








“Examining determinants of digital entrepreneurial intention: A case of graduate students”

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EXAMINING DETERMINANTS OF DIGITAL ENTREPRENEURIAL INTENTION: A CASE OF GRADUATE STUDENTS

Abstract

This study aims to identify the determining factors of digital entrepreneurial intention among university graduate students in Bangladesh. The study considered university students as a study sample ($n = 358$) who were either in their final year of bachelor's program or in the master's program from three private universities located in Dhaka city, Bangladesh. This study was quantitative in nature, and a survey questionnaire was used based on the previous studies. There were three parts: a questionnaire, demographic information analysis, and a Likert-based measurement of study variables. A Cronbach (α) coefficient value of 0.70 or above was regarded to examine the reliability of the constructs. A factor loading value of 0.50 or above was considered to measure the research validity of all constructs' items. Regression analysis was run to test the hypotheses. A Google form-based online survey questionnaire was used to collect the data, followed by a non-probability sampling method. After scrutiny, incomplete responses were discarded, and finally, 358 responses were deemed usable. The paper used SPSS version 26.0 to perform relevant statistical analyses. The results show that digital entrepreneurial self-efficacy, digital literacy, entrepreneurship education, innovativeness, and creativity positively and significantly impact university students becoming digital entrepreneurs. Regression result shows that students' innovativeness and entrepreneurship education have more impact on their digital entrepreneurial intentions, implying that policymakers and universities should design their academic policy to promote innovative and entrepreneurship activities in the academic pedagogy.

Keywords

entrepreneurship intention, digital entrepreneurship, digital literacy, creativity, self-efficacy, innovativeness

JEL Classification

M10, M13, M21

INTRODUCTION

Over the period, the concept of entrepreneurship activities has received notable research recognition and focus among scholars and academicians (Wiklund et al., 2019). The entrepreneurship concept has been becoming a significant interest among emerging and developing countries as an alternative option in fostering the country's economic development (Wardana et al., 2020). Entrepreneurship is found to have affected the growth momentum of a nation, and it does reinforce the social welfare of a country by triggering poverty alleviation and generating more jobs for the unemployed population (Sutter et al., 2019; Hossain & Asheq, 2020). Entrepreneurs are considered promoters of new ideas and business models through which they contribute to society. The development of more entrepreneurship-based business ventures is critical for the development perspective as entrepreneurial business ventures offer new business opportunities, encourage innovation, and bring positive changes to the business environment (Karimi et al., 2016). In addition, the process of digitalization in business activities has been playing a critical role in transforming the landscape of the current business operation (Youssef et al., 2021).

The emergence of digital technologies such as the internet has changed the process of entrepreneurship and has already brought about growth in digital entrepreneurship (Wang et al., 2020). Digital technologies have offered various new opportunities for entrepreneurs to develop their businesses. Currently, entrepreneurs have been shifting their business activities to digital platforms as digital technologies have lowered business operating costs, offered them opportunities to exploit untapped business opportunities, and provided a greater scope to interact with the number of business customers (Elia et al., 2016). Digital entrepreneurship is commencing business activities by leveraging internet-driven digital platforms and conducting daily business functions completely over digital platforms (Wang et al., 2016). As a result of computer devices and information technologies, digital entrepreneurship plays a vital role in becoming digital entrepreneurs.

Numerous countries have invested financial and non-financial resources to expedite digital entrepreneurship among people; still, the adoption of digital technologies and platforms to continue business operations has been low in developing countries such as Bangladesh. Hence, it is crucial to identify the factors influencing individuals to start a digital entrepreneurship-based business venture.

Based on the economic growth rate, Bangladesh has been considered a developing country over the years and has been pugnacious with the struggling unemployment rate (Hossain & Asheq, 2020). In Bangladesh, the overall unemployment situation has become a significant concern for authorities and policymakers since the unemployment rate is relatively high among university graduate students. Therefore, encouraging entrepreneurship-based activities might be viable to improve and solve the unemployment situation among Bangladeshi graduate students.

Research findings indicate that entrepreneurship has been regarded as an alternative career choice by students, and more students have become entrepreneurs just after their university graduation (Ezeh et al., 2020). Furthermore, conceptualized as the first step of entrepreneurship development, entrepreneurial intention evaluates a person's inclination to start his/her own entrepreneurship-based business (Nowiński & Haddoud, 2019). Hence, it is critical to comprehend entrepreneurial intention to accelerate entrepreneurial activities.

