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The Influence of ChatGPT Usage and Entrepreneurship Education on Students' Entrepreneurial Intentions with Innovative Behaviour as a Mediating Variable : The Perspective of Social Cognitive and Experiential Learning Theory

Sutrisno[1*], Siminto[2], Syamsuri[3], Pilifus Junianto[4], Susatyo Adhi Pramono[5]
[1*]Department of Management, Faculty of Economics and Business, Universitas PGRI Semarang, Indonesia.
[2]Department of Islamic Education Management, Faculty of Tarbiyah and Teaching Sciences, IAIN Palangka Raya, Indonesia.
[3]Department of Economics Education, Faculty of Teacher Training and Education, Universitas Tanjungpura, Indonesia.
[4]Department of Management, Faculty of Management, STIE Bentara Persada Batam, Indonesia.
[5]Department of Civil Engineering, Faculty of Engineering, Universitas Wijayakusuma Purwokerto, Indonesia.
*Corresponding Author. Email: sutrisno@upgris.ac.id

Abstract: This study aims to examine a model that integrates social cognitive theory and experiential learning theory in the context of using ChatGPT and entrepreneurship education to enhance students' entrepreneurial intention, considering the mediating role of innovative behaviour. This research uses a quantitative approach with a survey method using SEM-PLS data analysis to explore the relationship between the relevant variable. Purposive sampling technique is used to select samples that meet specific criteria. The research sample consisted of 139 students in Yogyakarta, Indonesia, with data collected via an online questionnaire. The study results indicate that the use of ChatGPT, entrepreneurship education, and innovative behaviour positively and significantly influence students' entrepreneurial intentions, in line with social cognitive and experiential learning theory. Innovative behaviour also plays a significant role as a mediating variable. This research suggests that educational institutions can further optimize the use of technology, such as ChatGPT, in entrepreneurship curricula and provide more practical experiences to strengthen students' entrepreneurial intentions.

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Introduction

In the increasingly interconnected and technologically driven era of globalization, the presence of artificial intelligence, such as ChatGPT, has become increasingly crucial and prominent across various aspects of life, including education and entrepreneurship. ChatGPT, as an AI-based system, is capable of providing human-like responses and interactions, which can be applied to enhance learning experiences through adaptive and personalized learning, as well as support the development of entrepreneurial skills among students (Viorennita et al., 2023). The existence of ChatGPT enables more intuitive and responsive interactions, opening

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opportunities for idea exploration and creativity, essential in preparing future generations to tackle complex and dynamic global challenges.

On a global scale, the use of artificial intelligence technology has transformed the landscape of education and learning. Systems like ChatGPT have been implemented in various educational contexts to enhance learning effectiveness, facilitate access to information, and foster critical thinking skills and creativity. For instance, in developed countries like Japan, AI technology is used in learning applications that personalize learning materials according to each student's understanding level, significantly improving their learning outcomes (Willis, 2024). In the United States, AI-based platforms have been utilized in virtual classrooms to provide adaptive individual assistance to students, tailoring their learning experiences to unique needs (Bhutoria, 2022). Additionally, in the UK, AI technology is employed to develop online learning platforms that deliver academic content while teaching entrepreneurial skills through business simulations and virtual mentoring to students (Yasin et al., 2022).

In Indonesia, entrepreneurial education is increasingly recognized as a crucial element in preparing the younger generation to face increasingly complex and dynamic global economic challenges. However, there remains a significant gap between the theoretical knowledge taught in classrooms and the practical experience essential in actual business environments. Students often struggle to apply their theoretical knowledge in concrete business contexts, coupled with challenges stemming from a lack of motivation to engage in entrepreneurship (Heryadi et al., 2024). This underscores the need for a more holistic and integrated approach to entrepreneurial education, one that focuses on theory while providing adequate practical experiences to help students develop the necessary entrepreneurial skills and attitudes to succeed in a competitive job market.

Yogyakarta, as one of the primary education hubs in Indonesia, shows significant potential to develop a dynamic entrepreneurial ecosystem. Data indicates that approximately 59% of university students in Yogyakarta have intentions in entrepreneurship, yet only about 33% take concrete steps to start their own businesses (Sutrisno et al., 2024). The main challenges faced include limited access to experienced entrepreneurial mentors, inadequate supportive infrastructure, and a lack of an academic environment that fosters innovation and business experimentation. Furthermore, another study (Novariana & Andrianto, 2020) reveals that the level of innovative behavior necessary to create added value and address challenges in the local market still needs improvement within the entrepreneurship education curriculum in Yogyakarta. In this context, stronger integration of entrepreneurship education with academic curricula and the development of systematic mentorship programs must be comprehensively implemented to enhance students' intentions and capabilities in sustainably managing their own businesses.

