Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVIII, vol. 63, no. 4spl, 2025, p.2800-2810
DOI 10.30892/gtg.634spl24-1639

FROM CLASSROOM TO MARKETPLACE: EXPLORING THE DRIVERS OF STUDENTS' DIGITAL ENTREPRENEURIAL INTENTIONS IN EGYPTIAN TOURISM AND HOSPITALITY

Mohamed Y. HELAL [1,2], Alyaa E. LOTFY [2], Fahad M. ALHUQBANI [3], Muhannad M. ALFEHAID [4], Muteb Mohsen Mohammed ALTHAGAFI [5], Amany E. SALEM [*6]

[1] IRC for Finance and Digital Economy, KFUPM Business School, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia; mohamed.helal@kfupm.edu.sa (M.Y.H.)
[2] Hotel Management Department, Faculty of Tourism and Hotel Management, Helwan University, Cairo 12612, Egypt; alyaa.essam@ fth.helwan.edu.eg (A.E.L.)
[3] King Saud University, Tourism & Hotel Management Department, College of Tourism & Archaeology, Riyadh, Saudi Arabia; falhuqbani@ksu.edu.sa (F.M.A.)
[4] Imam Mohammad Ibn Saud Islamic University (IMSIU), Department of Geography and GIS, College of Social Sciences, Riyadh, Saudi Arabia; mmalfehaid@imamu.edu.sa (M.M.A.)
[5] The University of Queensland, Tourism, Hotel and Event Management, Queensland, Australia; muteb.althagafi@gmail.com (M.M.M.A.)
[6] King Faisal University, College of Arts, Social Studies Department, Al Ahsa, Saudi Arabia, asalem@kfu.edu.sa (A.E.S.)

Citation: Helal, M.Y., Lotfy, A.E., Alhuqbani, F.M., Alfehaid, M.M., Althagafi, M.M.M., & Salem, A.E. (2025). From classroom to marketplace: Exploring the drivers of students' digital entrepreneurial intentions in Egyptian tourism and hospitality. *Geojournal of Tourism and Geosites*, 63(4spl), 2800–2810. https://doi.org/10.30892/gtg.634spl24-1639

Abstract: This study examines how factors affect Egyptian tourism and hospitality students' digital entrepreneurial intention (DEI). The research investigates the extended Theory of Planned Behavior (TPB) with self-efficacy, digital literacy, and the Unified Theory of Acceptance and Use of Technology 3 (UTAUT3) as influential factors. The aim is to identify essential factors that help form potential digital entrepreneurs in the tourism and hospitality sector. The study obtained data from Egyptian final-year undergraduate tourism and hospitality students using an online questionnaire. A total of 422 valid responses were collected and analyzed to examine the relationships between the theoretical constructs and digital entrepreneurial intention. According to the study's findings, the extended TPB factors positively influence students' intentions to engage in digital entrepreneurship (DE). Digital literacy demonstrates a significant positive effect on students' DEI. The UTAUT3 dimensions also positively influence digital entrepreneurial intentions, with the exception of facilitating conditions. These results contribute to the tourism and hospitality literature by identifying the essential factors that help form a potential digital entrepreneur. The findings provide valuable insights for understanding what drives students toward digital entrepreneurship in this specific sector. Educational institutions in tourism and hospitality can develop focused curricula, initiatives, and training to enhance students' DEI. The research offers practical implications for curriculum development and student preparation. These findings support the development of targeted educational interventions.

Keywords: Digital entrepreneurship, theory of planned behavior, UTAUT3, digital literacy, intention

* * * * * *

INTRODUCTION

The tourism and hospitality industries are showing a growing tendency towards integrating automation technologies, including Artificial Intelligence (AI) and service technologies (Ali et al., 2022), to mechanize business operations, enhance effectiveness and productivity, increase customer satisfaction, and reduce costs (Chang & Lin, 2022; Helal, 2023; Helal et al., 2024; Horváth et al., 2024; Santiago et al., 2024). For example, restaurants include a range of self-service technologies such as menu ordering kiosks, in-store iPads, tabletop touch screens, and other digital interfaces (Park et al., 2021).

These modern technologies have increased the need for DE in the tourism and hospitality sectors, a specific type of entrepreneurship that involves creating and following entrepreneurial opportunities using technical operating systems and specialized information communication tools (Sahut et al., 2019). DE involves transforming business entities, including startups and existing companies, through the innovative application of digital technology (Mir et al., 2022).

Therefore, there is a need to develop the digital skills of future human capital (students) so that they can find job opportunities, grow the industry, and face challenges (e.g., COVID-19) (Sedegah et al., 2024). Additionally, the quickly changing digital world needs better knowledge of what and how new technologies, such as ChatGPT, augmented reality, virtual reality, chatbots, and blockchain (Helal et al., 2024; Santiago et al., 2024), may be incorporated into students' curricula, leading to entrepreneurial projects. However, recent tourism and hospitality research focuses mainly on existing entrepreneurs or professionals, leaving out students representing the future workforce and prospective innovators (Ali et al.,

* Corresponding author

2022; Battisti et al., 2022). Thus, there is a need for further exploration of factors that affect students' DEI in the tourism and hospitality industry. TPB is a well-established theory to explain the behavior intention of a person (Ajzen, 2020).

The behavior intention is affected by three variables: attitude, subjective norms, and perceived behavioral control (Sedegah et al., 2024). Attitude is an indication of the behavior (Vamvaka et al., 2020), subjective norms are an indication of social pressures (Al-Jubari et al., 2021), and perceived behavioral control is whether the behavior is easy or difficult or not (Sedegah et al., 2024). However, to the best of the author's knowledge, TPB usage in DE has been accorded less attention in tourism and hospitality research. Beyond TPB dimensions, Wang & Zhang (2015) suggest the inclusion of self-efficacy within the TPB model as a theory construct antecedent. This inclusion enhances understanding of how individuals' perceptions of their abilities affect their attitudes, subjective norms, and perceived behavior control (Neneh, 2020).

Self-efficacy promotes opportunity recognition, goal setting, emotional response, effort allocation, and survival of challenges (Wibowo et al., 2024). Moreover, as Neumeyer et al. (2021) assert, digital entrepreneurs should be highly literate to exploit new opportunities, augment their competitive edge, and counter digital challenges.

Martínez-Bravo et al. (2022) described digital literacy as the ability to access, manage, integrate, create, and present digital information effectively and efficiently in various contexts and for various purposes with digital tools and systems. Digital literacy involves possessing technical capabilities and being aware of how to gain access to and engage in the digital world, critically evaluating digital information, and using technology in an ethical and responsible manner (Reddy et al., 2022). Hence, the present research assumes digital literacy to be an essential component that enhances students' DEI and enables them to use digital resources. For example, a digitally literate individual is capable of using social media networks to communicate effective marketing messages (Reddy et al., 2022). In addition, Venkatesh et al. (2012) contributed that adopting technology helps gain the competencies that enable its use in daily life and workplaces.

Technology adoption models have expanded extensively since they began to develop based on technology use and acceptability environments (Venkatesh et al., 2012). This current research investigates the impact of UTAUT3 on students' DEI. According to Ali et al. (2022), UTAUT3 provides a greater understanding of technology adoption and utilization, mainly when variables other than effort expectations and performance are essential. UTAUT3 can be used as a robust foundation in explaining why tourism and hospitality students embrace digital technology and participate in DE.