Previous entrepreneurship literature has mainly focused on traditional entrepreneurial intention, although very few studies have been conducted to determine the determinants of students' intention toward digital entrepreneurship (Alkhalaileh et al., 2021). Therefore, the study contributes to the entrepreneurship literature by examining the determinants of entrepreneurial intention toward digital entrepreneurship. In Bangladesh, rarely empirical studies have been conducted to understand students' intention to adopt digital entrepreneurship as a career choice. Still, in the entrepreneurship literature, a sound understanding of the determining factors of graduate students' inclination to pursue digital entrepreneurship-based ventures is scarce. Moreover, a thorough identification of predictive factors of Bangladeshi university graduates' propensity toward digital entrepreneurship would be pivotal in shaping students' mindsets to become digital entrepreneurs.

1. LITERATURE REVIEW

Digital literacy is the process of the ability to identify, manage, and assimilate digital resources for creating economic or social values (Young et al., 2020). Besides, digital literacy refers to the computer and media literacy that involves individual's skills, knowledge, ability, attitude, and consciousness of using digital tools and techniques

(Gourlay et al., 2013). However, digital literacy is considered e-literacy, which refers to the knowledge, skills, and ability to read and interpret media to reproduce information and evaluate data from the digital environment (Coskun, 2021). According to Young et al. (2020), an entrepreneur must hold certain core competencies in a digitalized period to identify, manage, access, evaluate, integrate, synthesize, and analyze digital resourc-

es. Currently, the qualities of an individual are the notable elements of gathering, processing, and producing digital information. Therefore, digital literacy skills broadly intersect with information literacy skills and capabilities (Sorgo et al., 2017).

On the other hand, digital literacy is defined as cognitive skills and abilities to use information, collaborate in teamwork, create social awareness and information, understand e-safety and encompass communication in the digital environment (Chan et al., 2017). Consequently, from the past studies, it can be explained that digital literacy has a positive and significant encouragement on digital entrepreneurial intentions (Young et al., 2020). Moreover, it directly affects digital entrepreneurship intention through self-acknowledged confidence by a person (Hejazinia, 2015). Nevertheless, digital literacy positively influences online entrepreneurship intentions (Mugiono et al., 2020). Furthermore, digital literacy (LD) has a positive and significant effect on online entrepreneurship intentions.

Creativity is considered a high level of desirability and motivation of entrepreneurial intentions. It is assessed based on two dimensions, namely usefulness and originality (Runco & Jaeger, 2012). Thus, creativity is defined as the human ability to modify, create, and discover new thinking and ideas through combining and reorganizing knowledge (Anjum et al., 2020). Besides, creativity has a considerable influence on entrepreneurial intentions (Ahlin et al., 2014; Hamidi et al., 2008). Therefore, innovative persons can create and maintain self-confidence in their entrepreneurship, which helps to play a decisive role in becoming a digital entrepreneur (Zhao et al., 2005). Another study also recommends that creativity has a positive and important stimulus on online entrepreneurship intentions (Mugiono et al., 2020).

Entrepreneurship education refers to improving entrepreneurial skills, knowledge, abilities, and attitudes through educational courses and activities (Mei et al., 2020). Besides, entrepreneurship education supports creating linkage among society, individuals, economy, and higher education (Lingappa et al., 2020). Meanwhile, EE consists of courses, activities, and programs that aim at understanding and developing individual's knowledge about entrepreneurship (Heinonen & Poikkijoki, 2006). Henceforth,

entrepreneurship education is regarded as the process of teaching students based on entrepreneurship, which includes different realistic opportunities for efficacious commercial ventures (Anwar & Saleem, 2019).

It was noted that entrepreneurship education impacts digital entrepreneurship intentions (Mugiono et al., 2020). Another study also suggested that entrepreneurship education influences entrepreneurial self-efficacy, attitudes, norms, and values that assist in boosting the likelihood of entrepreneurial intentions (Anjum et al., 2018). According to Krueger and Brazeal (1994), entrepreneurship education assists in creating awareness among the entrepreneurs and increases self-confidence, entrepreneurial knowledge, and cognition on entrepreneurial feasibility. Additionally, entrepreneurship education significantly influences entrepreneurial intention (Wang et al., 2019). Several studies also showed that entrepreneurship education actively stimulates entrepreneurial intention (Walter & Block, 2016). Therefore, self-efficacy is regarded as a vital indicator of enhancing entrepreneurial intentions (Wilson et al., 2007; Zhao et al., 2005). Moreover, entrepreneurship education has a significant positive effect on entrepreneurial intention (Jiang et al., 2017).

