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Investigating the effect of intrinsic and extrinsic motivation in shaping digital entrepreneurial intention: the mediating role of self-efficacy

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Abstract

Purpose – The purpose of this study is to explore the growing significance of digital entrepreneurship, which remains in its early stages within entrepreneurship research, with limited understanding of its determining factors. Specifically, it seeks to address the motivations driving individuals to pursue digital entrepreneurship, the factors shaping their intentions, and the essential requirements for success as digital entrepreneurs.

Design/methodology/approach – This study introduces a model that uses challenge and enjoyment as intrinsic motivation, compensation and outward factors as extrinsic motivation and self-efficacy as theoretical elements to predict digital entrepreneurial intention. Through a comprehensive literature review, the research establishes nine hypotheses in a model tested through structural equation modeling with a survey involving 303 students from various Indonesian universities.

Findings – The findings underscore the essential role of self-efficacy in forecasting digital entrepreneurial intention. Moreover, self-efficacy is a significant positive mediator in the relationships between challenge motivation, compensation motivation, outward motivation and digital entrepreneurial intention. The study also indicates that enjoyment motivation does not influence self-efficacy, and self-efficacy does not exhibit significant positive mediating effects on enjoyment motivation and digital entrepreneurial intention. The conclusions highlight the significance of intrinsic motivation through challenge, extrinsic motivation through compensation and outward factors and the role of self-efficacy in motivating students to participate in digital entrepreneurship.

Originality/value – This study contributes significantly to the expanding field of digital entrepreneurial intention by developing a conceptual framework that elucidates the roles of intrinsic and extrinsic motivations in fostering self-efficacy, thereby shaping individuals' intentions toward digital entrepreneurship.

Keywords Digital entrepreneurial intention, Intrinsic and extrinsic motivation, Self-efficacy

Paper type Research paper

Introduction

The current state of open unemployment in Indonesia can be assessed using data from BPS-Statistics Indonesia (2024), which categorizes individuals based on their highest level

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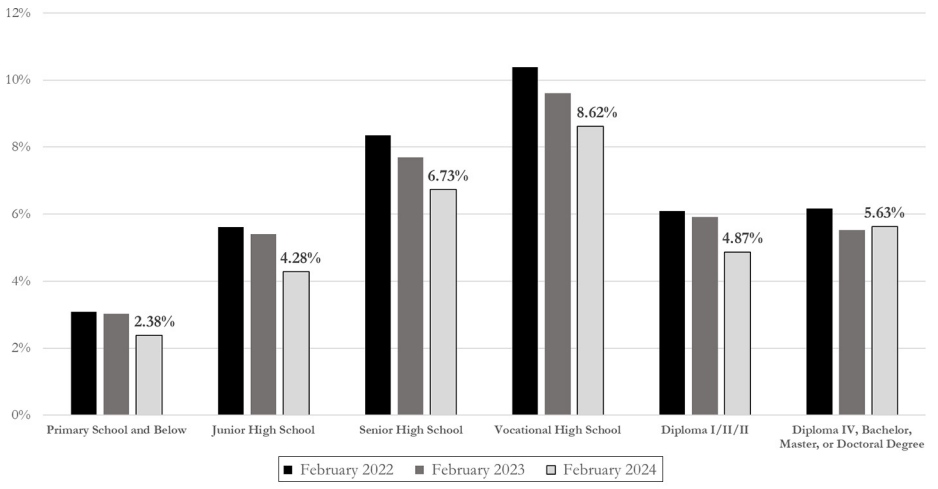
of education. The statistics in Figure 1 reveal that vocational high school graduates constitute the largest share of the overall unemployment rate, accounting for 8.62% in 2024. However, when combining diploma, bachelor and advanced degree holders, university graduates emerge with the highest percentage of open unemployment in Indonesia, reaching 10.50%. There is a prevailing expectation among young workers, especially recent graduates, that securing well-paying positions in the private and public sectors will be achievable after graduation. This expectation is rooted in the widespread belief that pursuing higher education inherently enhances the prospects of securing employment.

Addressing the persistent challenge of unemployment rates among university graduates necessitates implementing a comprehensive and innovative strategy. An instrumental and forward-thinking approach that distinguishes itself involves systematically promoting entrepreneurial intentions during students' formative years. In a contemporary landscape where the traditional job market confronts unprecedented challenges, inculcating an entrepreneurial mindset is paramount, empowering graduates to navigate and prosper adeptly within the evolving professional milieu. Recognizing that pursuing suitable career opportunities constitutes an integral facet of a graduate's trajectory is imperative. Nevertheless, the increasing emphasis on nurturing entrepreneurship has garnered considerable attention, particularly in the dynamic and ever-expanding digital sphere. Encouraging students to explore and cultivate their entrepreneurial instincts not only furnishes them with the requisite skills to generate their opportunities but also contributes substantially to the overall resilience of the workforce.

