

Assessing the Influence of Digital Entrepreneurial Role Model, Innovative Cognition and Social Media Adroitness on Digital Entrepreneurial Intention Among University Students in Malaysia

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Abstract: Digitalization has caused significant changes in the evolution of entrepreneurial business models, evolving new digital business prospects and opportunities with the creation of online businesses. Digitalization form of entrepreneurial activity known as digital entrepreneurship. This provides new self-employment opportunities for university students to establish a new venture. This study investigates the social capital factors of digital entrepreneurial role model, innovative cognition and social media adroitness in influencing digital entrepreneurship intention among university students in Malaysia. Using purposive and convenience sampling methods, a sample of 399 data points was collected from university students in Klang Valley, Malaysia. The PLS-SEM analysis results showed that the digital entrepreneurial role model, innovative cognition and social media adroitness significantly influenced digital entrepreneurship among university students. The findings of this study provide meaningful implications for policymakers and educational institutions.

Keywords: *Digital entrepreneurship, Digital entrepreneurial role models, Social media adroitness, Innovative cognition*

1. Introduction

The digitalization revolution has brought changes in the business world. Digital technologies invention such as the internet, social media, mobile technology, and cloud technologies, create new forms of collaboration, resource management, new product and service development, and implementation (Markus & Loebbecke, 2013). The advent of digital advancements has created unparalleled prospects for entrepreneurship, fundamentally transforming the establishment and operation of businesses (Manea et al., 2021; Nguyen & Nguyen, 2024). The integration of emerging digital technologies (e.g., social media) “has transformed the nature of uncertainty inherent in entrepreneurial processes and outcomes as well as the ways of dealing with such uncertainty” Nambisan, 2017, p. 1029). The creation of the new digital venture that integrates digital technologies into their operations (Elia et al., 2020) creates a new type of business enterprise called digital entrepreneurship. Digital entrepreneurship refers to the pursuit of new business prospects using internet technology and media (Guthrie, 2014).

The emerging of social media sites such as Facebook, Instagram, WhatsApp, YouTube, and TikTok and e-commerce platforms such as Shopee, Lazada, Grab, and Food Panda are medium or places for entrepreneurs to explore new market and promote products and provide medium and opportunities to start up business and provides opportunities and potential marketplaces for digital entrepreneurs to startup businesses (Ahmad et al., 2022). These digital platforms enable a new start-up to minimize business expenses, decrease time and labor requirements, make market penetration easier, and reduce corporate risk (Ben Youssef et al., 2021).

The digital revolution has accelerated the growth of digital entrepreneurship in developing countries and increased opportunities for students to collaborate and connect with international peers. Digitalization reduces the barriers for tertiary students to initiate entrepreneurial endeavors. There were some studies that have examined the factors that affect the digital entrepreneurial intention of tertiary students (Nguyen & Nguyen, 2024; Li et al., 2024; Alferaih, 2022; Wibowo et al., 2023; Sobaih & Elshaer, 2022; Mir et al., 2022). Still, there is a lack of studies on factors that influence university students' digital entrepreneurial intentions, especially in the Malaysian context. Graduates should adopt a new mindset that embraces entrepreneurship as a means of creating value. Thus, it is crucial to understand factors that influence university students' intentions to

engage in digital entrepreneurship. It will help in developing efficient strategies and initiatives to promote digital entrepreneurship and boost the economy. Most of the previous studies mainly focused on the Theory of Planned Behavior; the present study validates an alternative theory within the emerging domain of entrepreneurship. This study enhances the current research on resourcefulness and entrepreneurship by investigating the impact of attributes related to personal social capital on the intention to engage in digital entrepreneurship.

The accomplishments and professional skills of a role model are perceived as a source of inspiration for creating better opportunities for the younger generation to establish entrepreneurial intent (as a career option) (Auken et al., 2006; Mungai & Velamuri, 2011). In addition to teaching about entrepreneurial behaviors and inspiring others to act in similar ways, role models can help people establish an entrepreneurial identity and transform one's anticipated potential into reality (Laviolette et al., 2012). Thus, an entrepreneurial role model refers to an individual's attitudes, behaviors, and actions that influence his/her desirability and credibility in choosing an entrepreneurial career path (Driga et al., 2005). It is imperative for entrepreneurs to have a personal entrepreneurial role or characteristics in managing strategies and making decisions by taking advantage of new prospects.

