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# The Implementation of Digital Entrepreneurship Learning in Higher Education: A Systematic Literature Review

## Implementasi Pembelajaran Kewirausahaan Digital di Perguruan Tinggi: Tinjauan Pustaka yang Sistematis

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The phenomenon and topic of digital entrepreneurship learning remain popular for analysis in the era of digitization. Previous literature reviews discussed the context and concept of digital entrepreneurship only. This article presents a literature review aimed at facilitating the search for research publications on digital entrepreneurship, to understand the track record, learning models, the impact of implementing digital entrepreneurship learning, and future research opportunities. The article has used the Systematic Literature Review (SLR) method using the Scopus database. This article has used the "digital entrepreneurship" keyword to search the resources in the January 2014 to May 2023 period. The result of the literature screening process yielded 19 relevant journals. The results of the literature review indicate that research on this topic has shown a significant increase and has the potential to continue to grow. Digital entrepreneurship learning can be designed using experiential learning approaches or the Internet of Things (IoT) and technology approaches. The implementation has an impact on business opportunities, entrepreneurial intention, innovation, entrepreneurial attitude, and student problem-solving. This study contributes to providing an overview of learning models that can be replicated or modified in future research.

**Keywords: Digital Entrepreneurship, Entrepreneurship Learning, Learning Model**

Pembelajaran kewirausahaan digital masih menjadi fenomena dan topik yang populer untuk dianalisis di era digitalisasi ini. Tinjauan literatur sebelumnya, hanya membahas sebatas konteks dan konsep kewirausahaan digital. Artikel ilmiah ini menyajikan *literature review* yang bertujuan untuk memfasilitasi pencarian publikasi penelitian tentang kewirausahaan digital; untuk mengetahui rekam jejak, model pembelajaran yang digunakan, pengaruh penerapan pembelajaran kewirausahaan digital, serta peluang penelitian di masa mendatang. Artikel ilmiah menggunakan metode *Systematic Literature Review* (SLR) dengan sumber *database* yaitu Scopus. Peneliti melakukan pencarian dengan kata kunci “kewirausahaan digital” pada rentang waktu Januari 2014 – Mei 2023. Diperoleh hasil akhir dari proses penyaringan literatur yaitu 19 jurnal yang paling relevan. Hasil *literature review* menunjukkan bahwa penelitian tentang topik ini memiliki kenaikan yang signifikan dan berpotensi untuk terus meningkat. Pembelajaran kewirausahaan digital dapat didesain dengan menggunakan pendekatan *experiential learning* maupun pendekatan berbasis

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*Internet of Things* (IoT) dan teknologi. Penerapannya mempunyai pengaruh terhadap peluang bisnis, intensi berwirausaha, inovatif, sikap kewirausahaan, dan penyelesaian masalah mahasiswa. Studi ini memberikan kontribusi untuk melihat gambaran model pembelajaran untuk dapat di replikasi atau dimodifikasi pada penelitian mendatang.

**Kata Kunci: Kewirausahaan Digital, Pembelajaran Kewirausahaan, Model Pembelajaran**

## INTRODUCTION

In the rapidly evolving digital era, numerous advancements have led to significant changes in the field of entrepreneurship. The progress in information and communication technology has created new opportunities for individuals to initiate their businesses by utilizing various platforms. Digital technology is a driving aspect for activities associated with processes, outcomes, and innovation in entrepreneurship (von Briel, Davidsson, & Recker, 2018), thereby leading to the realization of various forms of businesses, such as digital service and product innovations (Kraus, Berchtold, Palmer, & Filser, 2018). The phenomenon is known as digital entrepreneurship, which involves leveraging technological innovations to create value and achieve business success. Currently, digital entrepreneurship has emerged as an important and contemporary research field with both analytical and practical implications (Ghezzi & Cavallo, 2020; Kraus et al., 2018). The digitalization era requires potential entrepreneurs who possess specific characteristics, thus necessitating changes in entrepreneurship education and training processes (Youssef, Boubaker, Dedaj, & Carabregu-Vokshi, 2021).

Education is referred to as an agent of change that prepares resilient, exceptional, and competent young generations in the field of entrepreneurship. Entrepreneurship education entails a continuous process of knowledge development involving learning, sharing, grouping, and implementing entrepreneurial knowledge for business management (Xiu-qing & Li, 2013). Entrepreneurship learning can unleash students' potential, which is a key factor in fostering entrepreneurial spirit and personality (Suvittawat, 2019; Yıldırım, Çakır, & Aşkun, 2016). In the 21st century, it has been identified that entrepreneurial skills and digital competencies have become fundamental elements in education and serve as transversal competencies at the university level to cultivate successful entrepreneurs (Song, 2019). The importance of education's role in the development of digital entrepreneurship cannot be separated from the challenges within the learning process.

