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The impact of artificial intelligence and entrepreneurship education on entrepreneurial intention: Strengthening the entrepreneurial intention of economics students in Hai Phong city

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Abstract: The Vietnamese government is implementing numerous changes in economic policies, which pose challenges to increasing the entrepreneurial intentions of economics students. Entrepreneurship education plays a crucial role in fostering motivation to pursue business ventures. In fact, further research is necessary to understand the factors influencing the effectiveness of entrepreneurship education for economics students. This study aims to measure the impact of entrepreneurship education on the entrepreneurial intentions of economics students in Hai Phong city and to examine the mediating role of Artificial Intelligence (AI). Data were collected through surveys from 428 students enrolled in business administration or economics programs across several universities and analyzed using Structural Equation Modeling (SEM). The findings indicate that entrepreneurship education has a positive and significant effect on entrepreneurial intention. Additionally, AI serves as a significant mediating factor, enhancing the influence of entrepreneurship education on entrepreneurial intention. The results demonstrate that integrating AI tools into entrepreneurship education can strengthen students' entrepreneurial mindset and motivation. This study provides empirical evidence on the mediating role of AI in entrepreneurship education and offers practical insights for optimizing teaching strategies with emerging technologies, thereby nurturing a new generation of students in the digital age.

Keywords: *Artificial intelligence, Business administration students, Entrepreneurial intention, Entrepreneurship education, Hai Phong City.*

1. Introduction

In recent years, entrepreneurial intention has increased significantly, particularly among students majoring in economics. Entrepreneurial intention is essential for economic growth, social progress, innovation, and job creation, making it a crucial component of national development [1]. The factors influencing entrepreneurial intention are key to promoting entrepreneurial behavior among students [2]. For this reason, entrepreneurship education has received considerable attention due to its role in revitalizing stagnant economies, addressing social issues through innovative skills, and enhancing students' capabilities within higher education institutions [3]. Universities play a vital role in promoting entrepreneurial development through entrepreneurship education courses [4, 5].

Today's young generation, particularly university students, tends to engage in entrepreneurial activities even while still in college [6]. However, due to limitations in knowledge, experience, and financial resources, the entrepreneurial process among students often encounters various difficulties. This situation presents both opportunities and challenges for student entrepreneurs [7].

Furthermore, although entrepreneurial intention has increasingly attracted attention, several studies have questioned the effectiveness of entrepreneurship education in stimulating such intentions [8, 9]. Previous research has indicated that students often face substantial risks and uncertainties when

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starting a business, including a lack of confidence and belief in their own abilities, which significantly influence their decision-making processes [10]. These challenges raise questions about how entrepreneurship education can be enhanced to effectively nurture entrepreneurial intention. If this issue remains unaddressed, the potential of young entrepreneurs could be undermined, thereby affecting economic growth and social development.

One potential solution lies in leveraging technological advancements, particularly Artificial Intelligence (AI), which is increasingly shaping daily life and business practices. AI enhances entrepreneurs' imagination and creativity, facilitates the identification of profitable opportunities, and improves efficiency across various sectors, including education and entrepreneurship [11]. According to the World Economic Forum, 70% of new businesses will rely on digital platforms, making digital skills and knowledge of emerging technologies essential for future entrepreneurs [12]. This underscores the strategic role of AI in modern educational perspectives, providing innovative tools to enhance learning and problem-solving among students. However, the integration of AI into entrepreneurship education remains underexplored. There is a scarcity of empirical research examining the mediating role of AI in the relationship between entrepreneurship education and entrepreneurial intention. Therefore, this study aims to assess the direct impact of entrepreneurship education on students' entrepreneurial intention and to evaluate the mediating role of AI in this relationship. The research focuses on economics students in Hai Phong City and employs a quantitative approach using Structural Equation Modeling (SEM) to analyze survey data collected from 428 participants. SEM was chosen because it enables the examination of complex relationships among variables, including the mediating effect of AI. By applying SEM, this study seeks to provide a comprehensive understanding of how entrepreneurship education and AI jointly influence entrepreneurial intention.

This study seeks to address the following research questions:

To what extent does entrepreneurship education influence the entrepreneurial intention of economics students in Hai Phong City? How does Artificial Intelligence (AI) mediate the relationship between entrepreneurship education and entrepreneurial intention?

By addressing these questions, this study aims to contribute empirical evidence on the role of Artificial Intelligence (AI) in entrepreneurship education. Moreover, it seeks to provide practical insights for educators and policymakers to enhance entrepreneurial intention through the integration of emerging technologies.

2. Literature Review

2.1. Theoretical Foundations of Entrepreneurial Intention

Numerous previous studies have examined the psychological factors that shape entrepreneurial intention by applying various theoretical frameworks.

The Theory of Planned Behavior (TPB) is a psychological model developed by Ajzen [13]. This theory was built upon the Theory of Reasoned Action (TRA), proposed and developed by Fishbein and Icek [14] and Trafimow [15] with the addition of the perceived behavioral control component. TPB has been widely applied to explain and predict human behavior in various contexts. In this model, an individual's behavior is influenced by three primary factors: (1) subjective norms, (2) attitude toward the behavior, and (3) perceived behavioral control. In the context of this study, entrepreneurial intention is regarded as an internal factor, whereas entrepreneurship education serves as an external factor influencing perceived behavioral control. Entrepreneurial intention is affected by the individual's attitude toward entrepreneurship, along with subjective norms and perceived behavioral control. According to the Theory of Planned Behavior (TPB) [13, 15], participation in entrepreneurship education programs can enhance students' entrepreneurial intention by influencing their attitudes, subjective norms, and perceived behavioral control, particularly by increasing their awareness of feasibility and the degree of control over entrepreneurial behavior.