Innovativeness is regarded as the key issue and success factor of entrepreneurs. Entrepreneurs use it to tackle daily problems, generate new thoughts, and identify solutions. Therefore, creativity is the corporates of innovativeness that aids in creating, adapting, and implementing the value of expanding ideas (Baron et al., 2012). Furthermore, it is also regarded as human nature that enlarges awareness of the entrepreneur's decision-making (Syed et al., 2020). Similarly, innovativeness is critical to expand productivity, efficiency, competitiveness, and performance that impact entrepreneurial intentions. Past studies suggested that innovativeness is a vital factor of entrepreneurial intention (Ozaralli & Rivenburgh, 2016), which has a positive and momentous relationship with entrepreneurial intentions (Ahmed et al., 2010). Midgley and Dowling (1993) acclaimed that the central component of human personality is innovativeness, which supports digital entrepreneurship among entrepreneurs. However, innovativeness strongly impacts entrepreneurial intention (Robinson et al., 1991).

Self-efficacy is the process of self-perceptions of individual's skills, knowledge, and abilities that assist in making decisions to become a digital entrepreneur (Wilson et al., 2007). Besides, entrepreneurial self-efficacy plays a significant role in pursuing entrepreneurial behavior and careers (Newman et al., 2019). Therefore, entrepreneurial self-efficacy (ESE) is defined as an individual's belief that helps to perform duties and responsibilities to become an optimistic entrepreneur (Chen et al., 1998). It is also considered individual's beliefs and capabilities to successfully perform the tasks effectively and efficiently (Boyd & Vozikis, 1994).

However, entrepreneurial self-efficacy is a mediator between high-grow entrepreneurial intentions and a proactive personality (Prabhu et al., 2012). Conversely, ESE denotes the belief in an individual's ability to perform activities successfully (McGee et al., 2009). It is also considered an entrepreneurial decision-making model (Chen et al., 1998). From the extensive literature review, digital entrepreneurial self-efficacy has a positive and substantial impact on entrepreneurial intention (Carr & Sequeira, 2007). Consequently, there is a relationship between digital ESE and entrepreneurial intentions (Douglas & Fitzsimmons, 2013). Naktiyok et al. (2010) also stated that the digital entrepreneur's self-efficacy forecasts entrepreneurial intention.

2. AIMS AND HYPOTHESES

The study aims to examine the determining factors of graduate students' entrepreneurial intention to start digital entrepreneurship-based business ventures in the Bangladeshi context.

This study proposes the following hypotheses based on the extensive literature review (Figure 1):

- H1: There is a positive relationship between digital literacy (DL) and entrepreneurial intention toward digital entrepreneurship (EIDE).*
- H2: There is a positive relationship between creativity (CREA) and entrepreneurial intention toward digital entrepreneurship (EIDE).*
- H3: There is a positive relationship between entrepreneurship education (EE) and entrepreneurial intention toward digital entrepreneurship (EIDE).*
- H4: There is a positive relationship between innovativeness (INN) and entrepreneurial intention toward digital entrepreneurship (EIDE).*
- H5: There is a positive relationship between digital entrepreneurial self-efficacy (DIESE) and entrepreneurial intention toward digital entrepreneurship (EIDE).*

3. METHODOLOGY

To examine the determining factors of digital entrepreneurial intention, the current study has considered university graduate students as a study sample. The study purposefully considered only those university students in their final year. University students were chosen as sample respondents because Krueger Jr et al. (2000) advocated that students would be the suitable population to study entrepreneurial intention as they

