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Investigation of Digital Entrepreneurship Intention in the Context of Entrepreneurship Education and the Theory of Planned Behavior

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Abstract:
This research investigates how university students' exposure to digital entrepreneurship education shapes their intentions to pursue digital entrepreneurship ventures. The study employs a comprehensive framework incorporating three key aspects from the theory of planned behavior - personal attitudes, social norms, and perceived behavioral control - to understand their influence on digital entrepreneurship intentions. Additionally, the research explores whether demographic variables play a role in shaping these intentions. The research methodology follows a quantitative approach, with data collected through an online survey from 389 university students selected through convenience sampling. The measurement instrument incorporated validated scales assessing personal attitudes, social norms, behavioral control, and digital entrepreneurship intentions, along with demographic indicators. Statistical analyses were performed using SPSS version 26 software. The findings reveal that both digital entrepreneurship education and personal attitudes emerge as significant positive predictors of students' digital entrepreneurship intentions. Similarly, perceived behavioral control demonstrated a substantial positive influence. However, contrary to expectations, neither social norms nor demographic factors showed significant relationships with digital entrepreneurship intentions. These results underscore the vital role of educational institutions in fostering digital entrepreneurship among students. The study contributes to the growing body of knowledge on digital entrepreneurship education by demonstrating its direct impact on entrepreneurial intentions in the digital space. These insights can help universities design more effective digital entrepreneurship programs and support systems for aspiring digital entrepreneurs.

Keywrods: *Digital entrepreneurship, entrepreneurship education, theory of planned behavior.*

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INTRODUCTION

The digital revolution has fundamentally reshaped how businesses operate and evolve in the modern era. The emergence of new technological capabilities has catalyzed a transformation in entrepreneurial practices, giving rise to the phenomenon of digital entrepreneurship, which has become increasingly attractive to forward-thinking business leaders seeking to harness technological innovations (Kraus et al., 2018). This new form of entrepreneurship is characterized by its integration of digital components, encompassing various technological resources including internet-based platforms and modern communication systems (Dutot & Van Horne, 2015).

Unlike traditional entrepreneurship, digital entrepreneurship presents unique challenges and opportunities that require specific attention. These challenges include rapid technological obsolescence, heightened cybersecurity concerns, and the need for continuous digital innovation. Digital entrepreneurs must navigate an environment characterized by accelerated market dynamics, where traditional business models may become obsolete within months rather than years (Sitaridis & Kitsios, 2024). Furthermore, the digital entrepreneurship landscape demands a distinct set of competencies, including technical expertise in emerging technologies, digital marketing proficiency, and the ability to manage virtual teams and digital operations (Olan et al., 2024).

Digital entrepreneurship can be identified in any business venture where traditional operations are significantly digitalized. According to Dutot and Van Horne (2015), this entrepreneurial approach is distinguished by its incorporation of digital elements across multiple business dimensions, including product offerings, operational infrastructure, marketplace presence, and distribution channels, either individually or in combination. The transformation from traditional to digital entrepreneurship requires not just technological adoption, but a fundamental shift in entrepreneurial mindset and capabilities. This shift encompasses understanding digital business models, leveraging data analytics, and adapting to rapidly evolving digital ecosystems (Nambisan et al., 2019).

As entrepreneurship continues to play an increasingly vital role in contemporary society, researchers have devoted considerable attention to understanding the underlying determinants that shape individuals' digital entrepreneurship intentions, which scholars recognize as a key predictor of future entrepreneurial behavior (Ramadani et al., 2021; Zhao et al., 2010). In conceptualizing this phenomenon, Alkhalaileh (2021, p. 26) provides a clear framework, describing digital entrepreneurship intention as the conscious and self-recognized determination of an individual to establish an internet-based business venture at some point in their future.

The evolution of digital entrepreneurship has created new imperatives for educational institutions. Traditional entrepreneurship education programs, while valuable, may not fully address the unique challenges and opportunities presented by the digital business environment. Digital entrepreneurship education must incorporate elements such as digital technology competencies, online business model innovation, and digital market analysis (Lerro et al., 2022). These educational requirements reflect the increasingly complex and dynamic nature of digital entrepreneurship, where success depends not only on traditional business acumen but also on technological literacy and digital innovation capabilities.