Entrepreneurial intention is understood as a cognitive state that emerges prior to actual entrepreneurial behavior. According to Krueger [16], entrepreneurial intention reflects an individual's

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level of commitment to establishing a business venture. In contrast, Thompson [17] defines entrepreneurial intention as an action-oriented cognition that motivates individuals to undertake the necessary steps toward starting a business. Complementing these perspectives, Bui et al. [18] emphasize that entrepreneurial intention is formed and reinforced by an individual's focus, capability, and determination throughout the entrepreneurial process.

Examining the theoretical foundation of entrepreneurial intention is essential for clarifying the psychological and behavioral drivers underlying entrepreneurial decision-making. This approach is particularly important in the context of entrepreneurship education, as it helps establish and strengthen students' entrepreneurial intentions, thereby contributing to a higher rate of entrepreneurship among potential entrepreneurs.

2.2. The Impact of Entrepreneurship Education on Entrepreneurial Intention

Entrepreneurship education plays a crucial role in establishing a solid foundation for economics students to engage in business activities after graduation. By equipping students with essential entrepreneurial knowledge and managerial skills, entrepreneurship education enhances the attractiveness and appeal of entrepreneurial intention among students [2, 19]. In recent years, educational institutions have increasingly integrated entrepreneurship education into their curricula to nurture entrepreneurial intentions and create favorable conditions for students to embark on entrepreneurial ventures [11].

From an academic perspective, Lee and Wong [20] and De Faoite et al. [21] conceptualize entrepreneurship education as a structured program designed to develop the knowledge, skills, and mindset necessary for students to acquire professional competence, create profit opportunities, and address real-world business challenges. The curriculum typically encompasses multiple dimensions of enterprise development from business formation, strategic design, and implementation to operational management and responses to practical challenges as highlighted by the National Agency for Science and Technology Information [22].

Although the importance of entrepreneurship education has been increasingly recognized, its effectiveness in fostering entrepreneurial intention remains a subject of debate. Handayati et al. [23] and Zvavahera et al. [11] argue that participation in entrepreneurship courses positively influences students' readiness to pursue entrepreneurial careers. In contrast, Gurel et al. [24] and Sanyal and Al Mashani [9] contend that formal education alone is insufficient to shape or stimulate entrepreneurial intention among students [25]. These divergent perspectives highlight the need to consider additional factors such as the quality of educational programs, the extent of experiential learning, and the influence of external contexts that may moderate or mediate the effectiveness of entrepreneurship education in cultivating entrepreneurial intention.

H_1: Entrepreneurship education has a positive and significant impact on students' entrepreneurial intention.

2.3. The Impact of Entrepreneurship Education on Entrepreneurial Intention

Artificial intelligence (AI) is exerting a profound influence on technology, society, and the economy, including the field of education. In the context of entrepreneurship education, AI presents both opportunities and challenges. The integration of AI can enhance entrepreneurial students' learning experiences by supporting decision-making, analyzing market demands, generating and validating business ideas, and personalizing learning pathways. This, in turn, fosters a flexible and dynamic learning environment for students. On the other hand, studies by Mu and Zhao [26] and Desai [27] have raised concerns about potential overreliance on AI, which may diminish students' creativity, problem-solving autonomy, and critical thinking, while also introducing ethical issues that require careful management and oversight.

As Artificial Intelligence (AI) continues to evolve, expectations regarding its novel capabilities, such as business simulation, virtual mentorship, and demand forecasting, are accompanied by emergent challenges, including algorithmic transparency, data bias, and privacy concerns. These developments

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underscore the need to delineate clearly the role, ethical standards, and long-term impacts of AI on entrepreneurial learning outcomes. However, Kengam [28] notes that empirical evidence on the relationship between AI and entrepreneurship education remains limited; few studies have directly integrated AI into university-level entrepreneurship courses. This gap suggests the necessity of testing whether entrepreneurship education can foster students' adoption of AI, their attitudes toward AI, and their intention to use AI for entrepreneurial purposes [29].

H_2: *Entrepreneurship education* has a positive and significant impact on students' readiness to use AI in entrepreneurial learning.

2.4. The Impact of Artificial Intelligence on Entrepreneurial Intention

Park and Sung [30] and Margaretha et al. [31] assert that Artificial Intelligence (AI) can play a crucial role in fostering students' entrepreneurial intentions. According to Chalmers et al. [32], AI supports students at various stages of the entrepreneurial process, including business planning, model design, implementation, and project management evaluation. Park and Sung [30] further argue that integrating AI into entrepreneurship education holds the potential to reshape entrepreneurial mindsets through personalized learning experiences, enhanced engagement, and strengthened interest in pursuing entrepreneurship. In addition, Moustafa et al. [33] suggest that AI enhances opportunity recognition and facilitates business decision-making, enabling students to assess risks and identify business prospects more accurately. As technology continues to advance, the role of AI in forecasting economic trends and shaping entrepreneurial intentions introduces new approaches and strategic perspectives for the next generation of entrepreneurs.

H_3: *Artificial Intelligence (AI)* has a positive and significant impact on students' entrepreneurial intention.

2.5. Artificial Intelligence as a Mediator

According to Judd and Kenny [34], a mediation effect occurs when a third variable transmits the influence from an independent variable (X) to a dependent variable (Y). To establish mediation, several standard criteria must be satisfied: (a) the mediating variable must have a significant relationship with both X and Y; (b) X must be significantly related to the mediator; (c) the mediator must be significantly related to Y; and (d) when the mediator is included in the model, the direct effect of X on Y should be reduced or rendered insignificant [2].

