

THE EVOLUTION OF ENTREPRENEURSHIP PEDAGOGICAL PROGRAMS FROM TRADITIONAL APPROACHES TO AI-DRIVEN LEARNING

Nour El Houda BOUADILA*

Laboratoire de performance, management et innovation,
Ecole des Hautes Etudes Commerciales, EHEC Alger

<https://ror.org/05frye867>

Email : nour_elhouda.bouadila@hec.dz

Nesrine BOUCHA

Laboratoire de performance, management et innovation,
Ecole des Hautes Etudes Commerciales, EHEC Alger

<https://ror.org/05frye867>

Email: nesrine.boucha@hotmail.com

<i>Received : 29/03/2025</i>	<i>Accepted : 13/10/2025</i>	<i>Published : 26/12/2025</i>
------------------------------	------------------------------	-------------------------------

Abstract:

This research explores the evolution of pedagogical programs in entrepreneurship education, tracing the transition from traditional approaches to AI-driven learning. The study examines how artificial intelligence enhances learning through adaptive feedback, digital simulations, and personalized pathways. Using an in-depth and extensive documentary exploration, the study highlights the applications, benefits and challenges of AI integration in entrepreneurship education. Findings suggest that while traditional methods remain vital, AI offers innovative, scalable learning solutions, even though its application in entrepreneurship education is underexplored. A hybrid model,

* Corresponding Author

combining human-centered pedagogy with AI-driven tools, emerges as a promising approach for modern entrepreneurial training.

Keywords: Entrepreneurship Education, Pedagogical Programs, Traditional Approaches, AI-driven Learning,

JEL Classification Code : L26, O33, I23, A22.

1- Introduction:

Entrepreneurship education has long been recognized as a critical driver of economic growth, fostering innovation and business creation (Fayolle & Gailly, 2015; Nabi et al., 2017). Traditionally, pedagogical approaches to entrepreneurship have relied on case studies, business plan development, and experiential learning, emphasizing real-world problem-solving (Neck & Greene, 2011; Rideout & Gray, 2013). However, these methods, while effective, often face limitations in scalability, accessibility, and adaptability to the rapidly changing business environment (Liguori & Winkler, 2020).

With the rise of Artificial Intelligence (AI) and digital transformation, education in general, and entrepreneurship education in particular, has entered a new era (Bell & Bell, 2023; Li et al., 2024). AI-driven learning tools offer personalized learning experiences, data-driven business simulations, and real-time feedback mechanisms, transforming how future entrepreneurs are trained (Fox et al., 2023; Holstein et al., 2018; Netland et al., 2023). This shift raises fundamental questions about the effectiveness, accessibility, and ethical considerations of AI-based pedagogy compared to traditional methods (Mbonigaba & Vanitha, 2018; Morrone, 2024; Soumia & Vecchiarini-Piazza, 2023).

This paper aims to explore the evolution of entrepreneurship pedagogical programs, tracing the transition from traditional approaches to AI-driven learning. By examining the strengths and weaknesses of both paradigms, this study aims to highlight the opportunities AI brings to entrepreneurial education, while also addressing its applications in entrepreneurship education, the benefits, challenges and ethical concerns associated with its adoption. In the end, the main purpose is to trace the historical and conceptual evolution of entrepreneurship pedagogical programs.

Thus, this study seeks to answer the following questions:

How have entrepreneurship pedagogical programs evolved from traditional approaches to AI-driven learning? And. What opportunities and challenges does AI introduce into entrepreneurship education?

The methodology of this study is a documentary review, synthesizing literature from academic journals, policy reports, and educational initiatives, in order to trace this historical and conceptual evolutive trajectory of these programs. This research provides insights into how business schools and educational institutions can effectively integrate AI into entrepreneurship pedagogy, ensuring that the next generation of entrepreneurs is equipped with both technological fluency and critical thinking skills.