This strategic emphasis on entrepreneurship is relevant for Generation Z students, a demographic cohort deeply immersed in technology. Their pervasive engagement with digital tools and platforms positions them uniquely to harness technological advancements within the entrepreneurial landscape. By integrating digital literacy and innovative thinking into their educational experiences, universities are pivotal in preparing Generation Z students to adapt and flourish in the swiftly evolving global economy. Promoting entrepreneurial



Sources: BPS-Statistics Indonesia (2024); Figure by authors

Figure 1. Unemployment rate by educational attainment in Indonesia

intentions among university students transcends the conventional career development paradigm. It represents an investment in fostering a mindset characterized by innovation, adaptability and resilience qualities that are increasingly indispensable in a world where the nature of work undergoes continual and profound transformations. As universities embrace this proactive approach, they contribute not only to the employability of their graduates but also to the cultivation of a generation capable of actively shaping and propelling positive change within the professional landscape.

Toward the Golden Indonesia 2045 target, the active involvement of Generation Z is particularly fitting, given the digital nature inherent in this generation. This generation has grown up amidst a technological revolution, and their familiarity with digital tools and platforms positions them uniquely to contribute to and thrive in a digitally driven economy. Encouraging their participation in entrepreneurial endeavors aligns seamlessly with the broader national vision, leveraging the inherent digital acumen of this generation to propel Indonesia toward digital excellence. Understanding and nurturing the intentions of digital entrepreneurs is paramount in achieving these goals. A complex interplay of intrinsic and extrinsic factors shapes the pathway to success in digital entrepreneurship. A comprehensive exploration of these factors is crucial for devising targeted strategies that inspire entrepreneurial intentions and provide the necessary support structures.

Entrepreneurship is widely recognized for its contributions to wealth creation, employment, poverty reduction, innovation and economic growth, and governments have responded by implementing policies specifically designed to support and promote entrepreneurial activities (Hassan *et al.*, 2020). Announcing entrepreneurial intentions among students, particularly those in Generation Z, is a strategic response to the challenges of unemployment rates among university graduates. By fostering entrepreneurship, especially in the digital realm, educational institutions contribute to individual career development and the broader economic landscape. Presently, the global landscape is undergoing a profound metamorphosis through the pervasive influence of digitalization, wherein sophisticated and innovative digital technologies engender consequential ramifications across diverse dimensions of human existence (Elnadi and Gheith, 2023). This transformative paradigm is underscored by an escalating prevalence of human activities transpiring on digital platforms, thereby accentuating the exigency to cultivate digital-centric entrepreneurship for enhanced global competitiveness (Nambisan and Baron, 2021). Aligning these efforts with national targets, such as the Golden Indonesia 2045 vision, ensures that the entrepreneurial spirit of the younger generation becomes a driving force in shaping a digitally vibrant and economically resilient future. Considering the pivotal significance of digital entrepreneurship, there has been a discernible scholarly imperative urging the initiation of research endeavors to systematically scrutinize the nuanced antecedents at the individual level field (Berger *et al.*, 2021; Sahut *et al.*, 2021).

In the past few years, there has been a rising curiosity within the academic, decision-making and practitioner communities regarding the investigation of digital entrepreneurship (Beliaeva *et al.*, 2020; Kraus *et al.*, 2019; Jafari-Sadeghi *et al.*, 2021). Although still in its initial phases, digital entrepreneurship is becoming progressively crucial, and understanding the factors influencing it is limited (Darmanto *et al.*, 2022; Mir *et al.*, 2023). The determination to pursue entrepreneurship is contingent upon various factors (Otache, 2019). Additionally, it is essential to develop a thorough comprehension of the conditions necessary for achieving success as a digital entrepreneur and the factors that motivate individuals to embark on establishing their online ventures (Kraus *et al.*, 2019; Darmanto *et al.*, 2022; Mir *et al.*, 2023).

A review of previous research shows a noticeable demand for further exploration into digital entrepreneurial intention. Despite several theoretical frameworks being proposed as potential indicators of digital entrepreneurial intention, only a few studies have provided empirical support for this assertion (Huang *et al.*, 2022). The current study introduces a research model that incorporates intrinsic motivation, extrinsic motivation and self-efficacy as theoretical constructs. While these factors have yet to be extensively investigated, they are utilized to examine the components influencing digital entrepreneurial intention. Specifically, the objective of this research is to address the following research questions:

RQ1. To what extent do intrinsic and extrinsic motivations impact self-efficacy?

RQ2. How does self-efficacy affect digital entrepreneurial intentions?

RQ3. To what degree do intrinsic and extrinsic motivations influence digital entrepreneurial intentions through the mediation of self-efficacy?