In this study, Artificial Intelligence (AI) functions as a mediating variable between Entrepreneurship Education (EED) and Entrepreneurial Intention (EI) through three direct linkages: EED → AI, AI → EI, and EED → EI. In this role, AI operates as an intermediary mechanism transmitting the effect of EED on EI. According to Bui and Duong [35], integrating AI into entrepreneurship education enhances students' digital autonomy, thereby reinforcing their self-confidence and entrepreneurial intention. Experimental evidence from Rahi [36] further indicates that the use of AI exerts a positive impact on entrepreneurial intention. Similarly, Dabbous and Boustani [37] found that Perceived Behavioral Control (PBC) can mediate the relationship between EED and EI; extending this reasoning, students who effectively manage and control their use of AI are more likely to strengthen their entrepreneurial intentions.

H_4: *Artificial Intelligence (AI)* mediates the relationship between Entrepreneurship Education (EED) and Entrepreneurial Intention (EI).

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2.6. Proposed Research Model

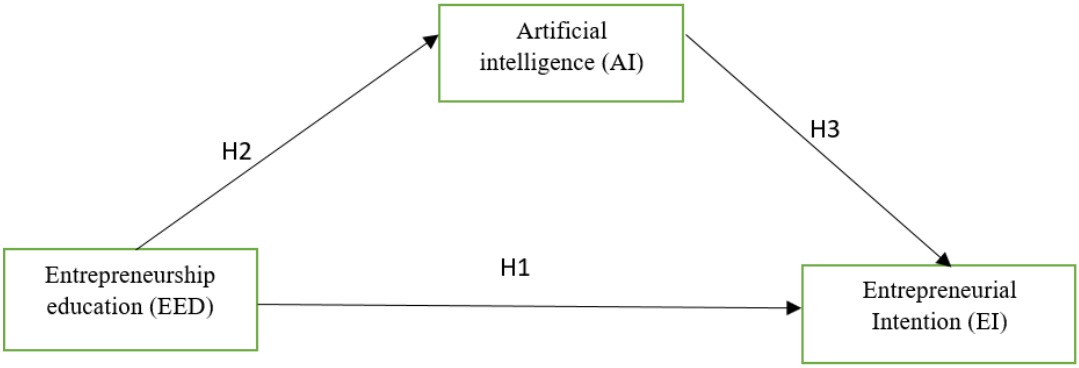

Figure 1.
Proposed Research Model.

3. Research Methods

3.1. Research Context

The authors consider the context of Hai Phong City and, based on the reviewed literature, propose the research methodology as illustrated in Figure 1. Economics students from multiple universities in Hai Phong City represent the population analyzed in this study. Data were collected through surveys completed by 428 students. Structural Equation Modeling (SEM) was employed as the analytical tool to test the hypotheses proposed above.

3.2. Survey Participants and Data Collection Method

Survey participants were selected from universities offering economics programs in Hai Phong City. Six universities were chosen by the authors, including: Thanh Dong University (TDU), Sao Do University (SDU), Hai Duong University (HDU), Hai Phong University of Management and Technology (HPU), University of Hai Phong (HPUni), and Vietnam Maritime University (VMU).

The authors collected data through an online survey of students at the universities, adhering to specific criteria: (a) students were active and engaged, enrolled in the sixth to eighth semesters at the selected universities, and (b) students were majoring in Business Administration and/or Economics. These criteria were established to ensure the reliability and accuracy of the results concerning the issues under investigation.

3.3. Reliability Testing

According to Judd and Kenny [34], the Composite Reliability (CR) index is considered acceptable when it reaches a minimum of 0.70, with statistical tests conducted at a significance level of 0.05. Higher reliability values indicate lower random error and greater consistency of the measurement scale, reflecting good replicability under similar measurement conditions. Rahi [36] notes that reliability assessment is conducted to determine whether an observed variable or a set of variables adequately represents the conceptual construct that the scale is intended to measure.

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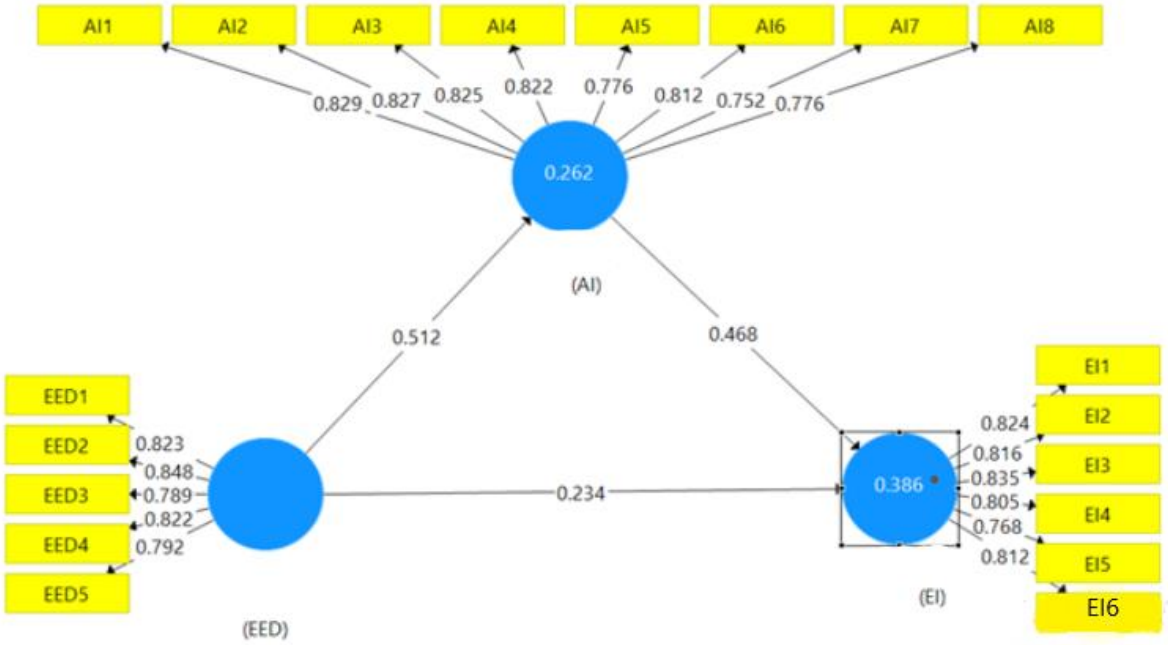