As the use of social media and the Internet grows rapidly, it is crucial to understand digital entrepreneurs' digital skills in operating digital platforms as a medium of business. Social capital is derived from interaction with established digital entrepreneurs, which increases the likelihood of aspiring or future entrepreneurs choosing digital entrepreneurship as a career path. Individuals' networks with embedded resources and specialized knowledge, which is referred to as human capital (Richardson, 1986), can be obtained through education, are frequently associated with the anticipated benefits of initiating a new business endeavor (Dutta et al., 2015). Furthermore, digital entrepreneurs have significantly transformed the worldwide business environment through innovative business strategies (Kraus et al., 2019). Innovativeness is a personality trait that reflects an individual's openness and willingness to embrace change (Hurt et al., 1977), in which successful entrepreneurs possess a greater innovative style of problem-solving (Buttner & Gyskiewicz, 1993).

An entrepreneur's capacity to act entrepreneurially can be gauged by the way they organize their network and the significance of their social capital. An entrepreneur's capacity to act entrepreneurially can be gauged by the way they organize their network and the value of their social capital. Social capital gives entrepreneurs the connections they need to take advantage of possibilities to leverage both human and financial resources (Thornton & Flynn, 2003). Thus, social capital may inspire potential entrepreneurs towards this career path. Exposure to entrepreneurial role models as a source of inspiration and learning and individual capital features, such as financial, social, and human capital, are crucial factors in new venture formation (Richardson, 1986; Mickiewicz et al., 2017). Furthermore, digital entrepreneurs have significantly transformed the worldwide business environment through innovative business strategies (Kraus et al., 2019). Innovativeness is a personality trait that reflects an individual's openness and willingness to embrace change (Hurt et al., 1977), in which successful entrepreneurs possess a greater innovative style of problem-solving (Buttner & Gyskiewicz, 1993). This study investigates factors influencing the intention of individuals to pursue digital entrepreneurship by considering social capital factors of innovative cognition and social media adroitness and the digital entrepreneurial role model.

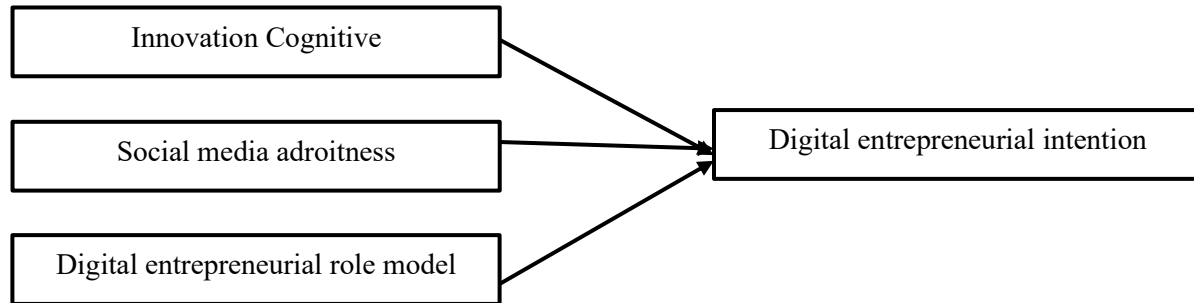
2. Literature Review

Social Capital Theory

Cognitive aspects are important in determining entrepreneurial career choice-making. Social capital facilitates the connections that enable an entrepreneur to access and utilize human and financial capital. Social capital refers to the degree of altruistic inclinations and mutual trust among individuals within society (Guiso et al., 2004) that is gained by individuals via social interactions to enhance their social capacity (Mahfud et al., 2020). Social networks are important for entrepreneurs to accomplish their entrepreneurial objectives (Hoang & Antonic, 2003) as "entrepreneurship is a result of the interplay of environments (i.e., social networks) and certain cognitive biases in entrepreneurs" (De Carolis & Saporito, 2006, p. 41). Social capital features such as the structure of the social network (e.g., frequency, strength, and density of social connections), the nature of the relationship of network members and shared resources have an impact on entrepreneurial intention (Malebana, 2016).