Literature review and hypotheses development

Digital entrepreneurial intention

The initial stage in establishing digital entrepreneurship is crucial, as it involves cultivating intentions to venture into the digital realm. This step signifies an individual's determination and dedication to launching a new digital business (Elnadi and Gheith, 2021; Salhieh and Al-Abdallat, 2021). While research on entrepreneurial intentions is extensive and comprehensive, a notable gap exists in studies focusing on digital entrepreneurial intentions. Existing research on digital entrepreneurship intentions indicates that this area needs to be thoroughly investigated, and several factors still need to be explored (Mir *et al.*, 2023). Several theories that have been explored to identify factors that influence digital entrepreneurial intention include the Theory of Planned Behavior (Lai and To, 2020; Younis *et al.*, 2020; Al-Mamary and Alraja, 2022; Tseng *et al.*, 2022; Bhatta *et al.*, 2024), Personal Trait Theory (Shimoli *et al.*, 2020; Yeh *et al.*, 2020; Koe *et al.*, 2021; Salhieh and Al-Abdallat, 2021; Aviles Belmonte *et al.*, 2022), Self-Determination Theory (Wang *et al.*, 2016; Yeh *et al.*, 2020; Huang *et al.*, 2022) and Social Cognitive Theory (Chang *et al.*, 2020; Soomro and Shah, 2021). Despite exploring several theories in previous research, there has been a need for more comprehensive studies that could substantiate these alternative theoretical paradigms. Consequently, there is the potential for various other theoretical frameworks to be regarded as antecedents for intentions in digital entrepreneurship.

Self-efficacy

Distinguished predictors of entrepreneurial intention encompass facets such as entrepreneurial self-efficacy, signifying a noteworthy consideration within the academic discourse on entrepreneurial studies (Schmutzler *et al.*, 2019). As delineated by Field Newman *et al.* (2019), the social cognitive theory is the predominant theoretical framework underpinning the construct of self-efficacy. Furthermore, its pertinence extends to the scholarly inquiry into entrepreneurial intentions, as underscored by Hueso *et al.* (2021). Self-efficacy is an individual's belief in their ability to effectively carry out the required actions to meet situational expectations (Maddux and Kleiman, 2016). The outcomes of actions, including perceived progress toward goals and achievement and external inputs, can shape self-efficacy (Schunk and DiBenedetto, 2020). Thus, entrepreneurial self-efficacy, a pivotal variable in explicating an individual's intention toward entrepreneurship, is indispensable for entrepreneurs in capitalizing on opportunities, orchestrating resources, founding a business

and achieving success (Tantawy *et al.*, 2021). Several empirical investigations have demonstrated that entrepreneurial self-efficacy is a vital predictive factor for entrepreneurial intention (Wu *et al.*, 2019; Douglas *et al.*, 2021; Zhang *et al.*, 2021; Saoula *et al.*, 2023). In a previous investigation, Şahin *et al.* (2019) observed that self-efficacy is a precursor to individual-level entrepreneurial intentions among corporate employees. Besides, Ciuchta and Finch (2019) also ascertained that self-efficacy's influence on entrepreneurial intention extends across diverse ethnicities and genders. Similarly, other studies, such as those conducted by Austin and Nauta (2016), have consistently reported findings indicating that entrepreneurial self-efficacy significantly influences the intention to become an entrepreneur. Furthermore, self-efficacy is a prerequisite for fostering entrepreneurial intentions and behavior (Esfandiar *et al.*, 2019; Hsu *et al.*, 2019; Li *et al.*, 2020; Kumar and Shukla, 2022; Rakib *et al.*, 2022). Additionally, entrepreneurial self-efficacy mediates entrepreneurial intention (Wu *et al.*, 2019; Zhang and Huang, 2021; Neneh, 2022).

Intrinsic and extrinsic motivation

According to the Self-Determination Theory, an individual's actions are influenced by both intrinsic and extrinsic motivation, as discussed by Teo *et al.* (1999). Intrinsic motivation within this framework includes elements such as challenge and enjoyment. In digital entrepreneurship, challenge motivation entails actively seeking complexity and difficulty navigating digital entrepreneurial pursuits. On the other hand, enjoyment motivation in digital entrepreneurship depends on the extent to which individuals derive pleasure, curiosity and fulfillment from engaging in digital entrepreneurial activities. In contrast, extrinsic motivation encompasses both compensation and outward motivation. Compensation motivation in digital entrepreneurship pertains to the degree to which individuals prioritize material or monetary rewards in their involvement with digital entrepreneurial ventures. Conversely, outward motivation in digital entrepreneurship is connected to how individuals value recognition and validation from others while participating in digital entrepreneurial activities. As highlighted by Huang *et al.* (2022), if an individual is inclined to embrace challenges and believes that entrepreneurship can provide satisfaction, monetary rewards and recognition from others, their entrepreneurial intention is likely to be heightened.

Based on the literature review, the study proposes nine hypotheses for a research model below:

H1. There is a positive relationship between challenge motivation and self-efficacy.

H2. There is a positive relationship between enjoyment motivation and self-efficacy.