Previous studies have broadly indicated that integrating technology and entrepreneurship education influences students' entrepreneurial intentions. (Atrup et al., 2023) investigated the effects of entrepreneurship education on 100 students in Subang District, highlighting significant positive outcomes. They found that such education enhances students' comprehension of business prospects, resource utilization, and ability to manage uncertainties. In contrast, (Listyaningsih et al., 2023), in a study of 180 university students in Bandar Lampung, suggested that entrepreneurship education does not distinctly enhance entrepreneurial motivation. Moreover, they found no significant impact of entrepreneurial motivation on entrepreneurial curiosity, nor does it serve as a clear mediator between entrepreneurship education and entrepreneurial intentions. This implies that students perceive entrepreneurship education in Bandar Lampung as routine coursework, lacking intrinsic

motivation to foster entrepreneurial intentions. Furthermore, technology plays a pivotal role in shaping students' entrepreneurial intentions through various critical mechanisms. According to (Hadiyati & Fatkhurahman, 2023), technology facilitates access to current market information, business opportunities, and essential entrepreneurial skills. This helps them better understand the potential and challenges of starting their own business. Despite providing access to extensive information and resources, technology alone may not suffice; students may still require deep knowledge and entrepreneurial skills to stimulate their intentions. Technology itself is not enough to replace the need for substantial entrepreneurship education (Lynch et al., 2021).

Although there have been studies linking technology in education and factors influencing entrepreneurial intentions, there has been no systematic research on how the combined use of ChatGPT and entrepreneurship education can influence students' innovative behavior as a mediator to enhance their intentions in entrepreneurship, especially in local contexts like Yogyakarta. On the other hand, inconsistent findings from previous research have drawn researchers' attention to reassess using different concepts and theories. This highlights the originality and necessity of conducting this research.

In explaining the relationship between the ChatGPT concept and the novelty of this research, this study utilizes Social Cognitive Theory, developed by Albert Bandura in the 1960s and continually evolving throughout his career. This theory integrates cognitive, behavioral, and environmental elements in the processes of learning and personal development (Bandura, 1986). It emphasizes that individuals learn not only through direct experience (behavioral), but also through observing others (observational learning) and evaluating the consequences of their own behavior (self-efficacy). In the context of using ChatGPT in entrepreneurship education, this theory is relevant to understanding how interaction with this technology can influence students' self-efficacy in facing entrepreneurial challenges and risks:

1) *Observational Learning*: Measuring the level of understanding and improvement of students' entrepreneurial skills after observing or interacting with ChatGPT in the learning context.
2) *Self-Efficacy*: Scale measurement to evaluate students' self-confidence in their ability to manage and overcome business challenges after interacting with ChatGPT.
3) *Environmental Influences*: Evaluation of how the learning environment reinforced by the use of ChatGPT affects students' attitudes and motivations towards entrepreneurship.

Second, Experiential Learning Theory. Proposed by David Kolb in 1984, this theory stems from his research in educational psychology and learning (Kolb, 1984). Experiential Learning Theory emphasizes that learning occurs through a four-stage cycle: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation. This theory is crucial in the context of entrepreneurship education as it highlights the importance of direct experience and structured reflection in strengthening students' entrepreneurial learning:

1) *Concrete Experience*: Students' participation in direct experiences such as business simulations or case studies to develop their understanding of business practices.
2) *Reflective Observation*: Students' reflective evaluation of these experiences to deepen their understanding of business processes and entrepreneurship.
3) *Abstract Conceptualization*: How students conceptualize the knowledge and skills gained in the context of entrepreneurship to prepare them for complex business situations.

4) *Active Experimentation*: Implementation by students of the knowledge and skills they have learned in real business situations to test and develop new ideas in an entrepreneurial context.

Third, the Componential Theory of Creativity. This theory, developed by Teresa Amabile in 1983, focuses on the psychology of creativity and innovation management (Amabile, 1983a). The Componential Theory of Creativity identifies three main components that influence individual creativity: domain-relevant skills, creative thinking skills, and intrinsic motivation. In the context of your research, this theory is relevant to understanding how these factors can encourage students to develop innovative behavior in the entrepreneurship context:

1) *Domain-relevant Skills*: Measuring specific skills required in business and entrepreneurship contexts that can generate innovative solutions.
2) *Creative Thinking Skills*: Evaluating students' abilities to generate new ideas and creative solutions when facing business challenges.
3) *Intrinsic Motivation*: Measuring the level of intrinsic motivation among students in pursuing goals related to innovation and developing new ideas in the entrepreneurial context.

Based on the theories used in this research, the research hypothesis assumes that the use of ChatGPT and entrepreneurship education significantly impacts students' entrepreneurial intentions with innovative behavior as a mediating variable. Previous studies indicate that the use of technology and AI platforms can enhance individuals' intentions and readiness to engage in entrepreneurial activities. Research by (Chen et al., 2024; Dabbous & Boustani, 2023) found that interaction with AI can broaden insights and provide necessary support for individuals to start their own businesses. The use of AI technology can enrich students' knowledge and learning experiences about business concepts and entrepreneurial strategies, directly increasing their intentions in entrepreneurship. In this study, the use of ChatGPT is expected to broaden students' perspectives on entrepreneurial opportunities in Yogyakarta and enhance their intentions in developing innovative business ideas.