The rapid changes in digital technology necessitate the need for continuous learning in digital entrepreneurship, enabling individuals to remain relevant and adapt to the evolving landscape (Mittal & Raghuvaran, 2021). Learning through digital platforms can help students develop critical thinking, communication, collaboration, creativity, and technical skills to cope with rapidly changing technological advancements (Audrin & Audrin, 2022; Rohm, Stefl, & Ward, 2021). Various theories are associated with entrepreneurship education, such as experiential learning theory (Kolb, 1984), action learning theory (Revans, 1982), and human capital theory (Becker, 2009). The implementation of digital entrepreneurship in formal education (both general and vocational) not only encourages decisions to start digital businesses but also positively impacts attracting external funding for practical activities (Ratzinger, Amess, Greenman, & Mosey, 2018). Effective digitally-based teaching practices become a primary necessity to strengthen interest and resilience in entrepreneurship by advocating student engagement (Hyams-Ssekasi & Yasin, 2022).

However, the studies conducted in this field are not always practical and often limited to descriptive approaches, whereas specific approaches and methods such as lean startup are required (Dimov, 2016; Gorghiu, Drăghicescu, Cristea, Petrescu, & Gorghiu, 2015). There is still a lack of emphasis on making entrepreneurship education a dedicated subject of study, even though experiential learning can enhance mastery of technology-based digital entrepreneurship (Zaheer, Breyer, & Dumay, 2019). Through appropriate learning approaches, individuals can develop the necessary skills to operate in a digital business environment. Teaching digital entrepreneurship is not just a trendy topic, but it requires breakthroughs in the educational environment to directly impact the real-life experiences of students (Kraus et al., 2018). Therefore, academics need to address this phenomenon to enhance the understanding of scholars and expand knowledge about digital entrepreneurship (Paul, Alhassan, Binsaif, & Singh, 2023). Discussions can be conducted using systematic literature reviews, enabling researchers to gather and analyze extensive and comprehensive information on the related topic.

Previous literature reviews have provided insights into the latest developments in the field of digital entrepreneurship and have discussed its contextual background and concepts (Paul et al., 2023). The progress of digital entrepreneurship has also been addressed by previous researchers, along with critical perspectives on digital entrepreneurship (Zaheer et al., 2019). Other literature reviews have explored the concept of digital entrepreneurship, emphasizing its role in transformation and innovation (Satalkina & Steiner, 2020). Based on the previous literature review, it discusses the context and concepts of digital entrepreneurship. However, it has been previously discussed regarding the importance of digital entrepreneurship education in nurturing potential and producing successful aspiring entrepreneurs. Higher education should enrich entrepreneurship education programs by incorporating activities that can develop soft skills, namely by adapting and diversifying digital-based learning approaches and tools (Lamine, Mian, Fayolle, & Linton, 2021).

A comprehensive and specific systematic literature review is required to address how to create specific approaches and methods to ensure that digital entrepreneurship can impact the real-life experiences of students. Thus, the researchers conducted a systematic literature review on the implementation of digital entrepreneurship education, particularly in higher education institutions, with a focus on the development of studies, learning models, influences, and future research directions. Therefore, the purposes of this literature analysis are to facilitate the search for research publications on digital entrepreneurship; to identify the research landscape, the models of digital entrepreneurship education utilized, the impact of implementing digital entrepreneurship education, and the future research opportunities. The specific details of these purposes will be further explained in the subsequent research question, more precisely in the method section.

# METHODS

The research method serves as the approach chosen by researchers to collect data and information to address the research problem. The research method in this article is the Systematic Literature Review (SLR). This method involves a series of processes to identify, evaluate, and interpret various research findings relevant to the research questions and related research topics (Calderón & Ruiz, 2015). The identification, evaluation, and interpretation of this study revolve around the implementation of digital entrepreneurship learning and future research opportunities. The details of the SLR are explained below:

## Research Questions

Details of the Research Questions (RQ) that are systematically discussed in this research are:

1. RQ1: What is the research track record on digital entrepreneurship and its application in education, particularly at the higher education level? This question aims to answer when the research was conducted, the publishers and research designs used, as well as the results of the application. The purpose is to search for and summarize the research data that has been conducted for the benefit of this study and future research.
2. RQ2: What learning models have been used in research to teach the application of digital entrepreneurship? This question is intended to determine what models have been used in previous research for the process of teaching digital entrepreneurship. The diversity found can be used to identify suitable and effective learning models to achieve the desired goals of digital entrepreneurship.
3. RQ3: What is the impact of implementing digital entrepreneurship learning in higher education? This question is used to examine the effects of implementing digital entrepreneurship learning in higher education on the development of the entrepreneurial world, student learning outcomes, and other learning outputs.
4. RQ4: What are the future research opportunities regarding the effective implementation of digital entrepreneurship learning in higher education? Researchers need to identify future research opportunities to advance the field of knowledge and address further research questions more profoundly and empirically.