H3. There is a positive relationship between compensation motivation and self-efficacy.

H4. There is a positive relationship between outward motivation and self-efficacy.

H5. A positive relationship exists between self-efficacy and digital entrepreneurship intentions.

H6. Self-efficacy serves as a mediator in the relationship between challenge motivation and digital entrepreneurial intention.

H7. Self-efficacy serves as a mediator in the relationship between enjoyment motivation and digital entrepreneurial intention.

H8. Self-efficacy serves as a mediator in the relationship between compensation motivation and digital entrepreneurial intention.

H9. Self-efficacy serves as a mediator in the relationship between outward motivation and digital entrepreneurial intention.

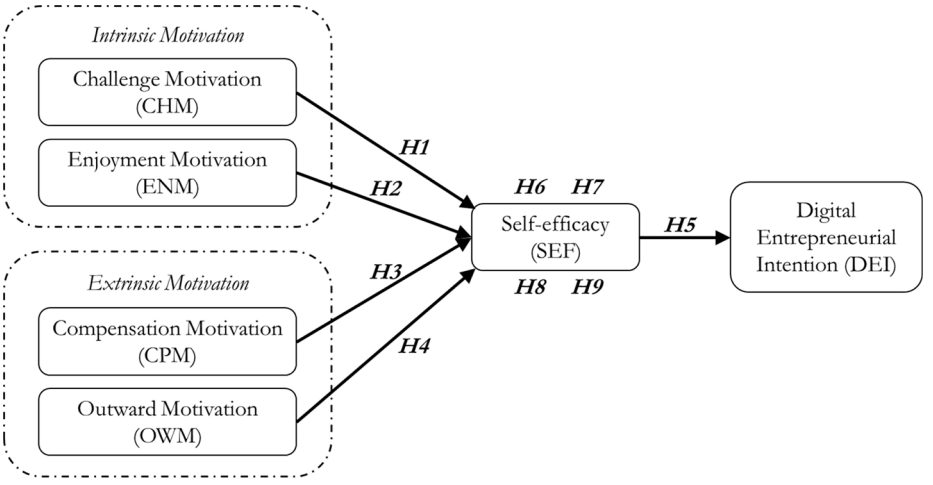
Figure 2 depicts a schematic representation elucidating the mediating role of self-efficacy in the correlation between challenge motivation, enjoyment motivation, compensation motivation, outward motivation and digital entrepreneurial intention.

Methodology

Sample and data collection

This research uses a cross-sectional design to investigate the impact of intrinsic motivation, extrinsic motivation and self-efficacy on the intention to engage in digital entrepreneurship. The data collection for this study occurred through an online survey administered between July and September 2023. Objective measures in this context of digital entrepreneurial intention involve using two screening questions at the outset of the questionnaire. Among these screening questions are as follows: assessing entrepreneurial knowledge by querying whether respondents have previously taken entrepreneurship courses, either within or outside their university; and evaluating technology adoption and usage by determining if respondents possess and use e-commerce or social commerce applications on their mobile phones. These initial screening questions were carefully formulated to ensure that the selected participants' responses were devoid of bias.

Representation was ensured by adopting a stratified random sampling method among active students meeting the screening criteria in the Java region of Indonesia. This region is distinguished by its advanced digital infrastructure and high digital society index, encompassing approximately 60% of Indonesia's student population across various universities. To ensure unbiased distribution of the study's instruments, this study used a simple proportionate distribution technique based on the contribution percentages of each province in the Java region. The questionnaire allocation per province was as follows:



Source: Figure by authors

Figure 2. Conceptual framework

Banten, 26% = 79 students; East Java, 20% = 61 students; West Java, 18% = 56 students; Central Java, 14% = 42 students; Special Capital Region of Jakarta, 13% = 40 students; and Special Region of Yogyakarta, 8% = 24 students. This research achieved a valid sample of 303 students from 375 questionnaire respondents spanning 68 universities. Gender distribution revealed 27% male and 73% female participants. Age categorization indicated 14% falling within the 17–19 age group, 76% within the 20–22 age range and 10% within the 23–25 age bracket. The sample size meets the minimum requirement as the number of variables assessed is at least ten times smaller than the sample size, as Roscoe (1975) recommended.

Measures

This study used preexisting research instruments to measure the variables (see Appendix). These instruments included six items assessing digital entrepreneurial intention, derived from the research of Linan and Chen (2009); four items measuring self-efficacy, derived from the research of Zhao *et al.* (2005); five items capturing challenge motivation; five items evaluating enjoyment motivation; five items assessing compensation motivation, seven items appraising outward motivation derived from the research of Amabile *et al.* (1994). Back translation was used to translate the instruments into Indonesian to ensure cultural relevance. Participants were instructed to complete a questionnaire using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), with intermediate points representing varying degrees of disagreement or agreement. The research data underwent analysis through the partial least squares-structural equation modeling approach. To assess the validity and reliability of the instrument and explore the proposed hypotheses and their relationships with the variables, SmartPLS 3.0 was used as the analytical tool.