Furthermore, research has shown that effective entrepreneurship education programs can significantly increase individuals' intentions in entrepreneurship. Studies by (Fayolle & Gailly, 2015) found that structured entrepreneurship education can influence attitudes, knowledge, and intentions to start a business. Entrepreneurship education provides a theoretical foundation, practical skills, and direct experiences necessary for students to develop their entrepreneurial intentions. This study highlights the importance of entrepreneurship education as a key factor that can mediate the positive influence of external factors such as the use of ChatGPT on increasing entrepreneurial intentions among students in Yogyakarta.

Lastly, innovative behavior, which encompasses the ability to generate new ideas, think creatively, and implement new solutions, is predicted to have a significant influence on students' entrepreneurial intentions. Students with innovative behavior are more likely to be interested in starting their own businesses because they see opportunities to apply their creative ideas in an entrepreneurial context (Anggraeny, 2023). Individuals with creative thinking skills and intrinsic motivation are inclined to be more capable and interested in pursuing innovative activities such as entrepreneurship (Francisco, 2017). Moreover, research has also shown that innovative behavior can serve as a crucial bridge between external factors (such as technology use and education) and outcomes like entrepreneurial intentions. Research by (Amabile, 1983b) emphasizes that a creativity-supportive environment can foster innovative behavior. In the context of Yogyakarta, where creative culture and

entrepreneurship are continually evolving, students with innovative behavior can be agents of change in generating new business ideas relevant to the local market. This study underscores the importance of innovative behavior as a mediating mechanism that explains how the use of ChatGPT and entrepreneurship education influence students' entrepreneurial intentions in Yogyakarta, focusing on the local context and creative culture.

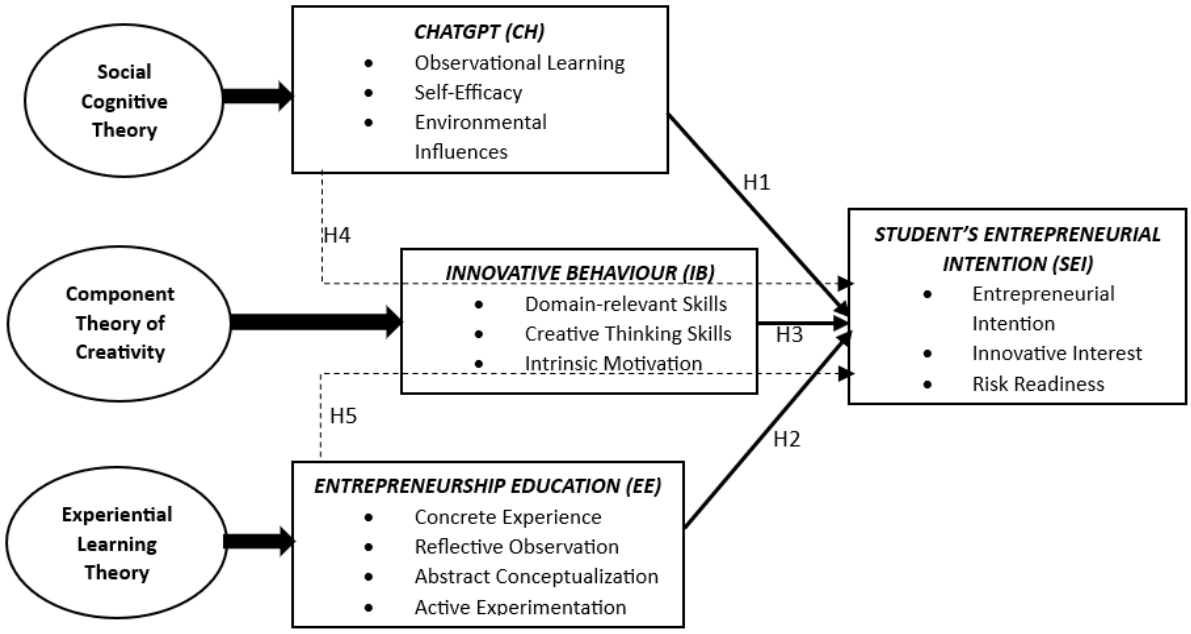

Figure 1. Research Framework

This study aims to investigate a model that integrates Social Cognitive Theory and Experiential Learning Theory within the context of utilizing ChatGPT and entrepreneurship education to enhance students' entrepreneurial intentions, with a particular focus on the mediating role of innovative behavior. Thus, this study is expected not only to provide insights into how technology and education can influence students' entrepreneurial interests but also into how innovative behavior can be enhanced to support entrepreneurship development among students.

Research Method

This study employs a quantitative approach as it requires collecting numerical data and statistics to meet scientific standards known for their empirical, objective, measurable, rational, and scientific characteristics (Igwenagu, 2016). In this research, ChatGPT usage and entrepreneurship education are considered external factors (independent variables), students' entrepreneurial intentions are viewed as the dependent variable influenced by these external factors, and innovative behavior is the mediating variable. This study employs a survey design with data collection conducted through an online questionnaire (Google Forms). The questionnaire is designed using Likert scales to measure students' perceptions of ChatGPT usage, entrepreneurship education, innovative behavior, and entrepreneurial intentions during the period from June to July 2024. The population in this study comprises undergraduate students in Yogyakarta City enrolled from 2021 to 2024, who have taken entrepreneurship courses, are active in entrepreneurship organizations both on and off-campus, and are tech-savvy in their learning processes. Purposive sampling technique is used to select samples that meet specific criteria. The sample consists of 139 students selected from 161 initial respondents who completed the online questionnaire.