Social capital incorporates formal and informal forms of connections that are attained by individuals through their interaction with others in order to gain a desired outcome in the market (Liñán & Santos, 2007). Thus, social capital can be described as the capital that is acquired via social relationships (Lin, 2003). An individual's capital is made up of their domain-specific knowledge or human capital, financial resources, and networks with embedded resources, as stated by capital theory (Richardson, 1986; Mickiewicz et al., 2017). Basic cognitions, education, and abilities are human capital elements acquired by an individual that are crucial in the process of creating a new business (Marvel et al., 2016). Human capital can be assessed through digital proficiency, innovative cognition and adaptability in using social media as suggested by Mir et al. (2023). Using the theoretical framework of social capital theory, this study investigates the development of preference for digital entrepreneurship among university students in Malaysia. The research model is shown in Figure 1.

Figure 1: Research Model



Innovation Cognitive

Entrepreneurs' cognitive perspective includes beliefs, values, cognitive style, mental practices, and models used to identify and capitalize on opportunities and decision-making with available information and knowledge. Innovativeness is a personal trait that characterizes an individual's willingness to accept and adopt new ideas and changes (Hurt et al., 1977). Innovation is perceived as a distinctive trait of entrepreneurs; it is the ability to identify and exploit opportunities beyond others and offer inventive and unique solutions (Armstrong & Hird, 2009). There were studies that investigate the effect of innovativeness on entrepreneurial behavior from the aspect of readiness to change (Hurt et al., 1977), innovate capacity for problem-solving (Jackson, 1976), desire to approach things in a different way (Kirton, 1976), and intention to participate in entrepreneurial activities (Mirjana et al., 2018). Mirjana et al. (2018) and Mir et al. (2023) findings revealed that innovative cognitive style and entrepreneurial intention are positively related. The creative process and the introduction of new opportunities are strongly impacted by the innovative cognitive style (Mirjana et al., 2018). The hypothesis is proposed as:

H1: Innovation cognitive has a positive relationship with digital entrepreneurial intention

Social media adroitness

Social media is a powerful medium to convey and spread information to the end users. With the emergence of the Internet, its popularity and high application of social media platforms, it is important for digital entrepreneurs to be equipped with digital skills in using digital platforms as a medium to develop their career or business. Social adroitness refers to the great capacity to influence others to accomplish a specific objective and possesses social intelligence (Stuart & Abetti, 1990). Research on digital entrepreneurship has highlighted that possessing proficiency skills in the online environment needs to equip entrepreneurs to establish and maintain an internet-based group of consumers (Dhir et al., 2018) and create an online community (Standing & Mattsson, 2016; Talwar et al., 2020). Individuals who are actively engaging in social media and possess the ability to persuade and inspire family and friends to adopt social media (Lester et al., 2012; Mir et al., 2023) and acquire information from social media can cultivate individuals' intentions to be digital entrepreneurs. Mir et al., (2023) findings indicate the significant effect of social media adroitness on digital entrepreneurial intention. The following hypothesis is developed:

H2: Social media adroitness has a positive relationship with digital entrepreneurial intention

Digital entrepreneurial role model

A successful entrepreneur role model can serve as a source of inspiration that affects individuals' perception

in pursuing an entrepreneurial career (Gibson, 2004). The role model refers to a person's ability to learn to others according to social learning theory (Bandura & McClelland, 1977) and it is seen constructively in inspiring people to identify and acquire particular skills and acquire the knowledge needed to become entrepreneurs (Scherer et al., 1989; Lent et al., 1994; Bosma et al. 2012). Entrepreneurial role models offer direction and motivation (Nauta & Kokaly, 2001; Bosma et al., 2012; Walter & Dohse, 2009) that facilitates individuals to explore and undertake new business designs and opportunities in the early phases of the entrepreneurial activity (Fornahl, 2003). The entrepreneurial role model is a cognitive concept where an individual identifies certain traits in others who hold social roles similar to them and wishes to increase their perceived similarity by imitating such attributes (Gibson, 2004). An entrepreneurial role model provides useful insights that can decrease uncertainty in setting up a new venture (Minniti & Nardone, 2007). Entrepreneurial role model was found to have a significant effect on entrepreneurial intention (Yang, 2019; Fellnofer, 2017; Jin et al., 2023; Al Halbusi et al., 2022), while some findings do not support the significant effect of entrepreneurial role model on entrepreneurial intention (Efrata et al., 2016; Karimi et al., 2013). Mir et al. (2023) found a significant positive effect of the digital entrepreneurial role model on digital entrepreneurial intention. Thus, it is hypothesized that:

H3: A Digital entrepreneurial role model has a positive relationship with digital entrepreneurial intention

3. Methodology

This is a quantitative study that is conducted through a self-administered survey to assess the impact of entrepreneurial role model, social media adroitness and innovative cognition on university students' digital entrepreneurship behavior intention. A convenience sampling method was used in collecting data among the university students in Klang Valley, Malaysia. Questionnaires were distributed through the online platform Google Forms. The sample size of the study was computed using GPower version 3.1.9.3, a statistical power analysis software (Faul et al., 2007) with a power of 0.95 and an effect size of 0.15 (Cohen, 1992). The minimum sample size required, computed by GPower, is 119. A total of 430 responses were received and 399 (92.8%) questionnaires are usable for data analysis. The profile of the respondents is shown in Table 1.

Table 1: Respondents' characteristics

Variable	Frequency	Percentage
Gender		
Female	262	65.70%
Male	137	34.30%
Education Institution		
Private Higher Education Institution (IPTS)	56	14.00%
Public Higher Education Institution (IPTA)	343	86.00%
Program		
Foundation program	28	7.00%
Diploma	106	26.60%
Bachelor degree / Ijazah sarjana muda	248	62.20%
Postgraduate	17	4.20%
Did you pursue any entrepreneurship courses offered by the university?		
No / Tidak	214	53.60%
Yes / Ya	185	46.40%
Are you interested in starting your own business after graduating?		
No / Tidak	149	37.30%
Yes / Ya	250	62.70%
Do you plan to start your own business after graduating?		
No / Tidak	206	51.60%
Yes / Ya	193	48.40%

The questionnaire of this study is constructed by adopting from past studies. Five items used to measure digital

entrepreneurship behavioral intention were adapted from Zamzami (2021). Measurement items for social media adroitness (6 items) were adopted from Belch et al. (2005), for innovative cognition (8 items) were adopted from Mueller and Thomas (2001), and for the digital entrepreneurial role model were adopted from Fellnhofner and Mueller (2018). All items in the questionnaire are measured using a 5-point Likert scale ranging from 1= strongly disagree to 5 = strongly agree.

The study used data analysis techniques, partial least squares structural equation modelling (PLS-SEM) (Hair et al., 2022) to examine the hypotheses relationship in the study as it predicts the multifaceted theoretical relationship between variables (Hair & Alamer, 2022) and it is applicable for non-normal data. The evaluation of the normality test using online WebPower of Mardia's multivariate skewness and kurtosis indicates that the data of this study is not normally distributed, as the coefficients' p-values are less than 0.05. The PLS-SEM estimation was using SmartPLS 4 version (Ringle et al., 2024). The PLS-SEM analysis comprises the measurement and structural models.

As the data were collected on a single-source basis, the issue of common method bias might have appeared (Podsakoff et al., 2003). Following Kock (2015) and Kock and Lynn (2012), this study applied full collinearity techniques to detect the presence of common method bias. The full collinearity test results are shown in Table 2. The VIF values of all the variables less than 3.3 indicate that single-source bias is not an issue.

Table 2: Full Collinearity Test

Variable	SMA	INNOV	ROLE	ENTRE
VIF	1.685	1.309	2.212	2.489

Note: SMA = Social Media Adroitness, INNOV = Innovative Cognition Digital, ROLE = Entrepreneurial Role Model, ENTRE = Digital Entrepreneurship Behavior Intention

4. Data Analysis

The reliability and validity of the model are evaluated with a measurement model through convergent validity and discriminant validity (Hair et al., 2022). The convergent validity assessment includes factor loadings, average variance extracted (AVE) and composite reliability (CR). The values of factor loadings should be ≥ 0.708 , the AVE should be ≥ 0.5 and the CR should be ≥ 0.7 . As shown in Table 3, the factor loadings greater than 0.708, the AVEs are higher than 0.5 and the CRs exceed 0.7, confirming the reliability and convergent validity of the model.

