



Determinants of Digital Entrepreneurship Success: Role of Formal and Informal Learning Practices Among Malaysian IT Entrepreneurs

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Abstract

This research investigates the fundamental underpinnings of successful digital entrepreneurship in Malaysia, focusing on the roles of formal and informal learning practices. Grounded in self-determination and planned behavior theories, our study endeavors to unravel the interplay between entrepreneur determination, knowledge acquisition, and strategic planning in online businesses. To gather insights into this multifaceted landscape, an online survey engaged 289 IT business owners in Malaysia. Our analyses unveiled several noteworthy findings. Specifically, the study discerned a robust and affirmative correlation between digital literacy and informal learning. This connection emphasizes the significance of digital competencies in shaping an entrepreneur's journey toward success. The research affirmed that attaining successful digital entrepreneurship is intrinsically tied to the capacity for online learning, adept use of digital technologies, and astute financial management. It offers a foundation for future policy recommendations, calls for further research, and illuminates theoretical and practical implications, thus contributing to advancing the entrepreneurial landscape in the digital age.

Keywords

Determinants, Digital Entrepreneurship, Practices

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1. Introduction

In today's digital age, marked by constant technological advancements (Inan Karagul et al., 2021), entrepreneurship is vital to individual well-being and economic growth (Heidari et al., 2021). While entrepreneurship has been widely studied, the path to a successful business remains a subject of great interest, as the definition of success varies between academics and practitioners (Looi & Klobas, 2020). Understanding the critical determinants of a successful business venture is a recurring theme in entrepreneurship research. Entrepreneurs must monitor their outcomes, profitability, and turnover to ensure organizational effectiveness and realize their entrepreneurial goals. Numerous studies have focused on IT management within emerging and developing markets, exploring the factors contributing to revenue and expansion (Kurzewska et al., 2020; Patrisia, 2021; Reddy et al., 2022; Ridwan et al., 2021; Sukma & Pradana, 2022; Ye & Kulathunga, 2019). Notably, the Malaysian Department of Statistics estimates a population of 1,151,339, with small and medium-sized businesses playing significant role in the economy (Sukma & Pradana, 2022). However, only a mere two percent of commercial properties in Malaysia are open 24/7.

Digital literacy, a critical aspect of today's business landscape, is the ability to "find, evaluate, and communicate information through various digital platforms" (Yanto et al., 2022). Individual characteristics significantly influence how information is collected, processed, and presented, making digital literacy a shared foundation for competencies and abilities (Young et al., 2020). Entrepreneurs' capacity to learn and apply digital information directly relates to their ability to innovate and integrate



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digital technologies into their business processes (Reddy et al., 2022). Financial literacy, like digital literacy, is a prerequisite for making informed decisions in business and life (Patrisia, 2021). This financial acumen extends to IT business owners, where a strong understanding of financial principles significantly contributes to success (Mugiono et al., 2021; Ye & Kulathunga, 2019). Sound financial knowledge empowers IT business owners and managers to make informed choices, leveraging financial and accounting data for better decision-making (Yanto et al., 2021; Young et al., 2020). As highlighted by Reddy et al. (2022), government policies are essential when providing technological and financial support to IT businesses.

The rapid pace of technological advancement (Heidari et al., 2021; Mehrvarz et al., 2021; Mugiono et al., 2021) has sparked interest in using new technologies for learning, both formally and informally. New technologies have opened up opportunities for informal digital learning, allowing individuals to learn at their own pace, unconstrained by time or location (Young et al., 2020). Therefore, students have new opportunities for learning at their own pace and in their environments (Heidari et al., 2021; Mehrvarz et al., 2021; Ridwan et al., 2021). Informal digital learning, driven by personal interests and convictions, not only enhances engagement but also has the potential to improve academic performance. This study examines into digital entrepreneurship, exploring the role of formal and informal learning practices among IT entrepreneurs in Malaysia. Doing so contributes to developing theories of planned behavior and self-determination. The Theory of Planned Behavior, often framed as an "individual's intent to engage in a specific behavior" (Sussman & Gifford, 2019), encompasses the concept of organizational innovation and an individual's aspiration to become an entrepreneur. On the other hand, self-determination theory focuses on "innate growth tendencies and psychological needs," aiming to decipher human motivation and personality (Deci et al., 2017). Together, these theories shed light on the factors influencing individual decision-making processes, especially when individuals are free from external influences.