This paper first examines traditional entrepreneurship teaching approaches, including lectures, case studies and experiential learning methods such as business simulations and project-based learning. It then explores the emergence of AI-driven pedagogical programs, highlighting how AI technologies such as digital incubators, predictive analytics...etc. are transforming entrepreneurship education. The paper concludes with a reflection on the opportunities, challenges, and ethical implications of integrating AI in entrepreneurship pedagogy, offering insights for educators and policymakers on how to leverage AI to enhance entrepreneurial learning.

2- Traditional Approaches to Entrepreneurship Education Programs:

Entrepreneurship education has evolved significantly since its formal introduction. The first structured course on entrepreneurship was offered at Harvard Business School (HBS) in 1947 by Professor Myles Mace, marking the beginning of entrepreneurship as an academic discipline (Katz, 2003). In its early years, entrepreneurship education focused primarily on business management, strategic planning, and economic theories, relying on traditional teaching methods such as lectures and case studies (or so-called passive entrepreneurship

pedagogical programs). However, as entrepreneurship gained recognition as a distinct field, pedagogical approaches began incorporating more practical, experiential, and interactive methods (active entrepreneurship pedagogical programs).

In this regard, scholars like Fayolle & Verzat (2009) have analyzed the role of active pedagogy in entrepreneurship education, questioning the balance between traditional structured methods and student-driven, practice-oriented learning. Their classification of pedagogical approaches, which includes case studies, problem-based learning, and project-based pedagogy, helps frame the ongoing transformation of entrepreneurship education. However, and despite the increasing adoption of hands-on learning, many institutions continue to rely on traditional pedagogical approaches, emphasizing structured, theory-driven models that have shaped entrepreneurship education for decades.

2-1. Traditional Pedagogical Methods in Entrepreneurship Education:

Historically, entrepreneurship education has relied on several key pedagogical teaching methods, including:

- **Case study Method:** The case study method, originally developed at Harvard Business School, is one of the most widely used tools in entrepreneurship education. This approach involves analyzing real-world business scenarios to develop critical thinking and decision-making skills. Fayolle & Verzat (2009) emphasize that this method is useful for understanding past entrepreneurial successes and failures but is limited in its ability to prepare students for the uncertainty and complexity of real-world entrepreneurial environments. The static nature of case studies, which often focus on retrospective analysis, contrasts with more dynamic, action-based approaches like problem-based and project-based learning.
- **Business Plan Development:** Another cornerstone of entrepreneurship education has been business plan writing, where students are taught how to develop detailed business models. Many universities incorporate business plan competitions as a

pedagogical tool, encouraging students to conceptualize, plan, and present startup ideas (Honig, 2004). However, critics argue that this method is often too rigid and does not align with real-world entrepreneurial uncertainty (Neck & Greene, 2011). They highlight that while business plans teach structured thinking, they do not always reflect the agility, risk-taking, and iterative problem-solving that real-world entrepreneurship demands (Fayolle & Verzat, 2009).

- **Business Simulations and Role-Playing:** Entrepreneurship education has increasingly incorporated business simulations, where students engage in interactive decision-making scenarios. Platforms like Marketplace Simulations and Capsim allow students to practice real-world business operations in a controlled setting. This aligns closely with problem-based learning (PBL) (Apprentissage par problème), a methodology highlighted by Fayolle & Verzat (2009). PBL emphasizes learning through the resolution of real or simulated problems, rather than through passive theoretical instruction.
- **Apprenticeship and Mentorship-Based Learning:** Some entrepreneurship programs integrate mentorship and apprenticeship models, where students work alongside experienced entrepreneurs. This aligns with the idea that learning by doing fosters entrepreneurial competencies more effectively than theoretical instruction (Pittaway & Cope, 2007). This method helps students develop tacit knowledge, something that traditional lecture-based methods lack.
- **Project-Based Learning (Pédagogie par Projet):** Fayolle & Verzat (2009) argue that one of the most effective pedagogical methods in entrepreneurship education is project-based learning (PBL), where students develop and execute their own entrepreneurial projects. Unlike business plan development, which focuses on theory and structure, project-based pedagogy immerses students in the entrepreneurial process, fostering:
 - **Autonomy and Initiative:** Students take ownership of their projects.
 - **Real-World Application:** They interact with real customers, suppliers, and markets.