Academic research has identified educational initiatives focused on digital entrepreneurship as a significant factor in shaping entrepreneurial aspirations in the digital domain. The evolution of business education has necessitated the incorporation of digital elements, reflecting the transformation of traditional physical business components into digital formats. In this context, digital entrepreneurship education has emerged as a specialized field that employs technological tools to enhance students' entrepreneurial capabilities (Zainal & Yong, 2020). This educational approach is particularly relevant in higher education institutions, where it serves to develop students' professional competencies aligned with Industry 4.0 requirements, focusing on both technical and interpersonal skills (Zainal & Yong, 2020). While the significance of digital entrepreneurship continues to grow, scholarly investigation into educational methodologies specific to this field remains limited (Kraus et al., 2018). Higher education institutions are instrumental in cultivating entrepreneurial mindsets among students, with specialized entrepreneurship programs serving as catalysts for developing business potential (Sanchez, 2013). Empirical evidence from various researchers (Kraus et al., 2018; Krischanan Kampanthong, 2021; Ramadani et al., 2021) demonstrates a positive relationship between digital entrepreneurship education and digital entrepreneurship intentions.

Research perspectives in entrepreneurship have evolved significantly over time. While initial studies concentrated on examining demographic characteristics and personal attributes as determinants of entrepreneurial activity (Zhao et al., 2010), contemporary research has increasingly embraced the theoretical framework of planned behavior to understand entrepreneurial decision-making processes (Kautonen et al., 2015). This theoretical model, introduced by Ajzen (1991), provides a structured approach to understanding behavioral patterns. The framework suggests that behavioral intentions serve as primary predictors of actual actions, with these intentions being shaped by three key components: an individual's attitudinal disposition (attitude towards behavior), societal influences (social norms), and self-perceived capability (perceived behavioral control). In the entrepreneurial context, these components manifest as personal evaluations of entrepreneurship's desirability, perceived social expectations regarding entrepreneurial pursuits, and self-assessment of one's capacity to successfully engage in business ventures (Linan Rodríguez-Cohard & Rueda-Cantuche, 2011). The natural alignment between these theoretical elements and entrepreneurial behavior patterns has made this framework particularly valuable in entrepreneurship research (Kautonen et al., 2015).

The pathway to digital entrepreneurial ventures involves a complex interplay of various determinants that shape individuals' intentions. While scholarly research has extensively documented traditional entrepreneurial intentions, there remains a notable research gap in comprehending the unique dynamics that drive digital entrepreneurship intentions specifically.

Purpose of the Study

This study seeks to contribute to the emerging field of digital entrepreneurship by addressing several key research aims. The primary objective is to evaluate how university students' exposure to digital entrepreneurship educational programs influences their digital entrepreneurship intentions. Furthermore, this research endeavors to analyze the effects of three established theoretical components (attitudes towards entrepreneurship, social norms, and perceived behavioral control) on digital entrepreneurship intention. Moreover, the study will investigate the influence of participants' socio-demographic characteristics on digital entrepreneurship intention.

METHOD

Research Model and Hypotheses

This investigation employs a quantitative research methodology, utilizing a correlational research design to examine the proposed relationships. The conceptual framework encompasses multiple predictor variables: digital entrepreneurship education serves as the principal independent variable, accompanied by the three established components from the theory of planned behavior. Additionally, participants' sociodemographic characteristics are incorporated as predictor variables. The outcome variable in this framework is digital entrepreneurship intention. The research model is presented in Figure 1.

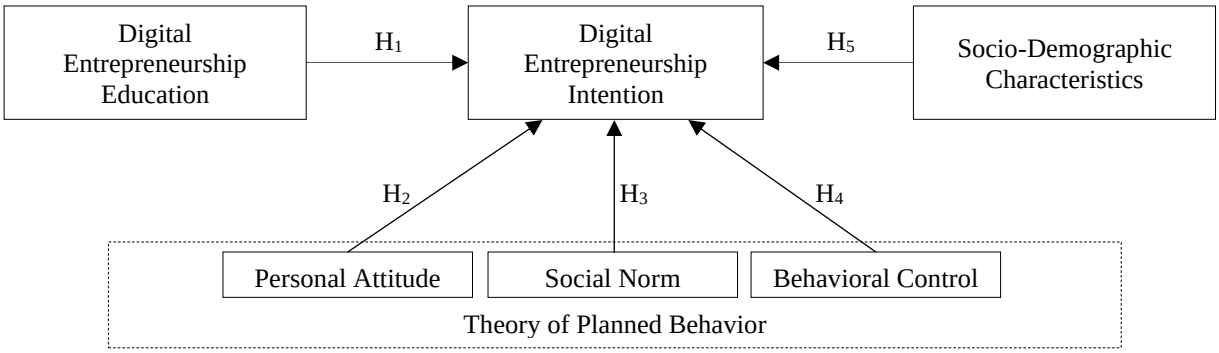

Figure 1. Research model

Recent advancements in digital entrepreneurship research have highlighted the need to adapt traditional theoretical frameworks to the unique characteristics of the digital environment. While the Theory of Planned Behavior (TPB) remains a robust foundation for understanding entrepreneurial intentions, its application in digital contexts requires careful consideration of technology-specific factors and evolving social dynamics (Duong, 2024; Ademi et al., 2025).