This research, therefore, aims to identify how psychological influences (i.e., extended TPB with self-efficacy), technological competence (i.e., digital literacy), and the technology acceptance model (i.e., UTAUT3) influence students in Egypt's tourism and hospitality sectors to participate in DE.

LITERATURE REVIEW

Digital entrepreneurship intentions

As per Zhao et al. (2023), DE is a phenomenon that has transformed conventional business practices and created new prospects for expansion and innovation. DEI reflects the enthusiasm and commitment of individuals to initiating new ventures using internet platforms and digital technology (like social media, cell phone applications, websites, and AI-based technology) (Alkhalaileh et al., 2023; Mir et al., 2022). For different reasons, it is necessary to investigate the determinants of students' participation intentions in DE (Wibowo et al., 2024). The determination of potential digital entrepreneurs enables business and academic organizations to provide an environment conducive to access to sources of funding and resources (Mir et al., 2022; Rashwan et al., 2024). Moreover, the identification of the digital skills gap among students enables the development of tailored educational programs and training activities (Ulfert-Blank & Schmidt, 2022).

Conceptual development

Extended theory of planned behavior and digital entrepreneurship intentions

Attitudes. Attitudes refer to personal judgments and evaluations of the anticipated outcomes of engaging in a particular action (Ajzen, 2020). According to Wu et al. (2020), students are more likely to have positive attitudes if they believe they have the skills and capabilities to succeed as entrepreneurs and see DE as a feasible and fulfilling career choice. Emotional elements (e.g., enthusiasm and excitement) greatly influence students' perceptions of entrepreneurship (Svenningsson et al., 2021). However, Mir et al. (2022) mentioned that students who want to participate in DE face financial limitations, regulatory impediments, and market instability. According to Sharma et al. (2023), students overcome these hurdles with the support of positive attitudes, which reduce risk perception and increase enthusiasm for undertaking entrepreneurial projects. Based on the previous discussion, we formulate the following hypothesis:

H1: Attitudes positively influence tourism and hospitality students' DEI.

Subjective norms. According to Ajzen (2020), subjective norms refer to an individual's judgment on whether or not others in their social surroundings approve of a particular behavior. However, specific personal characteristics can lessen the influence of subjective norms. Allawi & Alyouzbaky (2024) stated that students with a strong inclination for independence may prioritize their objectives over social influences. However, a robust entrepreneurial spirit among students enhances a shared identity, rendering DE an appealing career choice (Alkhalaileh et al., 2023). Sharma et al. (2023) affirmed that perceiving colleagues or distinguished persons succeed via digital firms may deliver a substantial informative impact and a sense of social affirmation. Based on the previous discussion, we formulate the following hypothesis:

H2: Subjective norms positively influence tourism and hospitality students' DEI.

Perceived behavioral control. Perceived behavioral control refers to individuals' self-assessment of their talents, resources, and access to necessary criteria for engaging in activities that correspond with their interests and passions (Ajzen, 2020). Miralles et al. (2015) stated that perceived behavioral control impacts the relationship between

entrepreneurial knowledge and intention. The TPB suggests that individuals are more likely to accomplish their objectives and accurately forecast their future entrepreneurial behaviors when they have greater behavioral control (Vamvaka et al., 2020). Reddy et al. (2022) stated that students are more likely to participate in digital projects when they have the requisite knowledge and tools. Based on the previous discussion, we formulate the following hypothesis:

H3: Perceived behavioral control positively influences tourism and hospitality students' DEI.

Self-efficacy. Self-efficacy is a concept that assesses an individual's belief in succeeding in a specific situation (Ulfert-Blank & Schmidt, 2022). Self-efficacy beliefs can affect individual selection of tasks, level of effort, and perseverance in finishing them, particularly when faced with obstacles. Research has demonstrated that self-efficacy is critical in developing an individual's motivation, achievement, and behavior (Wibowo et al., 2024). Wu et al. (2020) asserted that self-efficacy significantly predicts undergraduate students' intentions to pursue entrepreneurship activities. Self-efficacy clarified why students with similar attitudes and social factors might demonstrate divergent behaviors (Shang et al., 2023). Students exhibiting elevated self-efficacy in their digital entrepreneurial competencies are more likely to engage in startup ventures than their peers (Neneh, 2020). Based on the previous discussion, we formulate the following hypothesis:

H4: Self-efficacy positively influences tourism and hospitality students' DEI.

Digital literacy and digital entrepreneurship intentions

Digital literacy is the skills and capabilities required to communicate and work using digital tools (Martínez-Bravo et al., 2022). These skills and capabilities include the ability to efficiently search and collect information from a variety of online sources as well as to evaluate the accuracy and applicability of that information critically (Neumeyer et al., 2021). Anthonysamy et al. (2020) asserted that promoting digital literacy gives students the necessary digital skills to engage effectively and successfully in their personal, academic, and workplaces (Šaffová et al., 2024). Shin & Kang (2021) stated that digital competencies are essential for businesses to adeptly navigate market fluctuations and engage effectively with their target audience. Likewise, Neumeyer et al. (2021) highlighted the value of digital literacy in integrating digital technology, making it easier to access resources like e-learning platforms, crowdfunding tactics, and virtual communication opportunities. Based on the previous discussion, we formulate the following hypothesis:

H5: Digital literacy positively influences tourism and hospitality students' DEI.

UTAUT3 and digital entrepreneurship intentions

Performance expectancy. Performance expectancy is the perception that using a particular technology will improve task accomplishment (Farooq et al., 2017). Performance expectancy highlights businesses' advantages when using technological instruments and systems (Pinto et al., 2022). According to Battisti et al. (2022), entrepreneurs use digital tools when they expect improved work productivity and outcomes. Similarly, Reddy et al. (2022) stated that digital technologies increase sales by expanding the customer base, enabling online transactions, and accelerating the creation of marketing and customer relationship management revenue. Also, Singh et al. (2024) mentioned that businesses can lower operational costs using data analytics, digital transformation, and automation. Based on the previous discussion, we formulate the following hypothesis:

H6: Performance expectancy positively influences students' DEI.

Effort expectancy. Effort expectancy reflects an individual's perception of the effortlessness and convenience of technology adoption (Farooq et al., 2017). People utilize technology to boost productivity when they find it easy to use and understand (Helal, 2023). Similarly (Alkhalaileh et al., 2023) asserted that entrepreneurs are more likely to embrace digital solutions perceived as user-friendly and seamlessly integrated into their existing workflows. In addition, according to Allawi & Alyouzbaky (2024), digital simplicity refers to how easily businesses can incorporate digital tools and platforms into their work practices. Likewise, Singh et al. (2024) mentioned that entrepreneurs are more motivated to integrate digital tools into their businesses when these technologies are less sophisticated and need less effort. Based on the previous discussion, we formulate the following hypothesis:

H7: Effort Expectancy positively influences tourism and hospitality students' DEI.

Social influence. Social influence is the degree of pressure exerted on individuals by their social surroundings to accept or reject a particular technology (Ali et al., 2022). Social influence highlights the impact of social networks and interpersonal ties on technological behaviors (Pinto et al., 2022). Individuals are expected to accept and use technology if they know their peers, superiors, or community members do (Allawi & Alyouzbaky, 2024; Helal, 2023). Moreover, according to Gunasinghe et al. (2020), witnessing colleagues using digital tools motivates individuals to use them as they know their advantages and disadvantages. Thus, network effects enhance social impact by increasing the value of extensively utilized digital technology, promoting further adoption. Based on the previous discussion, we formulate the following hypothesis:

H8: Social influence positively influences tourism and hospitality students' DEI.