- Iterative Learning: They adapt their projects based on feedback and real-world challenges.

This active, hands-on approach contrasts with traditional instructor-led models, making it more aligned with the realities of entrepreneurship (Neck & Greene, 2011).

2-2. Theoretical Foundations of Traditional Entrepreneurship Pedagogy:

Entrepreneurship education has been influenced by various learning theories that shape how students develop entrepreneurial skills.

- **Behaviorist Learning Theory (B.F. Skinner, 1954):** Based on behaviorist learning, learning occurs through interaction with the environment, where behavior is shaped by stimuli and responses and emphasizes reinforcement, conditioning (Catamia, 2023). The theory is based on the following principles:
 - Learning is a Change in Behavior: Learning is defined as a measurable change in behavior due to experience.
 - Conditioning and Reinforcement: Behavior is learned through classical conditioning and operant conditioning.
 - Positive and Negative Reinforcement: Positive reinforcement strengthens behavior by providing rewards. Negative reinforcement strengthens behavior by removing an unpleasant stimulus. Punishment decreases the likelihood of behavior occurring again.
 - Stimulus-Response (S-R) Mechanism: All behaviors are responses to stimuli, either learned through experience or conditioned.

Many traditional programs use this model in business plan development, teaching students' step-by-step procedures.

Table N° 01: Application of Behaviorist Principles in Entrepreneurship Education

Behaviorist principles	Application in Entrepreneurship Education
Reinforcement (Positive/Negative)	Business idea competitions where the best ideas receive funding.

Repetition & Drills	Repeated business planning exercises.
Operant Conditioning	Encouraging students to adapt based on real-time business feedback.
Stimulus-Response	Training students to recognize and react to market trends.

Source: Elaborated by the authors

- **Constructivist Learning Theory (Jean Piaget, (1976), Lev Vygotski (1978)):** This theory highlights that knowledge is constructed by the learner through interaction and exploration (Piaget, 1976) highlighting that learning is an active process where learners or students are active participants in constructing knowledge through experience. Seen in problem-based learning (PBL), where students actively solve real-world business problems, project-based learning where students develop startups and in group collaboration and mentorship programs.

The theory is student centered as the focus is on students' interests and questions, with teachers acting as facilitators rather than instructors, it is also based on active learning, collaboration as it emphasizes group work and social interaction, and finally reflection and metacognition as it encourages students to reflect on their learning processes and understand how they construct knowledge. (Simply Psychology, 2024).

- **Experiential Learning Theory (Kolb, 1984):** According to Kolb's experiential learning theory, learning is a process where knowledge is created through the transformation of experience. The theory emphasizes the importance of experience in the learning process, highlighting the need for learners to engage, reflect, and act and pointing out that the key in entrepreneurial learning is trial and error.

The theory explains that learning occurs through experience in a four-stage continuous cycle (Kolb, 1984)

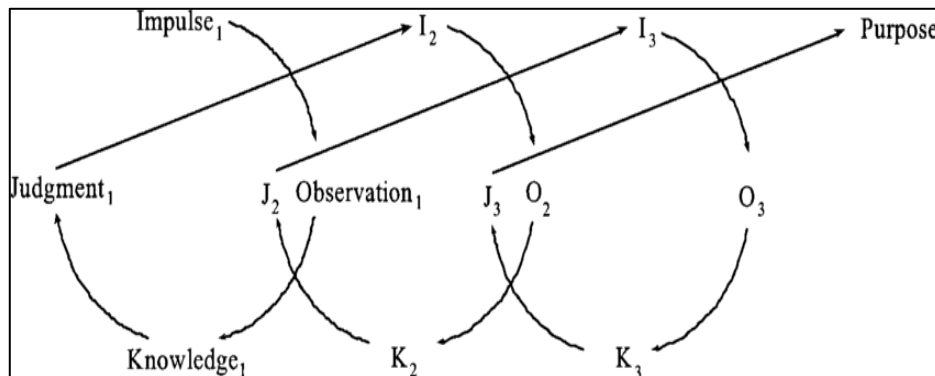
- Concrete Experience: Engaging in a new experience or reinterpreting an existing experience.
- Reflective Observation: Reflecting on the experience, considering what happened and why.