2. Literature review

The current study underscores the pivotal role of formal and informal learning practices in pursuing digital entrepreneurship success among Malaysian IT entrepreneurs. It also sheds light on the evolution of self-determination theory and the theory of planned behavior within the Malaysian context. As delineated by Sussman and Gifford (2019), planned behavior theory encompasses "the desire to engage in a particular behavior." This framework aptly elucidates an entrepreneur's intent to exploit technology for business innovation. Furthermore, the self-determination theory, often described as "human motivation and personality," investigates innate psychological needs and the choices that drive healthy personal development (Deci et al., 2017). This framework offers insights into the factors influencing decision-making among individuals when extraneous influences are absent.

2.1. Online business learning and digital informal learning

In an increasingly digitized world, acquiring essential technical skills has become imperative for maintaining a competitive edge. Success as a digital entrepreneur is intrinsically tied to the ability to learn (Reddy et al., 2022). Recognizing the pivotal role of learning in the journey of digital entrepreneurs, we introduce the concept of online business learning, an adaptation of the conventional notion of learning capability in the digital landscape. When we speak of individuals possessing "online business learning," we refer to their capacity to swiftly and effectively acquire new skills across various professional and social contexts (Mugiono et al., 2021). This condensed definition encapsulates the ability to apply knowledge gained from online business education in a digital setting. Notably, as Inan Karagul et al. (2021) highlighted, online business practices streamline the sales process, thus boosting revenue for IT entrepreneurs. Moreover, (Ridwan et al., 2021) argue that differentiated instruction could account for an individual's innate entrepreneurial tendencies. It's crucial to acknowledge that business ownership contributes to economic growth by generating new job opportunities and reducing poverty rates (Heidari et al., 2021). To combat unemployment effectively, we must invest more in education, motivating the

younger generation to explore entrepreneurship and seek employment opportunities.

Digital informal learning refers to unstructured learning opportunities that emerge in informal settings and are facilitated by technology (Ritonga et al., 2021; Yanto et al., 2021). With its wealth of problem-solving and information retrieval resources, the Internet has become a primary platform for informal digital education (Reddy et al., 2022). Students leverage digital media for learning on cognitive and physical levels (Young et al., 2020). Importantly, informal digital learning encompasses many activities, including but not limited to planning, organization, information gathering, comprehension assessment, and the acquisition of cognitive skills (Putri & Wijaya, 2020). Students' exposure to informal digital learning influences their choice of learning strategies, such as memorization (Yanto et al., 2022). Students engaging in digitally-mediated informal learning must select the methods or resources that best align with their specific learning needs (Inan Karagul et al., 2021; Mugiono et al., 2021). The interpersonal and psychological facets underpin the importance of social connections in the digital domain for collaboratively constructing new knowledge and self-driven learning, which lays the foundation for our first hypothesis:

H1: Online business learning significantly impacts informal digital learning

2.2. Digital literacy and digital informal learning

Individuals' inherent characteristics deeply influence how individuals receive, process, and communicate digital information. User education and digital literacy resources are readily available (Sukma & Pradana, 2022). A person's capacity and efficacy as a learner play a crucial role in their ability to absorb and apply digital information. Thus, the ability to learn is an indispensable component of interacting with digital technology (Yanto et al., 2022). The entrepreneurial journey demands a foundational skill set, and digital literacy emerges as the linchpin. Being "digitally literate" entails possessing "the awareness, attitude, and ability to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, to enable constructive social action; and to reflect upon this process" (Young et al., 2020). Digital literacy extends beyond proficiency with modern technology; it encompasses the capacity for creative problem-solving, collaborative engagement, and meaningful social connections. Proficiency in both hardware and software equips individuals to participate in a broad spectrum of professional and recreational activities. In the context of the internet, technological literacy surpasses the mere ability to use technology for its intended purposes (Mugiono et al., 2021). Notably, IT business owners in Malaysia heavily rely on online tools and resources to manage their operations and address challenges, underscoring the paramount importance of digital literacy in their context.