Facilitating conditions. The facilitating conditions refer to an individual's perception of resources and support that can facilitate technology adoption and use (Pinto et al., 2022). Facilitating conditions, including technology infrastructure, training opportunities, and enabling regulations or standards (Farooq et al., 2017). According to Luong & Lee, 2021, educational institutions provide training centers catering to the various technical skills students need to compete in the labor market. Yeganegi et al. (2021) asserted that individuals engage with new technologies when they possess the necessary resources, including reliable hardware, enough software, and technical support. Thus, we argue that entrepreneurs accept technology when they recognize adequate support structures, including technical assistance, training programs, and funding resources. Based on the previous discussion, we formulate the following hypothesis:

H9: Facilitating conditions positively influences tourism and hospitality students' DEI.

Hedonic motivation. Hedonic motivation is the manner by which individuals recognize technology as a source of amusement, enjoyment, and joy (Ali et al., 2022). Individuals who take pleasure in technological utilization through pleasant

interfaces, interactive features, or gamification factors tend to embrace and sustain the tools in the long term (Helal et al., 2024). According to Yeganegi et al. (2021), individuals who perceive technological change as energizing and stimulating will be willing to embrace this technology. Hedonic's impact on the adoption of technology can drive consumer interest and interaction with the company because entrepreneurs are more willing to embrace digital behavior when they are able to realize high hedonic benefits from digital technology (Mir et al., 2022). Price value. Price worth is an individual's judgment of the net value of a technology compared to its costs (Farooq et al., 2017). Thus, we formulate the following hypothesis:

H10: Hedonic positively influences tourism and hospitality students' DEI.

Price value. The judgment includes explicit cost (i.e., purchase cost, subscription rates, and maintenance charges) and implicit cost (i.e., time to learn and any technical problems) (Gunasinghe et al., 2020). Entrepreneurs adopt digital transformation if the probable advantage, including increased revenue, lowering operating expenses, and increased customer satisfaction, are more than the expenditures, states Singh et al. (2024). A positive cost-benefit ratio makes entrepreneurs invest in technology that provides immense value (Sahut et al., 2019). Thus, those entrepreneurs who are aware of the importance of pricing and benefits from digital technologies are likely to accept and implement such technologies than others who do not possess such awareness. Habit. Habit is a word used to explain behavior that becomes routine via past experience, and it indicates to what extent individuals do a specific task without thought or effort (Gunasinghe et al., 2020). Based on the previous discussion, we formulate the following hypothesis:

H11: Price value positively influences tourism and hospitality students' DEI.

Habit. Habit is habituated behavior that can profoundly influence individuals' receptivity to using new technology (Pinto et al., 2022). Habits also require less cognitive effort once they are well developed, hence enabling individuals to keep employing traditional tools and techniques (Farooq et al., 2017). As posited by Lissitsa (2024), students with advanced digital use habits cultivated through extensive experience and guidance are likely to sustain the use of digital technology within their working settings. Similarly, students with more persuasive and consistent routines are likely to embrace digital working styles (Svenningsson et al., 2021). Based on the previous discussion, we formulate the following hypothesis:

H12: Habit positively influences tourism and hospitality students' DEI.

Personal innovativeness. According to Ali et al. (2022), personal innovativeness is a personal trait that reflects the individual's willingness to accept and use new digital tools quickly. Gunasinghe et al. (2020) defined personal innovativeness as the comfort and proactivity with which individuals use the latest technologies to explore and experience recent digital tools and systems. Innovativeness individuals often view technology not only as a tool for goal attainment but as an opportunity for personal development, knowledge acquisition, and the enhancement of various aspects of their lives (e.g., education and jobs) (Pinto et al., 2022). According to Luong & Lee (2021), students are expected to demonstrate increased enthusiasm when they have more openness toward technological innovation. Likewise, Wibowo et al. (2024) affirmed that students who always investigate modern technologies will likely be more receptive to adopting digital tools. Based on the previous discussion, we formulate the following hypothesis:

H13: Personal innovativeness positively influences tourism and hospitality students' DEI.

Collectively, this study illustrates the main hypotheses in Figure 1.

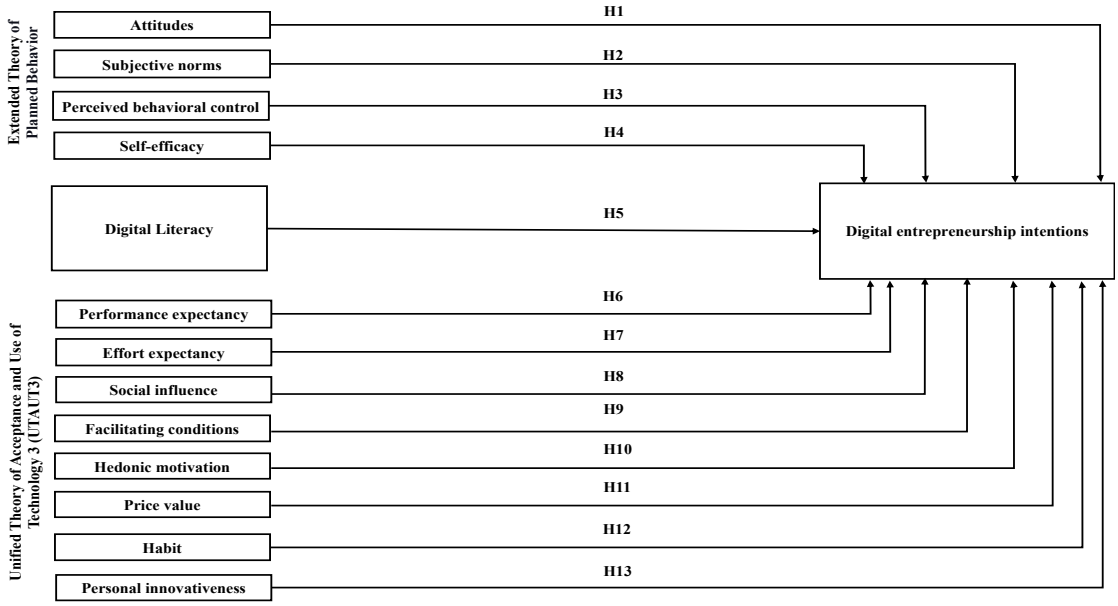

Figure 1. The conceptual model

MATERIALS AND METHODS

Constructs measures

This research utilized previous reliable and valid measurement scales to evaluate the factors affecting tourism and hospitality students' DEI. First, the study used the measurement scales of extended TPB by Schwarzer & Jerusalem (1995),

Wang & Zhang (2015), and Gao et al. (2017), including the four factors (i.e., attitudes, subjective norms, perceived behavioral control, and self-efficacy). Second, the study used the Reddy et al. (2022) scale to measure digital literacy to assess students' proficiency in accessing, assessing, and employing digital technologies. Third, the study used the UTAUT3 framework that Farooq et al. (2017) developed to evaluate the factors that can encourage technology adoption and utilization among students. Finally, the study employed the scale that Singh et al. (2024) developed to assess students' DEI, measuring their motivation and preparedness to participate in digital entrepreneurial initiatives.