- Abstract Conceptualization: Formulating theories or concepts based on reflections.
- Active Experimentation: Applying new ideas to see what happens in practice.

This cycle can repeat, allowing learners to continuously develop and refine their understanding through experience. Kolb's theory integrates concepts from various educational theorists, including Piaget and Dewey, and emphasizes the role of personal experience in knowledge construction. Used in business simulations and entrepreneurship incubators, where students cycle between learning and doing (Pittaway & Cope, 2007).

- **John Dewey's Pragmatist Approach:** In this theory learning is learning-by-doing (experience) and knowledge is gained through real-world interactions rather than passive instruction highlighting that education needs to be adaptive and student centered, and reflection is the key to understanding (Dewey, 1938). It is strongly aligned with project-based learning, where students gain knowledge by working on actual entrepreneurial ventures. So, in other words, Dewey's theory of experiential learning emphasizes that learning occurs through experience, reflection, and active engagement with real-world problems (**learning by doing**), which makes it align with Lewin's action research model that follows a similar cycle: planning, action, and reflection (often conceptualized as "unfreezing, changing, and refreezing" in his change model). Both emphasize that learning is a process of experiences, concepts, observations and action (Kolb, 1984).

Figure N° 01: Dewey's Model of Experiential Learning



Source: Experiential Learning: Experience as the Source of Learning and Development (Kolb, 1984).

The following table represents a summary of the main difference of these theories in the context of entrepreneurship education and pedagogical programs:

Table N° 02: The main differences between the theories

Theory	Founder (s)	Definition of Learning	Core principles	Applications for Entrepreneurship Education	Critiques
Behaviorist Learning	B.F. Skinner (1954)	Knowledge is gained through repetition, conditioning, and reinforcement.	-Passive learning, structured teaching. -Rewards and punishments shape behavior.	Business plan writing. - Structured pitch training. - Lecture-based learning.	Too rigid and passive. - Ignores creativity and adaptability
Constructivist Learning	Piaget (1976) Vygotski (1978)	Learners actively construct knowledge through interaction with their environment.	Knowledge is personal & subjective. - Problem-solving and critical thinking.	Case studies. - Project-based learning. - Group collaboration	Difficult to assess outcomes. - Time-consuming. - Needs skilled facilitators.
Experiential Learning (Kolb)	David Kolb (1984)	Learning is a continuous cycle of	Learning is hands-on & iterative.	Business simulations. - Incubators	Some students may skip learning

		experience, reflection, conceptualization, and experimentation.	- Trial-and-error learning.	& startup labs. - Pitch competitions.	steps. - Risk of failure is high.
Pragmatist Approach (Dewey)	John Dewey (1938)	Learning happens through real-world experiences and practical problem-solving.	Learning must be meaningful & student-centered. - Reflection is essential.	- Startup incubators. - Community-based projects. - Real market problem-solving.	- Lacks structure. - Can be inefficient. - Hard to implement in large groups.

Source: Elaborated by the authors

2-3. Limitations of Traditional Approaches:

Despite their effectiveness, traditional methods in entrepreneurship education face several challenges:

- **Lack of Adaptability:** Static curricula fail to keep pace with the rapidly evolving business landscape (Gibb, 2003).
- **Passive Learning:** Lecture-based approaches do not fully engage students in real-world entrepreneurial decision-making.
- **Theoretical Overload:** Excessive focus on business plans and case studies may not develop the adaptive problem-solving skills entrepreneurs need (Neck & Greene, 2011).
- **Limited Technological Integration:** Traditional programs do not incorporate AI-driven tools, digital platforms, or real-time market simulations, which are now crucial for modern entrepreneurship (Mbonigaba & Vanitha, 2018).

These limitations have fuelled the shift toward AI-driven pedagogical models, offering more personalized, dynamic, and interactive learning experiences for aspiring entrepreneurs.

