identification of social needs, co-creation with community actors, and the iterative generation of solutions [11]-[12]. In the university setting, this methodology has been used to empower students in social innovation processes, foster transformational leadership, and promote active and reflective citizenship. Its interdisciplinary and participatory nature makes it an ideal approach for responding to the challenges posed by USR [13]-[14].

In the case of Metropolitan Lima, a city marked by economic heterogeneity, disorderly urban growth, and profound inequalities in access to services, universities face an urgent need to strengthen their ties with the community [15]. The implementation of Design Thinking as a tool in USR projects enables students to engage with concrete realities, from designing solutions to improve educational quality in vulnerable areas to creating social micro-enterprises [16]. In this way, the university not only contributes to solving local problems, but also strengthens its social legitimacy and its role as a driver of sustainable development [17]-[18].

Recent studies have shown that applying Design Thinking in educational contexts significantly improves students' analytical skills, creativity, and collaborative work [19]-[20]-[21].

In USR projects, this methodology is positively associated with entrepreneurial skills, including empathy for diverse populations, resilience in the face of uncertainty, and the ability to build viable solutions under real constraints. These skills are increasingly valued in new work environments, where the ability to generate social and/or economic impact from an innovative perspective becomes a differentiating factor [22]-[23].

However, the effective implementation of Design Thinking in USR faces significant barriers. The most notable include

limited teacher training in agile methodologies, scarce technological resources, fragmented institutional management, and weak coordination between the university and social actors in the environment [24]. These challenges highlight the need to redesign institutional strategies to align educational experiences with social demands and the local context [25]-[26].

To analyze how the application of the Design Thinking approach in University Social Responsibility (USR) projects contributes to the development of entrepreneurial skills among university students in Metropolitan Lima [27]. From a quantitative and explanatory perspective, the real experiences of students who have participated in USR initiatives that integrate this methodology will be analyzed to understand its impact on comprehensive training and on their perceptions of the university's transformative role [28]-[29]-[30].

The study's theoretical framework is based on two complementary approaches. On the one hand, the theory of complex adaptive systems allows us to understand the university as a living organization that interacts dynamically with its environment, adapting, learning, and influencing its social context [31]-[32]. On the other hand, the resource-based perspective highlights how the skills acquired by students through methodologies such as Design Thinking can constitute a sustainable competitive advantage, both at the individual and institutional levels, by fostering transferable skills such as innovation, problem solving, and change management [33]-[34]-[35].

This work not only aims to generate empirical evidence on the benefits of Design Thinking in university environments with a USR approach, but also to offer practical guidelines for optimizing its implementation. In a Latin American context marked by structural challenges, this type of research is significant because it informs the design of inclusive, scalable educational policies with territorial impact [36]-[37]. In short, integrating methodological innovation with social commitment is a powerful way to build a more just, relevant, and transformative higher education system [38]-[39]-[40].

While previous studies have explored Design Thinking in educational settings, limited empirical research has examined its integration within University Social Responsibility frameworks in Latin American contexts using structural equation modeling. This study contributes by providing context-specific evidence from Metropolitan Lima and by identifying key institutional barriers affecting implementation.

General objective

To analyze how the application of the Design Thinking approach in University Social Responsibility (USR) projects contributes to the development of entrepreneurial skills among university students in Metropolitan Lima.

Specific objectives

To identify the key entrepreneurial skills developed through student participation in USR projects based on Design Thinking.

To examine how the user-centered approach of Design Thinking strengthens social commitment and empathy in university contexts.

Analyze the main institutional, methodological, and cultural barriers that limit the effective integration of Design Thinking into USR initiatives.

Propose strategic recommendations to improve the implementation of Design Thinking in university USR programs, aimed at enhancing the social and educational impact of these experiences.

In short, integrating the pedagogical approach of Design Thinking with University Social Responsibility actions constitutes a comprehensive educational model with the potential to profoundly transform the academic experience in higher education [41]. This synergy not only promotes the development of entrepreneurial and social skills in students but also strengthens the link between the university and its community, generating innovative solutions to real problems from a participatory and sustainable perspective [42]-[43]-[44].

The purpose of this study is to provide empirical evidence on the educational effects of this methodology in the university context of Lima and to identify the key institutional conditions for its effective implementation. From a critical, contextualized perspective, it seeks to inform the design of educational strategies that foster a university more committed to human, social, and territorial development, reaffirming its role as a transformative agent in the construction of more just, resilient, and inclusive societies [45].