The study context and data collection

The study was conducted among final-year students at Egypt's tourism and hospitality higher education from April to August 2024. Final-year students were chosen because they had extensive knowledge and skills from their academic pursuits (Sedegah et al., 2024). They are more receptive to new chances and entrepreneurial initiatives because they consider their career prospects actively. The participants were selected using a convenience sampling method from educational institutions offering bachelor's degrees in tourism and hospitality. The questionnaire was distributed in Arabic to guarantee that participants comprehended the questions fully and could furnish appropriate replies. Two proficient translators with at least five years of experience specializing in English translated the questionnaire to ensure its precision and appropriateness for the target society. The study collected the data through an online questionnaire. The initial part of the questionnaire gathered demographic data (e.g., gender and age). In the second part, a 5-point Likert scale was employed to evaluate 45 research items, with responses ranging from 1 ("strongly disagree") to 5 ("strongly agree") (appendix A).

First, a pilot study involving 50 participants was conducted to measure the reliability of study factors. The results demonstrate that all constructs exhibited good internal reliability (Cronbach's alpha values ranged from 0.74 to 0.89). Therefore, the pilot study verified the reliability of the questionnaire items and established a solid basis for the second analysis phase. The second phase of the questionnaire collected 422 valid responses for further analysis.

Data analysis

The current study performed the requisite analysis through the utilization of two software, i.e., SPSS and AMOS. Missing Completely at Random test revealed the absence of missing information, and neither skewness nor kurtosis existed (Kline, 2015). Further, the study evaluated Composite Reliability (CR) and Cronbach's alpha to gauge the internal reliability of each latent variable construct (Fornell & Larcker, 1981). Further, the study evaluated Average Variance Extracted (AVE) to verify the convergent and discriminant validity of the constructs, with an AVE of 0.50 considered adequate for measuring validity (Hair et al., 2017). Confirmatory factor analysis was used to verify that multi-item scales are mapping onto the assumed underlying variables (Hair et al., 2020).

After this rigorous validation procedure was completed, hypotheses were tested using standardized path coefficients (ß) for quantifying the strength and direction of correlations between different factors (Hair et al., 2020).

RESULTS

Sample characteristics

Table 1 illustrates the demographic characteristics of the study's participants. Most of the 422 respondents were men (70.1%, n=296), with women accounting for 29.9% (n=126). A predominant 62.6% response was in the 18-21 age group, while 36.3% belonged to the 22-30 age group. 1.2% of responders were aged more than 30 years. Business engagement was significant among respondents, with 65.2% (n=275) participating in entrepreneurial initiatives, while 20.3% (n=86) possessing startup experience. Significantly, just 4.7% (n=20) had operated their enterprises, whereas 9.8% (n=41) indicated a lack of prior entrepreneurial experience. The findings show that, among the participants, the need for independence was a primary motivator for pursuing DE, cited by 48.6% (n=205). Financial achievement was another notable motive, recognized by 33.2% (n=140). In comparison, motives associated with innovation and social impact were less significant, with 11.8% (n=50) and 6.4% (n=27), respectively, recognizing these as primary motivators. Moreover, the participants predominantly possessed academic qualifications in hospitality (55.7%, n=235) and tourism (44.3%, n=187).

Table 1. Sample profile (Source: Created by authors)

Characteristics	Descriptions	Statistics	(%)
Gender	Male	296	70.1
	Female	126	29.9
Age	18-21	264	62.6
	22-30	153	36.2
	More than 30	5	1.2
Have you ever engaged in any tourism/hospitality entrepreneurship activities?	Yes, I have run my own business	20	4.7
	Yes, I have worked in a startup	86	20.3
	Yes, I have participated in projects (e.g., internships, competitions)	275	65.2
	No, I have no prior experience	41	9.8
What motivates you to consider digital entrepreneurship?	Desire for independence	205	48.6
	Financial success	140	33.2
	Opportunity to innovate	50	11.8
	Social impact	27	6.4
What is your department?	Hospitality	235	55.7
	Tourism	187	44.3

Measurements and model fit

Table 2 shows the results of standardized loading, AVE, CR, and Cronbach's alpha (a). First, this study found that all constructs have acceptable standardized loading values, exceeding the acceptable threshold of 0.70 (Hair et al., 2017). Second, all constructs had AVE values beyond the 0.50 threshold, affirming their precision in capturing the variance of their indicators and substantiating their convergent validity (Hair et al., 2020).

Table 2. Analysis of measurement model (Source: Created by authors) (Note: All factor loadings were significant at ≤ .001; CR = Composite Reliability (≥ 0.70); Cronbach alpha (≥ 0.70); AVE = Average Variance Extracted (≥ 0.50).)

Constructs	Standardized loading (t value)	AVE	CR	Cronbach alpha
Attitude		0.56	0.79	0.73
ATT1	0.75			
ATT2	0.79			
ATT3	0.72			
Subjective norm		0.57	0.80	0.74
SN1	0.85			
SN2	0.70			
SN3	0.72			
Perceived behavior control		0.63	0.84	0.73
PBC1	0.83			
PBC2	0.74			
PBC3	0.82			
Self-efficacy		0.59	0.81	0.80
SE1	0.84			
SE2	0.70			
SE3	0.77			
Digital literacy		0.58	0.89	0.84
DL1	0.82			
DL2	0.75			
DL3	0.72			
DL4	0.77			
DL5	0.74			
DL6	0.80			
Performance expectancy		0.74	0.89	0.88
PE1	0.85			
PE2	0.89			
PE3	0.85			
Effort expectancy		0.62	0.83	0.83
EE1	0.70			
EE2	0.83			
EE3	0.83			
Social influence		0.59	0.81	0.77
SI1	0.73			
SI2	0.80			
SI3	0.78			
Facilitating conditions		0.56	0.83	0.79
FC1	0.80			
FC2	0.79			
FC3	0.71			
FC4	0.70			
Hedonic motivations		0.68	0.86	0.87
HM1	0.79			
HM2	0.85			
HM3	0.84			
Price value		0.61	0.76	0.76
PV1	0.78			
PV2	0.79			
Habit		0.60	0.75	0.75
HB1	0.76			
HB2	0.79			
Personal innovativeness		0.64	0.79	0.79
PI1	0.77			
PI2	0.75			
PI3	0.73			
Digital entrepreneurship intention		0.60	0.86	0.82
DEI1	0.78			
DEI2	0.86			
DEI3	0.73			
DEI4	0.74			

Finally, Cronbach's alpha and CR further validate the measuring model's robustness in that all constructs achieved values over 0.70 (Fornell & Larcker, 1981). The measurement model's adequacy was assessed using several fit indicators, as defined by Hair et al. (2020). The comparative chi-square (χ^2/df) was 2.68, and the model fitted well because it is less than the generally accepted level of 3.0. It was achieved when the model was 2293.5 with 854 degrees of freedom ($p < 0.001$), which presents clear-cut evidence against the null hypothesis of lack of fit.

Besides the chi-square statistic, several other fit values were used to measure how well the model fitted overall. There were five scores: 0.90 for the Adjusted Goodness-of-Fit Index, 0.91 for the Normed Fit Index, 0.92 for the Goodness-of-Fit Index, 0.91 for the Comparative Fit Index, and 0.94 for the Tucker-Lewis Index. All these high scores are over the 0.90 threshold, which gives confidence in the stability of the model. The final result was an RMSEA of 0.063, below the reasonable limit of 0.08. These fit values show that the model is stable and can be used for more hypothesis testing.

Further, Fornell & Larcker (1981) stated that the square root of the AVE for each construct should exceed the sum of all the relationships between that construct and all the other constructs to indicate the discriminant validity (Table 3). The correlation values, while indicating some positive relationships, do not meet the threshold for discriminant validity.

