Student Business Innovation Capability: The Urgency of Design Thinking-Based Learning

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Abstract. The low student business innovation is often suspected that the entrepreneurial learning process places more emphasis on cognitive than psychomotor elements. Therefore, this study aims to analyze the effectiveness of design thinking-based learning in enhancing business innovation capabilities. This study used the systematic literature review method by selecting the best articles analyzed to gain literature support regarding implementing the design thinking learning model in entrepreneurship subjects/courses to enhance business innovation capabilities. The results of the study show that research related to design thinking has been carried out a lot. Still, it is related to its application to entrepreneurship learning but rarely reveals the outcome. Several important studies also indirectly prove that business innovation capabilities can be well-formed if the learning model used in entrepreneurship learning uses a design thinking model. For this reason, lecturers need to consider applying the design thinking model in the learning process but need to consider the characteristics of the students being taught.

Keywords: Design Thinking, Innovation Capability, Learning, Students

1 Introduction

Currently, educated graduates (universities) face the VUCA era (Volatility, Uncertainty, Complexity and Ambiguity), which requires a transformation process to survive in this situation. (1). Graduates who are not ready for these changes cannot compete, leading to unemployment. Educated unemployment has reached 4.8% or around 6,494,400 graduates (2). It certainly needs to be a big concern for higher education programs. Therefore, in recent decades, universities have always been encouraged to foster entrepreneurship rapidly by developing new strategies, individual cultures, and institutional structures. Entrepreneurship is one of the important factors that help improve market economies, and they are the main wheels of economic growth. Entrepreneurship stimulates new jobs and helps accelerate economic development (3; 4). Being an entrepreneur today requires always adapting to rapid changes to encourage an increase in competition structure in dealing with the business environment. Given how climate change dramatically impacts the environment, requiring entrepreneurs to re-

© The Author(s) 2024
K. B. Abiprayu and A. B. Setiawan (eds.), *Proceedings of the International conference of Economics Business and Economics Education Science (ICE-BEES-24)*, Advances in Economics, Business and Management Research 298,
https://doi.org/10.2991/978-94-6463-522-5_33

spond quickly and efficiently through business innovation capabilities (5; 6; 7). Therefore, the entrepreneurial learning process is always encouraged to be dynamic in innovating, taking risks, having confidence, being able to develop and control the technology that is needed in society.

Undergraduate learning design should be based on a range of different skills and on an interdisciplinary approach (7). Students need to learn to identify and solve problems, work in teams, calibrate risks, and communicate effectively with others in different domains, such as investors. It helps them innovate, find and implement solutions to problems. It moves them beyond discipline-specific perspective approaches, helps them create imaginative new options, adopt strategic approaches, and design organizational mechanisms to experiment and turn good ideas into reality (8). However, the urgent issue here is that learning models such as project-based learning and case method are models that the Ministry of Education and Culture requires to explain the characteristics of the learning process in higher education through Permendikbud No. 3 of 2020 concerning National Higher Education Standards Article 11, learning characteristics consist of interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centered.

The Minister of Education and Culture should adopt entrepreneurial learning that considers the importance of business innovation capabilities. However, we need to understand that the way entrepreneurs learn differs from the way academics learn, which in practice, is not based on analytical thinking. As offered by (9) and (10) indicate that Design Thinking is increasingly recognized as a promising asset for fields other than design. It has gained traction in the business, leadership and management sectors, among others, to address increasing complexity and to be used as a driver of innovation and business success. Design thinking is a complex process 'to understand new realities and express the introduction of design culture and its methods into fields such as business and innovation' (11). Design thinking in entrepreneurship education allows higher education educators to have students work in groups with other students from other programs (12). Studies on interdisciplinary collaboration have been encouraged as a method to teach entrepreneurship (13). It is important to note that knowledge construction during design thinking is student knowledge built with experience and insights derived from the input of others in a particular field. Design thinking is often embraced as a tool to address complexity and as a driver for innovation (13; 14). Therefore, It is not surprising that many educators have implemented design thinking methods in their classrooms to increase innovative ideas. Design thinking provides a framework for solving real problems innovatively (13;15). This framework can be applied iteratively, including empathy (understanding and observing), the definition of perceived problems, possible solution ideas, prototyping and testing (11). The phases of design thinking are applied iteratively, which implies that some phases will repeat several times before a viable problem is solved (9).