3- AI-Driven Pedagogical Programs and the Integration of AI in Entrepreneurship Education:

Artificial Intelligence (AI) is transforming higher education by offering adaptive learning experiences, automating administrative tasks, and providing personalized feedback. AI-driven pedagogical models are increasingly integrated into university curricula to enhance teaching methodologies and improve student learning outcomes (Achili & Zerroki, 2024). These models leverage machine learning algorithms and natural language processing to create intelligent tutoring systems, automated assessment tools, and personalized learning environments (Li & al., 2024).

Studies have demonstrated that AI-based educational tools can significantly enhance learning effectiveness. For instance, Netland, Oliver, and Onn (2023) compared AI-generated teaching videos with human-made content and found that AI-generated materials improved knowledge retention and engagement. Additionally, Holstein et al. (2018) explored the use of AI-powered mixed-reality tools in classrooms, showing that such technologies enhance teacher awareness and foster more interactive learning experiences.

Despite these advancements, the role of human educators remains indispensable. Morrone (2024) argues that AI cannot fully replace teachers, as human interaction is crucial for fostering critical thinking, creativity, and emotional intelligence. While AI can support and augment teaching, its effectiveness depends on how well it is integrated into the educational system.

3-1. AI based Pedagogical Models and the Applications in Entrepreneurship Education:

AI's role in entrepreneurship education is still in its early stages, with limited research exploring its full potential (Barrett & al, 2025). However, existing studies suggest that AI can significantly enhance entrepreneurial training by providing real-time data analysis, business

simulations, and personalized mentorship. AI tools can assist students in developing business models, conducting market research, and predicting industry trends (Gofman & Jin, 2024).

One notable study by Fox & al. (2023) presents AI as a dynamic copilot in entrepreneurship education, enabling students to leverage AI-driven decision-making tools to refine their business strategies. AI-powered chatbots and virtual mentors provide instant feedback and guidance, reducing the dependency on faculty while fostering self-directed learning (Soumia & Vecchiarini-Piazza, 2023).

Furthermore, AI can facilitate experiential learning through virtual reality (VR) and augmented reality (AR) applications. These technologies allow students to engage in immersive business simulations, where they can test entrepreneurial strategies in a risk-free environment (Li & al., 2024). Such innovations make entrepreneurship education more interactive and data-driven, aligning with the needs of modern learners.

Several AI applications are emerging in entrepreneurship education, each offering unique benefits:

- **AI-Powered Business Simulations:** AI-driven simulations allow students to experience real-world business scenarios, analyze market conditions, and make strategic decisions (Fox & al., 2023).
- **Chatbots and Virtual Assistants:** AI-driven chatbots provide instant support for students, answering questions related to business models, financial forecasting, and market analysis (Gofman & Jin, 2024).
- **Predictive Analytics and Data-Driven Decisions Making:** By integrating AI tools that help process and analyze large datasets, students learn to make informed decisions based on market trends, consumer behavior, and financial metrics. Studies have highlighted AI's role in fostering data-driven decision-making skills among entrepreneurship students. This tools also help students analyze consumer trends and predict business success rates (Barrett & al, 2025).
- **Automated Assessment and Intelligent Tutoring Systems:** AI-powered tutors provide real-time feedback and guidance, simulating

one-on-one mentorship and addressing specific entrepreneurial challenges faced by students. This approach has been explored in studies focusing on AI's role in education and entrepreneurship. (Gofman, Jin, 2024).

- **Personalized Learning Paths:** AI algorithms analyze individual learning patterns to tailor educational content, ensuring that students receive instruction suited to their unique needs and progress levels. For instance, a scoping review identified the status quo of AI in entrepreneurship education, highlighting the potential for personalized learning experiences. (Li & al, 2024).

Despite these advancements, the adoption of AI in entrepreneurship education remains relatively unexplored. More research is needed to assess the long-term impact of AI-driven pedagogical tools on entrepreneurial skill development (Li & al., 2023).