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The data gathered were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) method, facilitated by SmartPLS 3.0 software. SEM-PLS analysis encompasses two main relationship categories: the outer model, which evaluates convergent validity, discriminant validity, and reliability of the measurements (Hair et al., 2011). Additionally, the inner model is assessed through R-square and Q-square analyses, alongside hypothesis testing to validate the proposed relationships.

Table 1. Characteristics of the Respondents

Demographic		Frequency	Percentage
Institution	Universitas Gadjah Mada	28	20.14%
	Universitas Negeri Yogyakarta	22	15.83%
	UMY	18	12.95%
	Universitas Ahmad Dahlan	16	11.51%
	UIN Sunan Kalijaga	10	7.19%
	UPN Veteran Yogyakarta	37	26.62%
	Etc	8	5.76%
	Total	139	100%
Year Class	2021	46	33.09%
	2022	63	45.32%
	2023	21	15.11%
	2024	9	6.47%
Gender	Male	72	51.80%
	Female	67	48.20%
	Total	139	100%
Age	17-23 years	102	73.38%
	24-30 years	37	26.62%
	31-37 years	0	0%
	>37 years	0	0%
	Total	139	100%
Subject	Economics	8	5.76%
	Accounting	11	7.91%
	Management	42	30.22%
	Communication Science	11	7.91%
	Business Administration	67	48.20%
	Total	139	100%
AI Usage	Yes	139	100%
	No	0	0%
	Total	139	100%
Location	Yogyakarta	139	100%

The survey data depicts the respondent profile from various higher education institutions in Yogyakarta. The majority of respondents come from Universitas Gadjah Mada, comprising approximately 15.83% of the sample, followed by Universitas Negeri Yogyakarta, Universitas Muhammadiyah Yogyakarta (UMY), and Universitas Ahmad Dahlan with similar percentages. Most respondents are from the 2021 and 2022 cohorts, reflecting a significant generational composition in this sample. In terms of gender, the survey shows balanced participation between males and females, with approximately 51.80% male respondents and 48.20% female respondents. The majority of respondents are aged between 17 to 23 years, indicating that the survey captures active young adults in an academic context. Academically, most respondents are majoring in Business Administration, followed by Management, reflecting dominant educational intentions and focuses among the respondents. All respondents use AI in their activities, indicating significant technology

adoption among students in Yogyakarta. Overall, this data provides a clear overview of the demographic and academic characteristics of the survey respondents originating from a specific geographic location, Yogyakarta.

Results and Discussion

Outer Model

In this study, the initial phase of SEM-PLS analysis involves assessing the outer model to ensure convergent validity, discriminant validity, and reliability.

Convergent Validity

Convergent validity requires that indicators within each construct demonstrate strong correlations. According to (Hair et al., 2011), when using SmartPLS 3.0 software to assess convergent validity of reflexive indicators, each manifest variable should have a loading factor exceeding 0.70. Table 2 displays the results, indicating that all indicators associated with the constructs meet this criterion with loading factor values greater than 0.70, confirming their validity.

Discriminant Validity

The assessment of discriminant validity involves comparing the square root of Average Variance Extracted (AVE) for each construct with the correlations between constructs. If the squared AVE value is higher than the correlation value, it supports discriminant validity (Hair et al., 2011). As shown in Table 3, the analysis confirms that the model satisfies the established criteria for discriminant validity.

Reliability Test

Reliability testing evaluates Cronbach's Alpha and Composite Reliability, where values above 0.60 indicate satisfactory results for constructs with reflexive indicators (Hair et al., 2011). Table 2 presents the reliability test outcomes, demonstrating that all Cronbach's Alpha and Reliability values exceed 0.60, affirming the reliability of the research constructs.

Table 2. Measurement Model Analysis

Variable	Item	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
ChatGPT (CH)	CH.1	0,814	0,892	0,841	0,622
	CH.2	0,786			
	CH.3	0,840			
Entrepreneurship Education (EE)	EE.1	0,806	0,864	0,853	0,618
	EE.2	0,844			
	EE.3	0,793			
	EE.4	0,847			
Inovative Behavior (IB)	IB.1	0,773	0,802	0,833	0,638
	IB.2	0,814			
	IB.3	0,736			
Student's Entrepreneurial Intention (SEI)	SEI.1	0,823	0,817	0,822	0,613
	SEI.2	0,737			
	SEI.3	0,893			

Table 3. Discriminant Validity

Var/Ind	CH	EE	IB	SEI
CH.1	**0,814**	0,431	0,422	0,467
CH.2	**0,786**	0,492	0,411	0,472
CH.3	**0,840**	0,405	0,476	0,406
EE.1	0,337	**0,806**	0,466	0,453
EE.2	0,444	**0,844**	0,431	0,489
EE.3	0,452	**0,793**	0,473	0,554

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Var/Ind	CH	EE	IB	SEI
EE.4	0,476	**0,847**	0,455	0,541
IB.1	0,419	0,452	**0,773**	0,488
IB.2	0,409	0,489	**0,814**	0,463
IB.3	0,422	0,431	**0,736**	0,428
SEI.1	0,458	0,492	0,448	**0,823**
SEI.2	0,448	0,477	0,418	**0,737**
SEI.3	0,481	0,456	0,438	**0,893**

Inner Model

The next phase in SEM-PLS analysis involves testing the inner model, utilizing R-square, Q-square, and hypothesis testing methodologies.

