

# Artificial Intelligence in Entrepreneurship Education: A Systematic Literature Review

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Received: 04-06-2026

Revised: 28-07-2026

Accepted: 06-08-2026

## ABSTRACT

AI integration has revolutionised all forms of education because it has the potential to affect teaching methods and evaluation techniques', but presents both merits and demerits, also in the form of opportunities and challenges that need to be carefully examined. The current study aims to identify the key role of AI in teaching entrepreneurship education, along with the impact of AI on learning outcomes, opportunities for using AI in teaching entrepreneurship education and challenges of using AI in teaching entrepreneurship education. It presents a Systematic Literature Review (SLR) for which the researcher searched the Scopus database using keywords related to 'artificial intelligence in entrepreneurship education' and applied a defined set of selection criteria to identify relevant studies, resulting in a final sample of 23 articles. The review process followed the 'Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA)' guidelines. The findings of the review are organised in four main themes and highlight the benefits of integrating AI-driven technology into entrepreneurship education, particularly its capacity to create immersive learning experiences that simulate real-life entrepreneurial scenarios. AI opens the door to shift traditional, lecture-based education towards problem-based education. By engaging with such technology, students can develop practical skills, foster environmental awareness and prepare themselves for evolving business landscapes in the future. It is recommended to manage the challenges of AI-Integration by coordinating academia, industry and policymakers and to partner with technology developers so that the tools being built reflect sound pedagogy

**Keywords:** Entrepreneurship Education, AI-Integration, Systematic Literature Review, PRISMA, Generative AI & Artificial Intelligence

In an era when 'Artificial Intelligence' has brought drastic changes to education, AI integration has revolutionised entrepreneurship education because it has the potential to influence teaching pedagogy and assessment, but presents both pros and cons in the form of opportunities and challenges that need to be carefully examined (Bell & Bell, 2023). 'Generative AI' can generate innovative content, including text and images, and students as well as teachers now routinely use GenAI for data location, brainstorming innovative ideas, paraphrasing, and refining their written work (Chan & Hu, 2023; Feuerriegel *et al.* 2023). Moreover, Artificial Intelligence is not only a device that assists

humans in the development and refinement of their work, but it is also a powerful way by which they can enhance the level of learning. In this line, teaching becomes more challenging, and teaching 'entrepreneurship education' is never easy to teach because it demands students to find reasons under uncertain conditions with incomplete information and generate innovative ideas.

**How to cite this article:** Ranjan, R. and Devi, P. (2026). Artificial Intelligence in Entrepreneurship Education: A Systematic Literature Review. *Educational Quest: An Int. J. Edu. Appl. Soc. Sci.*, 17(02): 225-234.

**Source of Support:** None; **Conflict of Interest:** None



In teaching, scalable, AI-powered distance learning platforms can now deliver entrepreneurship education and mentorship to students in rural, marginalised, or under-resourced communities who previously had no realistic pathway into this kind of training (Quishpe-Quishpe *et al.* 2025; Fourqonish *et al.* 2025). Institutions are using these tools to move away from lecture-based delivery towards interdisciplinary, problem-based models, sometimes described as “STEM with meaning,” designed to produce graduates capable of building and scaling ventures in a digital economy. Data-driven approaches also allow more objective evaluation of the students’ work and business potential, reducing the human bias that has historically shaped which students and which ideas receive institutional support.

Research evidence that over the decade, ‘Artificial Intelligence’ has been integrated with working conditions as an experimental practice in entrepreneurial educational institutions. Machine learning algorithms enhance assessment accuracy and student engagement in learning (Chen *et al.* 2024; Xu & Zhang, 2021). Similarly, NLP tools and AI-powered chatbots provide commonly used platforms such as ChatGPT and KABADA, which provide individualized and real-time feedback to students on their business plans and also guide them through the iterative process of refining a Business Model Canvas (Somia & Vecchiarini, 2024; Dunan *et al.* 2025; Vecchiarini & Somia, 2023; Lesinskis *et al.* 2023). Big data and semantic knowledge graphs permit students to map the competitive landscape and organize complex market information into formats that actually support the decision-making of the students. Along with virtual reality and game-based stakes learning settings, AI has also joined the simulation area, allowing students to practice high-stakes entrepreneurial decisions under circumstances that have no real-world consequences (Fourqoniah *et al.* 2025; Zang, 2023; Norabuena-Mendoza *et al.* 2025; Ng *et al.* 2024).