In the literature, entrepreneurship education is mostly considered as an effective strategy. In particular, the fact that entrepreneurship education is more innovative and the benefits it provides are emphasized by researchers and educators. However, today's understanding of the impact of entrepreneurship education on intention to start a new business and become an entrepreneur is lacking and has not been adequately tested. For this reason, the results of the effect of entrepreneurship education on the entrepreneurial intention remained somewhat uncertain (Krueger & Brazeal, 1994; Souitaris, Zerbinati & Andreas, 2007). Contemporary research has emphasized that digital entrepreneurship education must address not only traditional business concepts but also technological competencies and digital innovation capabilities. Studies indicate that the effectiveness of such education programs is enhanced when they incorporate practical exposure to digital tools and platforms (Morales-Pérez & Garay-Tamajón, 2022). When the previous studies on the entrepreneurship intention are examined, it is seen that many studies have been carried out in recent years to reveal the entrepreneurial potential of university students and to encourage students to entrepreneurship (Basu & Virick, 2008; Ismail et al., 2009; Khuong & Ann, 2016; Souitaris et al., 2007; Zain et al., 2010; Zhao et al., 2010). Despite the growing significance of digital entrepreneurship, there is a lack of research focusing specifically on digital entrepreneurship education (Kraus et al., 2018). Universities have a pivotal role in shaping students' entrepreneurial identity. Education, particularly entrepreneurship education, is widely acknowledged as a key factor in fostering

entrepreneurship potential (Sanchez, 2013). Existing studies (Kraus et al., 2018; Krischanan Kampanthong, 2021; Ramadani et al., 2021) indicate a positive relationship between digital entrepreneurship education and digital entrepreneurship intention. Therefore, the primary hypothesis of the study was developed as follows.

H_1: Exposure of university students to digital entrepreneurship education has a significant positive effect on digital entrepreneurship intention.

Personal attitude, which is one of the important elements of entrepreneurial intention, has been defined as the degree to which an individual evaluates a behavior positively or negatively (Ajzen, 1991). Recent studies in digital entrepreneurship contexts have expanded this understanding, suggesting that attitudes toward digital entrepreneurship are significantly influenced by technological self-efficacy and perceived digital innovation capabilities (Balgiu & Simionescu-Panait, 2024). Because of the significant relationship that exists between entrepreneurial intention and personal attitude, personal attitude has proven to be an important factor in increasing the entrepreneurial intention (Kautonen et al, 2015). Personal attitude among other factors is of great importance in explaining the entrepreneurial intention. In a study investigating the effect of students' personal attitude on their entrepreneurial intention, it was stated that personal attitude is an important creator of the entrepreneurial intention that directs the individual towards change, money and entrepreneurship. (Koe et al., 2012). In the study of Van Gelderen et al. (2008), it is stated thet the individual's attitude consists of factors such as financial security, the importance given to wealth, avoidance of workload, and autonomy, and these factors greatly affect the entrepreneurial intention. Furthermore, in the digital context, attitudes are shaped by additional factors such as comfort with technology, digital literacy, and perception of online business opportunities (Ademi et al., 2025). The idea of starting a business is related to the individual's attitude towards entrepreneurship. It is directed towards behaviors such as the individual's personal attitude, the idea of being rich, and the motivation to prove himself to others (Bozkurt, 2014). In the light of these and similar studies that reveal the positive effects of personal attitude on entrepreneurial intention in the literature, the following hypothesis has been developed.

H_2: Personal attitude to digital entrepreneurship among university students has a significant impact on digital entrepreneurship intention.

The concept of social norm, conceptualized as perceived societal pressure influencing behavioral choices (Ajzen, 1991), represents one of the most debated factors in entrepreneurial intention research. The academic literature reveals considerable divergence in findings regarding its influence on entrepreneurial intentions. A segment of research strongly supports the predictive power of social norms in entrepreneurial intention formation. For example, empirical investigations by Van Gelderen et al. (2008) and Moriano et al. (2012) demonstrate social norms as crucial determinants of entrepreneurial intentions. This positive relationship gained further support from Kautonen et al.'s (2015) findings. However, the academic discourse presents contrasting perspectives. Koe et al. (2012) identified only minimal influence of social norms on entrepreneurial intentions. More strikingly, Shook and Bratianu's (2010) research revealed an inverse relationship, suggesting that social norms might actually discourage entrepreneurial intentions. Adding to this complexity, studies by Autio et al. (2001) and Linan et al. (2011) failed to establish any statistically significant connection between these variables. The role of social norms in digital entrepreneurship presents a particularly complex picture, with recent research revealing varying degrees of influence across different digital contexts.