Table 3: Measurement

Construct	Item	Loadings	Composite reliability (CR)	Average variance extracted (AVE)
Digital entrepreneurship behavioral intention	ENTRE1	0.910	0.956	0.814
	ENTRE2	0.927		
	ENTRE3	0.913		
	ENTRE4	0.903		
	ENTRE5	0.858		
Innovative cognition	INNOV3	0.781	0.838	0.564
	INNOV4	0.717		
	INNOV5	0.750		
	INNOV6	0.755		
Entrepreneurial role model	ROLE1	0.838	0.937	0.749
	ROLE2	0.890		
	ROLE3	0.903		
	ROLE4	0.852		
	ROLE5	0.844		

Social media adroitness	SMA1	0.776	0.907	0.661
	SMA2	0.787		
	SMA3	0.822		
	SMA4	0.867		
	SMA5	0.810		

The discriminant validity of the model was assessed using the HTMT criterion as suggested by Henseler et al. (2015) and Franke and Sarstedt (2019). As shown in Table 4, the values of HTMT were all lower than the stricter criterion of ≤ 0.85 , indicating the respondents' understanding of the 4 constructs is distinctive; thus, discriminant validity is confirmed.

Table 4: Discriminant Validity (HTMT)

	1	2	3	4
1. Digital entrepreneurship behavior intention				
2. Innovative cognition	0.472			
3. Entrepreneurial role model	0.783	0.357		
4. Social media adroitness	0.629	0.561	0.572	

The structural model was assessed using a bootstrapping procedure of 10000 resamples for the path coefficients, the standard errors, t-values and p-values Becker et al., 2023). Table 5 presents the results of the structural model on the hypotheses developed.

The R^2 value of 0.598 indicates that 59.8% of the variation in digital entrepreneurship behavior intention is explained by all three 3 predictors. Innovative Cognition ($\beta = 0.133$, $p < 0.01$), Entrepreneurial Role Model ($\beta = 0.582$, $p < 0.01$) and Social Media Adroitness ($\beta = 0.211$, $p < 0.01$) were all positively related to Digital Entrepreneurship Behavior Intention; thus, H1, H2 and H3 were supported.

Table 5: Hypothesis Testing

Hypothesis relationship	Std beta	Std error	t-value	p-value	BCI LL	BCI UL	f ²	R ²
H1: INNOV -> ENTRE	0.133	0.043	3.054	0.001	0.061	0.203	0.035	0.598
H2: ROLE -> ENTRE	0.582	0.047	12.307	$p < 0.001$	0.501	0.658	0.615	
H3: SMA -> ENTRE	0.211	0.05	4.209	$p < 0.001$	0.13	0.294	0.071	

Additionally, a predictive relevance test, PLSPredict, was conducted, a holdout sample-based procedure that generates case-level predictions on an item or a construct level, a 10-fold procedure as proposed by Shmueli et al. (2019). If the differences of all items of PLS-LM root mean square error (RMSE) were lower than LM RMSE, there is strong predictive power; if all items' PLS-SEM RMSE are higher than LM RMSE, predictive relevance is not confirmed, while if the majority of PLS-SEM RMSE are lower than LM RMSE, there is moderate predictive power and if a minority of PLS-SEM RMSE is lower than LM RMSE, then there is low predictive power. Based on Table 6, all the PLS-SEM RMSEs were lower than the LM model; thus, we can conclude that the model has a strong predictive power.

Table 6: PLS Predict

Item	PLS-SEM		LM	PLS-SEM - LM
	Q ² predict	RMSE	RMSE	RMSE
ENTRE1	0.529	0.759	0.763	-0.004
ENTRE2	0.495	0.788	0.802	-0.014
ENTRE3	0.466	0.799	0.818	-0.019
ENTRE4	0.482	0.76	0.782	-0.022
ENTRE5	0.408	0.821	0.843	-0.022

Discussion

This study investigates the influence of digital entrepreneurial role model, innovative cognition and social media adroitness on digital entrepreneurial intention among university students in Malaysia. The findings show that innovative cognition has a significant influence on entrepreneurial intentions is consistent with Mirjana et al. (2018) and Mir et al. (2022) indicate that successful digital entrepreneurs acquire an innovative cognitive style. Personal innovation is positively related to entrepreneurial intentions in technology-related fields (Dutta et al., 2015). Successful entrepreneurs tend to be more innovative in problem-solving and greater willingness to adapt and embrace change (Buttner & Gryskiewicz, 1993). As innovativeness is a personality trait (Hurt et al., 1977), individuals who possess a higher degree of innovativeness with high acceptance and adaptation towards changes, leading them to try doing things differently leading them to have a higher intention to be a digital entrepreneur.