## The Search Processes

The database source that has been used is an article in Scopus with the keyword “Digital Entrepreneurship” search within the article title, abstract, and research keywords. Based on the resource search, it has found 484 document results. The researcher used several limitations in searching for resources for a specific topic that had validation research quality, including: (1) the type of documents are article and review; (2) the source type is a journal; (3) the source has been used in English; and (4) the source is in the January 2014 to May 2023 period. The search with that limitation resulted in 308 documents. The data screening process in this article refers to several phases or stages of SLR proposed by (Cruz-Benito, 2016), which are: (1) removing duplicate studies; (2) reviewing by reading titles and abstracts; and (3) reviewing by reading the full text.

[Figure 1 about here]

## Inclusion and Exclusion Criteria

The researchers selected publications that were most relevant to the topic of digital entrepreneurship, specifically those that were related to the application of learning using specific models or methods. Therefore, the researchers established inclusion and exclusion criteria in the screening and article review process. The results of this process can be seen more clearly in Figure 2. In the first stage, there were 308 articles obtained from the data search process using the aforementioned limitations. Next, the data entered the second stage, which involved removing duplicate studies, resulting in 304 articles. In the third stage, the researchers performed screening focused on the titles and abstracts using inclusion criteria, which included: (1) articles about education or learning, and (2) research subjects in higher education. This screening stage yielded 42 relevant articles. In the fourth stage, the researchers conducted a more in-depth screening by reading the full texts of the related articles, applying exclusion criteria such as: (1) not being a bibliometric analysis, (2) research findings not being solely qualitative, and (3) articles not being purely causal-comparative. The final screening stage resulted in 19 articles that were ready for review and analysis in the subsequent stages of the SLR research.

[Figure 2 about here]

# DISCUSSION

Based on the results of the literature screening, which yielded 19 documents, the results and discussion are derived from and are pertinent to the research objectives and questions that need to be addressed in this systematic literature review (SLR).

## Research Track Record on Digital Entrepreneurship in Higher Education

Overall, the researchers identified and analyzed 19 studies, consisting of 17 journals and 2 scholarly articles that were most relevant. Figure 3. presents a graph depicting the distribution of research on digital entrepreneurship learning over the years. The graph shows fluctuations, starting with one related journal in 2014. There were no research studies on digital entrepreneurship learning between 2014 and 2019. However, a significant increase occurred in 2021 and 2022.

This upward trend is expected to continue until the end of 2023. The highest number of publications was recorded in 2022, with 8 journals and 2 scholarly articles. The complete list of articles can be found in Appendix 1.

[Figure 3 about here]

In general, research on digital entrepreneurship learning has been conducted predominantly in the Asian region (15 articles), such as Indonesia, India, Bangladesh, China, the Republic of China (Taiwan), Saudi Arabia, Qatar, and Kazakhstan. There are also research studies in Europe (3 articles) that are spread across Austria, France, and Russia, and one article from the American continent, specifically the United States. This distribution indicates that the topic is not extensively explored in countries across Asia. Most studies focus on digital entrepreneurship within the realms of companies and the business environment in general. The studies were conducted in various countries, each with different issues, conditions, and backgrounds, leading to the selection of different publishers to publish their findings or research outcomes. Table 1. presents the names of publishers that have published journals and scholarly articles on digital entrepreneurship learning. The list of article IDs can be found in Appendix 1.

[Table 1 about here]

Understanding the specific design used in the studies on digital entrepreneurship learning is essential for projecting suitable future research designs. Research designs can be classified into several types of approaches, which are qualitative, quantitative, and mixed methods, which provide specific guidelines for conducting research (Cresswel, 2014). These three approaches encompass various methods for data collection and further analysis. Figure 4. presents a list and distribution of research methods used in the studies on digital entrepreneurship learning.

[Figure 4 about here]

The research methods that were widely used include observation, correlation, and Concurrent Triangulation Designs. The researchers' analysis revealed that to explain the application of digital entrepreneurship in learning, it is important to consider multiple perspectives and multiple sources of data. Researchers need to conduct in-depth analysis and calculations to ensure that the implementation is more effective in achieving its goals. Many researchers utilized questionnaires, surveys, and interviews with students, teachers, and school personnel to gather data.