In today's information age, utilizing digital mediums like "YouTube, email, Google, and social networks" has become a fundamental necessity for essential activities such as education, communication, and commerce (Patrisia, 2021; Reddy et al., 2022). Studies by Reddy et al. (2022) have collectively revealed digital inequalities in developed and developing nations (2020). This underscores the pressing need for concerted efforts to elevate digital literacy across populations, diminishing existing digital disparities. Scholars unanimously affirm that familiarity with digital devices and their capabilities is pivotal for successful informal learning (Putri & Wijaya, 2020; Yanto et al., 2021; Young et al., 2020). Digital informal learning denotes unstructured opportunities for learning and innovation occurring in informal settings, as defined by Yanto et al. (2022). The internet, offering copious opportunities for information discovery and problem-solving, emerges as one of the most extensively employed platforms for informal digital learning. In light of these considerations, we posit our second hypothesis:

H2: Digital literacy significantly impacts informal digital learning.

2.3. Financial literacy and digital informal learning

As defined by Sukma and Pradana (2022), financial literacy encompasses the ability to utilize one's knowledge and terminology related to financial matters to make well-informed decisions and take practical actions. Similarly, Yanto et al. (2021) based their definition of financial literacy, employed by Jorgensen, on reading, analyzing, managing, and articulating one's financial circumstances concerning material well-being. This multifaceted concept involves the capacity to explore one's financial situation, engage in effective conversations about financial matters, devise plans for economic security, and respond adeptly to unforeseen events with the potential to significantly impact daily financial decisions, such as economic fluctuations (Yanto et al., 2021; Ye & Kulathunga, 2019). Further elucidate financial literacy as "the knowledge, abilities, and values that shape attitudes and behaviors, aiding individuals in making better financial decisions and choices for success." This comprehensive definition amalgamates financial knowledge, financial behavior, and financial attitudes.

At its core, financial literacy equips individuals with a fundamental understanding of the intricacies of money and how it operates (Putri & Wijaya, 2020). It entails grasping the meanings of key financial terms and employing mathematical skills within pertinent contexts. Being financially literate implies a profound comprehension of the determinants influencing effective budgeting. Financial education extends to how individuals manage their financial resources, encompassing strategies for enhancing financial well-being through prudent budgeting and the establishment of financial safety nets while also addressing aspects that could erode financial stability, such as the reckless use of credit cards (Ritonga et al., 2021; Sukma & Pradana, 2022; Yanto et al., 2022). Sound financial conduct encompasses prudent spending habits, financial tracking, prudent savings, emergency readiness, wealth accumulation, and judicious handling of windfalls. A critical component of financial literacy is nurturing a positive financial mindset, as underscored by Inan Karagul et al. (2021), who argue that a constructive mindset is pivotal for translating financial literacy into actionable financial decisions.

Acknowledging that learning can occur within formal and informal settings is essential. Formal instruction transpires within structured environments with predetermined schedules, objectives, and instructional materials (Ritonga et al., 2021). This learning mode is organized and well-planned, leading to recognized credentials like degrees and diplomas (Looi & Klobas, 2020). Conversely, informal learning predominantly unfolds outside formal educational settings, characterized by its less structured nature and the absence of specific skill or knowledge improvement goals (Ridwan et al., 2021; Yanto et al., 2021). In informal learning settings, students wield greater agency over learning opportunities, content, and assessment than conventional classroom settings, promoting a dynamic and self-directed approach to learning (Patrisia, 2021; Putri & Wijaya, 2020; Young et al., 2020). In light of these considerations, we propose our third hypothesis:

H3: Financial literacy significantly impacts informal digital learning

2.4. Digital informal learning and digital entrepreneurship success

Learning occurs within both formal and informal environments. Mehrvarz et al. (2021) noted that formal education unfolds within carefully structured settings with defined schedules, objectives, and planned resources. From the learner's perspective, formal education follows a deliberate path leading to recognized credentials (Mugiono et al., 2021). Conversely, informal learning predominantly transpires beyond formal classroom settings, characterized by its less rigid structure and regulation, often driven by specific skill acquisition objectives (Reddy et al., 2022; Yanto et al., 2022). In informal settings, learners wield greater autonomy over their learning opportunities, the content of their education, and self-assessment, contrasting with the more structured environment of formal classrooms (Mugiono et al., 2021; Young et al., 2020).