Based on the theoretical framework, this study proposes a conceptual model that examines the relationships between key dimensions of Design Thinking (empathy, prototyping, and idea validation) and entrepreneurial competencies (creativity, problem-solving, and sustainable innovation).

Figure 1 presents the conceptual model of the study, showing the relationships between the latent variables.

Based on this model, the following hypotheses are proposed:

H1: Empathy has a positive and significant relationship with entrepreneurial creativity.

H2: Prototyping has a positive and significant relationship with problem-solving capability.

H3: Idea validation has a positive and significant relationship with sustainable innovation.

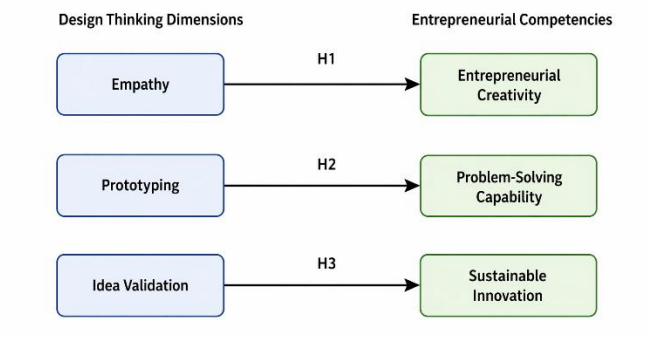

Figure 1. Conceptual Model of the Study

II.METHODOLOGY

Study approach

This study adopts an explanatory quantitative approach to analyze the relationship between the application of the Design Thinking approach in University Social Responsibility (USR) projects and the development of entrepreneurial skills among university students. The quantitative approach allows for the objective measurement of variables and the identification of significant relationships between them through reliable, replicable statistical procedures. This methodological choice is appropriate for evaluating the impact of active methodologies such as Design Thinking in real educational contexts [1]-[3].

Research design

The design adopted is a non-experimental, cross-sectional correlational design, in which variables are observed in their natural context without deliberate manipulation. The purpose is to establish relationships between the dimensions of Design Thinking (empathy, ideation, prototyping) and the development of entrepreneurial skills (creativity, initiative, problem-solving, collaboration) at a specific point in time. This type of design enables the identification of relevant patterns and associations in a real-world university educational environment [12].

Population and sample

The target population consisted of undergraduate and graduate students from a private university in Metropolitan Lima who participated in USR projects.

Students enrolled in undergraduate or graduate programs.

Participation in USR initiatives with a practical focus.

Direct experience or basic training in Design Thinking methodologies.

Residing in Metropolitan Lima.

To determine the sample size, a 95% confidence level and a 5% margin of error were used, yielding a minimum sample size of 385 students. Non-probability convenience sampling was used, prioritizing accessibility and voluntary participation by students with relevant training experience.

Data collection instrument

The questionnaire included a total of 24 items distributed across the following constructs:

- Empathy (4 items)
- Prototyping (4 items)
- Idea validation (4 items)
- Creativity (4 items)
- Problem-solving (4 items)
- Sustainable innovation (4 items)

The instrument used a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The items were adapted from previous validated scales and reviewed by three experts in educational innovation to ensure content validity.

Example item: “I actively seek to understand users’ needs before proposing solutions.”

Data collection

The survey was administered digitally, through forms distributed on institutional virtual platforms. This method facilitated student participation across faculties and ensured greater geographic coverage in Metropolitan Lima. Data collection was carried out over three weeks, ensuring voluntariness, anonymity, and accessibility for all participants.

Data analysis

The data were processed using SPSS v27 and AMOS software, employing appropriate statistical techniques to validate the theoretical model:

Descriptive analysis: means, standard deviations, and frequencies per item.

Reliability analysis: Cronbach's alpha coefficient (>0.70) and composite reliability.

Convergent and discriminant validity: Convergent validity was assessed using AVE (> 0.50). Discriminant validity was evaluated using the Fornell–Larcker criterion and the HTMT ratio (HTMT < 0.85/0.90).

Structural equation modeling (CB-SEM): to check the significance of the relationships between the latent variables in the model.

Confirmatory factor analysis (CFA) was also used as part of the measurement model validation process, allowing the adequacy of the items to their respective latent dimensions to be assessed and reinforcing the convergent and discriminant validity of the theoretical constructs.

Standardized coefficients (β) and explained variance (R^2): to determine the magnitude of the effects and the predictive quality of the model.