## The Digital Entrepreneurship Learning Model in Higher Education

Based on the 19 articles that have been analyzed, it is important to determine the type of learning model utilized in the implementation of digital entrepreneurship education in higher education. The learning model serves as a planning framework, guiding for organizing learning activities, encompassing various approaches, strategies, methods, and learning techniques (Joyce, Weil, & Calhoun, 1986). To illustrate this relationship more clearly, a pie chart is presented in Figure 5. depicting the findings on the learning model employed in the instruction of digital entrepreneurship.

[Figure 5 about here]

The figure above illustrates the interconnectedness among the components within the digital entrepreneurship learning model, which collectively influence the development of learning competencies. The learning approach encompasses a diverse range of approaches and theories, contingent upon contextual factors, learning goals, and learner characteristics. In the digital entrepreneurship literature, the predominant learning approach identified is experiential learning, which places direct experience as the core of the learning process, as well as Internet of Things (IoT)-based learning and the application of technology. Experiential learning stimulates creative thinking and fosters the development of diverse thinking strategies and skills, as knowledge acquisition occurs through the transformation of experiences (Elnadi & Gheith, 2023). The integration of IoT systems and technology in the learning process holds the potential to enable universities to analyze students, adapt, engage external resources, and incorporate experiential learning into digital entrepreneurship education (Jing, 2022).

Learning strategies pertain to the plans or approaches formulated to accomplish learning objectives. Within the digital entrepreneurship learning context, the literature highlights two pertinent strategies: design thinking and online learning. The design thinking-based digital entrepreneurship class is a strategy that merits careful consideration, particularly for engineering and management students, as it is deemed effective (Mir, Hassan, & Khan, 2022). Additionally, online-based learning can be leveraged, given its enhanced accessibility and the opportunity to foster meaningful relationships in virtual environments (Lall, Chen, & Mason, 2023). The chosen strategy is invariably supported by the learning method, which serves as the means to implement the devised plans. In the era of networking and digital technology, learning can be gamified to enhance online entrepreneurship education, thereby boosting student enthusiasm and their inclination to become digital entrepreneurs (Xin & Ma, 2023). To foster the potential of students as future entrepreneurs, it is imperative to encourage them to create job opportunities, which can be achieved through experiential learning via project-based approaches or learning focused on initiating projects (Al-Mamary & Alraja, 2022). Furthermore, integrating case studies into digital entrepreneurship learning is crucial for enhancing process efficiency and facilitating the success of entrepreneurial graduates (Zotov, Frolova, Prasolov, & Kintonova, 2021).

The learning technique represents the most specific component within the learning model. Integrating courses that focus on developing new businesses utilizing digital technology and innovation can effectively foster positive entrepreneurial beliefs among students (Alferaih, 2022). These courses provide learners with practical knowledge derived from real-world scenarios, complemented by a solid theoretical foundation. Additionally, the inclusion of mentoring or guidance within the courses plays a crucial role in knowledge transfer, innovation, and the promotion of digital entrepreneurship (Zhao, 2021). A sequence of implemented learning models undoubtedly influences the outcomes attained by students. The study findings indicate a direct relationship between the series of learning models employed and the competencies acquired by students. The utilization of IoT-based learning exhibits an impact on the development of digital entrepreneurial attitudes, particularly when individuals have acquired proficiency in ICT skills (Shukla, Kushwah, Jain, & Sharma, 2021). These results are expected to inform the identification of appropriate and effective learning models to attain digital entrepreneurship objectives.

## The Effects of Implementing Digital Entrepreneurship Learning

This systematic literature review concentrates on research endeavors that aim to cultivate learning innovations in digital entrepreneurship, with the ultimate goal of positively influencing the advancement of entrepreneurship education. In a broader sense, digital entrepreneurship learning exhibits diverse impacts on the developmental process and the outcomes achieved by students. The influence of digital entrepreneurship education is related to the basic theories utilized by previous researchers in their analysis process. Most researchers employ the theory of planned behavior (TPB) (Fishbein & Ajzen, 1977). TPB is adopted to examine the influence of digital entrepreneurship implementation on entrepreneurial intentions (Akhter, Islam, Karim, & Latif, 2022; Al-Mamary & Alraja, 2022; Elnadi & Gheith, 2023; Guthrie, 2014; Xin & Ma, 2023). TPB consists of three main components: attitude toward behavior, subjective norms, and perceived behavioral control (Fishbein & Ajzen, 1977). Social Cognitive Theory (Bandura, 1989) is also widely used to measure its influence on human behavior influenced by environmental, cognitive, and behavioral factors. The Entrepreneurial Event Model theory (Davidsson, 2004) aims to explain the process of venture creation. The Self-Determination Theory (Ryan & Deci, 2000) is a psychological framework that studies individual intrinsic and extrinsic motivation toward behavior. Meanwhile, the Human Capital Theory (Becker, 2009) views humans as economic assets whose productivity can be enhanced. Various theories used in the primary research are detailed in Table 2.