The term "disorganized learning," employed by Heidari et al. (2021) and Mehrvarz et al. (2021), characterizes situations where individuals acquire knowledge through the use of technology outside of formal classroom confines. The internet stands out as one of the most prevalent platforms for digitally facilitated informal learning due to its abundant information retrieval and problem-solving resources. Informal digital learning encompasses multiple facets, including cognitive education, metacognitive knowledge, and social and motivational comprehension (Kurczewska et al., 2020). Students engage with digital media for cognitive or kinesthetic learning, depending on their learning needs. This process encompasses planning, organization, information storage, comprehension assessment, and motivation to promote cognitive tasks (Heidari et al., 2021). Students' choices concerning study methods, including acquiring knowledge regarding effective memorization techniques, are influenced by their exposure to informal digital learning. In digital informal learning, students should select methods or resources that align with their unique learning requirements (Mehrvarz et al., 2021). Lastly, the interpersonal and motivational aspects allude to the critical role of social interaction in the digital domain for collaborative knowledge creation and motivation for learning (Putri & Wijaya, 2020).

Entrepreneurship is the pursuit of opportunities that transcend the limitations imposed by internal and external influences originating from individuals (Ridwan et al., 2021). In the context of this study, the term "entrepreneur" encompasses anyone initiating an enterprise. Furthermore, individuals exhibiting an "entrepreneurial spirit" share specific skills and traits, even if they do not conform to the conventional entrepreneur label (Yanto et al., 2022). Despite differences in their fundamental beliefs, both groups exhibit similar attitudes. This concept involves active engagement in creating new products, launching ventures, and pooling resources to enhance competitiveness in the industry, distinguishing it from established business structures. As innovations and technologies evolve, enterprises rely on the creative thinking of entrepreneurs to explore lucrative new markets (Ye & Kulathunga, 2019; Young et al., 2020). We propose our fourth hypothesis:

H4: Digital informal learning significantly impacts digital entrepreneurship success.

2.5 Mediating role of Digital informal learning

Learning can transpire within both formal and informal environments. (Reddy et al., 2022) posit that the most conducive conditions for learning are established when time, objectives, and resources are planned in a well-structured and organized formal setting. From the learner's perspective, formal education is a deliberate process culminating in recognized credentials such as degrees and diplomas (Ritonga et al., 2021). Conversely, informal learning predominantly occurs outside the confines of formal educational settings, characterized by its reduced structure and lack of specific skill or knowledge enhancement objectives (Sussman & Gifford, 2019; Yanto et al., 2022). Within informal learning environments, students exercise greater autonomy over learning opportunities, content, and self-assessment compared to conventional classroom settings (Mugiono et al., 2021; Nieuwenhuizen & Kroon, 2002; Patrisia, 2021; Ritonga et al., 2021). Digital informal learning encompasses unstructured learning opportunities facilitated by technology in informal settings, as outlined by Reddy et al. (2022) and Sukma and Pradana (2022). Students engage with digital media for learning on multiple levels, encompassing cognitive and physical domains (Mugiono et al., 2021; Yanto et al., 2022). Exposure to informal digital learning shapes students' choices regarding study techniques, including memorization methods. It is imperative for students engaged in digitally facilitated informal learning to select the technique or resource that best aligns with their individual learning needs (Ye & Kulathunga, 2019).