Figure 2.
Results of the model were analyzed using SmartPLS.

3.4. Composite Reliability

Table 1.
Reliability and Validity Construct

	Entrepreneurship education (EED)	Artificial intelligence (AI)	Entrepreneurial Intention (EI)
Cronbach's Alpha	0.873	0.921	0.895
Composite Reliability (rho_a)	0.875	0.923	0.896
Composite Reliability (rho_c)	0.908	0.935	0.920
Average Variance Extracted	0.664	0.645	0.657

Upon reviewing the literature, the authors noted that the concept of internal consistency lacks a unified definition. According to Lee and Wong [20], the terms "internal consistency" and "homogeneity" can be used interchangeably conceptually; he argued that the degree of internal consistency is an attribute of the measurement structure and, in principle, is independent of scale length. Conversely, some studies, such as those by Green et al. [38], regard internal consistency as the degree of inter-item coherence, while homogeneity refers to the unidimensionality of the scale, as emphasized by Tang et al. [39]. Similarly, other studies, notably Chen and Bellavitis [40], contend that internal consistency reflects the relatedness or coherence among items, whereas homogeneity is reserved for the scale's unidimensionality; this view is also highlighted by Tang et al. [39].

As shown in Table 1, the variables Entrepreneurship Education (EED), Artificial Intelligence (AI), and Entrepreneurial Intention (EI) all meet the criteria for construct reliability and internal consistency. This is evident from the Composite Reliability (rho_a) column, where AI has a reliability of 0.923, EED has a reliability of 0.875, and EI has a reliability of 0.896. These variables demonstrate composite reliability values that satisfy the requirements for valid measurement.

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3.5. Cronbach Alpha

According to Cortina [41], a Cronbach's alpha ≥ 0.70 is considered acceptable, with higher values reflecting better internal consistency. The results in Table 3 show that Artificial Intelligence (AI) has an alpha of 0.921, indicating very high reliability. Entrepreneurship Education (EED) achieved 0.873, and Entrepreneurial Intention (EI) reached 0.895, both exceeding the 0.70 threshold. However, according to Hair et al. [42], in the context of scale exploration and development, values between 0.60 and 0.70 can be tentatively acceptable without compromising scale validity, but they suggest the need for refinement and further testing. Therefore, the scales used in this study can be considered reliable when evaluating multiple indices (outer loadings, Composite Reliability, and Cronbach's alpha), while it is recommended to continue refining items to raise the alpha values of EED and EI above 0.70 in future research [40].

3.6. Validity Testing

According to Ajzen [43], the minimum acceptable threshold for Average Variance Extracted (AVE) is 0.50. When AVE > 0.50, the latent variable explains more than 50% of the indicators, indicating high convergent validity, i.e., the indicators effectively measure the intended construct. When AVE < 0.50, the average measurement error variance exceeds the variance explained by the latent construct, implying weak convergent validity; this situation is often associated with low indicator loadings, suggesting the need for scale refinement, as noted by Haji-Othman and Yusuff [44].

In this study, all three constructs achieved an AVE ≥ 0.50 (see Table 1), thereby confirming the convergent validity of the measurement model and ensuring that each construct adequately and accurately reflects the concept it represents.

3.7. Discriminant Validity Testing

Discriminant validity reflects the extent to which a construct is empirically distinct from other constructs in the model. Strong discriminant validity ensures that each construct measures a unique concept without excessive overlap with other constructs. According to Tang et al. [39], the Heterotrait-Monotrait ratio (HTMT), when used to assess discriminant validity, often yields higher values than traditional metrics. Consequently, Roemer et al. [45] note that:

An HTMT threshold of ≤ 0.90 is applied for models with conceptually similar constructs. A more stringent threshold of HTMT ≤ 0.85 is recommended for models with clearly distinct constructs to ensure a high degree of discriminant validity.

Table 2.
Discriminant Validity – HTMT.

	Entrepreneurship education (EED)	Artificial intelligence (AI)	Entrepreneurial Intention (EI)
Entrepreneurship education (EED)			
Artificial intelligence (AI)	0.567		
Entrepreneurial Intention (EI)	0.533	0.645	

4. Research Results

This section tests the hypothesized model using Structural Equation Modeling (SEM), as illustrated in Figure 1. According to Kwak [46], a hypothesis is considered statistically significant if the p-value is less than 0.05, and not statistically significant if it exceeds 0.05.

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Table 3.
Path Coefficient.

	Entrepreneurship education (EED)	Artificial intelligence (AI)	Entrepreneurial Intention (EI)
Original Sample (O)	0.234	0.468	0.512
Sample Mean (M)	0.234	0.470	0.514
Standard Deviation (STDEV)	0.045	0.043	0.036
T Statistics (|O/STDEV|)	5.173	10.944	14.039
P Values	0.000	0.000	0.000

Table 4.
Hypothesis Results.