R-Square

R-square evaluates the extent to which exogenous constructs contribute to endogenous constructs. Table 4 displays an R-square value of 0.584, indicating that variables such as ChatGPT usage and entrepreneurship education explain 58.4% of the variance in innovative behavior. The remaining 41.6% variance is attributed to factors beyond the scope of this study. Additionally, an R-square value of 0.623 suggests that ChatGPT usage, entrepreneurship education, and innovative behavior collectively explain 62.3% of the variance in students' entrepreneurial intentions, with 37.7% of variance accounted for by external factors. According to Hair et al. (2011), R-square values above 0.50 signify that SEM models possess acceptable explanatory power, demonstrating moderate-to-strong explanatory capability.

Q^2 Predictive Relevance

The assessment of predictive relevance involves calculating the Q^2 value, where a value greater than 0 indicates adequate predictive capability (Hair et al., 2011). The formula for Q^2 computation is:

$Q^2 = 1 – (1 – R1^2) \times (1 – R2^2)$
$Q^2 = 1 – (1 – 0,584) \times (1 – 0,623)$
$Q^2 = 1 – 0,156$
$Q^2 = 0,843$

A Q^2 value of 0.844 signifies the model's effectiveness in accurately predicting observed values (Hair et al., 2011).

Hypothesis Testing

Hypothesis testing evaluates whether path coefficients are statistically significant, with a threshold typically set at a P-value less than 0.05 to indicate a positive correlation (Hair et al., 2011). The results of hypothesis testing are presented in Table 5.

Table 4. R-Square Test

No	Variable	R-Square
1	IB	0,584
2	SEI	0,623

Table 5. Hypothesis Testing Results

Hypothesis	Path Coefficient	T Value	P Values	Decision
CH -> SEI	0,329	5,215	0,000	**Significant**
EE -> SEI	0,272	6,822	0,000	**Significant**
IB -> SEI	0,336	5,186	0,000	**Significant**
CH -> IB -> SEI	0,157	2,310	0,005	**Significant**
EE -> IB -> SEI	0,174	2, 993	0,001	**Significant**

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The first hypothesis in Table 5 above indicates that the use of ChatGPT among students in Yogyakarta has a positive and significant impact on their entrepreneurial intentions. This finding supports previous research results that found similar facts (Ausat et al., 2023). Based on Bandura's Social Cognitive Theory (SCT), the use of ChatGPT plays a crucial role through several mechanisms, namely Observational Learning, Self-Efficacy, and Environmental Influences. ChatGPT facilitates observational learning by providing various examples and simulations of real business situations, allowing students to indirectly learn entrepreneurial skills. Additionally, ChatGPT enhances students' self-efficacy by providing constructive feedback and continuous support, making them more confident in developing and realizing their business ideas. Furthermore, ChatGPT also provides easy access to up-to-date business information and knowledge, creating a supportive and motivating learning environment (Lai et al., 2023). This access helps students understand market dynamics, consumer trends, and relevant business strategies, ultimately increasing their intentions and readiness to engage in entrepreneurship. With this support, ChatGPT can enhance students' entrepreneurial intention, innovative intentions, and readiness to take risks. They become more motivated to start their own businesses, think creatively in developing innovative ideas, and are better prepared to face business risks. The integration of technologies like ChatGPT in entrepreneurship education shows great potential in creating a generation of young entrepreneurs who are innovative and ready to face future challenges.

The second hypothesis in Table 5 above indicates that entrepreneurship education plays a significant role in enhancing students' entrepreneurial intentions in Yogyakarta. This finding supports previous research results that found similar facts (Diawati et al., 2024). Referring to Kolb's Experiential Learning Theory (ELT), effective entrepreneurship education involves four main components: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation. Through this approach, students can develop the skills and intentions needed to become successful entrepreneurs. Concrete Experience allows students to engage directly in practical activities relevant to entrepreneurship. For example, they can participate in business projects, intern at start-up companies, or manage small businesses. These real-world experiences provide practical insights and direct knowledge about business dynamics. Reflective Observation encourages students to reflect on their experiences, evaluate what they have learned, and identify areas for improvement. This reflective process is crucial for understanding success and failure in a business context, which helps them develop better strategies in the future. Abstract Conceptualization involves the development of concepts and theories based on experience and reflection. In entrepreneurship education, students are taught to connect their practical experiences with existing business theories. This helps them build a strong conceptual framework to support their business decisions. Active Experimentation encourages students to test theories and concepts they have learned in real-world situations. They are encouraged to try new approaches, innovate, and take calculated risks. Students can find creative solutions to business problems and test the validity of their ideas through this active experimentation.