While traditional social influences remain relevant, the digital environment introduces new dimensions of social validation and peer influence through online communities and digital networks (Duong, 2024; Morales-Pérez & Garay-Tamajón, 2022). This notable disparity in research outcomes underscores the need for additional empirical investigation. This study aims to contribute to this ongoing academic dialogue by examining this relationship within the specific context of digital entrepreneurship. Accordingly, the following hypothesis has been developed.

H_3: Social norm pertaining to university students has a significant impact on digital entrepreneurship intention.

In the theoretical framework of entrepreneurial behavior, perceived behavioral control emerges as a critical construct, initially conceptualized by Ajzen (1991) as an individual's perception of the ease or difficulty associated with executing specific behaviors. This concept encompasses entrepreneurs' self-assessment of their capability to control and manage the entrepreneurial process. According to Bozkurt (2014), this perception strengthens when individuals identify abundant opportunities and resources while encountering minimal obstacles in their entrepreneurial journey. The scholarly literature consistently highlights perceived behavioral control as a dominant predictor in entrepreneurial intention formation. Multiple empirical investigations have established robust positive associations between perceived behavioral control and entrepreneurial intentions (do Paço et al., 2015; Koe et al., 2012; Linan & Chen, 2009; Moriano et al., 2012; Shook & Bratianu, 2010). Notably, Shook and Bratianu's (2010) investigation of student entrepreneurial intentions through the lens of planned behavior theory revealed a particularly strong positive correlation. This finding aligns with Autio et al.'s (2001) research, which identified perceived behavioral control as the most influential factor among the theory's components in predicting entrepreneurial intentions. Given the substantial empirical evidence supporting the significance of perceived behavioral control in entrepreneurial contexts, this study propose to examine its role specifically within digital entrepreneurship.

H_4: Behavioral control pertaining to university students has a significant impact on digital entrepreneurship intention.

In the past, most authors focused on personality traits, individual characteristics and entrepreneurial activities as factors affecting entrepreneurial intention. In later studies, it was seen that factors such as age, gender, ethnicity, region of residence, education level, work experience came to the fore. These factors are commonly referred to as "demographic variables". Both variables (personality characteristics and demographic characteristics) significantly emphasize the relationship to the formation of entrepreneurial behaviors (Linan & Rodriguez, 2004). The hypothesis developed in this context is presented below.

H_5: The socio-demographic characteristics of university students have a significant impact on digital entrepreneurship intention.

Sampling

The universe of the study consists of university students. There are approximately seven million university students in Turkey (YÖK, 2023). Using the formula $n=(N.t^2.p.q)/(d^2(N-1)+t^2.p.q)$, where N represents population size, t represents the theoretical value at the selected significance level, p represents the probability of the event occurring, q represents the probability of the event not occurring, and d represents the acceptable sampling error, the minimum sample size

was calculated as 384, with a reliability of 0.95 and a margin of error of 0.05 (Yazıcıoğlu & Erdoğan, 2004). Meeting the minimum sample size, the sample of the study consisted of 389 participants reached by convenience sampling method among university students. Convenience sampling, defined as selecting participants based on their ease of accessibility and proximity to the researcher (Gürbüz & Şahin, 2014), was employed due to practical constraints during the data collection period. Participants were selected from various departments and academic years to enhance sample diversity, though the selection was primarily based on voluntary participation and accessibility. The demographic composition and characteristics of the study participants are detailed in Table 1.

Table 1. Demographic statistics of the participants

Variable	Category	n	%
Gender	Female	164	42.2
	Male	225	57.8
Age	18-24	138	35.5
	25-29	158	40.6
	30-35	93	23.9
Education	Undergraduate	332	85.3
	Graduate	57	14.7
Degree studied	Others	102	26.2
	Business	287	73.8
Perceived financial status	Poor	75	19.3
	Average	219	56.3
	High	95	24.4
Do you have a successful role model as an entrepreneur in your close circle?	No	233	59.9
	Yes	156	40.1
How many hours have you received digital entrepreneurship education?	0 hours	42	10.8
	16-30 hours	113	29.0
	16-30 hours	70	18.0
$\bar{x}$=27.5; sd=19.5	31-45 hours	68	17.5
	46-60 hours	96	24.7

Table 1 shows that the majority of the sample is male (n=225; 57.8%) and aged between 25-29 (n=158; 40.6%). Great majority of the participants are undergraduate students (n=332; 85.3%), have business education (n=287; 73.8%), and moderate income (n=219; 56.3%). While 233 participants have no entrepreneurial role model in their close circle (59.9%), 156 participants have (40.1%). It is seen that the participants received an average of 27.5 hours (sd=19.5) of entrepreneurship education.