Hypothesis Statement	β-value (STDEV × T Value)	P-Values	Results on Hypothesis
Entrepreneurship education has a significant impact on entrepreneurial intention.	0.23	0.000	Significant
Entrepreneurship education has a significant impact on the use of artificial intelligence (AI).	0.47	0.000	Significant
Artificial intelligence (AI) has a significant impact on entrepreneurial intention.	0.51	0.000	Significant
Artificial intelligence (AI) significantly mediates the relationship between entrepreneurship education and entrepreneurial intention.	0.24 (0.47x0.51)	0.000	Significant

The results of the hypothesis testing are presented by the authors in Table 4. As shown in Table 4, all structural relationships are statistically significant.

The effect of entrepreneurship education on entrepreneurial intention is significant ($\beta = 0.23$, $p = 0.000$). The effect of entrepreneurship education on artificial intelligence (AI) is also significant ($\beta = 0.47$, $p = 0.000$). The effect of AI on entrepreneurial intention is significant as well ($\beta = 0.51$, $p = 0.000$). Therefore, entrepreneurship education significantly influences both AI and entrepreneurial intention [43]. Moreover, AI plays a significant mediating role in the relationship between entrepreneurship education and entrepreneurial intention, as indicated by the difference between the direct and indirect effects.

The mediating effect of artificial intelligence (AI) between entrepreneurship education and entrepreneurial intention appears to be of moderate validity. However, students have demonstrated the ability to utilize AI to enhance decision-making, foster innovation, and improve work efficiency, as noted by Bui and Duong [35] and Kengam [28]. Educators should act as mentors, guiding students in the scientific and ethical application of AI in their learning and professional activities, with the aim of maximizing the effectiveness of entrepreneurship education in promoting entrepreneurial intention among economics students.

5. Discussion

The purpose of this study is to examine the mediating effect of artificial intelligence (AI) on the relationship between entrepreneurship education and entrepreneurial intention. The research investigates how entrepreneurship education influences AI and entrepreneurial intention, as well as how AI impacts entrepreneurial intention. A survey was conducted with 428 economics students from universities in Hai Phong City.

The results for Hypothesis H1 are consistent with several previous studies, confirming a significant relationship between entrepreneurship education and entrepreneurial intention ($\beta = 0.23$, $p = 0.000$), although some studies report inconsistent findings. Numerous studies emphasize the significant impact of entrepreneurship education on entrepreneurial intention [26, 27]. However, other studies suggest

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that entrepreneurship education does not always have a direct effect on entrepreneurial intention [23, 47].

Hai Phong City, in the context of digital transformation, faces new opportunities and challenges. Entrepreneurship education plays a crucial role in shaping the entrepreneurial intentions of economics students, thereby indirectly promoting job creation, capital circulation, and contributing to local economic growth. Participation in entrepreneurship courses and activities equips students with knowledge, skills, and a business mindset, fostering the motivation to pursue future start-up projects.

These findings provide important implications for the formation of entrepreneurial intention among university students in Hai Phong City within economics programs. Instructors play a key role in imparting knowledge and fostering an entrepreneurial mindset to help students develop business ideas, as noted by Chung et al. [48]. Entrepreneurship education can serve as a supportive factor in enhancing students' entrepreneurial intentions by building personal competencies, improving both soft and hard skills, and encouraging critical thinking, according to Kusnadi et al. [49].

An important consideration in developing entrepreneurial intention through entrepreneurship education is the implementation of highly practical, experiential approaches that allow students to engage in and develop business activities within real-world contexts [12]. This can be facilitated through internships in companies, business simulations, and entrepreneurship competitions linked to real-world scenarios. In addition, students should be encouraged to establish and practice actual ventures, supported by mechanisms such as incubators, entrepreneurial mentoring, and ecosystem networking. This approach enhances entrepreneurial self-efficacy, opportunity recognition, and decision-making capabilities, thereby reinforcing entrepreneurial intention and behavior in a sustainable manner.

For Hypothesis H2, entrepreneurship education has a significant impact on artificial intelligence (AI) ($\beta = 0.47$, $p = 0.000$). These results indicate that entrepreneurship education not only equips individuals with fundamental entrepreneurial knowledge but also enhances their ability to develop, understand, and apply AI technologies in the current economic context. Entrepreneurship education fosters innovative thinking, problem-solving skills, and adaptability to technological advancements, enabling economics students to create innovative and sustainable business solutions with the support of AI, as noted by Chen et al. [50].

Hypothesis H3, which examines the effect of artificial intelligence (AI) on entrepreneurial intention, is supported by the empirical results. The findings indicate that AI has a positive and significant impact on students' entrepreneurial intention ($\beta = 0.51$, $p = 0.000$). In the context of Hai Phong City, AI provides clear advantages by enabling rapid access to information, identifying market opportunities, and conducting accurate, multidimensional analyses of current business trends. The application of AI enhances students' confidence and entrepreneurial effectiveness, reduces workload, improves process efficiency, and optimizes the learning experience, thereby promoting entrepreneurial intention [50].

The study's findings have significant practical implications for education, organizations, and policymakers. For educational institutions and organizations, integrating artificial intelligence (AI) tools into entrepreneurship education programs is essential to enhance students' entrepreneurial capabilities, creativity, and decision-making skills. The integration content includes data analysis, business simulations, digital marketing platforms, and virtual advisory systems to foster innovative thinking and digital competencies. Simultaneously, experiential learning through hands-on projects and case studies on entrepreneurship can increase students' perceived usefulness of AI, thereby reinforcing entrepreneurial intention. Moreover, emphasis should be placed on digital ethics and responsible AI usage to address issues such as data privacy, algorithmic bias, and the social impact of AI.