Moreover, learning outcomes are also encouraging in several respects. AI-integrated environments strengthen learners’ autonomy, sharpen creative problem-solving skills and help students build concrete entrepreneurial competencies like opportunity recognition, idea validation, and business vision formation that traditional instruction

often struggles to develop at scale (Dunan *et al.* 2025; Somia & Vecchiarini, 2024; Alqahtani, 2023). Beyond the classroom, AI opens access in ways that were structurally impossible under traditional models. However, along with several advantages, notable disadvantages also exist, which complicate the situation, whether AI is integrated into education or not. None of the advantages comes without serious problems, and it would be intellectually dishonest to treat these issues as minor. The hallucination risk is not theoretical; generative AI routinely produces invented competitors, fabricated market sizes, and financially plausible projections with no basis in reality (Vecchiarini & Somia, 2023). While researchers pointed out that GenAI tools are increasingly used in education, there is limited evidence on how and whether AI is being used in entrepreneurship education. Most existing literature focused on students’ learning and utilisation. Therefore, this study addresses this gap by examining the role of AI in teaching entrepreneurship education, along with the impact of AI on learning outcomes, opportunities for using AI in teaching entrepreneurship education and challenges of using AI in teaching entrepreneurship education. Understanding these perspectives will give valuable insight into how teachers can integrate GenAI in their teaching and instruction. Moreover, this study may shed light on specific opportunities and problems that may arise from AI integration in entrepreneurship education. The concern here is not that ‘AI should’ or ‘should not be’ in entrepreneurship education. It is already there. The concern is whether the educators using it do so honestly by knowing its reality.

Therefore, more specifically, this investigation aims to answer the queries:—

1. What is the role of ‘Artificial Intelligence’ in teaching ‘Entrepreneurship Education’?
2. What are the impacts of ‘Artificial Intelligence’ on students’ learning outcomes?
3. What are the benefits or opportunities of using ‘Artificial Intelligence’ in teaching ‘Entrepreneurship Education’?
4. What are the challenges associated with the integration of AI in teaching ‘Entrepreneurship Education’?

## METHODOLOGY

The study used a 'Systematic Literature Review (SLR)' methodology to draw meaningful conclusions. The SLR method permits the investigator to synthesise useful information on a particular topic (Pieper & Rombey, 2022; Manterola *et al.* 2013). Furthermore, the study relied on the 'PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)' statement to guide the research, selection, and analysis (Page *et al.* 2021).

## PRISMA

The review adhered to PRISMA, which has four advantages: it allows for the definition of simple research questions that facilitate systematic investigation, the identification of inclusion and exclusion criterion, and the attempt to evaluate a large literature database within a specific time frame. In order to bring some light to the advantages and implications of implementing AI technology in entrepreneurship education and identify areas that require more investigation, the PRISMA declaration provides a comprehensive search of concepts. Apart

from that, the approach can assist us in investigating how AI can enhance entrepreneurship education in the future and encourage the educational growth and skill development of entrepreneurs.

## Resources

The investigation conducted a comprehensive search on the Scopus database, employing targeted keywords that include "entrepreneurship education," "entrepreneurial learning," "entrepreneurship teaching," "entrepreneurship pedagogy," "entrepreneurship training," and "artificial intelligence". Primary attention was on the reliable nature of the results, for which investigators refined the database search engine to present outcomes exclusively in the title, abstract, or keywords. This method enabled the elimination of articles that only referenced the terms without any significant relation to the manuscript content. Therefore, by following the proper steps of PRISMA, 23 research papers were finally selected for review write-up, which are listed in Table 1.