These tests enabled us to validate the study's hypotheses empirically, ensuring statistical consistency and conceptual soundness.

Ethical considerations

The study was conducted in accordance with the ethical principles of social research. The following were guaranteed:

Informed consent prior to participation.
Anonymity and confidentiality in the processing of personal data.
Voluntary nature and right to withdraw without penalty.
Exclusive use of information for academic and research purposes.

The methodological strategy proposed in this study has been rigorously designed to ensure consistency among the research objectives, the theoretical framework, and the methods of analysis. The adoption of a quantitative, non-experimental, correlational design enables a precise examination of the relationship between the implementation of Design Thinking in University Social Responsibility (USR) projects and the development of entrepreneurial skills among university students.

The use of covariance-based structural equation modeling (CB-SEM) reinforces the robustness of the analysis by enabling the empirical validation of complex theoretical constructs. This technique facilitates the identification of direct and indirect relationships among latent variables, providing deeper insight into how Design Thinking affects the comprehensive education of students in university contexts linked to social innovation and community engagement.

Furthermore, the criteria established for sample selection, data collection instrument construction, and ethical compliance ensure the reliability and relevance of the results. This methodology not only supports the study's scientific validity but also provides a solid basis for the critical interpretation of the findings and for developing educational proposals to strengthen entrepreneurial ecosystems in higher education.

III. RESULTS

Descriptive Analysis of the Sample

The sample consisted of 385 university students from Metropolitan Lima, Peru, who met the established inclusion criteria. There was a balanced gender distribution, with 54% women and 46% men. By educational level, 68% are undergraduate students, and 32% are in graduate programs.

Regarding entrepreneurial involvement, 61% of participants reported having between 2 and 5 years of involvement, and 39% reported having more than five years. The primary areas in which they applied Design Thinking were product development (49%), marketing strategies (34%), and operational process optimization (17%).

A notable barrier was the lack of practical knowledge of methodology, cited by 40% of respondents, underscoring the need to strengthen methodological training in university settings.

TABLE I
SAMPLE PROFILE

Characteristic	Percentage
Gender: Women	54%
Gender: Men	46%
Undergraduate studies	68%
Graduate studies	32%
Entrepreneurial involvement (2–5 years)	61%
Entrepreneurial involvement (>5 years)	39%
Application in product development	49%
Application in marketing	34%
Application in process improvement	17%

Validation of the Measurement Model

The measurement instrument demonstrated adequate reliability and validity. Cronbach's alpha coefficients were above 0.70 in all dimensions, indicating good internal consistency. Composite reliability ranged from 0.80 to 0.91, and the average extracted variance (AVE) exceeded the recommended minimum of 0.50, supporting convergent validity of the scales.

TABLE II
PSYCHOMETRIC INDICATORS

Indicator	Standard value	Result
Cronbach's alpha	> 0.70	Achieved
Composite reliability	0.80 – 0.91	Met
AVE (Convergent validity)	> 0.50	Met

Additionally, confirmatory factor analysis results showed that all standardized factor loadings exceeded the recommended threshold of 0.50, ranging between 0.62 and 0.84, supporting the adequacy of the measurement model.

These results confirm that the questionnaire was adequate for measuring complex constructs such as creativity, empathy, problem solving, and innovation.

Model Fit Assessment

The overall fit of the structural model was evaluated using multiple goodness-of-fit indices. The results indicate an

acceptable model fit: Comparative Fit Index (CFI) = 0.93, Tucker-Lewis Index (TLI) = 0.91, Root Mean Square Error of Approximation (RMSEA) = 0.067, Standardized Root Mean Square Residual (SRMR) = 0.058, and $\chi^2/df = 2.45$.

These values meet the recommended thresholds, confirming the adequacy of the proposed model.

Structural Relationships of the Model

Structural equation analysis using CB-SEM revealed significant relationships between the dimensions of Design Thinking and entrepreneurial competencies. Empathy was significantly associated with entrepreneurial creativity ($\beta = 0.63$; $p < 0.001$). Prototyping was positively associated with problem-solving ($\beta = 0.56$; $p < 0.01$), and idea validation was associated with sustainable innovation ($\beta = 0.47$; $p < 0.05$).

TABLE III
PATH COEFFICIENTS (β)

Relationship	β	p-value
Empathy → Entrepreneurial creativity	0.63	< 0.001
Prototyping → Problem solving	0.56	< 0.01
Idea validation → Sustainable innovation	0.47	< 0.05

These coefficients demonstrate the strategic value of Design Thinking in building key skills for entrepreneurial innovation.