For policymakers, it is essential to support digital transformation in education through funding, infrastructure investment, and public–private partnerships, thereby bridging the gap between training needs and labor market requirements. These measures enable educational institutions to effectively implement AI integration in entrepreneurship education while enhancing the quality and impact of their programs. Standardized guidelines for AI-integrated entrepreneurship education and the development

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of incubators, acceleration programs, and digital training initiatives are recommended to empower young entrepreneurs and prepare them for digital entrepreneurship in the modern economy. By leveraging AI tools and supporting digital transformation, educators and policymakers can strengthen students' entrepreneurial intentions, contributing to Hai Phong City's vision of becoming a leading entrepreneurial hub and promoting regional economic growth through digital entrepreneurship.

The study's results support Hypothesis H4, indicating that artificial intelligence (AI) plays a partial mediating role in the relationship between entrepreneurship education (EED) and entrepreneurial intention (EI). Specifically, the indirect effect EED → AI → EI is statistically significant, while the direct effect EED → EI remains significant after including AI as a mediator, though it does not fully substitute the direct impact of EED. These findings suggest that integrating AI into entrepreneurship education can enhance the effectiveness of fostering entrepreneurial intention among students while they are still in university.

In practice, considering AI as a learning and business development factor through data analysis, simulations, digital assistants, and recommendation systems enables students to engage in entrepreneurship experiences closely aligned with real-world conditions, thereby increasing the likelihood of success and sustaining long-term business ventures. Furthermore, AI competencies developed within the academic environment can continue to support students post-graduation, facilitating a sustainable transition from student to entrepreneur.

To maximize the mediating role of AI between entrepreneurship education (EED) and entrepreneurial intention (EI), economics students need to be equipped with competencies to effectively leverage AI. At the institutional level, universities should design and implement AI-based courses and projects, AI-applied entrepreneurship competitions, incubator programs, and mentorship initiatives linked to entrepreneurship, while providing guidance on ethical AI usage, including transparency, fairness, and data security. In summary, integrating AI into entrepreneurship education not only enhances students' entrepreneurial intention but also bridges the gap between theoretical knowledge and practical application [30, 50].

Our analysis indicates that AI has a significant impact on entrepreneurial intention, as it provides substantial support and efficiency for students in business development. AI assists young entrepreneurs in problem-solving, decision-making, strategy formulation, and offering alternative perspectives on challenges. In the modern era, AI not only delivers guidance but also functions as a virtual mentor, providing features such as business presentation coaching, personalized feedback, and product evaluation.

Artificial intelligence (AI) offers numerous advantages for students in the context of entrepreneurship education, particularly when launching a business requires comprehensive preparation across multiple domains, which can be challenging. AI provides a range of supportive features for students, such as guidance in developing business plans, market and competitor analysis, marketing strategy formulation, financial management, and attracting investors. Furthermore, AI assists students by offering insights into legal aspects, fostering product innovation, improving time management and planning, enhancing soft skills, and supporting motivation, thereby helping students navigate their entrepreneurial endeavors.

6. Conclusion

This study examined the mediating role of artificial intelligence (AI) between entrepreneurship education and entrepreneurial intention using a structural equation modeling (SEM) approach processed with SmartPLS 3 software. Reliability and convergent validity tests confirmed that the data met the necessary requirements. The findings indicate that entrepreneurship education significantly influences both the adoption of AI and entrepreneurial intention. Furthermore, AI serves as an effective mediator, strengthening the relationship between entrepreneurship education and the entrepreneurial intention of economics students in Hai Phong City.

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Compared to previous studies, this research highlights the role of artificial intelligence (AI) in enhancing entrepreneurial competencies. While earlier studies have demonstrated AI's contributions to business decision-making and opportunity recognition, our findings emphasize its specific role in reinforcing the impact of entrepreneurship education on students' entrepreneurial intentions. This underscores the potential of AI as a valuable tool for improving entrepreneurship education outcomes.

As AI becomes increasingly integrated into education, institutions must proactively guide its implementation to maximize benefits while addressing ethical considerations. AI enables students to conduct more precise data-driven analyses and improve business decision-making processes. However, ethical considerations and digital literacy must remain top priorities to ensure that AI is used responsibly to support business growth rather than replace critical thinking and problem-solving skills.

This study underscores the importance of optimizing entrepreneurship education and applying AI to reduce post-graduation unemployment and support young entrepreneurs. However, the scope of this research is limited to students in Hai Phong City, which may affect the generalizability of the findings to other regions. Additionally, the study's focus on the role of AI in entrepreneurship education highlights the need for further in-depth research. Future studies should expand on these findings by examining the impact of AI in diverse educational and cultural contexts, thereby providing a more comprehensive understanding of AI's influence on entrepreneurial intention.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

[1] M. K. Aga, "The mediating role of perceived behavioral control in the relationship between entrepreneurship education and entrepreneurial intentions of university students in Ethiopia," *Journal of Innovation and Entrepreneurship*, vol. 12, no. 1, p. 32, 2023. https://doi.org/10.1186/s13731-023-00297-w

[2] J. Drennan and B. Watson, "Situational factors and entrepreneurial intentions SEE PROFILE," 2003. https://www.researchgate.net/publication/43464881

[3] N. X. Hiệp, T. H. Thanh, and N. T. Y. Nhi, "Factors affecting the start-up intention of university students in economics in Ho Chi Minh City," *Journal of Finance & Marketing Research*, vol. 51, pp. 120–126, 2019. https://doi.org/10.52932/jfm.vi51.120

[4] T. Ncanywa and N. Dyantyi, "The role of entrepreneurship education in higher education institutions," *E-Journal of Humanities, Arts and Social Sciences*, vol. 3, no. 11, pp. 75-89, 2022. https://doi.org/10.38159/ehass.2022sp3117

[5] T. Davey, P. Hannon, and A. Penaluna, *Entrepreneurship education and the role of universities in entrepreneurship: Introduction to the special issue*. London, England: SAGE Publications Sage UK, 2016.