**Table 1:** Teaching Entrepreneurship Using Artificial Intelligence (23 most relevant articles from the Scopus database)

| Sl. No. | Author(s) & Publication Year           | Title                                                                                                                    | Country   | Method(s)                                                                                                                |
|---------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------|
| 1       | Dunan <i>et al.</i> (2025)             | "Artificial Intelligence in E-Entrepreneurship Training: Enhancing Digital Skills and Innovation Diffusion in Indonesia" | Indonesia | Qualitative research design using focus group discussions and semi-structured interviews, and thematic analysis          |
| 2       | Vebibina <i>et al.</i> (2025)          | "11 Key Strategies in Using AI ChatGPT to Develop HOTS-Based Entrepreneurship Questionnaires"                            | Indonesia | This study evaluates AI-generated multiple-choice questions using the Mann-Whitney U Test and Krippendorff's Alpha Test. |
| 3       | Lesinskis <i>et al.</i> (2025)         | "The Emergence and Significance of Artificial Intelligence in Digital Tools for Entrepreneurship Education"              | Latvia    | Quasi-experimental design and survey employing a 1-7 Likert scale                                                        |
| 4       | Norabuena-Mendoza <i>et al.</i> (2025) | "Integrating Emerging Technologies in University Entrepreneurship Education Under the Andean Worldview"                  | Peru      | Convergent parallel mixed design integrating statistical and thematic analysis                                           |
| 5       | Quishpe-Quishpe <i>et al.</i> (2025)   | "Impact of a Contextualized AI and Entrepreneurship-Based Training Program on Teacher Learning in the Ecuadorian Amazon" | Ecuador   | Sequential explanatory mixed-methods design (Wilcoxon tests and inductive thematic analysis)                             |
| 6       | Fourqoniah <i>et al.</i> (2025)        | "Thematic Synthesis and Future Outlook in Digital Entrepreneurial Education"                                             | Indonesia | Bibliometric-Systematic Literature Review (B-SLR)                                                                        |

|    |                                     |                                                                                                                                                                                             |                     |                                                                                                     |
|----|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------|
| 7  | Cocu <i>et al.</i> (2025)           | "Technology-Enabled Learning for Green and Sustainable Entrepreneurship Education"                                                                                                          | Romania / Malta     | Field research (qualitative semi-structured interviews) and structured digital content creation     |
| 8  | Chen <i>et al.</i> (2024)           | "Artificial intelligence in entrepreneurship education: a scoping review"                                                                                                                   | Germany / Australia | Scoping review using the PRISMA framework                                                           |
| 9  | Ng <i>et al.</i> (2024)             | "Reimagining STEM Learning: A Comparative Analysis of Traditional and Service-Learning Approaches for Social Entrepreneurship"                                                              | Hong Kong           | Quasi-experimental study design using S-LOMS and SPEQ questionnaires                                |
| 10 | Bu & Zou (2024)                     | "Reform and Exploration of University Students' Innovation and Entrepreneurship Course Teaching Based on Federal Learning Under the "Internet +" Perspective"                               | China               | Longitudinal Federal Learning (FL) model construction and encrypted collaborative training analysis |
| 11 | Somia & Vecchiarini (2024)          | "Navigating the new frontier: the impact of artificial intelligence on students' entrepreneurial competencies"                                                                              | USA / Italy         | 'Convergent Parallel Mixed Methods Approach' with Statistical and Thematic Analysis                 |
| 12 | Hu, F. (2024)                       | "Research on the Teacher Team Construction of Innovation and Entrepreneurship Education in Higher Vocational Colleges and Universities under the Background of "Double Creation" Upgrading" | China               | Evaluation model based on Backpropagation (BP) neural networks                                      |
| 13 | ElMadhi & Nasser (2024)             | "Entrepreneurship and Digital Innovation: Adoption of Artificial Intelligence (AI) in French Family Business Firms"                                                                         | France / Morocco    | Longitudinal study design with an online survey (Smart PLS/SEM)                                     |
| 14 | Vecchiarini & Somià (2023)          | "Redefining entrepreneurship education in the age of artificial intelligence: An explorative analysis"                                                                                      | USA / Italy         | Explorative analysis involving qualitative and quantitative surveys of undergraduate students       |
| 15 | Bell & Bell (2023)                  | "Entrepreneurship education in the era of generative artificial intelligence"                                                                                                               | UK / USA            | Narrative review and conceptual analysis of generative AI applications                              |
| 16 | Lesinskis <i>et al.</i> (2023)      | "Digital Transformation in Entrepreneurship Education: The Use of a Digital Tool KABADA and Entrepreneurial Intention of Generation Z"                                                      | Latvia              | Quasi-experimental method including pre- and post-workshop surveys                                  |
| 17 | Alqahtani (2023)                    | "Artificial intelligence and entrepreneurship education: A paradigm in Qatari higher education institutions after covid-19 pandemic"                                                        | Qatar               | Experimental quantitative approach based on convenience sampling and CB-SEM                         |
| 18 | Sandoval-Gomez <i>et al.</i> (2023) | "Development of a technological innovation and social entrepreneurship training program to generate services in a mexican public entity"                                                    | Mexico              | Descriptive scope based on systematic literature review and a 15-question Likert-scale poll         |
| 19 | Zhang, W. (2023)                    | "Virtual Reality-assisted User Interface with Hypertext system for Innovative and Entrepreneurship Education"                                                                               | China               | Numerical simulation and analysis of the IM-ELS and VR-UIHS models                                  |