Results

Reliability and validity

The outcomes of the PLS Algorithm analysis, as outlined in Table 1, reveal that a significant portion of indicators for each variable attain an outer loading (OL) score surpassing 0.5. However, two indicators related to outward motivation were excluded because of their OL scores falling below the standard threshold. Furthermore, the results affirm that Cronbach's alpha (CA) score surpasses the 0.7 threshold. Additionally, the composite reliability (CR) score exceeds the 0.7 limit, indicating robust reliability for all the variables. As all constructs surpass the 0.5 threshold, the average variance extracted (AVE) score validates convergent validity. Simultaneously, the Fornell–Larcker Criterion (FL) score was used for the discriminant validity test, revealing that the square root of each construct's AVE exceeds its correlation with other constructs. Moreover, the cross loadings (CL) indicate that all indicators score higher in their original construct than other constructs in the model. Consequently, it can be asserted that each construct satisfies both discriminant and convergent validity.

The study yielded all variance inflation factor (VIF) scores in the inner model below the standard limit of 3.3 (see Table 1), indicating that the model can be considered free of common method bias (Kock, 2015). The R-Square score is 0.273 for digital entrepreneurial intention and 0.492 for self-efficacy, surpassing the criterion of 0.10 for endogenous variables. These values suggest that the proposed model effectively accounts for the variances in both exogenous and endogenous variables. Furthermore, the Q-Square values obtained from the Blindfolding analysis results are 0.161 for digital entrepreneurial intention and 0.335 for self-efficacy. This implies that, given that these values are greater than 0, the model used for predicting endogenous variables possesses meaningful predictive power.

Table 1. PLS algorithm analysis

Variable	Indicator	OL	CA	CR	AVE	FL	VIF
Digital entrepreneurial intention	DEI1	0.775	0.874	0.905	0.613	0.783 (Others: 0.522; 0.598; 0.555; 0.566; 0.299)	–
	DEI2	0.731					
	DEI3	0.812					
	DEI4	0.757					
	DEI5	0.826					
	DEI6	0.792					
Self-efficacy	SEF1	0.845	0.860	0.905	0.704	0.839 (Others: 0.522; 0.600; 0.564; 0.611; 0.510)	1.000
	SEF2	0.826					
	SEF3	0.837					
	SEF4	0.848					
Challenge motivation	CHM1	0.728	0.771	0.844	0.521	0.722 (Others: 0.598; 0.600; 0.693; 0.615; 0.417)	2.102
	CHM2	0.794					
	CHM3	0.726					
	CHM4	0.591					
	CHM5	0.755					
Enjoyment motivation	ENM1	0.727	0.778	0.850	0.532	0.730 (Others: 0.555; 0.564; 0.693; 0.673; 0.427)	2.375
	ENM2	0.611					
	ENM3	0.800					
	ENM4	0.729					
	ENM5	0.766					
Compensation motivation	CPM1	0.627	0.811	0.869	0.571	0.756 (Others: 0.566; 0.611; 0.615; 0.673; 0.542)	2.254
	CPM2	0.801					
	CPM3	0.799					
	CPM4	0.776					
	CPM5	0.761					
Outward motivation	OWM1	0.729	0.788	0.855	0.541	0.735 (Others: 0.299; 0.510; 0.417; 0.427; 0.542)	1.441
	OWM2	0.771					
	OWM3	0.734					
	OWM4	0.726					
	OWM5	Eliminated					
	OWM6	0.716					
	OWM7	Eliminated					

Source: Table by authors

Structural equation modeling

Using the bootstrapping approach in this study is a robust method for evaluating the significance of various assessments, employing three pivotal criteria for hypothesis validation: the Original Sample, *t*-statistics and *p*-value. The intricacies of these criteria collectively contribute to a comprehensive understanding of the relationships between variables under scrutiny. Within the framework of the Original Sample, a positive value implies a constructive impact on the relationship between variables, thereby indicating the affirmative validation of the hypothesis. The *t*-statistics criterion, surpassing 1.96, signifies the anticipated significance level as the analysis transitions from exogenous to endogenous variables. Furthermore, adhering to the conventional standard, a *p*-value below 0.05 is considered requisite for accepting a hypothesis. In the presented results of the bootstrapping analysis, encapsulated in Table 2, a noteworthy trend emerges as 7 out of 9 hypotheses find validation. *H1*, *H3* and *H4* receive empirical support, underscoring that challenge, compensation and outward motivation positively correlate with self-efficacy. This endorsement is substantiated by positive coefficient values, *t*-statistics exceeding 1.96 and *p*-values falling below the critical threshold of 0.05. *H5* extends the pattern by echoing these positive correlations, affirming that self-efficacy is positively associated with digital entrepreneurship intention. Positive coefficient values indicate this alignment and are further reinforced by *t*-statistics surpassing the threshold of 1.96 and *p*-values registering below the established benchmark of 0.05. In essence, the meticulous application of the bootstrapping approach and the ensuing scrutiny of the Original Sample, *t*-statistics and *p*-value criteria collectively contribute to a robust validation of most hypotheses, providing empirical substantiation for the interplay between challenge, compensation, outward motivation, self-efficacy and digital entrepreneurship intention within the context of this study.