The positive impact of entrepreneurship education on students' entrepreneurial intentions is evident through the enhancement of entrepreneurial intention, innovative intentions, and risk readiness. Entrepreneurship education effectively motivates students to launch their own businesses by enhancing their readiness and confidence through acquired skills and knowledge (Satriadi et al., 2022). They also become more interested in innovating and creating unique business ideas, as well as more prepared to face the risks associated with entrepreneurship. Thus, entrepreneurship education that integrates real experiences,

reflection, conceptualization, and active experimentation has a significant impact on enhancing students' entrepreneurial intentions in Yogyakarta. Integrating this approach into the education curriculum can produce a generation of young entrepreneurs who are creative, innovative, and ready to face business challenges in the future.

The third hypothesis in Table 5 above indicates that innovative behavior significantly impacts the entrepreneurial intentions of students in Yogyakarta. This finding supports previous research results that found similar facts (Oktavio et al., 2023). Based on Teresa Amabile's Componential Theory of Creativity, innovative behavior includes skills relevant to specific domains (Domain-relevant Skills), creative thinking skills (Creative Thinking Skills), and intrinsic motivation (Intrinsic Motivation). Together, these three elements contribute significantly to students' entrepreneurial intentions, measured through entrepreneurial intention, innovative intentions, and risk readiness. Students with domain-relevant skills in specific business areas feel more confident and capable of identifying business opportunities and developing effective solutions. These skills provide a strong foundation for them to start their ventures. Creative thinking skills enable students to generate new and innovative ideas necessary to create added value and compete in the market. Meanwhile, intrinsic motivation drives students to entrepreneurship because they feel challenged and enjoy the process of creating and managing businesses.

The combination of domain-relevant skills, creative thinking skills, and intrinsic motivation creates a conducive environment for students to develop their entrepreneurial intentions. Students engaged in innovative behavior tend to have a strong intention to start a business, are interested in exploring innovative business ideas, and are more prepared to face the risks associated with entrepreneurship (Suryadi et al., 2024). Innovative behavior helps them feel more prepared and motivated to take the first steps in entrepreneurship and more resilient to obstacles and difficulties they may encounter. Thus, innovative behavior has a positive and significant impact on students' entrepreneurial intentions in Yogyakarta. Education and training that encourage the development of relevant skills, creative thinking skills, and intrinsic motivation can enhance students' intentions and readiness for entrepreneurship. Integrating this approach into the education curriculum will produce a generation of young entrepreneurs who are innovative, creative, and ready to face challenges in the business world.

The fourth and fifth hypotheses in Table 5 above indicate that innovative behavior plays a significant role in strengthening the relationship between the use of ChatGPT, entrepreneurial education, and entrepreneurial intentions among students in Yogyakarta. Both the use of ChatGPT and entrepreneurial education have been found to positively impact entrepreneurial intentions, but this influence becomes more significant when innovative behavior is present as a mediating variable. ChatGPT provides broad access to information, simulations, and business examples that help students develop entrepreneurial skills and understanding. In this process, students learn to observe and emulate successful business strategies, enhance their self-confidence, and grasp business dynamics. ChatGPT encourages students to think creatively and find innovative solutions to business challenges (Urban et al., 2024). Meanwhile, entrepreneurial education provides the practical and theoretical foundation needed to understand and apply business concepts (Zen et al., 2023). Students can hone their entrepreneurial skills through direct experience, reflection, and active experimentation. This education also intrinsically motivates students by offering real challenges and opportunities to innovate.

When these two interventions are combined, innovative behavior emerges as a significant outcome. Students using ChatGPT and engaging in entrepreneurial education

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show improved abilities in creative thinking, develop relevant skills, and self-motivate to innovate. This innovative behavior then mediates the impact of using ChatGPT and entrepreneurial education on entrepreneurial intentions With innovative behavior as a mediating variable, students become more motivated to start ventures, more interested in new and innovative business ideas, and better prepared to face risks in entrepreneurship. This indicates that innovative behavior not only enhances the direct effects of using ChatGPT and entrepreneurial education but also strengthens overall entrepreneurial intentions. The integration of technologies like ChatGPT and comprehensive entrepreneurial education can create a conducive environment for fostering innovative behavior. Integrating innovative behavior into entrepreneurship education has significant implications for the development of young entrepreneurs. Educational programs can cultivate students' creativity and problem-solving skills, ensuring they are well-prepared to tackle future business challenges by emphasizing the role of innovative behavior. This approach not only enhances curriculum and teaching methods but also influences assessment practices by prioritizing creative idea generation and adaptability. Additionally, support structures like mentorship and innovation labs become essential in fostering an environment conducive to entrepreneurial experimentation. Ultimately, focusing on innovative behavior equips students with the tools needed to drive economic growth and address complex business problems, contributing to a more dynamic and resilient business landscape.