|    |                                  |                                                                                                                         |                    |                                                                                              |
|----|----------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------|
| 20 | Dabbous & Mallah Boustani (2023) | "Digital Explosion and Entrepreneurship Education: Impact on Promoting Entrepreneurial Intention for Business Students" | Lebanon            | Structural equation modeling (SEM) based on a student survey                                 |
| 21 | Jing, H. (2022)                  | "Research on Evaluation Algorithm of Innovation and Entrepreneurship Effect of College Graduates Based on DL"           | China              | Evaluation Research using Analytic Hierarchy Process (AHP) and Deep Learning (DL) algorithms |
| 22 | Reimers, F.M. (2020)             | "Transforming education to prepare students to invent the future"                                                       | USA / Saudi Arabia | Conceptual paper drawing on empirical evaluation results and student surveys                 |
| 23 | Mavlutova <i>et al.</i> (2020)   | "Innovative teaching techniques for entrepreneurship education in the era of digitalisation"                            | Latvia / Lithuania | Comparative analysis, statistical data analysis, and the KABADA survey                       |

**Table 2:** Criterion of 'Exclusion and Inclusion'

| Criteria        | Eligibility                                                                                 | Exclusion                                                      |
|-----------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Literature type | Journal Article                                                                             | Journals (under review), Book-Chapters, Conference Proceedings |
| Language        | English                                                                                     | Non-English                                                    |
| Timeline        | 2016-2025                                                                                   | Before 2016                                                    |
| Context         | Global                                                                                      | —                                                              |
| Subject Area    | Social Sciences, Business, Management and Accounting, Mathematics and Environmental Science | All others except the mentioned                                |
| Open Access     | Gold, Green, Hybrid gold, Bronze                                                            | All open access                                                |

## Eligibility and Exclusion Criteria

To choose suitable information for the review, the study adhered to certain standards. Journal articles were the only sources that may be included, whereas journals under review process, chapters of books, and conference proceedings were not. The articles that are not written in the English language are excluded. Initially, the period from '2016 to 2025' was chosen as the inclusion period. Papers published before 2016 were not included. The study was conducted in a global context. The included subject areas are Social Science, Business, Management and Accounting, Mathematics and Environmental Science. However, the other subjects that are not in the mentioned criteria were excluded from review. This approach ensured that the selected papers met the given criteria and aligned with the study's focus on teaching entrepreneurship using Artificial Intelligence, exploring the integration of technology in entrepreneurship education, as demonstrated in Table 2.