The discerning analysis of hypotheses within the framework of this study reveals intriguing dynamics. *H6*, *H8* and *H9* stand affirmed, proving that self-efficacy is a pivotal mediator in the intricate relationships between challenge motivation, compensation motivation, outward motivation and digital entrepreneurial intention. This substantiation

Table 2. Bootstrapping analysis

Hypotheses		Original sample (O)	*t*-statistics (|O/STDEV|)	*p*-values	Result
H1	Challenge → Self-efficacy	0.282	4.535	0.000	Accepted
H2	Enjoyment → Self-efficacy	0.111	1.571	0.058	Rejected
H3	Compensation → Self-efficacy	0.249	3.622	0.000	Accepted
H4	Outward → Self-efficacy	0.210	3.673	0.000	Accepted
H5	Self-efficacy → Digital entrepreneurial intention	0.522	12.051	0.000	Accepted
H6	Challenge → Self-efficacy → Digital entrepreneurial intention	0.147	3.946	0.000	Accepted
H7	Enjoyment → Self-efficacy → Digital entrepreneurial intention	0.058	1.515	0.065	Rejected
H8	Compensation → Self-efficacy → Digital entrepreneurial intention	0.130	3.307	0.001	Accepted
H9	Outward → Self-efficacy → Digital entrepreneurial intention	0.110	3.835	0.000	Accepted

Source: Table by authors

underscores the nuanced role played by self-efficacy in channeling motivational factors toward the overarching goal of digital entrepreneurial pursuits. Conversely, *H2* and *H7* do not find empirical support, signaling that self-efficacy does not undergo significant influence from enjoyment motivation. Moreover, the absence of substantial positive mediating effects between enjoyment motivation and digital entrepreneurial intention is apparent in the observed T-statistics values below 1.96 and *p*-values surpassing the 0.05 threshold. This nuanced contrast in findings highlights the distinctive nature of the relationship between enjoyment motivation, self-efficacy and digital entrepreneurial intention, suggesting that the motivational dynamics involved in deriving enjoyment may not wield a substantial impact on the mediating role of self-efficacy. In essence, these results contribute to a refined understanding of the complex interplay between motivational factors, self-efficacy and digital entrepreneurial intention within the parameters of this study. The nuanced distinctions in the outcomes of individual hypotheses pave the way for further exploration and refinement of theoretical frameworks, shedding light on the multifaceted nature of motivations and their intricate connections in the context of digital entrepreneurship.

Discussion

Given the swift evolution of technology, there is a pressing need to delve into digital entrepreneurship, particularly among younger generations accustomed to technological conveniences. Current research predominantly focuses on general entrepreneurial intentions, overlooking the nuanced realm of digital entrepreneurship. The pervasive integration of technology in the lives of today's youth underscores the imperative to investigate their motivations within this domain. Factors influencing digital entrepreneurship, including internal and external motivations, profoundly influence entrepreneurial decisions. An in-depth understanding of these factors is essential for formulating strategies that effectively support emerging entrepreneurs navigating the dynamic digital economy.

The empirical findings from this study bring into focus the significance of self-efficacy as a robust predictor of digital entrepreneurial intention, emphasizing the pivotal role of individuals' perceptions of their capabilities in determining their intention toward an entrepreneurial career. Several studies have consistently highlighted the crucial role of entrepreneurial self-efficacy in shaping digital entrepreneurial intentions. Yuliana *et al.* (2020) conducted a comprehensive survey of graduating students and demonstrated that high levels of entrepreneurial self-efficacy significantly influence digital entrepreneurial intentions. This finding is further supported by Widiasih and Darma (2021), who observed a strong correlation between self-efficacy and digital entrepreneurial intentions among digital content creators. Darmanto *et al.* (2022) also reinforce this connection by showing that entrepreneurial self-efficacy positively affects the digital entrepreneurial intentions of students across various university settings. Similarly, Akhter *et al.* (2022) identified self-efficacy as a key factor influencing digital entrepreneurial intention among university graduate students in Bangladesh. Setyawati *et al.* (2023) found that self-efficacy, reflecting high confidence in one's ability to succeed in online entrepreneurship, positively impacts online entrepreneurial intentions among Generation Z. Furthermore, Ghatak *et al.* (2023) developed an integrated model confirming that self-efficacy is a significant predictor of intentions toward digital social entrepreneurship. Finally, Xin and Ma (2023) explored the impact of gamifying online entrepreneurship education and found that entrepreneurial self-efficacy directly influences students' intentions to become digital entrepreneurs. Collectively, these studies underscore the pivotal role of entrepreneurial self-efficacy across different contexts and populations in fostering digital entrepreneurial intentions. These studies, including the present research, portray a picture of the intricate interplay between

self-efficacy and digital entrepreneurial intention. The recurring theme across diverse demographics and contexts reinforces the notion that fostering a sense of entrepreneurial self-efficacy is integral to cultivating a conducive environment for the flourishing of digital entrepreneurship intentions.