The recent proliferation of new devices and technology availability has amplified interest in informal digital learning and how learners adapt to such contexts (Inan Karagul et al., 2021; Mugiono et al., 2021; Putri & Wijaya, 2020; Ridwan et al., 2021; Sukma & Pradana, 2022). Informal digital learning boasts the advantage of flexibility, occurring at the learner's convenience whenever and wherever they see fit. This adaptability offers students fresh learning opportunities, aligning with their schedules and preferences, a characteristic that is championed in informal digital learning (Looi & Klobas, 2020; Yanto

et al., 2022). An underlying driving force behind digital informal learning is the participants' heightened enthusiasm and emotional engagement, factors that amplify their motivation to learn and subsequently enhance their academic performance. Within this context, we propose our fifth hypothesis:

H5: Digital informal learning mediates the impact between online business learning, digital literacy, financial literacy, and digital entrepreneurship success.

3. Methodology

The research methodology is underpinned by the self-determination theory and the planned behavior theory, forming the conceptual framework for this study. It seeks to investigate the utilization of both formal and informal learning practices by successful digital entrepreneurs in Malaysia. The study exclusively focuses on IT business owners in Malaysia, recognizing their pivotal role in adapting to an evolving digital landscape and contributing to the national economy. Given the scope, non-probability sampling was deemed appropriate, and a purposive sample method was employed, as entrepreneurship studies in Malaysia have been relatively scarce (Looi & Klobas, 2020). The research centers explicitly on IT business entrepreneurs in Malaysia. Initially, contact details of 500 IT entrepreneurs were collected from the relevant department, and survey questionnaires were distributed with cover letters soliciting voluntary participation. The surveys were conducted in English, and participants were required to indicate their English proficiency. Responses were coded for anonymity, and only aggregated statistics were disclosed. Out of the 350 respondents who demonstrated English proficiency and consented to participate, they were given a two-week window to complete and return the survey. Follow-ups were conducted after this period. Data collection included demographic information and classroom procedures for each grade level at Time 1, with the assessment of informal digital learning and digital entrepreneurship effectiveness at Time 2, one month later. Data collection concluded with 289 usable responses from the 320 surveys distributed, resulting in a final response rate of 58%. Purposeful and opportunistic sampling methods were employed to construct the research sample, enhancing the generalizability of results compared to random sampling. (Hair Jr et al., 2021).

The research employed PLS-SEM Smart PLS 3 for data analysis and hypothesis testing. A 27-item questionnaire was created to assess digital entrepreneurship success, the role of formal and informal learning practices among Malaysian IT entrepreneurs, and the application of self-determination and planned behavior theories. Measurement scales from previous studies were adopted for various constructs, including online business learning, digital literacy, financial literacy, and informal digital learning, ensuring the reliability and validity of the research instruments (Mehrvarz et al., 2021; Nieuwenhuizen & Kroon, 2002; Reddy et al., 2022; Ridwan et al., 2021; Ye & Kulathunga, 2019).

4. Result

Table 1 presents the initial analysis of respondent data, outlining the demographic characteristics and descriptive statistics of the study's sample (N=289).

Table 1: Demographic profile

	Description	No. of Responses	%
Gender	Male	170	58
	Female	119	42
Age	25-35	120	42
	Above 35	169	58
Qualification	BS	180	62
	MS/PhD	109	38

The data in Table 1 indicates that 58% of male IT entrepreneurs fell within the age range of 25-35, with the remaining 42% being above 35. Regarding qualifications, 62% held a Bachelor's degree (BS),

while 38% had either a Master's (MS) or a Ph.D. qualification. Male IT entrepreneurs constituted 58% of the respondents, while female IT entrepreneurs accounted for 42% of the Malaysian IT entrepreneurial population.

4.1. Measurement model

We initiated the examination of data collected from 289 IT business entrepreneurs by employing PLS-SEM to assess the validity, reliability, and factor loadings. Table 2 presents the outcomes of the PLS measurement model concerning factor loadings, validity, and reliability for the observed items. In assessing internal consistency, Cronbach's alpha is considered satisfactory if it exceeds 0.70 (Fornell & Larcker, 1981). For the variables of interest, CR and Cronbach's Alpha exceeded 0.70. Additionally, the AVE values exhibited high reliability and convergence validity levels, surpassing the threshold of 0.50 (Fornell & Larcker, 1981). The CR values ranged from 0.836 to 0.905, all exceeding the 0.70 threshold.