## Review Process

During the review process, the study methodically

carried out four key stages. Firstly, carefully examined previous studies and the sources to identify relevant keywords for the search process, which included "entrepreneurship education", "entrepreneurial learning", "entrepreneurship teaching", "entrepreneurship pedagogy", "entrepreneurship training" and "artificial intelligence", as listed in Table 3. Initially, in the first stage of identification, 325 records were identified from the Scopus database following a thorough screening; 280 articles were excluded from all the searched papers, which did not fulfil the eligibility criteria (as mentioned in Table 1), and articles were left 45. In the second stage of screening, the study continued to screen and removed 17 papers (due to unavailability of full papers) out of the 45 eligible ones ( $n = 28$ ). Consequently, the third stage involved accessing the full articles to determine their eligibility; after that, the study excluded 5 articles again from it, which did not focus on the AI integration in teaching 'Entrepreneurship Education', and finally, the most relevant 23 articles were selected for the study.

**Table 3:** The Search String used for the ‘SLR’ process

| Database        | Keywords                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scopus Database | TITLE-ABS-KEY ( ( "entrepreneurship education" OR "entrepreneurial learning" OR "entrepreneurship teaching" OR "entrepreneurship training" OR "entrepreneurship pedagogy" ) AND ( "artificial intelligence" OR "AI" OR "machine learning" OR "deep learning" OR "intelligent tutoring system*" OR "chatbot*" OR "generative AI" OR "large language model*" OR "educational AI" ) ) AND PUBYEAR > 2015 AND PUBYEAR < 2026 AND ( LIMIT-TO ( OA , "publisherfullgold" ) OR LIMIT-TO ( OA , "publisherhybridgold" ) OR LIMIT-TO ( OA , "publisherfree2read" ) OR LIMIT-TO ( OA , "repository" ) ) 'AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( SUBJAREA , "BUSI" ) OR LIMIT-TO ( SUBJAREA , "SOCI" ) OR LIMIT-TO ( SUBJAREA , "MATH" ) OR LIMIT-TO ( SUBJAREA , "ENVI" ) ) |