Conclusion

This study finds that the use of ChatGPT and entrepreneurial education has a positive and significant impact on students' entrepreneurial intentions in Yogyakarta. These results support previous research and relevant theories such as Bandura's Social Cognitive Theory (SCT) and Kolb's Experiential Learning Theory (ELT). ChatGPT assists students in observational learning, enhances self-efficacy, and provides a supportive and motivating environment. Meanwhile, entrepreneurial education engages students in practical experiences, reflection, conceptualization, and active experimentation, effectively enhancing their intentions and readiness for entrepreneurship. Furthermore, innovative behavior proves to play a significant mediating role in strengthening the relationship between the use of ChatGPT, entrepreneurial education, and students' entrepreneurial intentions. Students who develop innovative behavior show improvements in entrepreneurial intention, innovative intentions, and readiness to face risks. Innovative behavior helps students feel more prepared and motivated to start their own ventures, as well as more resilient against barriers and challenges they may encounter.

Recommendation

Integrating technology such as ChatGPT into the entrepreneurship curriculum at educational institutions in Yogyakarta should be enhanced to provide students with access to information, business simulations, and constructive feedback. Entrepreneurial education programs should continually emphasize practical experiences, reflection, conceptualization, and active experimentation to develop strong business skills and knowledge. Education and training should be designed to foster innovative behavior by offering real challenges, opportunities for innovation, and environments that support intrinsic motivation. Policymakers should support this approach by ensuring that curricula incorporate cutting-edge technologies and practical experiences, facilitating partnerships between educational institutions and industry practitioners for internships and real-world insights. This comprehensive strategy aims to produce a generation of young entrepreneurs who are creative, innovative, and equipped to

tackle future business challenges, thus contributing to economic growth and innovation in the region.

References

Amabile, T. M. (1983a). *The Social Psychology of Creativity*. Springer New York. https://doi.org/10.1007/978-1-4612-5533-8

Amabile, T. M. (1983b). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, *45*(2), 357–376. https://doi.org/10.1037/0022-3514.45.2.357

Anggraeny, C. R. (2023). Impact of Creativity on Students' Entrepreneurial Intention: Study Case on Jakarta. *Journal of Business, Management, and Social Studies*, *3*(2), 79–93. https://doi.org/10.53748/jbms.v3i2.71

Atrup, A., Diawati, P., Syamsuri, S., Pramono, S. A., & Ausat, A. M. A. (2023). The Effect of Entrepreneurship Education and Creativity on Students' Entrepreneurial Intention : The Perspective of Effectuation and Cognitive Flexibility Theory. *Jurnal Kependidikan*, *9*(2). https://doi.org/https://doi.org/10.33394/jk.v9i2.7822

Ausat, A. M. A., Rachman, A., Rijal, S., Suherlan, S., & Azzaakiyyah, H. K. (2023). Application of ChatGPT in Improving Operational Efficiency in the Context of Entrepreneurship. *Jurnal Minfo Polgan*, *12*(1), 1220–1228. https://doi.org/https://doi.org/10.33395/jmp.v12i1.12667

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall, Inc.

Bhutoria, A. (2022). Personalized education and Artificial Intelligence in the United States, China, and India: A systematic review using a Human-In-The-Loop model. *Computers and Education: Artificial Intelligence*, *3*, 100068. https://doi.org/10.1016/j.caeai.2022.100068

Chen, L., Ifenthaler, D., Yau, J. Y.-K., & Sun, W. (2024). Artificial intelligence in entrepreneurship education: a scoping review. *Education + Training*, 1–20. https://doi.org/10.1108/ET-05-2023-0169

Dabbous, A., & Boustani, N. M. (2023). Digital Explosion and Entrepreneurship Education: Impact on Promoting Entrepreneurial Intention for Business Students. *Journal of Risk and Financial Management*, *16*(1), 27. https://doi.org/10.3390/jrfm16010027

Diawati, P., Karneli, O., Siminto, S., Pitoyo, A., & Judijanto, L. (2024). Do Entrepreneurship Education and Family Experience Promote Student's Entrepreneurial Intention? The Mediating Role of Unemployment Rate : An Integrated Analysis through Entrepreneurship Theory, Social Learning Theory, and Hidden Unemployment Theory. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *10*(1), 65. https://doi.org/10.33394/jk.v10i1.10465

Fayolle, A., & Gailly, B. (2015). The Impact of Entrepreneurship Education on Entrepreneurial Attitudes and Intention: Hysteresis and Persistence. *Journal of Small Business Management*, *53*(1), 75–93. https://doi.org/10.1111/jsbm.12065

Francisco, G. B.-T. (2017). Motivation for increasing creativity, innovation and entrepreneurship. An experience from the classroom to business firms. *Journal of Innovation Management*, *5*(3), 55–74. https://doi.org/10.24840/2183-0606_005.003_0005

Hadiyati, & Fatkhurahman. (2023). Dampak Kemampuan Melihat Peluang Usaha Terhadap Minat Berwirausaha Mahasiswa: Peran Literasi Media Sosial. *Diklat Review: Jurnal Manajemen Pendidikan Dan Pelatihan*, *7*(3), 653–664.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2011). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, *40*(3), 414–433. https://doi.org/10.1007/S11747-011-0261-6