Data Collection Method

This study employed an online survey methodology for data collection. The research team distributed the survey link to 500 potential respondents, incorporating a buffer for anticipated non-responses and incomplete submissions. Prior to data collection, a comprehensive participant information package was implemented, adhering to ethical research standards. This package included detailed information about the study's academic objectives, emphasized the voluntary nature of participation, guaranteed anonymity, and affirmed participants' right to withdraw. Informed consent was obtained from all participants before proceeding with the survey.

The research instrument comprised five distinct sections with a total of 27 items, structured to measure the key components of planned behavior theory and gather demographic information.

The first four sections incorporated validated scales measuring the theory's core constructs (Linan & Chen, 2009):

i. Personal Attitude Scale (5 items, Cronbach's α = 0.897)
ii. Social Norm Scale (3 items, Cronbach's α = 0.773)
iii. Behavioral Control Scale (6 items, Cronbach's α = 0.885)
iv. Digital Entrepreneurship Intention Scale (6 items, Cronbach's α = 0.943)

All construct measurements utilized five-point Likert-type scales. The final section collected socio-demographic data and information about participants' exposure to digital entrepreneurship education through seven targeted questions.

Data Analysis

Statistical analyses were conducted using SPSS version 26 software. Prior to the main analyses, the study addressed potential methodological concerns by examining common method variance (CMV). Following established protocols in methodological literature, Harman's single factor test, a widely recognized approach for assessing CMV, was implemented (Podsakoff et al., 2003). This analytical procedure involved an exploratory factor analysis incorporating all scale items under an unrotated single-factor solution. Methodological guidelines suggest that CMV is not a significant concern when the extracted single factor accounts for less than 50% of total variance (Harman, 1960; Podsakoff et al., 2003). The analysis yielded a single-factor solution explaining 45.624% of the variance, indicating that CMV did not substantially influence the data.

Demographic variables with categorical data were included in the correlation and regression analyzes as dummy variables. In this context, “gender” (0=Female; 1=Male), “education” (0=Undergraduate; 1=Graduate), “degree studied” (0=Others; 1=Business), and “role model” (0=No; 1=Yes) was coded as binary variables.

Ethics Committee Approval

This research was conducted with the permission obtained by the decision of the Ethics Committee of Adana Alparslan Turkes Science & Technology University, dated 04/03/2024 and numbered E-76907350-050.01.04-86995.

FINDINGS, COMMENTS AND DISCUSSION

Validity and Reliability Analysis

The validity and reliability analysis results are presented in Table 2.

Table 2. Validity and reliability analysis results

Scale	Item	Factor Loadings	Variance Explained	Cronbach Alpha (α)
Personal attitude scale	attitude1	.820	18.630%	.899
	attitude2	.848		
	attitude3	.851		
	attitude4	.857		
	attitude5	.827		
Social norm scale	norms1	.847	11.911%	.836
	norms2	.923		
	norms3	.881		

Behavioral control scale	behavioral1	.748	21.468%	.917
	behavioral2	.791		
	behavioral3	.801		
	behavioral4	.745		
	behavioral5	.759		
	behavioral6	.794		
Digital entrepreneurship intention scale	intention1	.773	22.247%	.935
	intention2	.782		
	intention3	.719		
	intention4	.747		
	intention5	.774		
	intention6	.815		
KMO=0.914; Barlett's Test: $\chi^2(190)=5860.495$; p=0.000				

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 5 iterations. Loadings below 0,50 not shown.

The initial phase of validity analysis involved evaluating data suitability for factor analysis through Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity tests. Statistical literature indicates that factor analysis requires a KMO value exceeding 0.5 and a significant Bartlett's test result (Gürbüz & Şahin, 2014). The analysis yielded a KMO value of 0.914, confirming adequate sampling adequacy. Additionally, Bartlett's test of sphericity demonstrated statistical significance ($\chi^2_{(190)}=5860.495$; $p<0.01$), indicating appropriate inter-item correlations for factor analysis.

Factor analysis results revealed a four-factor structure, aligning with the original theoretical framework. The cumulative explained variance reached 74.254%, demonstrating robust explanatory power. Each item demonstrated appropriate factor loading (>0.5) on its theoretically designated factor. These findings substantiate the construct validity of the measurement instrument.