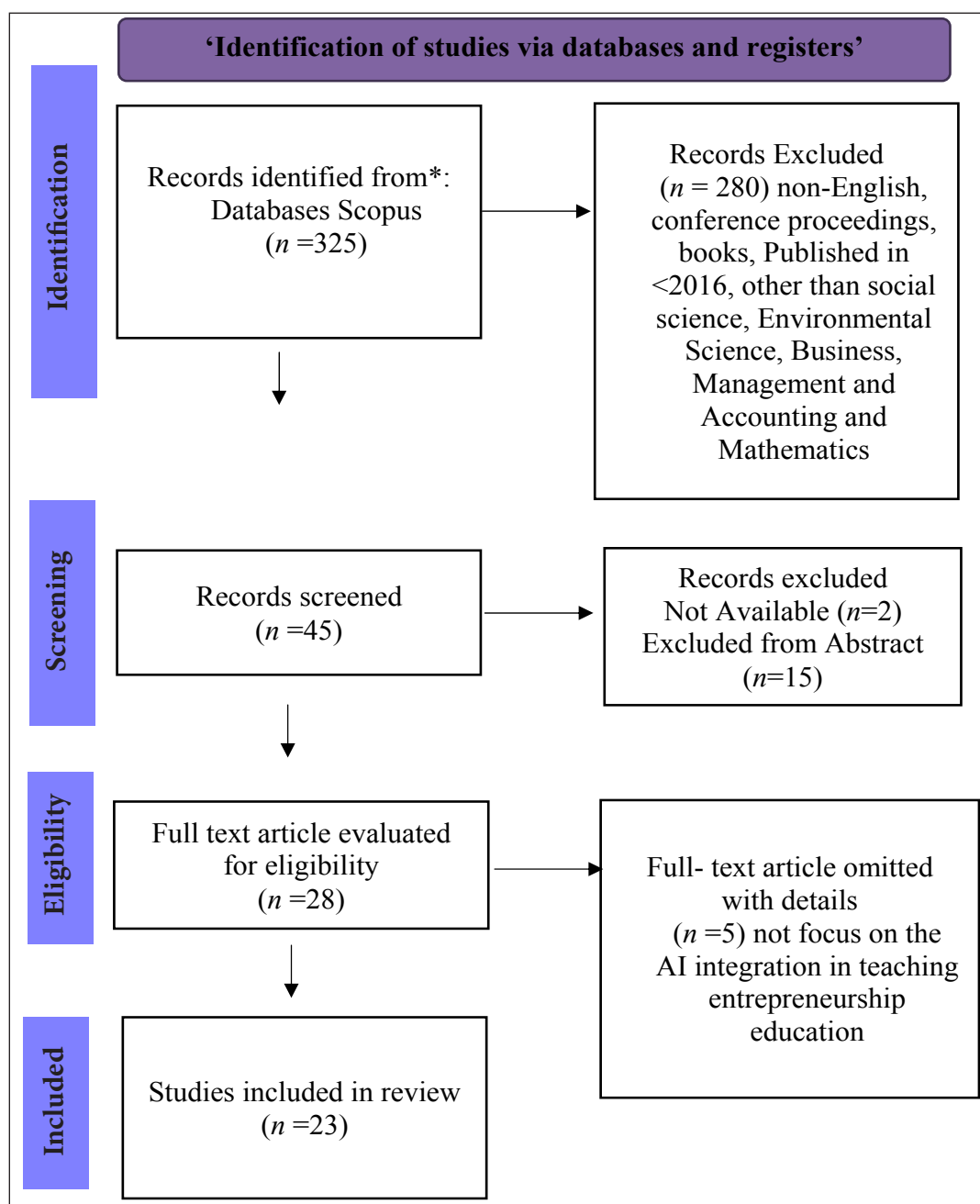


**Fig. 1:** PRISMA flow diagram for the process of article selection (Source: Page *et al.* 2021, <https://doi.org/10.1136/bmj.n71>)

Finally, at the end stage of the review process entailed a qualitative analysis of 23 articles (as demonstrated in Fig. 1).

### Data Analysis

The first phase in the evaluation process was to identify and develop the main themes. Subthemes derived from the selected research were then used to further enhance these themes. Statements that summarised the studies were carefully examined to ensure the review's objectivity and accuracy. Data analysis was then conducted to identify significant and cohesive themes. This method revealed four main topics. Maintaining logical consistency between themes was a major focus of the data analysis. The final paper was reviewed to make sure they were applicable and clearly classified.

## RESULTS AND DISCUSSION

### Role of AI in Entrepreneurship Teaching

The first and foremost theme explores the role of AI in teaching 'entrepreneurship education', which is crucial for preparing students for the current and future demand of the job market. With the rapid use of technology, it is very important for the institutes to integrate technology into the curriculum to provide the skills and knowledge to the students needed to succeed in the digital era. From the above dataset, it is clearly seen that the role of AI is very important in many ways. First, intelligent tutoring and personalised instruction (Lesinskis *et al.* 2025; Dunan *et al.* 2025; Vecchiarini & Somià, 2023; Lesinskis *et al.* 2023) via AI chatbots and digital platforms act as virtual teaching assistants, providing step-by-step guidance for building business plans. They also give real-time feedback, answer students' queries and adapt the curriculum to individual learning pace. Second, Immersive simulations and Game-Based Learning (Norabuena-Mendoza *et al.* 2025; Ng *et al.* 2024; Zhang, 2023; Fourqoniah *et al.* 2025) where AI are integrated with Virtual Reality (VR) and Augmented Reality (AR) to create interactive 3D environments. This enables service-learning games where students can practice real-world business decision-making in a risk-free environment. Third, Automated Assessment and Predictive Analytics (Vebibina *et al.* 2025; Chen *et al.* 2024; Hu, 2024; Mavlutova *et al.* 2020) in which