Table 2: Composite Reliability, Cronbach's Alpha, and AVE Values

Constructs/Items	CA	CR	AVE
Digital Entrepreneurship Success	0.868	0.905	0.655
Digital Informal Learning	0.807	0.860	0.574
Digital Literacy	0.826	0.878	0.591
Financial Literacy	0.780	0.839	0.529
Online Business Learning	0.707	0.836	0.629

Note: CR=composite reliability; AVE=average variance extracted; CA= Cronbach's Alpha

To establish discriminant validity, (Fornell & Larcker, 1981) defined it as "the extent to which a given latent variable differs from other latent variables." In the pursuit of structural route analysis, our subsequent step was to confirm that all variables met the criteria for validity and reliability. The HTMT values, as displayed in Table 3, all remained below 1 (Hair et al., 2020), indicating clear evidence of HTMT's value.

Table 3: Discriminant Validity

	DIS	DIL	DL	FL	OBL
Digital Entrepreneurship Success	0.809				
Digital Informal Learning	0.617	0.789			
Digital Literacy	0.597	0.395	0.769		
Financial Literacy	0.180	0.241	0.273	0.755	
Online Business Learning	0.501	0.404	0.391	0.208	0.793

Note: DIS=Digital Entrepreneurship Success, DIL=Digital Informal Learning, DL=Digital Literacy, FL=Financial Literacy, OBL=Online Business Learning

4.2. Structural Equation Model

Using the PLS-SEM bootstrapping method, we conducted a statistical analysis to determine the route coefficients within the structural model, which illustrates the hypothesized correlations. This model explores the relationships between online business education, financial literacy, digital literacy, and the success of digital entrepreneurship while considering the mediating role of informal digital learning among Malaysian IT entrepreneurs. Our data analysis revealed statistically significant links between several factors. There is a significant relationship between digital literacy and informal digital learning ($\beta = 0.254$, $t = 3.391$, $p = 0.000$), supporting H1. Financial literacy also showed a statistical correlation with informal digital learning ($\beta = 0.113$, $t = 2.105$, $p = 0.036$), which supports H2. We found a statistically significant connection between formal business education and informal digital learning ($\beta = 0.281$, $t = 3.984$, $p = 0.000$), leading to the acceptance of H3. Moreover, we identified a statistically significant link between informal digital learning and digital entrepreneurship success ($\beta = 0.617$, $t = 11.903$, $p = 0.000$), confirming H4.

Table 4: Direct Relations

	Original Sample	T Statistics	P Values	Decision
Digital Literacy -> Digital Informal Learning	0.254	3.391	0.001	Supported
Financial Literacy -> Digital Informal Learning	0.113	2.105	0.036	Supported
Online Business Learning -> Digital Informal Learning	0.281	3.984	0.000	Supported
Digital Informal Learning -> Digital Entrepreneurship Success	0.617	11.903	0.000	Supported

4.3. Mediating Effect

After incorporating informal digital learning as a mediating variable, the relationship between digital literacy and digital entrepreneurship success remained significant ($\beta = 0.157$, $t = 2.879$, $p < 0.004$). A similar trend was observed for the association between financial literacy and digital entrepreneurship success ($\beta = 0.070$, $t = 2.213$, $p < 0.027$), as well as for online business learning ($\beta = 0.174$, $t = 3.510$, $p < 0.000$). Mediation in this context can be described as "parties engaging with a mutually selected, impartial, and neutral individual who assists them in resolving their differences" (Hair Jr et al., 2021).

Table 5: Mediating Effect

	Original Sample (O)	T Statistics	P Values
Digital Literacy -> Digital Informal Learning -> Digital Entrepreneurship Success	0.157	2.879	0.004
Financial Literacy -> Digital Informal Learning -> Digital Entrepreneurship Success	0.070	2.213	0.027
Online Business Learning -> Digital Informal Learning -> Digital Entrepreneurship Success	0.174	3.510	0.000