Analysis results indicate that individuals who actively engage in social media platforms and have their ability to effectively motivate and inspire others to use social media may have high desirability to engage in a creative venture, as suggested by Lester et al. (2012). High adroitness in persuading people, especially peers and family members, using social media platforms to search and obtain products and sales information (Mir et al., 2022). Social media adroitness strengthens entrepreneurs' determination to transition to the digital sphere. Thus, entrepreneurs must possess a certain level of social media proficiency in establishing and sustaining a group of internet-based consumers and building an online community.

Findings of the study on the significant effect of digital entrepreneurial role model on digital entrepreneurial intention of university students are in line with Mir et al. (2022) and Al Halbusi et al. (2022) for Iraqi university students. This supports the significance of successful entrepreneurial role models in influencing entrepreneurship.

Intention. Exposing potential entrepreneurs to various favorable entrepreneurial role models can inspire university students to engage in digital ventures.

5. Conclusion and Implications

Based on the analysis of the partial least squares structural equation modelling, the empirical results were consistent with the theoretical measurement model for both the digital entrepreneurial role model, innovative cognition and social media adroitness on digital entrepreneurial intention among university students in Malaysia. The research outcomes will provide information specifically relevant Malaysian environment, contributing to the existing knowledge and insight on the digital entrepreneurial intentions of university students in fostering the economic development of the country.

This study contributes to the existing literature by considering social media adroitness as a relatively unique factor, as suggested by Mir et al. (2022) in the realm of digital entrepreneurship. Social media capacity and usage are not sufficient to position oneself as a viable online business. This study emphasized the development of online social capital by focusing on theoretical perspectives on the significance of individual-level resources in the realm of digital entrepreneurship. Furthermore, our study contributes empirical evidence on the influence of individual networks and the ability to persuade the social media community in accessing specific context information to initiate a digital business.

As the business world moves towards digitalization, factors enhancing individual capability to operate in the digital realm are increasingly important. Academic institutions have been recognized as significant in facilitating and providing young people with opportunities to acquire entrepreneurial knowledge and improve their skills (Mirjana et al., 2018). It is important to foster individual knowledge and skills and as individual self-confidence, for engaging in entrepreneurial activities, as well as to generate broader social awareness (Mirjana et al., 2018). So, the entrepreneurial education system should be designed to provide related and applicable information and practical experience and also inspire students' innovation cognition towards entrepreneurial endeavors.

Educational institutions in Malaysia typically offer training or academic programs to provide students' digital

skills to enhance their ability to set up new digital ventures. Social media adroitness was found to have a significant effect on digital entrepreneurial intention for university students. Thus, it is important to enhance university students' ability to build an online community and create and maintain a group of internet users.

To enhance the effectiveness of the digital entrepreneurial role model function, it is imperative to provide a role model that possesses a well-defined character to students. Thus, exposure to university students through academic and non-academic programs and training opportunities that encounter with digital entrepreneurial role model could potentially enhance their digital entrepreneurial aspirations. Well well-understanding of an entrepreneurial role model for students will enhance their ability to identify with and reflect upon its character. Although this study provides valuable insights into the influence of social capital factors—namely, digital entrepreneurial role models, innovative cognition, and social media adroitness—on digital entrepreneurship intentions among Malaysian university students, several limitations should be acknowledged.

First, the study employed a cross-sectional design, which captures perceptions and intentions at a single point in time. This limits the ability to establish causal relationships between variables. A longitudinal approach in future studies would allow for a better understanding of how these intentions develop over time. Second, the sample was restricted to university students in the Klang Valley region, which may not represent the broader population of university students across Malaysia or in other cultural contexts. Third, the study may be subject to common method bias or social desirability bias, despite the use of collinearity diagnostics to minimize this issue. Future research could benefit from incorporating multiple data sources, including peer or instructor evaluations and actual entrepreneurial behaviour data.

Fourth, other potential influencing factors, such as personality traits, digital literacy, institutional support, and government policies, were not included but may also significantly impact digital entrepreneurship intention. Lastly, qualitative methods such as interviews or focus groups could provide deeper insights into the motivations and challenges faced by aspiring digital entrepreneurs. Future research should address these limitations to enhance findings in the context of digital entrepreneurship education and policy development.

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