machine learning and big data analytics are used to automatically grade assignments and generate complex Higher Order Thinking skills (HOTS) questionnaires. This system can also predict the commercial viability of the student's business plans and optimise the construction of the teaching faculties. Fourth, Idea Generation and Business modelling (Somià & Vecchiarini, 2024; Bell & Bell, 2023; Cocu *et al.* 2025) through Generative AI, Natural language Processing (NLP) and Semantic Knowledge Graphs serve as collaborative tools to help students brainstorm and conduct market research. They are heavily used to refine Business Model Canvases (BMC) and design sustainable, eco-friendly ventures. Fifth, Decentralised Collaboration (Bu & Zou, 2024) technology, like federated learning, creates secure, school-enterprise network communities. This protects students' data privacy while facilitating experiential knowledge transfer and collaborative project incubation. Henceforth, it can be concluded that technology integration allows students to understand how technology can improve the learning environment of the students.

### Impact of AI in Teaching Entrepreneurship Education

The second theme focuses on the impact of AI in teaching 'entrepreneurship education'. The findings clearly show the impact of integrating AI in many ways. First, enhanced student engagement and competences (Dunan *et al.* 2025; Somià & Vecchiarini, 2024; Alqahtani, 2023; Fourqoniah *et al.* 2025) and help students through using AI significantly boost learners' autonomy, creativity and practical problem-solving skills. It achieves this by providing a highly interactive, customized, and learner-centric educational environment. Second, Increased entrepreneurial intentions (Lesinskis *et al.* 2023; Dabbous & Mallah Boustani, 2023; Mavlutova *et al.* 2020), Educator Efficiency and Teaching Quality (Vebibina *et al.* 2025; Chen *et al.* 2024; Hu, 2024) by streamlining complex tasks and objectively validating ideas, AI increases students' perceived behavioural control and confidence. This strongly motivates learners, especially Gen Z, to start a business within a few years. AI also relieves the operational burden on the teachers by automating repetitive administrative and grading tasks. This saves time and brings overall teaching

efficiency to a significantly higher quality level. Third, Fostering Social and Sustainable Innovation (Ng *et al.* 2024; Sandoval-Gómez *et al.* 2023; Cocu *et al.* 2025) as AI-integrated curricula shift students' focus on global citizenship and improve empathy. It empowers them to design business practices that balance profitability with environmental and social problem-solving. Fourth, Strategic Institutional and Business Growth (ElMadhi & Ait Nasser, 2024; Jing, 2022; Reimers, 2020) by AI integration advances critical interpersonal skills necessary for the fourth Industrial Revolution. It increases the output of the university innovation patents and revitalises digital innovation in traditional sectors like family businesses.

### **Opportunities using AI in Teaching Entrepreneurship Education**

The third theme is to identify the opportunities for using AI in teaching entrepreneurship education. Numerous opportunities can enhance the learning experiences, like first, Scalability, Democratized Access (Lesinskis *et al.* 2023; Zhang, 2023; Quishpe-Quishpe *et al.* 2025; Fourqoniah *et al.* 2025) and Data Driven Objectivity (Chen *et al.* 2024; Hu, 2024; Alqahtani, 2023) in which AI provide highly flexible, mobile and scalable distance learning algorithms. This brings inclusive entrepreneurship education to marginalized, rural, or under-served communities globally. Also, it helps in utilising big data and machine learning, which allows institutions to accurately evaluate business potential and assess faculty frameworks. It provides an opportunity to remove human bias from the complex decision-making. Second, Curriculum Modernization (Ng *et al.* 2024; El Madhi & Ait Nasser, 2024; Dabbous & Mallah Boustani, 2023; Reimers, 2020), in which AI opens the door to shift traditional, lecture-based education towards problem-based education. This modernises the curriculum to prepare the graduates for automated supply chains and rapid business scaling. Third, Cultural and Ethical Integration (Norabuena-Mendoza *et al.* 2025; Cocu *et al.* 2025), in which AI can be customized to make complex sustainability concepts highly accessible. It also offers the opportunity to merge digital tools with local cultural values, such as the Andean worldview, to foster socially responsible projects.