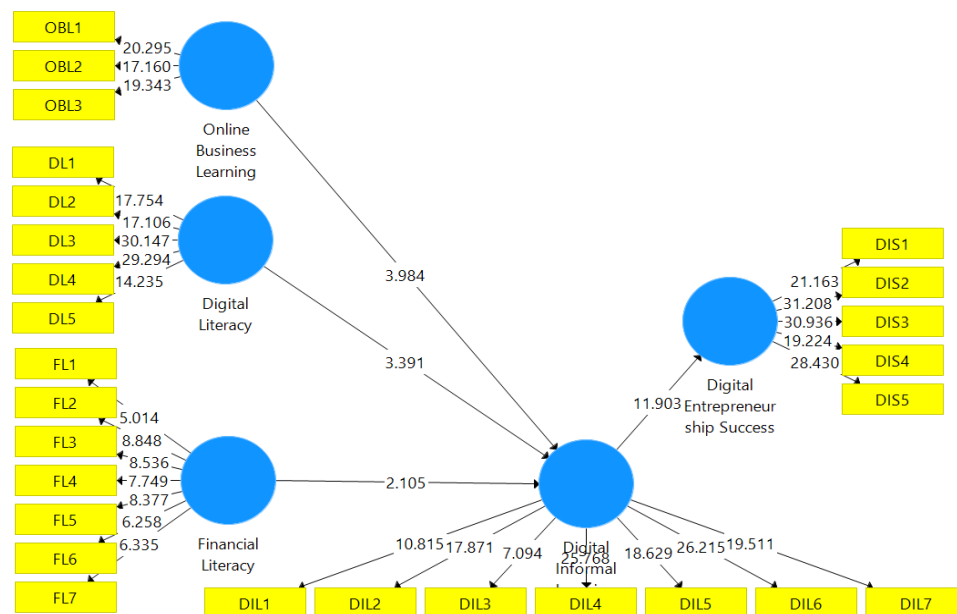


Figure 1: Assessment of Bootstrapping

5. Discussion

This study examined the relationships between online business education, financial literacy, digital literacy, and the triumphant journey of digital entrepreneurship among Malaysian IT entrepreneurs. Furthermore, it illuminated the mediating role of informal digital learning, drawing insights from self-determination and planned behavior theories. The evidence at hand suggests that each of our hypotheses finds strong support. The data reveals a profound and statistically significant correlation between digital literacy and informal digital learning ($\beta = 0.254$, $t = 3.391$, $p = 0.000$). Consequently, H1 stands as a valid proposition. In today's fiercely competitive market, the capacity to comprehend and adeptly employ digital tools is nothing short of pivotal for the prosperity of Malaysian IT entrepreneurs. Moreover, elevating the level of digital literacy across Malaysia could give the country's IT enterprises the leverage to modernize their practices, aligning them with the latest advancements in computing hardware and software. The collective efforts of the government, associations, educational institutions, and other pertinent organizations could be pivotal in enhancing digital literacy among IT businesses and practitioners in Malaysia (Mugiono et al., 2021).

Similarly, the findings establish a statistically significant connection between informal digital learning and financial literacy ($\beta = 0.113$, $t = 2.105$, $p = 0.036$), validating H2. When a company seeks to thrive and endure, its initial reflex often scrutinizes financial matters. For instance, the tangible impact of individual health and well-being on financial management capabilities underscores the multifaceted nature of financial literacy. Implementing health and safety measures can augment the financial literacy of Malaysian IT entrepreneurs (Ritonga et al., 2021). H3 also emerges as valid, given the results displaying a statistically significant correlation between formal business education and informal digital learning ($\beta = 0.281$, $t = 3.984$, $p = 0.000$). In stark contrast to formal classroom settings, informal education predominantly unfolds outside structured boundaries, exhibiting a degree of flexibility in the learning objectives it seeks to achieve (Reddy et al., 2022; Yanto et al., 2022). Our data demonstrates an unambiguous and statistically significant correlation between informal digital learning and digital entrepreneurship success ($\beta = 0.617$, $t = 11.903$, $p = 0.000$). Accordingly, H4 is substantiated. The levels of achievement in informal digital learning appear intrinsically linked to the adeptness with which individuals utilize digital technologies, a notion reinforced by studies conducted in various cultural contexts. For instance, research conducted on Malaysian business students by Putri and Wijaya (2020) and Sukma and Pradana (2022) indicates that the levels of digital literacy, financial literacy, and online business learning intertwine with their usage of digital technologies for informal learning.