The reliability analysis focused on internal consistency evaluation through Cronbach's Alpha coefficients. According to methodological standards, scales should exhibit Cronbach's Alpha values exceeding 0.80 to demonstrate satisfactory reliability (Gürbüz & Şahin, 2014). The obtained reliability coefficients, detailed in Table 2, confirmed that all scales met this criterion, establishing their reliability for research purposes.

Descriptive Statistics

Table 3 presents the descriptive statistical analysis results.

Table 3. Descriptive statistical analysis results

Variable	Min.	Max.	Mean	sd	Skewness	Kurtosis
Digital entrepreneurship education	.00	60.00	27.49	19.54	.14	-1.38
Personal attitude	1.00	5.00	3.94	.85	-.87	.70
Social norm	2.00	5.00	4.28	.62	-.66	.56
Behavioral control	1.00	5.00	3.52	.91	-.55	.15
Digital entrepreneurship intention	1.67	5.00	3.60	.70	-.79	.33

It is seen in Table 3 that the participants received an average of 27.49 hours (sd=19,54) of entrepreneurship education as mentioned before. In addition, it was determined that while the personal attitude ($\bar{x}$=3.94; ss=0.85), behavioral control ($\bar{x}$=3.52; ss=0.91) and digital entrepreneurship intention ($\bar{x}$=3.60; ss=0.70) levels of the participants were high, the scores they got from the social norm scale were very high ($\bar{x}$=4.28; ss=0.62). On the other hand, the

distribution characteristics of all variables were examined through skewness and kurtosis values. These statistical indicators fell within the acceptable range of -1.5 to +1.5, supporting the assumption of normal distribution (Gürbüz & Şahin, 2014; Kalaycı, 2016; Kline, 1998). This normality confirmation justified the application of parametric statistical techniques in subsequent analyses.

Correlation Analysis

Table 4 presents the findings from the Pearson correlation analysis examining the relationships among study variables.

Table 4. Correlation analysis results

Var.	G	A	E	D	I	R	DEE	PA	SN	BC	DEI
G	1										
A	-0.041	1									
E	-0.088	.607**	1								
D	0.059	-.206**	-.133**	1							
I	0.035	0.032	-0.087	-0.078	1						
R	.210**	-0.034	0.017	.118*	0.024	1					
DEE	.262**	-.148**	-.231**	0.011	.148**	0.072	1				
PA	.216**	-.135**	-.174**	.128*	0.038	0.089	.375**	1			
SN	-0.007	-0.061	-.119*	.100*	0.017	-0.067	0.050	.249**	1		
BC	.231**	-.144**	-.229**	.126*	0.074	.108*	.545**	.490**	.232**	1	
DEI	.262**	-.178**	-.277**	.104*	.137**	.116*	.700**	.580**	.190**	.619**	1

Note. Var:Variable; G:Gender (Male); A:Age; E:Education (Graduate); D:Degree studied (Business); I:Income; R:Role model (Yes); DEE:Digital entrepreneurship education; PA:Personal attitude ; SN:Social norm; BC:Behavioral control; DEI:Digital entrepreneurship intention; * p<.5; ** p<.1

The analysis revealed several significant associations between digital entrepreneurship intention and demographic characteristics. Male gender demonstrated a positive correlation ($r=0.262$; $p<0.01$), as did business program enrollment ($r=0.104$; $p<0.05$), higher income levels ($r=0.137$; $p<0.01$), and the presence of entrepreneurial role models ($r=0.116$; $p<0.05$). Conversely, age exhibited a negative correlation ($r=-0.178$; $p<0.01$), and graduate student status showed an inverse relationship ($r=-0.277$; $p<0.05$) with digital entrepreneurship intention.

The analysis identified substantial positive correlations between digital entrepreneurship intention and key theoretical constructs. Digital entrepreneurship education demonstrated the strongest correlation ($r=0.700$; $p<0.01$), followed by behavioral control ($r=0.619$; $p<0.01$) and personal attitude ($r=0.580$; $p<0.01$). Social norm, while significant, showed a more moderate positive correlation ($r=0.190$; $p<0.01$) with entrepreneurial intention.

Hypothesis Tests

Table 5 presents the results of the multiple regression analysis conducted to evaluate the research hypotheses.