Explained variance (R^2)

The variance explained by the structural model was considerable. Entrepreneurial creativity reached an R^2 of 0.58, problem solving 0.53, and sustainable innovation 0.49. These values confirm the model's predictive power.

TABLE IV
EXPLAINED VARIANCE (R^2)

Entrepreneurial competence	R^2
Creativity	0.58
Problem solving	0.53
Sustainable innovation	0.49

These R^2 values indicate moderate-to-substantial explanatory power for the endogenous constructs.

Identification of barriers to implementation

Participants identified various barriers that hinder the effective integration of Design Thinking into their projects. The most notable were:

Lack of practical knowledge (40%)
Academic time constraints (35%)
Limited access to technological resources (24%)
Lack of institutional support (19%)

TABLE V
BARRIERS TO IMPLEMENTATION

Barrier	Percentage
Lack of practical knowledge	40%
Academic time constraints	35%
Limited access to technology	24%
Lack of institutional support	19%

These limitations highlight the need to adapt the curriculum, improve infrastructure, and promote strategic alliances to facilitate the adoption of innovative methodologies. Percentages reflect a multiple-response question; therefore, totals may exceed 100%.

General Interpretation of Results

The results clearly show that the Design Thinking approach is positively associated with the development of essential entrepreneurial skills in university contexts. The strong relationships between empathy and creativity, and between prototyping and problem-solving, indicate that students benefit from the practical, iterative, and user-centered approach proposed by this methodology.

However, the identified barriers reflect a gap between theory and practice that must be addressed through proactive institutional policies, teacher training, and greater integration of technological resources. Overcoming these limitations will strengthen the university's entrepreneurial ecosystem and broaden the impact of training focused on social innovation.

In summary, this chapter demonstrates, based on robust empirical evidence, that Design Thinking is identified as an effective methodological tool for entrepreneurial training with social impact. Statistically significant associations and a high level of explained variance support their inclusion in university programs linked to University Social Responsibility.

Likewise, the findings provide a precise diagnosis of the challenges faced by higher education institutions in Lima and suggest opportunities to consolidate a training model that integrates innovation, social commitment, and sustainability. This active-learning model can significantly contribute to the training of professionals capable of addressing the challenges of the 21st century from a transformative perspective.

IV. DISCUSSION

The relationship between the Design Thinking approach and the development of entrepreneurial skills has attracted increasing interest in university settings, particularly in contexts aimed at promoting innovation with social commitment. This

study, conducted among university students in Lima, Peru, makes a significant contribution by suggesting that integrating Design Thinking into University Social Responsibility (USR) projects is associated with stronger key skills, including creativity, problem-solving, and purposeful innovation. It also identifies structural and contextual barriers that hinder its full implementation in educational settings [24]-[26].

The findings are then discussed in relation to the proposed theoretical frameworks, their educational impact, practical implications, and future projections.

Connection between Design Thinking and Entrepreneurial Competencies

The results of the structural analysis reinforce the idea that Design Thinking acts as a catalyst for essential entrepreneurial competencies. The significant relationship between empathy and entrepreneurial creativity ($\beta = 0.63$; $p < 0.001$) supports the fundamental principle of the user-centered approach: a deep understanding of real needs as a starting point for innovation. This connection aligns with human-centered innovation theory, which argues that empathy increases sensitivity to environmental problems, thereby facilitating the design of socially relevant solutions [12]. A plausible mechanism is that empathy broadens opportunity recognition through direct exposure to user needs, increasing idea novelty and relevance in entrepreneurial contexts.

Likewise, prototyping was positively associated with problem-solving ($\beta = 0.56$; $p < 0.01$), underscoring the value of experimentation and iteration in uncertain environments. This result is consistent with the perspective of complex adaptive systems, which recognize that effective solutions arise from evolutionary, nonlinear, and collaborative processes. Prototyping, as a formative practice, allows students to learn by doing, validate hypotheses, and adjust ideas based on the feedback received [13]-[17]. Prototyping operationalizes learning-by-doing and rapid feedback, strengthening iterative reasoning and solution-building under constraints.

On the other hand, idea validation was significantly associated with sustainable innovation ($\beta = 0.47$; $p < 0.05$), indicating that Design Thinking also contributes to the development of responsible proposals aligned with ethical, social, and environmental principles. This reinforces the idea that innovation in entrepreneurial contexts should not be limited to efficiency or profitability criteria but should incorporate a systemic view of the impact of the solutions designed [7]-[19].