3-2. Benefits and Challenges of integrating AI in Entrepreneurship Education:

The incorporation of AI into entrepreneurship curricula offers several notable advantages:

- **Enhanced Engagement:** Interactive AI applications, such as chatbots and virtual reality experiences, increase student engagement by providing immersive learning environments. Research indicates that AI can serve as a dynamic co-pilot in entrepreneurship education, enhancing student engagement. (Fox & al, 2023)
- **Scalability:** AI-driven platforms can accommodate large numbers of students, offering consistent quality of education without the constraints of traditional classroom settings. A scoping review has discussed the scalability potential of AI in entrepreneurship education. (Li & al, 2024).
- **Skill Development:** Exposure to AI tools equips students with contemporary skills, preparing them for a business landscape increasingly influenced by technology. Studies have explored how

AI can be a catalyst for entrepreneurship education, fostering relevant skill development.

- **Data-Driven Decision-Making:** AI equips students with analytical skills by exposing them to real-time market data and predictive models (Gofman & Jin, 2024).

While AI offers numerous benefits, its integration into entrepreneurship education presents several challenges:

- **Ethical Implications:** The use of AI raises questions about data privacy, algorithmic bias, and the ethical use of technology in business practices. Research has addressed concerns regarding AI accuracy and reliability, emphasizing the importance of critical use. (Somia, Vecchiarini-Piazza, 2023)
- **Faculty Resistance:** Some educators remain skeptical about AI, fearing job displacement or loss of pedagogical control (Morrone, 2024).
- **Resource Intensive:** Implementing AI technologies requires significant investment in infrastructure, training, and ongoing maintenance. Studies have highlighted the resource-intensive nature of integrating AI into educational settings. (Gofman & Jin, 2024)
- **Dependence on Technology:** Over-reliance on AI tools may impede the development of critical thinking and problem-solving skills essential for entrepreneurs. Research has discussed the balance between AI assistance and the cultivation of essential entrepreneurial skills.

Several studies and initiatives illustrate the impact of AI on education and provide insights applicable to entrepreneurship education (Cardonna & al, 2023, Erbas & Maksuti, Fossen & al, 2024, 2024, Wang & al, 2024, Pastarmadzhieva & Angelova, 2025, Vieriu, & Petrea, 2025):

- **AI-Generated vs. Human-Made Teaching Videos:** Netland & al. conducted an experimental study comparing the learning effects of AI-generated and human-made teaching videos. The findings suggest that while AI-generated content can effectively convey information, nuances in delivery and engagement may differ from human-created materials.

- Teachers' Perspectives on AI in Higher Education: Ashili and Zarrouki explored the opportunities and challenges of using AI in higher education from teachers' perspectives. Their study highlights the potential of AI to enhance teaching efficiency and student engagement, while also addressing concerns about the readiness of educators to integrate AI tools into their teaching practices.
- AI in Entrepreneurship Education: Barrett & al. conducted a case study on adopting AI-driven assessments for digital literacy within entrepreneurship education. The research underscores the importance of aligning AI tools with educational objectives and the need for faculty development to effectively implement these technologies.

4- Conclusion:

Entrepreneurship education has traditionally relied on case studies, business plan development, and project-based learning to develop students' entrepreneurial competencies, critical thinking, and problem-solving skills (Fayolle & Verzat, 2009). These approaches align with established learning theories, such as the behaviorist, constructivist, experiential, and pragmatist paradigms, which emphasize skill acquisition, active learning, and real-world applicability (Kolb, 1984; Dewey, 1938). However, while these methods have been effective, they present challenges related to scalability, personalization, and access to real-time feedback.

The integration of AI in entrepreneurship education represents a paradigm shift in teaching methodologies, offering innovative solutions to address these limitations by enhancing student engagement, personalizing learning, and developing entrepreneurial competencies. While AI-driven pedagogical programs have demonstrated significant potential in higher education, their application in entrepreneurship education remains an emerging field that requires further exploration. Studies such as those by Fox & al. (2023), and Li & al. (2024), Barrett & Ryan (2025) highlight the transformative role AI can play in entrepreneurship education, yet challenges such as ethical concerns, faculty resistance, and high implementation costs must be addressed. Moving forward, a balanced approach that blends AI with traditional pedagogical models will be essential in leveraging AI's benefits while maintaining the human-centric aspects of entrepreneurship education.