### **Challenges Using AI in Teaching Entrepreneurship Education**

The fourth theme is to identify the challenges of using AI in teaching entrepreneurship education. Educational institutions and Educators face many challenges using AI in teaching entrepreneurship education. First, Ethical Risk and Academic Integrity (Lesinskis *et al.* 2025; Chen *et al.* 2024; Somià & Vecchiarini, 2024; Bell & Bell, 2023; Cocu *et al.* 2025), in which widespread use of generative AI introduces the risk of academic misconduct and algorithmic bias. Furthermore, there is the danger of AI providing false information or struggling with complex business computations. Second, the Digital Divide and Infrastructure (Dunan *et al.* 2025; Alqahtani, 2023; Quishpe-Quishpe *et al.* 2025) problems by implementing this system are obstructed by technical resource limitations and fragmented institutional infrastructure. These risks widen the digital equity gap between urban and rural areas. Third, Educator unreadiness and resistance (Hu, 2024; Sandoval-Gómez *et al.* 2023; Mavlutova *et al.* 2020; Fourqoniah *et al.* 2025) indicates that the training of the teacher is necessary to upgrade digital competencies, as many educators are not familiar with the upgraded tools. Also, many institutions face resistance to shifting away from traditional teaching methods and suffer a lack of clear digital transformation strategies. Fourth, Pedagogical Pitfalls (Vebibina *et al.* 2025; Bell & Bell, 2023; Zhang, 2023) is a profound danger that students will develop an over-reliance on AI, leading to decreased imaginative capabilities. This results in a surface level without true comprehension if the human element of mentoring is neglected.

### **CONCLUSION AND FUTURE RESEARCH**

This systematic review traces a shift in entrepreneurship education. AI tools are increasingly used to help students spot business opportunities, stress-test ideas, make better decisions and learn more effectively overall. The tools that come up most often in the literature include 'Machine Learning Algorithms', 'Natural Language Processing Platforms', generative AI systems such as 'ChatGPT' and structured frameworks like 'KABADA'. Across the studies reviewed, the tools help students build core entrepreneurial skills while easing the

administrative load on instructors. A subset of studies goes further, finding that an AI-supported learning environment strengthens students' intent to start a business and their belief that they could actually pull it off. This pattern shows up most clearly among Gen Z students who are generally already comfortable in learning through technology-driven platforms.

AI-powered simulations and game-based platforms also let students practice entrepreneurial decision-making without the real-world stakes of failure. With these tools, educators can build lessons that connect classroom theory to what actually happens when someone tries to start a business, which is where a lot of traditional coursework falls short. Scalable AI platforms are also opening entrepreneurship education to rural and underserved communities that conventional institutions have struggled to reach.

None of this works on its own. How well it works comes down to whether institutions can manage the challenges that adoption brings, and that means academia, industry and policymakers actually need to coordinate rather than each doing their own thing. Universities especially need to partner with technology developers so the tools being built reflect sound pedagogy and account for cultural differences across the communities using them.

Moreover, there is room for more research here. It would help to know how these tools perform across different learning environments, regions, and cultures. Studying what makes industry-academia partnerships succeed would also be useful, as would a closer look at how to build an entrepreneurial mindset and skill set in students who will be facing real-world problems.

## GENERATIVE AI DECLARATION

The author(s) confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript, and no images were manipulated using AI. The authors developed and verified all scientific content, data analysis, interpretation of results, and conclusions. The authors take full responsibility for the accuracy, integrity, and originality of the work presented, and no AI tool was listed as an author.

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