Even with the inclusion of informal digital learning as a mediating variable, the correlation between digital literacy and digital entrepreneurship success remains statistically significant ($\beta = 0.157$, $t = 2.879$, $p < 0.004$). Adding informal digital learning as a mediating variable does not diminish the statistical significance of the relationship between financial literacy and digital entrepreneurship success ($\beta = 0.070$, $t = 2.213$, $p < 0.027$). Likewise, after introducing informal digital learning as a mediating variable, the correlation between online business education and digital entrepreneurship success remains statistically significant ($\beta = 0.174$, $t = 3.510$, $p < 0.000$). Students are known to engage with digital media for learning on multiple levels, encompassing cognitive and physical dimensions (Mugiono et al., 2021; Yanto et al., 2022). These observations underscore the interplay between digital literacy, financial literacy, online business learning, informal digital learning, and the realization of digital entrepreneurial success among IT entrepreneurs in Malaysia.

5.1. Practical Implication

This study offers invaluable insights for policymakers, administrators, and decision-makers. Shedding light on lesser-explored contributing factors opens avenues for reducing uncertainties and optimizing strategies. The practical implications extend to areas like online business education, financial literacy, digital literacy, and the achievement of digital entrepreneurship among Malaysian IT entrepreneurs. Moreover, the role of digital learning in informal settings is underscored as a pivotal

mediating factor. In particular, this research underscores the significance of staying up-to-date with digital literacy. A deeper understanding of this aspect is crucial for entrepreneurs' quest for success and innovation. In a rapidly evolving technological landscape, the relevance of past discoveries is diminishing. Therefore, stakeholders, including the government, associations, educational institutions, and relevant organizations, should collaborate to elevate digital literacy among IT businesses in Malaysia.

5.2. Theoretical Implications

The outcomes of this study offer substantial theoretical contributions. An essential finding here is the endorsement of a hierarchical approach, which broadens our theoretical insights. The implications span both IT business owners and policymakers, inviting a deeper focus on dimensions such as online business education, financial literacy, digital literacy, and the success of digital entrepreneurs while acknowledging the mediating role of informal digital learning among Malaysian IT business owners. Moreover, the study's utilization of self-determination theory and planned behavior theory is a distinctive feature, enriching our understanding of the entrepreneurial journey, especially in online business (Lindblom et al., 2020). It reinforces the notion that entrepreneurs are more likely to persist when they experience success and provides a means for predicting their longevity.

5.3. Limitations and Future Research

Our study acknowledges certain limitations and suggests avenues for future research. The reliance on closed-ended quantitative questionnaires limited the depth of exploration. This limitation can be overcome through qualitative research and engaging in dialogues with students to gain insights into how concepts are applied in the classroom. Understanding effective methods for storing and adapting knowledge for future use is another aspect that merits exploration. Future research should also focus on refining our model to ensure it consistently reflects the realities of IT entrepreneurs. A promising avenue for investigation is a deeper analysis of the distinctive attributes of digital literacy. Furthermore, there is a need to broaden the scope and characteristics of individuals in the research to ensure more general and representative findings.

5.4 Conclusion

Entrepreneurs are multifaceted individuals, utilizing a range of competencies to navigate learning resources effectively. This study aimed to enhance our comprehension of online business education by unveiling the mindset and strategies employed by modern entrepreneurs. The findings affirm a robust connection between online business education, digital literacy, and financial literacy among Malaysian IT entrepreneurs conducting online businesses. With the proliferation of IT entrepreneurs in Malaysia, an increasing number are employing the Internet as an educational tool for honing their business acumen, digital technology skills, and financial management capabilities. The insights garnered from this study lay a sturdy foundation for future research. Several aspects warrant in-depth investigation to comprehend digital literacy comprehensively and explore the manifold factors influencing entrepreneurial success. Many variables shape the journey toward online business success, and further exploration can uncover additional dimensions that shape this landscape.

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