Validation introduces feasibility and stakeholder feedback, aligning proposed solutions with social and environmental considerations and supporting sustainability-oriented innovation.

Taken together, these findings suggest Design Thinking as a relevant methodological approach in university education, simultaneously fostering creativity, social awareness, and the ability to generate concrete solutions to real problems [3]. However, these findings should be interpreted as associations rather than causal relationships due to the cross-sectional and non-experimental design of the study.

Relevance for the University Context in Lima

The context in Lima, characterized by high social diversity, structural inequality, and institutional challenges, is an ideal setting for the application of innovative pedagogical approaches. The implementation of Design Thinking in USR projects has enabled students to become actively engaged with their environment, identify community needs, and develop viable proposals with a positive impact [39].

However, the data also reveal significant barriers. Lack of practical knowledge (40%) and academic time constraints (35%) are frequent obstacles to practical implementation. These limitations suggest the need to strengthen methodological training for both students and teachers and to integrate Design Thinking as a structural part of the curriculum, rather than as an isolated experience [39].

The analysis also showed that students at higher levels, especially in higher cycles, used the applied methodologies more effectively, indicating that academic maturity and prior experience are determinants of the assimilation of active approaches. Therefore, it is recommended to differentiate pedagogical strategies by educational level and to promote progressive learning processes that strengthen competencies from the earliest cycles [4].

Additionally, the use of Design Thinking in areas such as product development, marketing, and process improvement demonstrated tangible impacts on the quality of the proposed solutions. In an environment such as Lima, where resources are often limited, these experiences offer evidence of the potential of social innovation as a tool for transforming complex realities from university classrooms [12].

These constraints help explain why institutional support and structured curricular integration are essential for translating methodological potential into sustained competency development.

Practical and Educational Policy Implications

The study's findings allow us to identify concrete actions to strengthen the university's entrepreneurial ecosystem in Lima. First, it is necessary to enhance teacher training in active methodologies, such as Design Thinking, and to create institutional conditions that support their sustained adoption. The creation of social innovation laboratories, co-creation spaces, and links with external actors such as NGOs and local companies could enhance experiential learning and community engagement [13].

From a public policy perspective, it is suggested that financing and support programs for university innovation be implemented, with an emphasis on projects with social impact. Inter-institutional collaboration between universities, the state, and the private sector can facilitate access to technology,

resources, and specialized mentoring. It is also recommended that innovation and sustainability indicators be integrated into educational quality assessment systems [5].

Furthermore, it is essential to design academic programs that integrate theory and practice to address real problems that are central to education. The combination of Design Thinking with methodologies such as project-based learning (PBL), service learning, or business simulation could generate valuable educational synergies [6].

Projection and Future Lines of Research

This study is limited by its cross-sectional design and non-probability convenience sampling, which may restrict causal inference and generalizability.

Additionally, the use of a non-probabilistic sample from a single private university limits the generalizability of the findings to other institutional contexts, such as public universities or different regions of Peru.

This study opens multiple opportunities for future research. One of these is to analyze the longitudinal impact of Design Thinking on students' professional trajectories, evaluating whether the skills acquired endure and translate into sustainable entrepreneurship or differentiated employability [24].

It would also be relevant to conduct comparative studies across regions of Peru to evaluate the approach's adaptability to local sociocultural conditions. Similarly, it is proposed that the interaction between Design Thinking and emerging technologies, such as artificial intelligence and augmented reality, be investigated to optimize ideation and prototyping processes [21].

Another interesting line of inquiry is to examine how these skills contribute to achieving the Sustainable Development Goals (SDGs). The present study suggests clear links with:

SDG 4 (Quality education): by promoting a pedagogy focused on active and relevant learning.
SDG 8 (Decent work and economic growth): by encouraging social entrepreneurship from the university stage onwards.
SDG 9 (Industry, innovation, and infrastructure): by integrating innovation tools and processes into vocational training.

Finally, it would be relevant to explore hybrid models that integrate Design Thinking with other active methodologies to develop a more robust, contextualized educational approach capable of addressing the multidimensional challenges of the 21st century. The results of this study validate the potential of Design Thinking as a strategic pedagogical tool in the context of higher education. Its implementation in USR projects not only strengthens students' entrepreneurial skills but also promotes critical thinking, social awareness, and the capacity for community transformation.