Table 5. Regression analysis results

H	Independent Variables	β	t	p	1/VIF	VIF
H_1	Digital entrepreneurship education	.459	11.984	.000	.639	1.565
H_2	Personal attitude	.279	7.646	.000	.706	1.417
H_3	Social norm	.044	1.364	.173	.889	1.125
H_4	Behavioral control	.193	4.793	.000	.577	1.733
$H_{5.1}$	Gender (Male)	.022	.675	.500	.875	1.143
$H_{5.2}$	Age	.005	.138	.890	.607	1.647

$H_{5.3}$	Education (Graduate)	-.069	-1.722	.086	.591	1.693
$H_{5.4}$	Degree studied (Business)	.024	.753	.452	.917	1.091
$H_{5.5}$	Income	.037	1.197	.232	.957	1.045
$H_{5.6}$	Role model (Yes)	.033	1.040	.299	.927	1.078

Dependent Variable: Digital entrepreneurship intention
Model: R^2=0.637; F=68.951; p=0.000

The regression model demonstrated strong statistical significance (F=68.951; p<0.01) with substantial explanatory power, accounting for 63.7% of the variance in digital entrepreneurship intention. Multicollinearity diagnostics revealed satisfactory results, with tolerance values exceeding 0.1 and Variance Inflation Factor (VIF) values remaining below 10, confirming the absence of multicollinearity concerns among predictor variables (Gürbüz & Şahin, 2014).

Digital entrepreneurship education emerged as the strongest predictor, exhibiting a significant positive influence on entrepreneurial intention (β=0.459; p<0.01), supporting hypothesis H_1. The analysis also revealed significant positive effects for personal attitude (β=0.279; p<0.01) and behavioral control (β=0.193; p<0.01), confirming hypotheses H_2 and H_4 respectively. However, social norm failed to demonstrate a significant impact on digital entrepreneurship intention (p>0.05), leading to the rejection of hypothesis H_3. The examination of demographic variables yielded no significant effects on digital entrepreneurship intention (p>0.05), resulting in the rejection of hypothesis H_5.

Discussion

This study investigated the influence of digital entrepreneurship education and Theory of Planned Behavior (TPB) components on university students' entrepreneurial intentions, while also examining potential demographic effects. The analysis revealed significant positive effects of digital entrepreneurship education, personal attitude, and perceived behavioral control on digital entrepreneurship intention, while social norms and demographic factors showed no significant impact.

The findings demonstrate that digital entrepreneurship education serves as a significant catalyst for students' entrepreneurial intentions. This outcome aligns with existing literature in the field. Previous research has consistently shown that business creation-focused training programs substantially enhance entrepreneurial aspirations (Sánchez-Escobedo et al., 2011). Universities can effectively foster entrepreneurial intentions through structured education programs, as demonstrated by Karimi et al. (2012). The importance of quality educational systems in developing entrepreneurial potential has been emphasized by Doğan (2015), who identified a positive correlation between entrepreneurship education and entrepreneurial intention. Similar conclusions were reached by Souitaris et al. (2007) and Fayolle et al. (2006), who documented the significant impact of entrepreneurship education on students' entrepreneurial intentions.

The analysis identified personal attitude as the strongest TPB component influencing digital entrepreneurship intention. This finding suggests that positive attitudes toward digital entrepreneurship correlate with increased entrepreneurial tendencies. This observation corresponds with previous research findings. Shook and Bratianu (2010) and Robledo et al. (2015) documented positive relationships between personal attitude and entrepreneurial intention among university students. Similar conclusions were reached by Bozkurt (2014), Autio et al. (2001), and Krueger et al. (2000). Notably, Linan and Chen (2009) identified personal attitude as the most influential factor in student entrepreneurial intention.

The study revealed that social norms did not significantly influence students' digital entrepreneurship intentions. This finding warrants careful consideration, particularly in the context of digital entrepreneurship. Prior research by Duong (2024) suggests that the relationship between social norms and digital entrepreneurship intentions may be more complex in technological contexts compared to traditional entrepreneurship. Additionally, Sitaridis and Kitsios (2024) note that the digital environment might reduce the impact of conventional social pressures, as digital entrepreneurs often operate in virtual spaces that transcend traditional social boundaries. This complexity is further highlighted by Morales-Pérez and Garay-Tamajón (2022), who found that social influence patterns in digital entrepreneurship contexts may differ from those in conventional business settings. This study's finding aligns with previous research, including Robledo et al. (2015) and Bozkurt (2014), who found no significant relationship between social norms and entrepreneurial intention. Autio et al. (2001) observed varying results across regions, with weak positive correlations in North America and no significant relationship in Scandinavian countries. Similar conclusions were reached by Krueger et al. (2000) and Linan and Chen (2009), who found no direct effect of social norms on entrepreneurial intention.

The study confirmed a significant positive relationship between perceived behavioral control and digital entrepreneurship intentions. This suggests that access to resources and opportunities enhances entrepreneurial intentions. This finding is supported by previous research, including Koe et al. (2012), who emphasized the importance of perceived behavioral control in entrepreneurial resource management. Similar positive relationships were documented by Shook and Bratianu (2010), Autio et al. (2001), Linan and Chen (2009), Bozkurt (2014), Robledo et al. (2015), and Krueger et al. (2000).