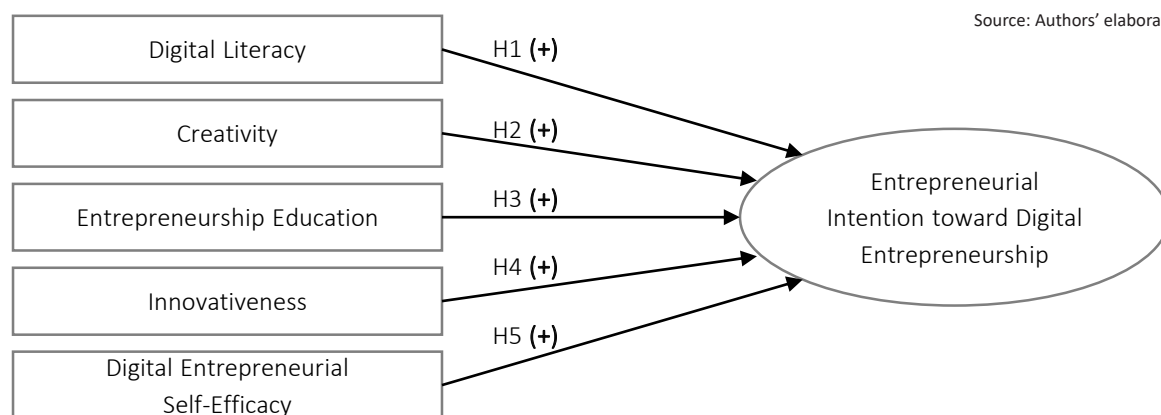


Figure 1. Research model

face career choices after graduation. In addition, Reynolds et al. (2004) stated that graduate students aged 25 to 34 had a greater intention to become entrepreneurs as a career choice. Liñán and Chen (2009) considered university students as the sample to study entrepreneurial intention. Thenceforth, the present study has considered university students to examine their entrepreneurial intention toward digital entrepreneurship.

The sample was drawn from three reputed private universities in Bangladesh. A convenience sampling approach to the graduate program and those studying for their master's degree at universities in Bangladesh was utilized as a sampling technique as this method is less complex (Bougie & Sekaran, 2010). In this study, a total of 358 university students of both the final year of bachelor's and master's programs participated as respondents.

The study used a structured survey questionnaire that has three parts. The first part of the questionnaire included a general description of the research context and explanations of key terms such as digital entrepreneurship, entrepreneurial intention, and digital entrepreneurial self-efficacy so that the students can easily realize the nature and objective of this study. The second part comprises the demographic information of the targeted population like age, gender, educational level, discipline, and experience with digital technology. The third and final part of the questionnaire included Likert-based measurement items of study variables, in which the value of '1' meant "Highly Disagreed" and the value of '5' meant "Highly Agreed."

In this study, the construct of entrepreneurial intention toward digital entrepreneurship has been measured by five items (i.e., "I am ready to do anything to be a digital entrepreneur," "I am determined to start a business on the internet in the future"), and this constructed has been adopted from Farani et al. (2017). This construct was a validated instrument to measure an individual's propensity toward digital entrepreneurship. Digital entrepreneurial self-efficacy was measured by eight items (i.e., "I can propose a profitable business model for digital commerce," "I can easily gain access to the resources needed to operate my e-shop"). This construct was originated by Wang

et al. (2020), and it was slightly modified by considering the research context. Digital literacy was adopted from Rodríguez-de-Dios et al. (2016) and Sariwulan et al. (2020). This construct was measured by three items (i.e., "I know how to search and download useful information online for my purpose," "Online digital facilities provide new knowledge for me"). Entrepreneurship education was measured by four items (i.e., "Digital entrepreneurship can be developed through education," "I believe that entrepreneurship education encourages me to become a digital entrepreneur"). It was adopted from Kusumojanto et al. (2021).

The independent variable (innovativeness) was measured by four items (i.e., "While others see nothing unusual in the surroundings, I can perceive in it business opportunities," "I believe there are always new and better ways of doing things"). This variable has been adopted from Dinis et al. (2013). Creativity was measured by four items (i.e., "I consider myself a very creative person," "I like to start new projects, despite the risk of being wrong). This variable was adopted from Miranda et al. (2017).

The Cronbach (α) coefficient value has been used to measure the constructs' reliability. Cronbach (α) coefficient value of 0.70 or above has been regarded as allowable to measure whether the construct is reliable. Table 1 reports that Cronbach (α) values of all constructs (i.e., EIDE, DIESE, DL, EE, INN, CREA) were higher than 0.70, indicating that all constructs are reliable. To measure the validity issues of the items of all constructs, a factor loading value of 0.50 or above has been considered. Loading values of all items under each construct are exhibited in Table 1. All constructs were found valid as all the factor loading values of all items were above 0.50.

In this study, sample respondents were university students either in their final year of graduate study or in the master's program of three universities in Bangladesh. A Google Form based online survey questionnaire was used to collect the data, followed by a non-probability sampling method. First, an invitation was sent to students' email accounts to participate in this study. The online questionnaire was sent upon their consent, and the survey data was duly preserved at the Google Forms repository.

After scrutiny, incomplete responses were discarded, and finally, 358 responses were deemed usable. The current study used SPSS version 26.0 for performing relevant statistical analyses.