Table 3. Discriminant validity (Fornell & Larcker, 1981) (Source: Created by authors) (Note: All correlations are significant at $p < 0.001$.)

Constructs	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Attitude	**0.74**													
2. Subjective norm	0.33	**0.75**												
3. Perceived behavior control	0.33	0.32	**0.79**											
4. Self-efficacy	0.27	0.24	0.29	**0.76**										
5. Digital literacy	0.29	0.26	0.31	0.29	**0.76**									
6. Performance expectancy	0.38	0.31	0.35	0.33	0.33	**0.86**								
7. Effort expectancy	0.28	0.26	0.32	0.27	0.31	0.35	**0.78**							
8. Social influence	0.22	0.23	0.29	0.20	0.29	0.27	0.29	**0.76**						
9. Facilitating conditions	0.19	0.21	0.24	0.33	0.26	0.22	0.25	0.25	**0.74**					
10. Hedonic motivations	0.33	0.31	0.36	0.21	0.34	0.42	0.35	0.30	0.27	**0.82**				
11. Price value	0.33	0.28	0.32	0.31	0.32	0.39	0.32	0.28	0.25	0.44	**0.78**			
12. Habit	0.31	0.29	0.35	0.27	0.37	0.41	0.39	0.32	0.29	0.45	0.42	**0.77**		
13. Personal innovativeness	0.32	0.30	0.35	0.31	0.33	0.40	0.35	0.30	0.28	0.45	0.40	0.45	**0.80**	
14. Digital entrepreneurship intention	0.35	0.30	0.34	0.31	0.30	0.41	0.33	0.26	0.22	0.39	0.36	0.39	0.39	**0.77**

Hypothesis testing

The study examines the factors influencing the DEI of students in tourism and hospitality (Table 4 and Figure 2). Firstly, the study found a positive effect of the extended TPB on students' intentions towards DE. The research indicated that attitude positively influences DEI (H1: $\beta = 0.290$, $p < 0.001$; H2: $\beta = 0.163$, $p < 0.003$; H3: $\beta = 0.151$, $p < 0.003$; H4: $\beta = 0.331$, $p < 0.001$). These outcomes underscore the importance of encouraging an entrepreneurial mindset (e.g., social pressures, enhancing confidence in students' abilities and competencies, and providing needed resources) as a requirement for intention formation. Secondly, the findings demonstrate that digital literacy substantially increases students' intentions for DE (H5: $\beta = 0.659$, $p < 0.001$). This notable impact underscores the necessity of digital competencies in the modern entrepreneurial landscape, where expertise in digital tools and platforms is crucial for success.

Table 4. Path coefficients (Source: Created by authors)
(Note: *Absolute *t*-value > 1.96, p< 0.05; **Absolute *t*-value > 2.58, p< 0.01; ***Absolute *t*-value > 3.29, p< 0.001)

Hypothesis	Path	Standardized Coefficient	t-value	p-value	Conclusion
H1	Attitude □ Digital entrepreneurship intention	0.290	5.43	0.000***	Supported
H2	Subjective norm □ Digital entrepreneurship intention	0.163	3.02	0.003**	Supported
H3	Perceived behavior control □ Digital entrepreneurship intention	0.151	2.98	0.003**	Supported
H4	Self-efficacy □ Digital entrepreneurship intention	0.331	6.88	0.000***	Supported
H5	Digital literacy □ Digital entrepreneurship intention	0.659	15.36	0.000***	Supported
H6	Performance expectancy □ Digital entrepreneurship intention	0.387	9.06	0.000***	Supported
H7	Effort expectancy □ Digital entrepreneurship intention	0.203	4.15	0.000***	Supported
H8	Social influence □ Digital entrepreneurship intention	0.135	2.82	0.005**	Supported
H9	Facilitating conditions □ Digital entrepreneurship intention	-0.051	-1.013	0.311	Rejected
H10	Hedonic motivations □ Digital entrepreneurship intention	0.181	3.17	0.002**	Supported
H11	Price value □ Digital entrepreneurship intention	0.251	4.74	0.000***	Supported
H12	Habit □ Digital entrepreneurship intention	0.609	16.90	0.000***	Supported
H13	Personal innovativeness □ Digital entrepreneurship intention	0.334	5.73	0.000***	Supported

Finally, the study examined the impact of UTAUT3 on tourism and hospitality students' intentions to engage in DE. This study revealed that seven dimensions of the UTAUT3 model positively impacted students' DEI including performance expectancy (H6: $\beta = 0.387$, $p < 0.001$), effort expectancy (H7: $\beta = 0.203$, $p < 0.001$), social influence (H8: $\beta = 0.135$, $p < 0.005$), hedonic motivations (H10: $\beta = 0.181$, $p < 0.002$), price value (H11: $\beta = 0.251$, $p < 0.001$), habit (H112: $\beta = 0.609$, $p < 0.001$), personal innovativeness (H13: $\beta = 0.334$, $p < 0.001$). These findings mean that students are more likely to pursue DE if they believe that using digital technology has more advantages, find digital tasks more manageable, have established

digital entrepreneurial habits, enjoy the entrepreneurial process, value the cost-benefit ratio of DE, and are receptive to new ideas and technologies. However, the study found that facilitating conditions do not positively impact DEI (H9: β = -1.013, $p < 0.311$). The finding indicates that while access to resources is essential, students may not be fully aware of the supportive conditions accessible to them, or they may not regard these factors as pertinent to their entrepreneurial goals.

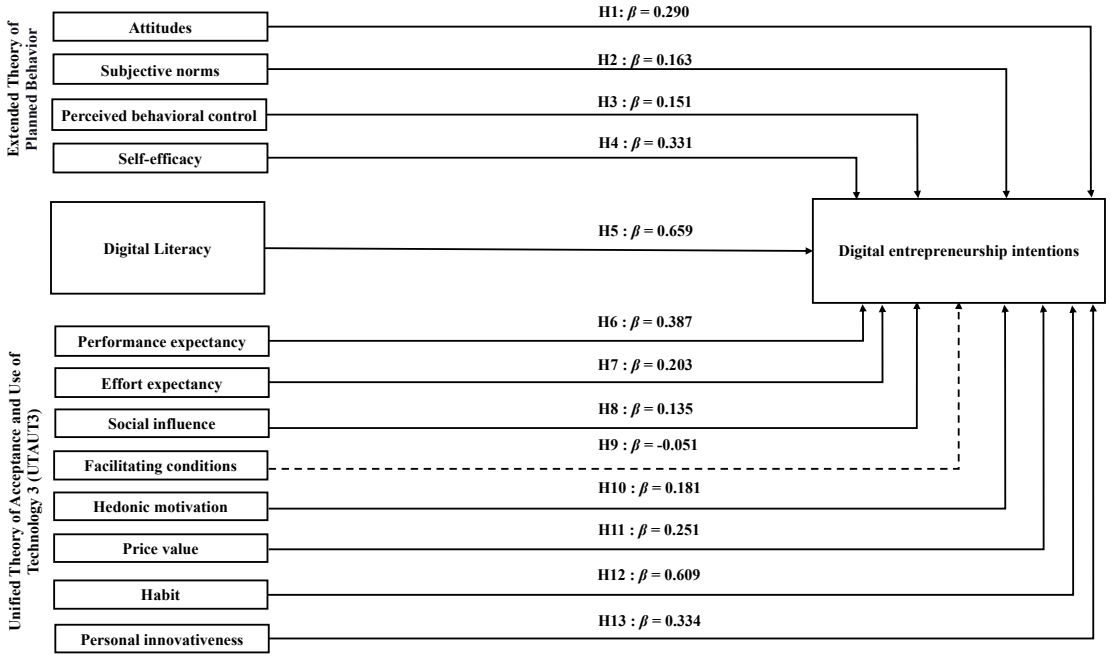

Figure 2. Structured framework (Note: Arrows show significant pathways, whereas dotted arrow indicates a nonsignificant path)