The analysis revealed no significant effects of demographic factors on entrepreneurial intention, supporting previous research suggesting that demographic variables alone are insufficient predictors of entrepreneurial intention (Krueger et al, 2000; Linan et al., 2011; Linan & Santos, 2007).

CONCLUSION AND IMPLICATIONS

This study's findings demonstrate that digital entrepreneurship education significantly influences students' entrepreneurial intentions in the digital space. The findings contribute to the growing body of knowledge on digital entrepreneurship education in several important ways. First, they empirically validate the crucial role of structured educational programs in fostering digital entrepreneurial intentions among university students. Second, they highlight the importance of developing positive attitudes and enhancing perceived behavioral control through targeted educational interventions. Third, they challenge assumptions about the influence of social norms and demographic factors in the digital entrepreneurship context.

Practical Implications

Based on the research findings and existing literature (Iqbal, Mehlem & Kokash, 2012; Linan et al., 2011; Robledo et al., 2015), this study proposes several significant implications for entrepreneurship education. The findings suggest that entrepreneurship education requires a comprehensive approach that extends beyond traditional classroom boundaries, incorporating awareness-building components that can be delivered either independently or integrated within existing courses. Educational institutions should consider implementing specialized digital entrepreneurship curricula that combine theoretical foundations with practical applications. This should be supported by establishing partnerships with successful digital entrepreneurs and

technology firms for mentorship programs. Additionally, creating experiential learning opportunities through digital business simulations and real-world projects, while integrating emerging technologies and digital tools into entrepreneurship education, can enhance program effectiveness. Regular assessment mechanisms should be implemented to evaluate and improve these educational initiatives.

Educational institutions should actively pursue partnerships with external stakeholders to provide students with practical exposure to real-world entrepreneurship opportunities and incentives. The research indicates the necessity for more effective policy frameworks and incentive structures to enhance the impact of entrepreneurship education on students' entrepreneurial intentions. Furthermore, entrepreneurship education should maintain a dual focus on developing both technical competencies and cultural awareness, creating a balanced approach to fostering entrepreneurial mindsets.

The findings suggest several important implications for policymakers and educational administrators. There is a clear need for the development of standardized digital entrepreneurship education frameworks and the allocation of resources for digital infrastructure and tools in educational institutions. The creation of support mechanisms for student digital ventures should be prioritized, along with the establishment of industry-academia collaboration platforms. Furthermore, implementing comprehensive quality assurance measures for digital entrepreneurship programs is essential to maintain educational standards and effectiveness.

Limitations and Perspectives for Future Studies

This research presents several methodological limitations that warrant careful consideration. The study's cross-sectional nature limits causal inferences and makes it impossible to capture changes in entrepreneurial intentions over time or account for the long-term impact of educational interventions. The use of convenience sampling may limit generalizability, while self-reported data may be subject to common method bias and social desirability bias. Additionally, the focus on a single cultural context, limitation to university student population, and temporal constraints of the data collection period present contextual limitations that should be considered when interpreting the results.

To address these limitations, future research should employ longitudinal research designs to track changes in entrepreneurial intentions over time and utilize more diverse and representative sampling methods. Incorporating multiple measurement approaches and objective indicators would strengthen the validity of findings. Expanding the scope to examine various contextual elements and investigating potential mediating and moderating factors would provide deeper insights into the phenomenon. Complementing quantitative approaches with qualitative research methods and conducting replication studies across different samples and settings would enhance our understanding of digital entrepreneurship education.

Furthermore, future studies could explore several emerging areas in digital entrepreneurship education. Research could investigate the role of artificial intelligence and machine learning in entrepreneurship education, as well as the impact of virtual and augmented reality tools on entrepreneurial learning. The integration of blockchain and cryptocurrency education in digital entrepreneurship programs represents another promising avenue for investigation. Cross-cultural comparisons of digital entrepreneurship education effectiveness and studies examining the long-term career trajectories of digital entrepreneurship program graduates would provide valuable insights for program development and policy-making.

Conclusion

The results of this study indicate that digital entrepreneurship education can play a significant role in digital entrepreneurship intention. These findings demonstrate that providing digital entrepreneurship education to university students can positively influence their intentions towards digital entrepreneurship. The findings encourage the provision of more digital entrepreneurship education to support young entrepreneurs and help them evaluate digital business opportunities. This study highlights that digital entrepreneurship education can be a crucial strategy for enhancing the skills of young entrepreneurs and guiding them towards exploring digital business opportunities.

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