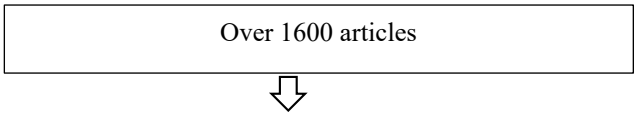
Strong arguments underpin the importance of entrepreneurship education to implement design thinking. The first argument drives the need for entrepreneurship programs to empower students to be agile and cognitively cope with complexity while encouraging The second argument for teaching entrepreneurship as a motivation for action is

that the notion of entrepreneurship is often interdisciplinary or multidisciplinary as entrepreneurship is not necessarily rooted in the field of business management alone (15; 14). The third argument of design thinking in entrepreneurship education allows higher education educators to have students work in groups with other students from other programs (12). It is important to note that the construction of knowledge during design thinking is the student's knowledge built with experiences and insights derived from the input of others in a particular field. Therefore, educators apply design thinking in their courses as it allows their students to apply entrepreneurship-relevant cognition and enables the development of critical crosscutting outcomes, such as applying creativity and collaboration to develop new and/or innovative insights or ideas). The urgency of design thinking in entrepreneurship education encourages this study to conduct in-depth elaboration in research and development related to the implementation of design thinking-based learning models in entrepreneurship courses to encourage the creation of students' business innovation capabilities.

2 Method

This study uses a systematic literature review (SLR) which discusses problems in entrepreneurship learning in higher education with the design thinking method. The SLR method is a process or activity of collecting data from various literature as books and journals, to compare the results of one study with other studies (16) to obtain a theoretical basis that can support the solution of the problem under study and reveal various theories that are relevant to the case, more specifically in this study researchers examined the problem of business innovation capabilities at the tertiary level. This literature review comprehensively summarizes several research studies determined based on certain themes. The data used in this research is secondary data obtained not from direct observation but from research results that previous researchers have conducted.

Secondary data sources obtained are articles from reputable journals with predetermined themes. The literature search in this literature study used the Emerald Insight, Springer, Sagepub, and Elsevier databases. From the identification results, more than 1600 article titles were obtained. Furthermore, articles were filtered according to access criteria, year, content type and abstract analysis. As a result, 87 article titles were obtained. From the article's title then filtered based on the eligibility of the topic of digital transformation through abstract analysis, the results obtained as many as 5 articles. In detail, the display is as in the following figure.



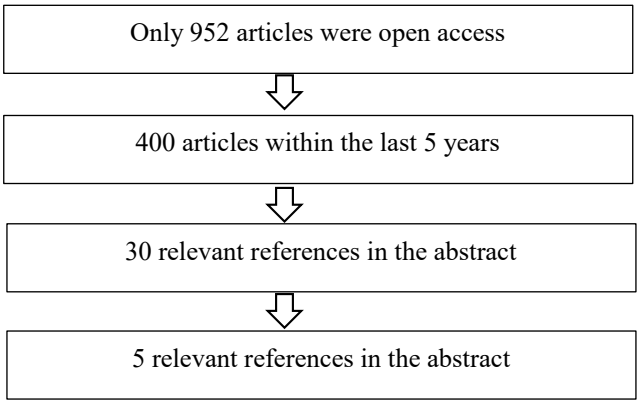


Figure 1. Article Filtering Flowchart

3 Result and Analysis

The results of the review of selected articles answer the problem formulation regarding the distribution of journals that discuss Entrepreneurship Learning in Higher Education through Business Incubators, as follows:

Table 1. Distribution of related journals on Design Thinking-based entrepreneurship learning.

No	Journal Name	Publisher	Indexers	Total
1	Education + Training	Emerald Publishing	Scopus and WoS	1
2	Journal of Innovation and Entrepreneurship, The Journal of Technology Transfer	Springer	Scopus	2
3	Journal of Small Business & Entrepreneurship	Francis & Taylor	Scopus	1
4	The International Journal of Management Education	Elsevier	Scopus	1

The results of the literature study described in Table 1 show that 5 journals can be used as references in this SLR-based research of the 5 journals. All are published by highly reputable publishers with Scopus and WoS journal indexes, including Emerald Publishing, Springer, Francis & Taylor, Elsevier. After an in-depth analysis of the context of design thinking in the journal, especially for entrepreneurship learning, it is very relevant. It can be used as a reference to analyze the urgency of the design thinking learning model in developing students' business innovation capabilities.