Heryadi, D. Y., Amruddin, A., Mardizal, J., Syamsuri, S., & Judijanto, L. (2024). The Effect of Entrepreneurship Education and Sociological on Student's Entrepreneurial Intention : The Perspective of Entrepreneurial Skills Theory and Social Capital Theory. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *10*(1), 157. https://doi.org/10.33394/jk.v10i1.10463

Igwenagu, C. (2016). *Fundamentals of Research Methodology and Data Collection*. LAP Lambert Academic Publishing. https://www.researchgate.net/publication/303381524

Kolb, D. A. (1984). *Experiential Learning: Experience As The Source Of Learning And Development* (1st ed., Vol. 1). Prentice-Hall.

Lai, C. Y., Cheung, K. Y., & Chan, C. S. (2023). Exploring the role of intrinsic motivation in ChatGPT adoption to support active learning: An extension of the technology acceptance model. *Computers and Education: Artificial Intelligence*, *5*, 100178. https://doi.org/10.1016/j.caeai.2023.100178

Listyaningsih, E., Mufahamah, E., Mukminin, A., Ibarra, F. P., Santos, Ma. R. H. M. D., & Quicho, R. F. (2023). Entrepreneurship education, entrepreneurship intentions, and entrepreneurship motivation on students' entrepreneurship interest in entrepreneurship among higher education students. *Power and Education*, *0*(0), 1–17. https://doi.org/10.1177/17577438231217035

Lynch, M., Kamovich, U., Longva, K. K., & Steinert, M. (2021). Combining technology and entrepreneurial education through design thinking: Students' reflections on the learning process. *Technological Forecasting and Social Change*, *164*, 119689. https://doi.org/10.1016/j.techfore.2019.06.015

Novariana, N. W., & Andrianto, S. (2020). Entrepreneurial self-efficacy dan intensi kewirausahaan: peran mediasi perilaku inovatif pada mahasiswa di Yogyakarta. *Motiva Jurnal Psikologi*, *3*(1), 26–34. https://doi.org/10.31293/mv.v3i1.4803

Oktavio, A., Mitasari, R., Sinarta, Y., Kusumawidjaya, E., Wijaya, V., & Widyawati, C. (2023). Indonesian students' entrepreneurial behavior: The effect of creativity, passion, alertness and intention. *Journal of Eastern European and Central Asian Research (JEECAR)*, *10*(2), 227–237. https://doi.org/10.15549/jeecar.v10i2.1039

Satriadi, S., Almaududi Ausat, A. M., Heryadi, D. Y., Widjaja, W., & Sari, A. R. (2022). Determinants of Entrepreneurial Intention: A Study on Indonesian Students. *BISNIS & BIROKRASI: Jurnal Ilmu Administrasi Dan Organisasi*, *29*(3), 151–165. https://doi.org/10.20476/jbb.v29i3.1323

Suryadi, I., Isma, A., & Diarra, S. (2024). Factors Influencing the Entrepreneurial Interest of the Young Generation: An Empirical Review on Student Entrepreneurs. *Indonesian Journal of Business and Entrepreneurship Research*, *2*(1), 11–26.

Sutrisno, S., Ausat, A. M. A., Diawati, S., & Suherlan, S. (2024). Do Entrepreneurship Education and Peer Groups Promote Students' Entrepreneurial Intention During Covid-19 Pandemic? The Mediating Role of Entrepreneurial Mindset. *Quality-Access to Success*, *25*(201), 181–195. https://doi.org/10.47750/QAS/25.201.20

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Urban, M., Děchtěrenko, F., Lukavský, J., Hrabalová, V., Svacha, F., Brom, C., & Urban, K. (2024). ChatGPT improves creative problem-solving performance in university students: An experimental study. *Computers & Education*, *215*, 105031. https://doi.org/10.1016/j.compedu.2024.105031

Viorennita, A., Dewi, L., & Riyana, C. (2023). The Role of ChatGPT AI in Student Learning Experience. *Indonesian Journal of Multidisciplinary Research*, *3*(2), 445–452.

Willis, V. (2024). The Role of Artificial Intelligence (AI) in Personalizing Online Learning. *Journal of Online and Distance Learning*, *3*(1), 1–13. https://doi.org/10.47941/jodl.1689

Yasin, N., Gilani, S. A. M., Contu, D., & Fayaz, M. J. (2022). Simulation-based Learning in Business and Entrepreneurship in Higher Education: A Review of the Games Available. In *Technology and Entrepreneurship Education* (pp. 25–51). Springer International Publishing. https://doi.org/10.1007/978-3-030-84292-5_2

Zen, A., Kusumastuti, R., Metris, D., Gadzali, S. S., & Ausat, A. M. A. (2023). Implications of Entrepreneurship Education as a Field of Study for Advancing Research and Practice. *Journal on Education*, *5*(4), 11441–11453. https://doi.org/10.31004/joe.v5i4.2091