[Table 2 about here]

The research findings extensively discuss teaching methods that can enhance students' engagement in entrepreneurship during this era of digitalization. Specifically, the utilization of gamification in online entrepreneurship education has been shown to exert a positive influence on students' intentions toward digital entrepreneurship. The employed model inspires enthusiasm among students (Xin & Ma, 2023). Learning approaches that incorporate educational content, such as project-based learning and business simulations, have demonstrated the potential to stimulate an increase in students' intentions to become entrepreneurs (Elnadi & Gheith, 2023) and venture into digital business within a supportive learning environment (Al-Mamary & Alraja, 2022). Entrepreneurial intention can be defined as the objective of establishing a business, which entails engaging in a process of gathering various pertinent information (Katz & Gartner, 1988). Intention serves as a crucial component linked to an individual's aspirations and desires to actualize their entrepreneurial goals.

The study of digital entrepreneurship plays a crucial role in fostering self-confidence among students, thereby generating intentions to become digital entrepreneurs (Akhter et al., 2022; Guthrie, 2014), these intentions contribute significantly to the advancement of digital business development that has been previously established (Darmanto et al., 2022). Furthermore, digital entrepreneurship not only enhances students' intentions but also influences educators' intentions to promote their students' participation in digital entrepreneurship (Yu et al., 2022), as well as provides educators with opportunities to develop digital academic entrepreneurship (Shukla et al., 2021). This aligns with Fishbein and Ajzen (1977) statement that intention formation involves three essential factors, one of which is behavior. Fishbein and Ajzen (1977) Theory of Reasoned Action posits that goals are influenced by attitude and behavioral variables. Individuals who have engaged in specific behaviors are more likely to intentionally exhibit certain actions, contingent upon the object, situation, and timing.

Education and knowledge about entrepreneurship are primary factors that can significantly influence the development of individual entrepreneurial attitudes (Chen & Lai, 2010). In the digital era, entrepreneurial attitudes thrive as individuals acquire ICT skills through the university's role in providing skill development within the curriculum (Shukla et al., 2021). The university serves as a proximate environment and an initial platform for students to initiate and cultivate entrepreneurship. Digital entrepreneurship learning can be effectively implemented through Massive Open Online Courses (MOOCs). MOOC programs enable self-directed learning and are accessible to anyone, as students can choose what to learn and create a study schedule based on their individual needs (Kasali, 2018). The study findings reveal that MOOCs can serve as an appropriate learning tool for digital entrepreneurship, as they contribute to the enhancement of individual entrepreneurial attitudes and problem-solving skills

(Vorbach, Poandl, & Korajman, 2019). Similar findings are presented in the research by Zotov et al. (2021), emphasizing that digital-based entrepreneurship learning proves effective in developing problem-solving skills through simulations and case studies.

Digital entrepreneurship education within higher education directly correlates with fostering innovation, thereby empowering students to become more creative and venture into entrepreneurship (Jing, 2022). Innovation plays a pivotal role in entrepreneurial endeavors, as it facilitates the exploitation of opportunities, leading to the establishment of new business ventures and the growth of existing companies (Biswas & Verma, 2022). The development of innovation skills can be nurtured through the presence of mentors within formal digital entrepreneurship education (Zhao, 2021). It is essential to encourage university students, as potential future entrepreneurs, to create suitable job opportunities for themselves, starting with exploring digital-based entrepreneurship projects (Al-Mamary & Alraja, 2022). Digital entrepreneurship offers numerous advantages to aspiring entrepreneurs in the form of tangible career prospects for those possessing expertise, passion, or talent in specific domains (Guthrie, 2014). Relevant research literature extensively discusses the effects stemming from the implementation of digital entrepreneurship learning. These influences are depicted more comprehensively and in detail in Figure 6.