[6] B. Tai Chinh and N. Xuat Ban, "Proceedings of the scientific seminar on real estate human resource training and application-oriented valuation," in *Conference Proceedings*, 2020.

[7] T. N. Chat, "Opportunities and challenges for Vietnam's startup ecosystem in the context of increasing international economic integration," *International Journal of Management and Economics*, vol. 88, pp. 1–12, 2016.

[8] H. Etzkowitz, "Anatomy of the entrepreneurial university," *Social Science Information*, vol. 52, no. 3, pp. 486-511, 2013. https://doi.org/10.1177/0539018413485832

[9] S. Sanyal and A. Al Mashani, "Entrepreneurial intention of university students in sultanate of Oman–a study of Dhofar University," *Journal of Contemporary Trends in Business and Information Technology*, vol. 5, no. 1, pp. 16-31, 2018.

[10] F. Kong, L. Zhao, and C.-H. Tsai, "The relationship between entrepreneurial intention and action: The effects of fear of failure and role model," *Frontiers in Psychology*, vol. 11, p. 229, 2020. https://doi.org/10.3389/fpsyg.2020.00229

[11] P. Zvavahera, F. Chigora, and R. Tandi, "Entrepreneurship: An engine for economic growth," *International Journal of Academic Research in Business and Social Sciences*, vol. 8, no. 11, pp. 55-66, 2018.

[12] United Nations Conference on Trade and Development (UNCTAD), *Digital economy report 2021: Cross-border data flows and development – For whom the data flow*. Geneva: United Nations, 2021.

[13] I. Ajzen, *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley, 1975.

[14] M. Fishbein and A. B. Icek, *Attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley, 1975.

[15] D. Trafimow, "The theory of reasoned action: A case study of falsification in psychology," *Theory & Psychology*, vol. 19, no. 4, pp. 501-518, 2009. https://doi.org/10.1177/0959354309336319

[16] N. Krueger, "The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability," *Entrepreneurship Theory and Practice*, vol. 18, no. 1, pp. 5-21, 1993.

[17] E. R. Thompson, "Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric," *Entrepreneurship Theory and Practice*, vol. 33, no. 3, pp. 669-694, 2009. https://doi.org/10.1111/j.1540-6520.2009.00321.x

[18] T. H. V. Bui, T. L. T. Nguyen, M. D. Tran, and T. A. T. Nguyen, "Determinants influencing entrepreneurial intention among undergraduates in universities of Vietnam," *The Journal of Asian Finance, Economics and Business*, vol. 7, no. 7, pp. 369-378, 2020. https://doi.org/10.13106/jafeb.2020.vol7.no7.369

[19] W. Nowiński, M. Y. Haddoud, D. Lančarič, D. Egerová, and C. Czeglédi, "The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries," *Studies in Higher Education*, vol. 44, no. 2, pp. 361-379, 2019. https://doi.org/10.1080/03075079.2017.1365359

[20] L. Lee and P. K. Wong, *Entrepreneurship education—A compendium of related issues*. Boston, MA: Springer, 2006.

[21] D. De Faoite, C. Henry, K. Johnston, and P. van der Sijde, "Education and training for entrepreneurs: A consideration of initiatives in Ireland and the Netherlands," *Education+ Training*, vol. 45, no. 8/9, pp. 430-438, 2003. https://doi.org/10.1108/00400910310508829

[22] National Agency for Science and Technology Information, *Center for science and technology information and statistics summary 7/2018: Current entrepreneurship education and training in the world*. Hanoi, Vietnam: Ministry of Science and Technology, 2018.

[23] P. Handayati, D. Wulandari, B. E. Soetjipto, A. Wibowo, and B. S. Narmaditya, "Does entrepreneurship education promote vocational students' entrepreneurial mindset?," *Heliyon*, vol. 6, no. 11, p. e05426, 2020.

[24] E. Gurel, L. Altinay, and R. Daniele, "Tourism students' entrepreneurial intentions," *Annals of Tourism Research*, vol. 37, no. 3, pp. 646-669, 2010. https://doi.org/10.1016/j.annals.2009.12.003

[25] S. S. Solórzano Solórzano *et al.*, "Acceptance of artificial intelligence and its effect on entrepreneurial intention in foreign trade students: A mirror analysis," *Journal of Innovation and Entrepreneurship*, vol. 13, no. 1, p. 59, 2024. https://doi.org/10.1186/s13731-024-00412-5

[26] Q. Mu and Y. Zhao, "Transforming entrepreneurship education in the age of artificial intelligence," *Resources Data Journal*, vol. 3, pp. 2-20, 2024. https://doi.org/10.50908/rdj.3.0_2

[27] A. Desai, "Exploring business schools' role in artificial intelligence education," *Technology & Innovation*, vol. 23, no. 1, pp. 15-25, 2024. https://doi.org/10.21300/23.1.2022.3

[28] J. Kengam, "Artificial intelligence in education," *Research Gate*, vol. 18, pp. 1-4, 2020. https://doi.org/10.13140/RG.2.2.16375.65445

[29] M. Sarstedt, C. M. Ringle, and J. F. Hair, *Partial least squares structural equation modeling*. Cham: Springer, 2021.