Systemic design thinking learning is fundamentally concerned with human needs and problem-solving. Design thinking is not a completely rigid process or a specific concept but rather an interaction between the three spaces of inspiration, ideation, and implementation (17). The creators of this model had a way of working with shaping, styling, designing, redesigning, and building artifacts. Still, over the past few years, the design process has become relevant for broader uses (18), such as business, innovation, and entrepreneurship. In the design thinking model, problems can be seen as confusing (17) because problems are not fixed and can change and become new problems as more is known about them. Insights about the problem, its possible solutions, and the effects of those solutions are seen as constantly evolving (19; 20). Therefore, the design thinking-based learning model requires creativity and an innovative mindset in creating business idea designs. This makes sense because the more students constantly challenge new ideas, the more they constantly rethink the solution to the problem.

Some existing research suggests that entrepreneurship courses should expose students to developing new solutions to problems/challenges and practicing identifying business opportunities. The focus is also on the pre-entrepreneurial process, identifying and developing opportunities. Previous research on this method has mostly focused on the latter part of the entrepreneurial process (21), which also mirrors entrepreneurship education (13). The urgency in creating opportunities certainly fits well with design thinking-based learning that involves the planning and prediction process to the pre-opportunity creation phase (22; 23). Therefore, linking entrepreneurship education with the design thinking model can be aligned to focus more on opportunity creation, rather than assuming that ideas exist and entrepreneurs only need to act on them.

Previous research has also highlighted the effectiveness of reflection in design learning as an important tool in teaching entrepreneurship (24; 17). The research also shows that students learn better when reflecting throughout the process related to their business development. The educators also saw an outcome improvement in the quality of their business ideas. By making each student worry less about the outcome and instead focus on the process, the outcome will be of high quality. Previous research has underscored the usefulness of design thinking for promoting entrepreneurship by fostering business innovation capabilities (11). The design thinking learning model as a possible new entrepreneurship education approach should be seen in many ways as a positive change. Design thinking underscores a classroom culture that fosters collaboration and creativity, which is different from conventional formal education at the university level. Iteration is therefore an important aspect of the design thinking approach.

(25) state that iteration is a natural part of the entrepreneurial process, ideas become more developed. When comparing the end results of the old course and the new course, a clear trend can be seen, as parts of the ideas fit much better and the ideas are not forced together, which is one of the triggers for the teachers to redesign the course. In line with (26) research shows that when the learning process is more focused on iteration, it seems to encourage students to be more daring to iterate and show that they learned something and go back and improve it, rather than covering up and making more marketable ideas.

Using design thinking for entrepreneurship education also shifts the focus away from lecturers and more towards student-centered learning (13; 24). Students' active workshops and reflection notes facilitate their own learning in a much different way compared to the traditional lecture style of learning in universities. In line with the findings of (11), stated that extending the idea of the compatibility of design thinking with entrepreneurship education by illustrating examples of how ideas can be modified and thus encouraging skills to exercise the business innovation capabilities of individual students. By taking a practical approach, stepping outside the classroom, and experimenting in the real world of users and customers with real feedback (26). In line with the opinion of (27) that more practical approaches can help develop innovation capabilities, it can be concluded that to assess whether students have more or less business innovation capabilities with the new education; however, some of these studies show that students who graduate with a series of design learning models will increase their business innovation capabilities because they are required to engage in 3 important aspects of creativity, collaboration, and problem solving.

4 Conclusion

The role of the design thinking learning model in strengthening students' business innovation capabilities in higher education has mostly shown positive results. This can be seen from several studies that show through the design thinking approach it will encourage students to be able to come up with new businesses. This paper contributes by extending the theoretical link between business innovation capability and design thinking compared to previous studies in this literature such as those from (27; 13; 12; 20; 18; 11). This paper also contributes by conceptually linking previous research that requires a method approach (25) and entrepreneurship education with a perspective through the design thinking model (25; 17) so as to answer how to improve business innovation capabilities through design thinking methods well. Based on the above conclusions, researchers can provide suggestions that will help develop design thinking through student participation in programs provided to facilitate Start Up, as well as facilitate the legality of tenant businesses so that the implementation of learning can run optimally.

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