The results of this study also indicate that challenge motivation, compensation motivation and outward motivation directly and positively affect self-efficacy in becoming a digital entrepreneur. Furthermore, self-efficacy is a crucial positive mediator in the connection between intrinsic motivation (such as challenges) and extrinsic motivation (such as compensation and external recognition) and their impact on digital entrepreneurial intention. These findings are novel and significant, as no previous studies have explored this relationship. However, prior similar research by Wang *et al.* (2016) and Yeh *et al.* (2020) supports the general idea that intrinsic and extrinsic motivations are positively linked to digital entrepreneurial intention. On the other hand, Huang *et al.* (2022) presented a contrasting finding, showing that compensation motivation does not positively impact individuals' intentions toward internet entrepreneurship and the use of technological products. All these studies mainly focus on the direct relationship between motivation and digital entrepreneurial intention. The present research adds depth by examining the complex interplay of indirect influences, particularly focusing on how self-efficacy mediates these relationships.

For Indonesian students, intrinsic and extrinsic motivators significantly impact self-confidence and entrepreneurial intentions. Intrinsic motivators, such as challenge motivation, contribute to self-efficacy and personal development. The Indonesian educational system increasingly emphasizes these factors through initiatives designed to enhance confidence and problem-solving skills, thereby encouraging students to surmount challenges and attain personal goals. Conversely, extrinsic motivators, including compensation, are critical for providing the economic stability and resources necessary for initiating and maintaining entrepreneurial ventures. In the context of a developing nation such as Indonesia, where economic resources may be constrained, financial incentives play a crucial role in mitigating the perceived risk of entrepreneurial failure. Furthermore, outward motivators comprising social support, networking opportunities and validation are particularly salient within Indonesia's collectivist culture. This cultural framework underscores the significance of community and familial support, thereby rendering outward motivation a key determinant in pursuing entrepreneurial activities. Students are more likely to engage in entrepreneurial endeavors when they perceive robust support and validation from their social networks.

Enjoyment motivation, characterized by intrinsic satisfaction and engagement in activities, fosters self-efficacy, creativity and positive emotional states, enhancing personal growth and learning. The comprehensive scrutiny undertaken in this study extends beyond conventional boundaries to investigate the intriguing revelation that self-efficacy appears impervious to the influence of motivation arising from enjoyment motivation. This observation departs from the patterns discerned in antecedent research endeavors. Huang *et al.* (2022) posit that enjoyment motivation positively impacts digital entrepreneurial intentions, a view that contrasts with the present study's findings. This research identifies enjoyment motivation as having no significant effect on digital entrepreneurial intentions when mediated by self-efficacy. Enjoyment motivation might not directly lead to the essential self-efficacy needed for digital entrepreneurship. While individuals may be driven by enjoyment, they may still harbor uncertainties regarding their proficiency in performing digital entrepreneurial tasks effectively. In the context of Indonesian universities, students may find enjoyment in digital activities, but this does not necessarily translate to the self-efficacy needed for digital entrepreneurship because of a combination of factors, including

an education system that does not fully prepare them with essential skills, limited access to resources, cultural and social pressures, a lack of real-world business experience and inconsistent government and institutional support (Amalia and von Korflesch, 2021; Suyantiningsih *et al.*, 2023). As a result, while they are motivated by enjoyment, they often harbor uncertainties about their ability to perform and succeed in digital entrepreneurial tasks effectively.

Conclusion and implication

This study highlights the complex interaction between motivational factors and entrepreneurial intentions, suggesting that scholars and practitioners must adopt a broader perspective to understand the digital entrepreneurial environment fully. This study emphasizes the crucial role of self-efficacy as a strong predictor of digital entrepreneurial intentions, illustrating its importance in guiding entrepreneurial activities. It finds that intrinsic motivations (like the pursuit of challenges) and extrinsic motivations (such as compensation and outward motivation) significantly impact self-efficacy, influencing digital entrepreneurial intentions. Contrary to previous studies, enjoyment as a motivator does not significantly enhance digital entrepreneurial intentions through self-efficacy, suggesting that mere enjoyment does not necessarily boost the confidence needed for successful digital entrepreneurship. For Indonesian students, intrinsic and extrinsic motivations play a key role in developing self-efficacy and digital entrepreneurial intentions, with community and family support being especially impactful in a collectivist cultural setting. These insights underscore the need for customized strategies to bolster self-efficacy and provide robust support for digital entrepreneurs, considering cultural and resource-based factors.