DISCUSSION AND IMPLICATIONS

Discussion

The current research seeks to determine factors influencing students' DEI in tourism and hospitality. The study found that extended TPB significantly explained students' DEI. The findings confirm Ajzen's (2020) TPB that positive attitudes would dominate the impact on behavioral intentions. Academic circles should put a lot of emphasis on cultivating students' entrepreneurial mindset. For example, curriculum showing successful entrepreneurs or a practical experience can raise the attitudes of students and make DE more attractive (Sedegah et al., 2024). Furthermore, the creation of an entrepreneurial culture enables students to achieve their aspirations by exerting a favorable impact on the subjective norms (Al-Jubari et al., 2021). Additionally, students can be motivated to apply DE more effectively by being given practical DE training and mentorship that supports their self-confidence (Sedegah et al., 2024).

Additionally, the study determined that digital literacy had a positive effect on DEI among tourism and hospitality students. This discovery aligns with past studies proving that digital literacy plays an essential role in effective work performance in the subsequent years (Shin & Kang, 2021). This result points out that these institutions need to add higher-level digital skills to their curriculum in order to enable students to engage in the digital economy and benefit from the new entrepreneurial opportunities (Safarov et al., 2024; Reddy et al., 2022). Thus, digitally skilled students are able to cope with the dynamics of the digital business environment, using web-based tools in order to engage in DE projects. The study confirmed the positive influence of social influence on student intention towards pursuing DE.

Furthermore, the research revealed that all dimensions of the UTAUT3 model positively influence the students' DEI, except (i.e., facilitating conditions). A significant relationship existed between students' intentions to participate in DE and performance expectancy. This result implies that students are more inclined to engage in digital entrepreneurial ventures when convinced that digital technologies will result in improved productivity and performance, consistent with the findings of Battisti et al. (2022). Similarly, effort expectancy positively influenced students' DEI, suggesting that students are more ready to employ digital tools when they perceive them as user-friendly. This outcome agrees with the findings of Allawi & Alyouzbaky (2024), which emphasize that more straightforward and user-friendly technologies reduce entry barriers. Thus, educators should prioritize demonstrating the tangible advantages and simplicity of digital tools to motivate a more significant number of students to pursue DE (Svenningsson et al., 2021).

Based on Ali et al. (2022) findings, students are strongly encouraged to venture into DE through peer pressure, mentorship, and societal encouragement. Mentorship programs and peer interactions can significantly impact the entrepreneurial aspirations of students by developing a supportive ecosystem (Banerjee & Ho, 2019). However, the study failed to find any positive association between facilitating conditions and the DEI of the students. This reveals that the students need to learn about the resources they possess in order to participate in DE. Hence, learning institutions should unite and raise awareness about the favorable conditions (Neumeyer et al., 2021). Additionally, the study established that hedonic motivation and price value positively affect the intentions of the students to participate in DE. Students who perceive a favorable cost-benefit ratio and enjoy utilizing digital technology use technologies in their digital initiatives, consistent with findings from

Yeganegi et al. (2021) and Sahut et al. (2019). Additionally, the habit was determined to impact students' DEI significantly. Students who consistently utilize digital technologies are keener to include them in their work (Pinto et al., 2022). Finally, personal innovativeness significantly impacts students' DEI. Thus, schools need to promote creativity, innovativeness, and experimentation for developing students' innovativeness to engage in DE (Alkhalaileh et al., 2023).

Theoretical implications

This study complements the theoretical tourism and hospitality DE literature by examining students' DEI. This study contributes to the perspectives of implementing the TPB in the DE context. Mir et al. (2022) pointed out that technology access, privacy and security concerns, and social media online reviews can affect different perceptions of TPB in the digital context. For example, issues related to data breaches and online privacy might deter students from setting up online businesses (Helal et al., 2024). Student behavior in the online environment has, therefore, evolved, and universities must introduce different support and teaching programs that place emphasis on privacy and security issues. Moreover, integrating self-efficacy with TPB aspects highlights students' confidence in their future entrepreneurial capabilities. Hence, extended TPB enhances the comprehension of how students' behavior integrates with digital aspects to establish entrepreneurial intentions (Shang et al., 2023). Additionally, the study contributes to the literature by illustrating that digital literacy is not only a technical competency but also a critical factor in influencing entrepreneurial intentions and competencies.

For instance, acquiring data analysis skills enables future entrepreneurs to evaluate and capitalize on data insights, promote evidence-based decision-making, and enhance business plans in relation to consumer behavior and market trends (Reddy et al., 2022). This result highlights the imperative of integrating digital literacy skills into entrepreneurship curricula and training programs. Furthermore, the study makes a significant contribution to technology adoption and entrepreneurship research in the tourism and hospitality sectors using UTAUT3. The study illustrates that UTAUT3 factors are essential in understanding potential entrepreneurs' perceptions and utilization of digital assets. UTAUT3 constructs assume more importance in an entrepreneurial context since entrepreneurs depend greatly on technology for innovation, scaling, and competition.

Managerial implications

The conclusions derived from the current study provide some managerial implications to help tourism and hospitality training schools in advancing students' DEI. For example, schools must create curricula that introduce students to the advantages of DE and expose them to practical experiences highlighting the benefits. Thus, students will become professionalized and achieve self-actualization, motivating and encouraging them to follow their entrepreneurial aspirations upon hearing success stories and participating in experiential learning (Sedegah et al., 2024). Further, according to Al-Jubari et al. (2021), entrepreneurship clubs, collaboration platforms for peers, and mentoring initiatives provide social support to students necessary to progress on their entrepreneurial pursuits. In addition, learning programs can ready students for DE by embedding sophisticated digital competencies in the learning curriculum, such as data science analytics, AI software, and social media literacy (Reddy et al., 2022). It is also important for institutions to offer students hands-on DE training to enhance their self-efficacy and behavioral control. Hands-on education, such as entrepreneurship training and internship, would have a dramatic impact on boosting the confidence and faith of students in their entrepreneurial activities (Wu et al., 2020).

In addition, institutions can emphasize the benefits of digital technology, which may reduce perceived barriers to DE. In addition, educational institutions should set up a strong infrastructure for entrepreneurship that encourages students to participate in DE (Banerjee & Ho, 2019). For instance, fostering business aspirations requires support from entrepreneurship incubators. Similarly, educational programs must encourage students to utilize digital technology regularly since the more these tools are incorporated into students' daily lives, the more likely they are to use them for business ventures. Luong & Lee (2021) stated that developing entrepreneurial ambitions requires fostering personal innovativeness by promoting creativity and experimentation. Accordingly, emphasizing benefits and offering required assistance increases students' inclination to participate in DE (Allawi & Alyouzbaky, 2024).

However, findings revealed that while facilitating conditions were expected to impact students' DEI positively, this relationship was not statistically significant. This result indicates that students may need help recognizing available resources (e.g., financial, training, mentorship, technological, and market research). Therefore, institutions and policymakers must enhance awareness and guarantee that students know about accessible resources (Neumeyer et al., 2021).