As the education landscape evolves, a hybrid model that balances AI-driven and traditional pedagogical methods appears to be the most effective strategy for entrepreneurship education. While traditional approaches provide experiential learning and mentorship, AI tools can enhance engagement, automation, and analytical capabilities. Moving forward, researchers, educators, and policymakers should focus on developing responsible AI frameworks that preserve the experiential nature of entrepreneurship education while leveraging AI's strengths. This harmonized approach will enable entrepreneurship educators to equip future entrepreneurs with the adaptability, skills, and mindset needed to navigate the increasingly digital and complex business world.

Bibliography:

1. ACHILI, N., & ZERROUKI, N. Using Artificial Intelligence in Algerian Higher Education: Opportunities and Challenges from Teachers' Perspectives. ,أطراس 5(3), 2024, PP. 541-556
2. Barrett, G., Ryan, M., & Fitzgerald, C. Exploring AI in entrepreneurship education: A case study on adapting assessments for digital literacy. Cork College University. 2025,
3. Bell, R., & Bell, H. Entrepreneurship education in the era of generative artificial intelligence. *Entrepreneurship Education*, 6, 2023, PP. 229–244. <https://doi.org/10.1007/s41959-023-00099-x>
4. Chen, L., Ifenthal, D., Yin-Kim Yau, J., & Sun, W. Artificial intelligence in entrepreneurship education: a scoping review . *Education + Training* , 66(6), 2024, PP.589–608. <https://doi.org/https://doi.org/10.1108/ET-05-2023-0169>
5. Cardona, M. A., Rodríguez, R. J., & Ishmael, K. Artificial Intelligence and the Future of Teaching and Learning; Insights and Recommendations. Retrieved from U.S. Department of Education, Office of Educational Technology, 2023, website: <https://www.ed.gov/sites/ed/files/documents/ai-report/ai-report.pdf> Consulted 27/03/2024,
6. Catania, A. C. B. F. Skinner's *Science and human behavior*: Its antecedents and its consequences. *Journal of the Experimental Analysis of Behavior*, 80(3), 2003, PP. 313–320.
7. Dewey, J. *Experience and Education* (19th ed.). London: COLLIER MACMILLAN PUBLISHERS., 1938,
8. Erbas, I., & Maksuti, E. The impact of artificial intelligence on education. *International Journal of Innovative Research in Multidisciplinary Education*, 3(4), 2024, PP.463–471.
9. Fayolle, A., & Gailly, B. *The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence*. *Journal of Small Business Management*, 53(1), 2025, PP.75–93.
10. Fayolle, A., & Verzat, C. Pédagogie active et entrepreneuriat: Quelle place dans nos enseignements? *Review of Entrepreneurship*, 8(2), 2009, PP.1–15.
11. Fossen, F. M., McLemore, T., & Sorgner, A. *Artificial intelligence and entrepreneurship* (IZA Discussion Paper No. 17055). IZA Institute of Labor Economics. (2024, June),
12. Fox, J. D., et al. Artificial intelligence as a dynamic copilot in entrepreneurship education. *Entrepreneurship Education and*