[30] J. Park and C. S. Sung, "The impact of generative ai tools on the development of entrepreneurial career intentions," in *ACIS 2023 Proceedings (International Conference on Information Systems), Association for Information Systems*, 2023.

[31] W. Margaretha, K. Ariesia, and O. R. Yustian, "Artificial intelligence and entrepreneurship education: Increasing entrepreneurial intentions among future entrepreneurs in Bandung city," *Journal of Theoretical and Applied Information Technology*, vol. 103, no. 7, pp. 2813-2824, 2025.

[32] D. Chalmers, N. G. MacKenzie, and S. Carter, "Artificial intelligence and entrepreneurship: Implications for venture creation in the fourth industrial revolution," *Entrepreneurship Theory and Practice*, vol. 45, no. 5, pp. 1028-1053, 2021.

[33] A. Moustafa, M. A. Ragheb, H. Ayad, and K. AbdelAziz, "The Impact of generative AI adoption on digital entrepreneurship intentions among egyptian university students: Examining the mediating roles of entrepreneurial mindset and business model innovation," *Pakistan Journal of Life & Social Sciences*, vol. 23, no. 1, pp. 8566-8579, 2025. https://doi.org/10.57239/pjlss-2025-23.1.00667

[34] C. M. Judd and D. A. Kenny, "Process analysis: Estimating mediation in treatment evaluations," *Evaluation Review*, vol. 5, no. 5, pp. 602-619, 1981. https://doi.org/10.1177/0193841X8100500502

[35] H. N. Bui and C. D. Duong, "ChatGPT adoption in entrepreneurship and digital entrepreneurial intention: A moderated mediation model of technostress and digital entrepreneurial self-efficacy," *Equilibrium. Quarterly Journal of Economics and Economic Policy*, vol. 19, no. 2, pp. 391–428, 2024.

[36] S. Rahi, "Structural equation modeling using SmartPLS," 2012. https://www.researchgate.net/publication/328560499

[37] A. Dabbous and N. M. Boustani, "Digital explosion and entrepreneurship education: Impact on promoting entrepreneurial intention for business students," *Journal of Risk and Financial Management*, vol. 16, no. 1, p. 27, 2023. https://doi.org/10.3390/jrfm16010027

[38] S. B. Green, R. W. Lissitz, and S. A. Mulaik, "Limitations of coefficient alpha as an index of test unidimensionality1," *Educational and Psychological Measurement*, vol. 37, no. 4, pp. 827-838, 1977. https://doi.org/10.1177/001316447703700403

[39] W. Tang, Y. Cui, and O. Babenko, "Internal consistency: Do we really know what it is and how to assess it," *Journal of Psychology and Behavioral Science*, vol. 2, no. 2, pp. 205-220, 2014.

[40] Y. Chen and C. Bellavitis, "Blockchain disruption and decentralized finance: The rise of decentralized business models," *Journal of Business Venturing Insights*, vol. 13, p. e00151, 2020. https://doi.org/10.1016/j.jbvi.2019.e00151

[41] J. M. Cortina, "What is coefficient alpha? An examination of theory and applications," *Journal of Applied Psychology*, vol. 78, no. 1, pp. 98-104, 1993. https://doi.org/10.1037/0021-9010.78.1.98

[42] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis*, 8th ed. Boston, MA: Cengage Learning, 2019.

[43] I. Ajzen, *From intentions to actions: A theory of planned behavior. In Action control: From cognition to behavior*. Berlin, Heidelberg: Springer Berlin Heidelberg, 1985.

[44] Y. Haji-Othman and M. S. S. Yusuff, "Assessing reliability and validity of attitude construct using partial least squares structural equation modeling (PLS-SEM)," *International Journal of Academic Research in Business and Social Sciences*, vol. 12, no. 5, pp. 378 – 385, 2022. http://dx.doi.org/10.6007/IJARBSS/v12-i5/13289

[45] E. Roemer, F. Schuberth, and J. Henseler, "HTMT2–an improved criterion for assessing discriminant validity in structural equation modeling," *Industrial Management & Data Systems*, vol. 121, no. 12, pp. 2637-2650, 2021. https://doi.org/10.1108/IMDS-02-2021-0082

[46] S. Kwak, "Are only p-values less than 0.05 significant? A p-value greater than 0.05 is also significant!," *Journal of Lipid and Atherosclerosis*, vol. 12, no. 2, pp. 89-95, 2023. https://doi.org/10.12997/jla.2023.12.2.89

[47] N. X. Hiệp, T. H. Thanh, and N. T. Yến Nhi, "Factors affecting the intention to start a business of economic students at universities in Ho Chi Minh City," *Tạp chí Nghiên cứu Tài chính – Marketing*, vol. 51, pp. 55-65, 2019. https://doi.org/10.52932/jfm.vi51.120

[48] D. V. Chung, H. V. Ha, and T. Q. Tuyen, "The impact of higher education on entrepreneurship: An empirical study of the provinces in Vietnam," *VNU Journal of Economics and Business*, vol. 5, no. 1, pp. 57–64, 2025. https://doi.org/10.57110/vnu-jeb.v5i1.419

[49] O. Kusnadi, R. Rugaiyah, and R. Madhakomala, "Entrepreneurship education as a movement," *INTELEKTIUM*, vol. 3, no. 1, pp. 120-126, 2022. https://doi.org/10.37010/int.v3i1.691

[50] L. Chen, D. Ifenthaler, J. Y.-K. Yau, and W. Sun, "Artificial intelligence in entrepreneurship education: a scoping review," *Education+ Training*, vol. 66, no. 6, pp. 589-608, 2024. https://doi.org/10.1108/ET-05-2023-0169