[Figure 6 about here]

Based on the presented Figure 6, it is evident that the application of digital entrepreneurship learning directly influences business opportunities for students as prospective entrepreneurs. However, this influence is contingent upon the systematic nature of the learning process. Additionally, the impact of implementing digital entrepreneurship learning on the development and enhancement of entrepreneurial intention, innovativeness, entrepreneurial attitude, and problem-solving skills is manifested through the utilization of specific learning models. As previously discussed, these learning models include MOOCs (Vorbach et al., 2019), simulations and case studies (Zotov et al., 2021), gamification (Xin & Ma, 2023), and project-based learning (Elnadi & Gheith, 2023). Consequently, digital entrepreneurship encompasses a wide range of learning possibilities, as it can be tailored and integrated with various innovative learning models to achieve the desired outcomes.

## Future Research Opportunities

Entrepreneurship holds a significant focus in the era of digital development, where education strives to innovate and implement effective learning methods. Entrepreneurship offers extensive benefits and contributes to reducing unemployment (Akhter et al., 2022; Al-Mamary & Alraja, 2022), highlighting the crucial role of digital entrepreneurship education in fostering entrepreneurial intentions among college students (Elnadi & Gheith, 2023; Guthrie, 2014; Zotov et al., 2021). The integration of technology and IoT has revolutionized the entrepreneurial landscape within universities (Jing, 2022), necessitating prompt optimization (Zhao, 2021; Zhashkenova et al., 2021). Recognizing the significance of digital entrepreneurship education, future research endeavors are warranted to delve into and analyze its essential components.

Learning is intricately linked to planning and the models employed, enabling the effective and efficient achievement of learning objectives. Future studies can replicate or adapt suitable models for digital entrepreneurship learning and engage in longitudinal research (Elnadi & Gheith, 2023). These models may incorporate community involvement to address challenges and obstacles (Muhibbullah, Mamun, & Afroz, 2021). The curriculum and the provision of practical learning play a pivotal role in shaping digital entrepreneurship intentions (Darmanto et al., 2022). The components of the learning model present interesting variables for further research and development. The educational curriculum holds a broad context for discussion, given its foundational and comprehensive implementation. Furthermore, the role of educators in designing the learning process for aspiring entrepreneurs merits significant attention, thus allowing studies to be approached from an educator's perspective.

The focus shifts to the role of educators, specifically examining the extent to which they contribute to technology-based teaching and serve as role models for students (Yu et al., 2022). Educators and policymakers must consider their perspectives as key stakeholders in providing a robust platform for future digital entrepreneurs (Alferaih, 2022). Factors that motivate students in learning, such as lesson planning, media utilization, and knowledge integration, should be taken into account by educators and policymakers (Younis et al., 2020). Educators play an ongoing role in providing support to students and strengthening the development of digital academic entrepreneurship. Regular supervision and more intensive assistance in implementing student business ventures can foster more targeted and controlled learning environments (Muafi et al., 2021). This influence can be further explored through specific research methods to yield empirical findings and evidence.

Another important component to consider is the clarity of the competencies that result from the implementation of digital entrepreneurship learning. This systematic literature review has discussed the impact of digital entrepreneurship learning on students' abilities, drawing on relevant literature. Future research endeavors can minimize bias by conducting longitudinal studies and collecting empirical data (Mir et al., 2022), which can shed further light on the previously described effects. It is essential to identify the factors that contribute to the relationship between students' entrepreneurial abilities and their performance (Shukla et al., 2021). Additionally, universities should strive to understand how learning performance can influence students' attitudes and intentions toward digital entrepreneurship (Akhter et al., 2022). It is worth noting that the journey does not end with the completion

of education; there are significant opportunities to explore how students fare in entrepreneurship after graduation. Future studies could track the digital entrepreneurship abilities and post-graduation success rates of students, providing valuable insights for the development of entrepreneurship education (Xin & Ma, 2023).

## CONCLUSIONS AND RECOMMENDATION

Digital entrepreneurship learning remains a prominent phenomenon in the era of digitalization, and it serves as a crucial subject for further analysis. Digital entrepreneurship has emerged as a significant and contemporary research area with practical implications and applications (Ghezzi & Cavallo, 2020; Kraus et al., 2018). Research in this field has exhibited notable growth over the years and holds the potential for continued expansion in the future. Numerous studies on digital entrepreneurship learning have been conducted across Asian countries, including Indonesia, India, Bangladesh, China, the Republic of China, Saudi Arabia, Qatar, and Kazakhstan. Researchers have employed various research methods such as observation, correlation, and concurrent triangulation designs to address research inquiries and explore the subject comprehensively.