Theoretical implications of the research findings highlight the need to expand existing models of entrepreneurial intentions by integrating both intrinsic and extrinsic motivational factors. This study challenges prior assumptions that enjoyment significantly boosts entrepreneurial intentions through self-efficacy, suggesting a need for revised theories that emphasize the role of other motivational elements. Additionally, the research underscores the importance of cultural contexts, such as collectivism in Indonesia, in shaping entrepreneurial intentions, indicating that theoretical models should account for cultural and contextual variables to understand diverse entrepreneurial environments better.

Practically, the findings indicate that governmental and educational institutions should prioritize the enhancement of self-efficacy among aspiring digital entrepreneurs through the development of targeted training programs and comprehensive support systems. These interventions should address intrinsic motivations, such as personal growth and the pursuit of challenges, and extrinsic rewards, including financial incentives and recognition, to effectively nurture digital entrepreneurial intentions. Additionally, the research underscores the importance of leveraging community and family support, particularly within collectivist cultures, to foster a conducive entrepreneurial environment. By integrating community networks and family involvement through structured mentorship programs, entrepreneurial events and supportive initiatives, a more robust and supportive ecosystem for digital entrepreneurship can be established, thereby enhancing the potential for successful digital entrepreneurial ventures.

Limitations and future directions

Despite the valuable insights provided by this research in the digital entrepreneurship field, its findings have certain limitations. Initially, this study is constrained by its focus on challenges, enjoyment, compensation and outward motivations, which may overlook other motivational factors and external influences such as economic conditions or technological advancements.

Future research is expected to expand the scope by incorporating additional external motivational factors and other external elements, thereby enhancing the model's explanatory power. Next, the use of a cross-sectional design in this research has the potential to prevent the establishment of causality. Future studies using longitudinal research methods could offer a more nuanced understanding of the evolution of digital entrepreneurial intentions over time. Finally, the findings of this research have limitations regarding the generalizability of results to other populations, given that the study was conducted solely among a sample of students in Indonesia. Therefore, further research could replicate these findings in diverse cultural and educational settings to improve applicability and generalizability.

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Appendix

Table A1. Questionnaire constructs and items

Variable		Item
Digital entrepreneurial intention (adapted from Linan and Chen, 2009)	DEI1	I am ready to do anything to be a digital entrepreneur
	DEI2	My professional goal is to become a digital entrepreneur
	DEI3	I will make every effort to start and run my own digital firm
	DEI4	I am determined to create a digital firm in the future
	DEI5	I have very seriously thought about starting a digital firm
	DEI6	I have the digital firm intention to start a firm someday
Self-efficacy (adapted from Zhao *et al.*, 2005)	SEF1	I am convinced that I can successfully discover new digital business opportunities
	SEF2	I am convinced that I can successfully create new products
	SEF3	I am convinced that I can think creatively
	SEF4	I am convinced that I can successfully commercialize ideas
Challenge motivation (adapted from Amabile *et al.*, 1994)	CHM1	I enjoy tackling problems that are completely new to me
	CHM2	I like to try to solve the complex problems that digital entrepreneurship may encounter
	CHM3	The more difficult the digital entrepreneurial problem, the more I enjoy trying to solve it
	CHM4	Digital entrepreneurship can increase knowledge and skills
	CHM5	Curiosity is the main motivation that drives me to start a digital business
Enjoyment motivation (adapted from Amabile *et al.*, 1994)	ENM1	I want to know how well I can do in digital entrepreneurship
	ENM2	I like to solve problems by myself
	ENM3	The most important thing for me is to enjoy my digital entrepreneurial process
	ENM4	As long as I feel that I have gained a new experience, I will be satisfied regardless of the results of digital entrepreneurship
	ENM5	I am more comfortable when I can set myself goals for digital entrepreneurship
Compensation motivation (adapted from Amabile *et al.*, 1994)	CPM1	The income from digital entrepreneurship can motivate me
	CPM2	If I participate in a digital business competition, I will realize my goal
	CPM3	I will consider subsidies or bonuses provided by the government or a competition for digital entrepreneurship
	CPM4	I realize that the government provides subsidies for digital entrepreneurship
	CPM5	I care about the rewards for digital entrepreneurship
Outward motivation (adapted from Amabile *et al.*, 1994)	OWM1	I believe digital entrepreneurship can be recognized by others
	OWM2	I hope other people understand how well I can do in digital entrepreneurship
	OWM3	To me, success means doing better than other people
	OWM4	I think it is meaningless if no one knows how well I've done
	OWM5	I'm concerned about how other people are going to react to my ideas
	OWM6	I care more about the sense of accomplishment I can get in this job than about what I do
	OWM7	I'm worried about what others think of my choice of digital entrepreneurship

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