Although there are institutional and methodological barriers to overcome, the opportunities this approach offers justify its structural inclusion in university curricula. With the support of coherent educational policies, strategic alliances, and a culture of sustained innovation, Design Thinking can establish itself as a pillar of professional training, equipping professionals to generate social, economic, and environmental value throughout their educational careers.

V. CONCLUSIONS

This study has explored the application of the Design Thinking approach as a key pedagogical tool for developing entrepreneurial skills in university students involved in University Social Responsibility (USR) projects in Lima, Peru. Based on quantitative and structural analyses, significant relationships have been found between the dimensions of Design Thinking and essential entrepreneurial skills. In contrast, structural barriers to its full implementation in the university environment have been identified.

Achievement of Study Objectives

The overall objective of the research—to analyze how the incorporation of Design Thinking in USR projects contributes to the development of entrepreneurial skills among students—was satisfactorily achieved. The empirical results confirmed statistically significant links between the phases of the methodology and key entrepreneurial attributes: empathy with creativity ($\beta = 0.63$; $p < 0.001$), prototyping with problem solving ($\beta = 0.56$; $p < 0.01$), and idea validation with sustainable innovation ($\beta = 0.47$; $p < 0.05$).

In terms of specific objectives, the following were achieved:

Identify the entrepreneurial competencies enhanced by Design Thinking: Creativity, collaboration, social empathy, and innovation were highlighted as significantly strengthened capabilities.

Analyzing how the user-centered approach fosters social engagement: Students demonstrated greater sensitivity to community issues and valued experiential learning in real-world settings.

Detect institutional and methodological barriers: The lack of practical training (40%), academic time constraints (35%), and limited availability of technological resources (24%) were highlighted.

Propose implementation strategies to enhance the impact of Design Thinking: integrate the methodology into the curriculum, train teaching staff, and establish inter-institutional partnerships to expand the scope of social-impact projects.

Relevance of Design Thinking in University Education

The findings reaffirm that Design Thinking is an innovative teaching tool that transforms the learning experience into higher education. In the context of Lima, characterized by socioeconomic disparities and complex urban challenges, this

approach prioritizes integrating academic knowledge with social issues in the environment, thereby promoting more relevant, inclusive, and action-oriented education.

Furthermore, it was found that its implementation improves not only students' entrepreneurial profiles but also their sense of civic responsibility and commitment to social transformation, thereby turning them into active agents of change inside and outside the classroom.

Barriers and Opportunities Identified

Despite its proven potential, the study identified obstacles to the effective integration of Design Thinking into USR projects. These include:

Lack of specialized methodological knowledge on the part of teachers and students.

Curricular and academic workload restrictions limit the development of practical experiences.

Limited access to technology and poor infrastructure for prototyping.

However, these barriers also create opportunities for institutional improvement, including the design of innovation spaces, the integration of active methodologies into the curriculum, and the creation of collaborative networks among universities, civil society, and the private sector.

Practical Implications and Future Lines of Research

The implications of this study are relevant for universities, public policy makers, and actors in the entrepreneurial ecosystem:

At the institutional level, it is recommended that a culture of educational innovation be fostered, collaborative learning laboratories be created, and teacher training in agile methodologies be strengthened.

From a public policy perspective, it is suggested that programs be promoted to finance university initiatives with a social focus, encourage technology transfer, and support the development of digital skills.

For the productive sector, the need to generate synergies with universities is emphasized, with a focus on co-designing solutions that address local challenges and promote sustainable youth entrepreneurship.

In terms of future research, it would be relevant to:

Explore the longitudinal impact of entrepreneurial skills developed on graduates' professional trajectories.

Conduct comparative analyses between public and private universities in different regions of the country.

Evaluate how the integration of emerging technologies (such as artificial intelligence, augmented reality, or big data) can enrich the ideation, prototyping, and validation phases of the Design Thinking process.

In summary, Design Thinking has established itself as a practical and relevant methodology for integrating active learning, social innovation, and ethical commitment within the university environment. Its application in USR projects not only strengthens essential entrepreneurial skills but also promotes transformative education geared toward sustainable human development.

By overcoming the identified barriers and leveraging opportunities in their environments, universities in Lima and similar contexts can consolidate themselves as spaces for comprehensive training, capable of generating territorial impact through knowledge, creativity, and socially responsible action. This study provides a solid empirical basis for continuing to build educational models that align pedagogical innovation with the challenges of the 21st century.

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