Digital entrepreneurship learning can be designed using various approaches, such as experiential learning, the Internet of Things (IoT), and technology applications. Two suitable strategies for digital entrepreneurship learning are design thinking and online learning. Additionally, online gamification in entrepreneurship education and project-based learning are effective learning methods. These courses should provide guidance and assistance to facilitate knowledge transfer, innovation, and digital entrepreneurship (Zhao, 2021). These specific learning models contribute to the acquisition of competencies by students. The application of digital entrepreneurship learning directly impacts students' business opportunities as aspiring entrepreneurs. However, the effectiveness of this impact is dependent on the systematic nature of the learning process. Furthermore, the application of digital entrepreneurship learning influences the formation and enhancement of entrepreneurial intention, innovativeness, entrepreneurial attitude, and problem-solving skills, which are facilitated through the use of specific learning models.

This study utilized a systematic literature review methodology, which did not allow for the provision of empirical evidence from the study itself. Therefore, further extensive research is needed to delve deeper into the topic. Recognizing the significance of digital entrepreneurship education, future research should aim to explore and analyze the important components of it. The findings of this study regarding the learning model can serve as a basis for future studies, which can replicate or modify the model to better suit digital entrepreneurship learning and conduct longitudinal research (Elnadi & Gheith, 2023). This research primarily focuses on the learning process and the outcomes achieved by students in digital entrepreneurship. However, it is important to acknowledge the crucial role of educators in planning the learning process and fostering prospective entrepreneurs. Therefore, future studies can place greater emphasis on the perspective of educators along with supporting factors. The focus on the educator's role lies in the extent to which educators contribute to technology-based teaching and serve as role models for students (Yu et al., 2022). Moreover, exploring the success of students in entrepreneurship after graduation presents a valuable opportunity for related studies. Tracking the digital entrepreneurship skills and success rates of students after graduation can provide insights into their contributions to the development of digital entrepreneurship education.

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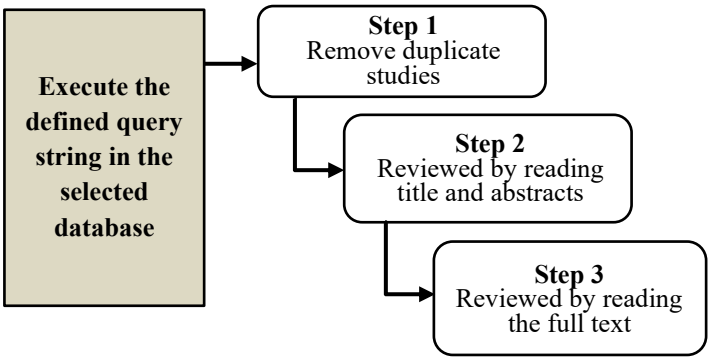