CONCLUSION

This study investigated the factors influencing digital entrepreneurial intention (DEI) among Egyptian tourism and hospitality students through an integrated theoretical framework combining the extended Theory of Planned Behavior (TPB), digital literacy, and the Unified Theory of Acceptance and Use of Technology 3 (UTAUT3). The research analyzed data from 422 final-year undergraduate students and revealed that the extended TPB framework, digital literacy, and most UTAUT3 dimensions (except facilitating conditions) significantly predict students' DEI. The findings demonstrate that students with positive attitudes toward digital entrepreneurship, strong social support, high self-efficacy, advanced digital competencies, and favorable perceptions of technology benefits are more likely to pursue digital ventures.

These results offer generalizable insights for tourism and hospitality education systems worldwide, suggesting that developing digital entrepreneurial mindsets requires integrating entrepreneurship education with digital literacy training, emphasizing practical experience and mentorship, and ensuring student awareness of available support resources. The theoretical framework can be adapted across different cultural and economic contexts, though the relative importance of factors may vary based on collectivist versus individualist orientations and entrepreneurial ecosystem development.

The study contributes to understanding how behavioral, technological, and skill-based factors combine to influence entrepreneurial intentions in digital contexts, providing a foundation for educational institutions globally to develop targeted curricula and support programs that enhance students' digital entrepreneurial capabilities and prepare them for the evolving digital economy in tourism and hospitality sectors.

Limitations and further research

The study provides several avenues for future investigation due to its limitations. This study focuses on factors affecting tourism and hospitality Egyptian students' DEI. Thus, Comparative studies of tourism and hospitality students from various nations might reveal how cultural, economic, and educational aspects affect their DEI. Further, subsequent studies might examine the influence of other factors, such as government legislation, good governance, industry trends, personality traits, and technical breakthroughs, on students' intentions to pursue DE. Ultimately, qualitative research approaches, such as interviews or focus groups, enhance quantitative findings by delving deeper into students' experiences and motivations.

Author Contributions: Conceptualization, A.E.S. and F.M.A.; methodology, M.Y.H. and A.E.S.; software, F.M.A. and M.Y.H.; validation, M.Y.H. and A.E.S.; formal analysis, M.M.M.A. and M.Y.H.; investigation, A.E.L. and F.M.A.; resources, A.E.L. and M.M.A.; data curation, M.M.A. and A.E.S.; writing—original draft preparation, M.M.A. and F.M.A.; writing—review and editing, A.E.L. and M.M.M.A.; visualization, M.M.A. and A.E.L.; supervision, A.E.L. and M.M.M.A.; project administration, A.E.S. and M.M.M.A.; funding acquisition, F.M.A. and M.M.M.A.. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No. KFU252586].

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No. KFU252586].

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies, 2*(4), 314-324. https://doi.org/10.1002/hbe2.195

Al-Jubari, I., Mosbah, A., & Anor Salim, F. A. B. (2021). Motivational and Attitudinal Determinants of Entrepreneurial Intention: Hospitality and Tourism Students' Perspectives. *Journal of Hospitality & Tourism Education, 35*(2), 97-107. https://doi.org/10.1080/10963758.2021.1963747

Ali, M. B., Tuhin, R., Alim, M. A., Rokonuzzaman, M., Rahman, S. M., & Nuruzzaman, M. (2022). Acceptance and use of ICT in tourism: the modified UTAUT model. *Journal of Tourism Futures, 10*(2), 334-349. https://doi.org/10.1108/jtf-06-2021-0137

Alkhalaileh, M. Y., Kovács, S., & Katonáné Kovács, J. (2023). Factors influencing digital entrepreneurship intention among undergraduate business students in Jordan. *Human Technology, 19*(3), 400-418. https://doi.org/10.14254/1795-6889.2023.19-3.5

Allawi, W. H., & Alyouzbaky, B. A. (2024). Factors affecting the adoption of digital entrepreneurship: a survey of private schools in Nineveh Governorate in Iraq. *Journal of Science and Technology Policy Management*. https://doi.org/10.1108/jstpm-09-2022-0164

Anthonysamy, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies, 25*(4), 2393-2414. https://doi.org/10.1007/s10639-020-10201-8

Banerjee, S., & Ho, S. S. (2019). Applying the theory of planned behavior: Examining how communication, attitudes, social norms, and perceived behavioral control relate to healthy lifestyle intention in Singapore. *International Journal of Healthcare Management, 13*(sup1), 496-503. https://doi.org/10.1080/20479700.2019.1605687

Battisti, S., Agarwal, N., & Brem, A. (2022). Creating new tech entrepreneurs with digital platforms: Meta-organizations for shared value in data-driven retail ecosystems. *Technological Forecasting and Social Change, 175*, 121392. https://doi.org/10.1016/j.techfore.2021.121392

Chang, T. Y., & Lin, Y. C. (2022). The Effects of Atmosphere on Perceived Values and Customer Satisfaction toward the Theme Hotel: The Moderating Role of Green Practice Perception. *Sustainability, 14*(15), 9153. https://doi.org/10.3390/su14159153

Farooq, M. S., Salam, M., Jaafar, N., Fayolle, A., Ayupp, K., Radovic-Markovic, M., & Sajid, A. (2017). Acceptance and use of lecture capture system (LCS) in executive business studies. *Interactive Technology and Smart Education, 14*(4), 329-348. https://doi.org/10.1108/itse-06-2016-0015

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing research*, 18(1), 39-50. https://doi.org/10.2307/3151312

Gao, L., Wang, S., Li, J., & Li, H. (2017). Application of the extended theory of planned behavior to understand individual's energy saving behavior in workplaces. *Resources, Conservation and Recycling, 127*, 107-113. https://doi.org/10.1016/j.resconrec.2017.08.030

Gunasinghe, A., Hamid, J. A., Khatibi, A., & Azam, S. M. F. (2020). The viability of UTAUT-3 in understanding the lecturer's acceptance and use of virtual learning environments. *International Journal of Technology Enhanced Learning, 12*(4), 458. https://doi.org/10.1504/ijtel.2020.110056

Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research, 109*, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. *Journal of the Academy of Marketing Science, 45*(5), 616-632. https://doi.org/10.1007/s11747-017-0517-x

Helal, M. Y. I. (2023). The impact of fast-food restaurant customers' digital transformation on perceived value and well-being. *Journal of Hospitality and Tourism Technology, 14*(5), 893-907. https://doi.org/10.1108/jhtt-05-2022-0141

Helal, M. Y. I., Palei, T., & Safiullin, M. (2024). Developing and Validating a Perceived Digital Customer Value Scale in Restaurants. *Journal of Quality Assurance in Hospitality & Tourism*, 1-32. https://doi.org/10.1080/1528008x.2024.2381201

Horváth, Z. I., Raffay, Z., & Happ, É. (2024). Digitalisation in angling tourism: Introducing new technologies to a traditional tourism product. *GeoJournal of Tourism and Geosites*, 46(1), 42-51. https://doi.org/10.30892/gtg.58104-1389

Kline, R. (2015). *Principles and Practice of Structural Equation Modelling* (4th ed.). New York: Guilford Press.