- Pedagogy*, 8(2), 2023, PP.1–16.
<https://doi.org/10.1177/25151274241256307>
13. Gibb, A. A. In pursuit of a new “enterprise” and “entrepreneurship” paradigm for learning: Creative destruction, new values, new ways of doing things, and new combinations of knowledge. *International Journal of Management Reviews*, 4(3), 2003, PP. 233–269.
 14. Gofman, M., & Jin, Z. Artificial intelligence, education, and entrepreneurship. *The Journal of American Finance Association*, 79(1), 2024, PP.631–667.
 15. Honig, B. Entrepreneurship education: Towards a model of contingency-based business planning. *Academy of Management Learning & Education*, 3(3), 2004, PP. 258–273.
 16. Holstein, K., McLaren, B. ., & Aleven, V. Student learning benefits of a mixed-reality teacher awareness tool in AI-enhanced classrooms., *Springer*, 2018, PP. 154–168,
 17. Intellectual trajectory of American entrepreneurship education (1876-1999). *Journal of Business Venturing*, 18(2), 2003, 283–300.
[https://doi.org/10.1016/S0883-9026\(02\)00098-8](https://doi.org/10.1016/S0883-9026(02)00098-8)
 18. Kolb, D. *Experiential learning: Experience as the source of learning and development*. U.S: Prentice-Hall. ,1984,
 19. Liguori, E. W., & Winkler, C. From offline to online: Challenges and opportunities for entrepreneurship education following the COVID-19 pandemic. *Entrepreneurship Education and Pedagogy*, 3(4), 2020, PP.346–351,
 20. Mbonigaba, C., & Vanitha, N. AI-powered entrepreneurship: The tools that will shape tomorrow’s startups. *International Journal of Advanced Trends in Engineering and Technology*, 3(2), 2018, PP.29–35.
 21. McLaren, B. M. Extensionally defining principles and cases in ethics: An AI model. *Artificial Intelligence Journal*, 150(1–2), 2003, 145–181.
 22. McLaren, B., Farzan, R., Adams, D., Mayer, R., & Forlizzi, J. Uncovering Gender and Problem Difficulty Effects in Learning with an Educational Game, *Springer*, 2017, PP. 540- 543
 23. Morrone, M.. Why AI is no substitute for human teachers. (2024, August 15) , <https://www.axios.com/2024/08/15/ai-tutors-learning-education-khan-academy-wharton> , Consulted 08/01/2025,
 24. Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. *The impact of entrepreneurship education in higher education: A systematic review and research agenda*. *Academy of Management Learning & Education*, 16(2), 2017, PP.277–299. <https://doi.org/10.5465/amle.2015.0026>

25. Neck, H. M., & Greene, P. G. Entrepreneurship education: Known worlds and new frontiers. *Journal of Small Business Management*, 49(1), 2011, PP.55–70.
26. Netland, T., von Dzengelevski, O., Tesch, Katalin, & Kwasnitschka, D. Comparing human-made and AI-generated teaching videos: An experimental study on learning effects. *Computers & Education*, 2025, PP. 224.
27. Pastarmadzhieva, D., & Angelova, M. The impact of AI on entrepreneurship education. *International Scientific Journal "Industry 4.0,"*, 2025, PP.75–78.
28. Piaget, J. *The psychology of intelligence* (D. E. Berlyne & M. Piercy, Trans.; 1st ed.). Routledge. 1950,
29. Pittaway, L., & Cope, J. Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*, 25(5), 2007, PP.479–510.
30. Rideout, E. C., & Gray, D. O. *Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education*. *Journal of Small Business Management*, 51(3), 2013, PP.329–351. <https://doi.org/10.1111/jsbm.12021> ,
31. Simply Psychology. *Constructivism learning theory & philosophy of education*. (2024, February). <https://www.simplypsychology.org/constructivism.html>, consulted 13/12/2024,
32. Shriver, T. A New Era of Special Education Begins with Inclusive AI. (2024, September 6). Retrieved December 18, 2024, from <https://time.com/7018588/special-olympics-ai-idd-artificial-intell>
33. Soumia, T., & Vecchiarini-Piazza, M. Redefining entrepreneurship education in the age of artificial intelligence: An explorative analysis. *The International Journal of Management Education*, 21(3). 2023,
34. Vieriu, A. M., & Petrea, G. The impact of artificial intelligence (AI) on students' academic development. *Education Sciences*, 15(3), 2025, PP.343. <https://doi.org/10.3390/educsci15030343>
35. Vygotsky, L. ., Cole, M., Jolm-Steiner, V., Scribner, S., & Souberman, E. *Mind in Society: The Development of Higher Psychological Processes*. USA: Harvard University Press , 1978,