**Figure 1** / Stages of The Data Filtering Process

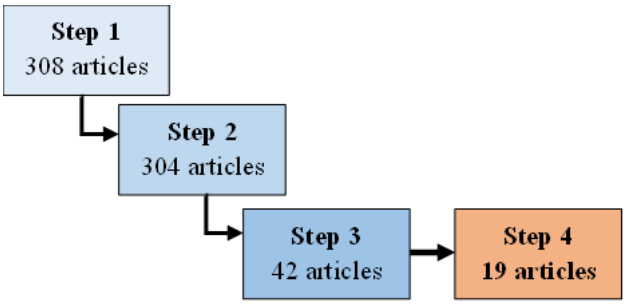


**Figure 2** / Step of Article Screening Results

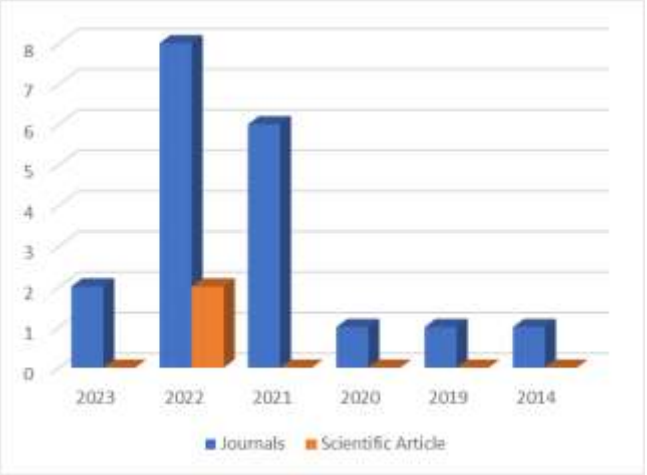


**Figure 3** / Annual Number of Studies on Digital Entrepreneurship Learning

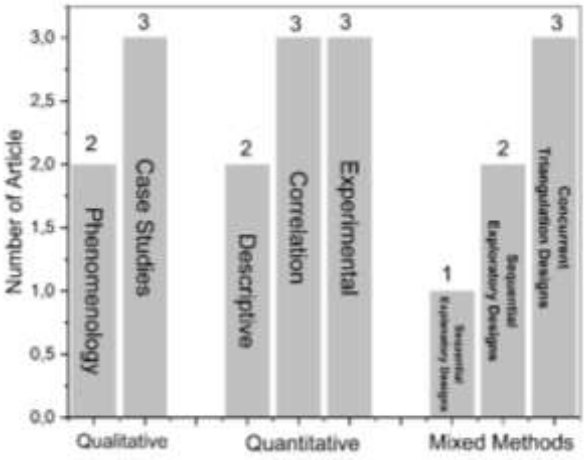


**Figure 4** / Research Design is Applied to Digital Entrepreneurship Learning

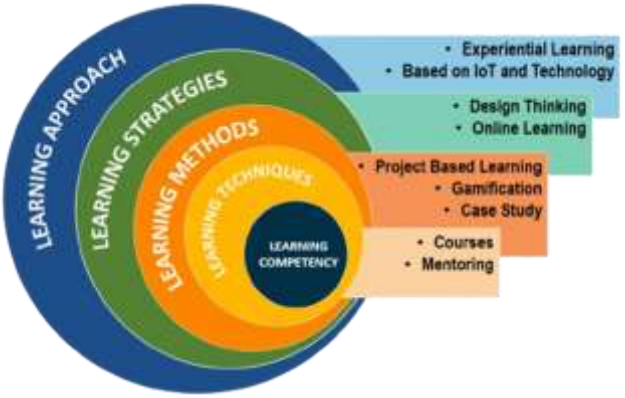


**Figure 5** / Findings of Learning Model Digital Entrepreneurship

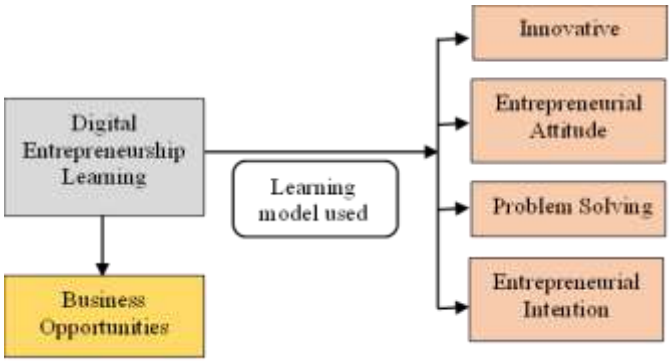


**Figure 6** / The Effect of Applying Digital Entrepreneurship Learning

## LIST OF TABLE

**Tabel 1 /** Journal Publishers on Digital Entrepreneurship Learning

| Journals | Ranking | Article ID |
|---|---|---|
| Entertainment Computing | Q2 | J1 |
| Thinking Skills and Creativity | Q1 | J2 |
| International Journal of Information Management Data Insights | Q1 | J3 & J4 |
| Frontiers in Psychology | Q2 | J5 & J11 |
| Small Business Economics | Q1 | J6 |
| Mobile Information Systems | Q3 | J7 |
| Problems and Perspectives in Management | Q2 | J8 |
| Uncertain Supply Chain Management | Q3 | A9 |
| International Journal of Emerging Markets | Q2 | 710 |
| International Journal of Instruction | Q2 | 712 |
| International Journal of Entrepreneurship | Q1 | A13 |
| Journal of Asian Finance, Economics and Business | - | J14 & J16 |
| Journal of Enterprising Communities | Q2 | J15 |
| International Journal of E-Entrepreneurship and Innovation | Q3 | J17 |
| International Journal of Engineering Pedagogy | Q2 | J18 |
| Journal of Entrepreneurship Education | - | J19 |

**Tabel 2 /** Theories Used by the Selected Researchers

| Theory | Reference | Total |
|---|---|---|
| Theory of Planned Behavior (TPB) | Xin and Ma (2023), Elnadi and Gheith (2023), Al-Mamary and Alraja (2022), Alferaih (2022), Jing (2022), Akhter et al. (2022), Mir et al. (2022), Shukla et al. (2021), Zhao (2021), & Younis, Katsioloudes, and Al Bakri (2020) | 10 |
| Social Cognitive Theory | Lall et al. (2023), Xin and Ma (2023), & Darmanto, Darmawan, Ekopriyono, and Dhani (2022) | 3 |
| Entrepreneurial Event Model | Alferaih (2022) & Darmanto et al. (2022) | 2 |
| Self-Determination Theory | Yu, Chao, and Wang (2022) | 1 |
| Human Capital Theory | Mir et al. (2022) & Muafi, Syafri, Prabowo, and Nur (2021) | 2 |