Lissitsa, S. (2024). Generations X, Y, Z: the effects of personal and positional inequalities on critical thinking digital skills. *Online Information Review, 49*(1), 35-54. https://doi.org/10.1108/oir-09-2023-0453

Luong, A., & Lee, C. (2021). The Influence of Entrepreneurial Desires and Self-Efficacy on the Entrepreneurial Intentions of New Zealand Tourism and Hospitality Students. *Journal of Hospitality & Tourism Education, 35*(1), 44-61. https://doi.org/10.1080/10963758.2021.1963751

Martínez-Bravo, M. C., Sádaba Chalezquer, C., & Serrano-Puche, J. (2022). Dimensions of Digital Literacy in the 21st Century Competency Frameworks. *Sustainability, 14*(3), 1867. https://doi.org/10.3390/su14031867

Mir, A. A., Hassan, S., & Khan, S. J. (2022). Understanding digital entrepreneurial intentions: A capital theory perspective. *International Journal of Emerging Markets, 18*(12), 6165-6191. https://doi.org/10.1108/ijoem-05-2021-0687

Miralles, F., Giones, F., & Riverola, C. (2015). Evaluating the impact of prior experience in entrepreneurial intention. *International Entrepreneurship and Management Journal, 12*(3), 791-813. https://doi.org/10.1007/s11365-015-0365-4

Neneh, B. N. (2020). Entrepreneurial self-efficacy and a student's predisposition to choose an entrepreneurial career path: the role of self-perceived employability. *Education + Training, 62*(5), 559-580. https://doi.org/10.1108/et-06-2019-0108

Neumeyer, X., Santos, S. C., & Morris, M. H. (2021). Overcoming Barriers to Technology Adoption When Fostering Entrepreneurship Among the Poor: The Role of Technology and Digital Literacy. *IEEE Transactions on Engineering Management, 68*(6), 1605-1618. https://doi.org/10.1109/tem.2020.2989740

Park, S., Lehto, X., & Lehto, M. (2021). Self-service technology kiosk design for restaurants: An QFD application. *International Journal of Hospitality Management, 92*, 102757. https://doi.org/10.1016/j.ijhm.2020.102757

Pinto, A. S., Abreu, A., Costa, E., & Paiva, J. (2022). Augmented reality for a new reality: using UTAUT-3 to assess the adoption of mobile augmented reality in tourism (MART). *Journal of Information Systems Engineering and Management, 7*(2).

Rashwan, K. A., Mathew, V., Akef, R., & Elbaz, A. M. (2024). Bridging empowerment and entrepreneurship: How NGOs foster women's success in Egypt's tourism industry. *GeoJournal of Tourism and Geosites*, 54(4spl), 1991-1998. https://doi.org/10.30892/gtg.574spl13-1366

Reddy, P., Chaudhary, K., Sharma, B., & Hussein, S. (2022). Essaying the design, development and validation processes of a new digital literacy scale. *Online Information Review, 47*(2), 371-397. https://doi.org/10.1108/oir-10-2021-0532

Safarov, B., Amirov, A., Mansurova, N., Hassan, T. H., Hasanov, H., Pereş, A. C., & Turdibekov, K. (2024). Prospects of Agrotourism Development in the Region. *Economies*, 12(12), 321.

Šaffová, I., Matušíková, D., & Vargová, T. D. (2024). Innovative changes in historical tourism objects in the context of the need for the implementation of digital tools. *GeoJournal of Tourism and Geosites*, 54(4spl), 1974-1980. https://doi.org/10.30892/gtg.574spl11-1364

Sahut, J. M., Iandoli, L., & Teulon, F. (2019). The age of digital entrepreneurship. *Small Business Economics, 56*(3), 1159-1169. https://doi.org/10.1007/s11187-019-00260-8

Santiago, J., Borges-Tiago, M. T., & Tiago, F. (2024). Embracing RAISA in restaurants: Exploring customer attitudes toward robot adoption. *Technological Forecasting and Social Change, 199*, 123047. https://doi.org/10.1016/j.techfore.2023.123047

Schwarzer, R., & Jerusalem, M. (1995). *General Self-Efficacy Scale*. Retrieved from: http://dx.doi.org/10.1037/t00393-000

Sedegah, D. D., Nutsugbodo, R. Y., Arthur-Amissah, A., Wireko-Gyebi, S., Duodu, G. A., Bempong, V. E. K., & Tuffour, M. (2024). Entrepreneurial intentions of tourism and hospitality students in Ghana: an application of the theory of planned behaviour. *Journal of Small Business and Enterprise Development, 31*(4), 724-741. https://doi.org/10.1108/jsbed-08-2023-0348

Shang, K., Fan, D. X. F., & Buhalis, D. (2023). Tour guides' self-efficacy and resilience capability building through sharing economy platforms. *International Journal of Contemporary Hospitality Management, 35*(4), 1562-1583. https://doi.org/10.1108/ijchm-01-2022-0071

Sharma, L., Bulsara, H. P., Bagdi, H., & Trivedi, M. (2023). Exploring sustainable entrepreneurial intentions through the lens of theory of planned behaviour: a PLS-SEM approach. *Journal of Advances in Management Research, 21*(1), 20-43. https://doi.org/10.1108/jamr-01-2023-0006

Shin, J. M., & Kang, H. K. (2021). Effect of entrepreneurial characteristics and market characteristics of small business owners on business performance with the mediation of digital literacy. *Asia-Pacific Journal of Business Venturing and Entrepreneurship, 16*(5), 75-89.

Singh, R., Kumar, V., Singh, S., Dwivedi, A., & Kumar, S. (2024). Measuring the impact of digital entrepreneurship training on entrepreneurial intention: the mediating role of entrepreneurial competencies. *Journal of Work-Applied Management, 16*(1), 142-163.

Svenningsson, J., Höst, G., Hultén, M., & Hallström, J. (2021). Students' attitudes toward technology: exploring the relationship among affective, cognitive and behavioral components of the attitude construct. *International Journal of Technology and Design Education, 32*(3), 1531-1551. https://doi.org/10.1007/s10798-021-09657-7

Ulfert-Blank, A. S., & Schmidt, I. (2022). Assessing digital self-efficacy: Review and scale development. *Computers & Education, 191*, 104626. https://doi.org/10.1016/j.compedu.2022.104626

Vamvaka, V., Stoforos, C., Palaskas, T., & Botsaris, C. (2020). Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences. *Journal of Innovation and Entrepreneurship, 9*(1). https://doi.org/10.1186/s13731-020-0112-0

Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly, 36*(1), 157. https://doi.org/10.2307/41410412

Wang, L., & Zhang, Y. (2015). An extended version of the theory of planned behaviour: the role of self-efficacy and past behaviour in predicting the physical activity of Chinese adolescents. *Journal of Sports Sciences, 34*(7), 587-597. https://doi.org/10.1080/02640414.2015.1064149

Wibowo, A., Saptono, A., Narmaditya, B. S., Effendi, M. S., Mukhtar, S., Suparno, & Shafiai, M. H. M. (2024). Using technology acceptance model to investigate digital business intention among Indonesian students. *Cogent Business & Management, 11*(1). https://doi.org/10.1080/23311975.2024.2314253

Wu, W. H., Wei, C. W., Yu, M. C., & Kao, H. Y. (2020). Exploring Factors Surrounding Students' Entrepreneurial Intentions in Medical Informatics: The Theory of Planning Behavior Perspective. *Frontiers in Psychology, 11*. https://doi.org/10.3389/fpsyg.2020.544887

Yeganegi, S., Laplume, A. O., & Dass, P. (2021). The role of information availability: A longitudinal analysis of technology entrepreneurship. *Technological Forecasting and Social Change*, 170, 120910. https://doi.org/10.1016/j.techfore.2021.120910

Article history: Received: 02.09.2025 Revised: 14.11.2025 Accepted: 09.12.2025 Available online: 31.12.2025