Table 1. Reliability and validity analysis

Construct	Items	Loading	Cronbach (α) value
Entrepreneurial Intention Toward Digital Entrepreneurship (EIDE)	EIDE1	0.701	0.888
	EIDE2	0.891	
	EIDE3	0.662	
	EIDE4	0.788	
	EIDE5	0.670	
Digital Entrepreneurial Self-Efficacy (DIESE)	DIESE1	0.888	0.792
	DIESE2	0.692	
	DIESE3	0.702	
	DIESE4	0.727	
	DIESE5	0.693	
	DIESE6	0.808	
	DIESE7	0.644	
Digital Literacy (DL)	DIESE8	0.682	0.728
	DL1	0.784	
	DL2	0.665	
Entrepreneurship Education (EE)	DL3	0.741	0.833
	EE1	0.632	
	EE2	0.798	
	EE3	0.775	
Innovativeness (INN)	EE4	0.883	0.779
	INN1	0.777	
	INN2	0.825	
	INN3	0.702	
Creativity (CREA)	INN4	0.649	0.884
	CREA1	0.704	
	CREA2	0.705	
	CREA3	0.804	
	CREA4	0.626	

4. RESULTS AND DISCUSSION

Table 2 reports the analysis of the demographic information of the respondents. In terms of age, more than half of the students were aged from 21 to 25 years, while 140 were aged from 25 to 28. Only 8 percent of students were aged from 29 to 32 years. More than half of the students were male (56.4 percent), and 156 were female (43.6 percent). In terms of internet usage, 98 students replied that they consume the internet from 0 to 2 hours daily, whereas 205 students replied that they consume the internet from 3 to 4 hours daily. Regarding educational level, 180 final year students of the bachelor's program and 178 students of the master's program participated in the study as respondents.

Table 2. Demographic information analysis

Items	Frequency	Percentage (%)
Age		
21 to 24 years	188	52.5
25 to 28 years	140	39.1
29 to 32 years	28	7.8
More than 32 years	2	0.6
Gender		
Male	202	56.4
Female	156	43.6
Time Consumption on the internet		
0 to 2 hours	98	27.4
3 to 4 hours	205	57.3
More than 4 hours	55	15.4
Education		
Master's Degree	178	49.7
Bachelor's Degree (final year)	180	50.3

Note: n = 358.

Table 3 reports the summary of regression coefficient results along with reporting R^2 value and Durbin-Watson (Durbin & Watson, 1950) value. In this paper, the Durbin-Watson value is 2.082, which lies within the acceptable threshold range of 1.5 to 2.5 points. Moreover, VIF values fell in the range of 1.00 to 5.00, and tolerance values ranged from 0.10 to 1.0. It implies that the research model is not associated with multi-collinearity issues. In the present study, the value of $R^2 = 0.622$ (62.20 percent) specifies that the 62.20% total variance is explained by the study framework, indicating that digital entrepreneurial self-efficacy (DIESE), digital literacy (DL), entrepreneurship education (EE), innovativeness (INN), and creativity (CREA) illustrate 62.20% variance in predicting university students' entrepreneurial intention towards digital entrepreneurship (EIDE). The regression coefficient results (see Table 3 and Figure 2) also point out that all the independent variables: DIESE, DL, EE, INN, and CREA were found to have a positive influence on entrepreneurial intention towards digital entrepreneurship (EIDE), implying that all the research hypotheses were accepted.

The current study has revealed the effect of five independent factors, digital entrepreneurial self-efficacy (DIESE), digital literacy (DL), entrepreneurship education (EE), innovativeness (INN), and creativity (CREA), on digital entrepreneurial intention among university graduate students in

Table 3. Regression coefficient analysis

	β -value	t-value	Sig.	Tolerance	VIF
Digital Literacy (DL)	0.277	3.828	0.000***	0.472	2.374
Creativity (CREA)	0.285	3.994	0.000***	0.895	2.319
Entrepreneurship Education (EE)	0.329	4.554	0.000***	0.472	3.304
Innovativeness (INN)	0.355	4.741	0.000***	0.688	2.884
Digital Entrepreneurial Self-Efficacy (DIESE)	0.298	4.023	0.000**	0.669	1.112

Note: ** $p < 0.05$; *** $p < 0.01$ ($n = 358$). $R^2 = 0.622$ or 62.20%. Durbin Watson value = 2.082. Dependent variable: Entrepreneurial Intention Toward Digital Entrepreneurship (EIDE).

Bangladesh (Table 3). In this study, five hypotheses were developed and tested through regression analysis, and the hypothesis is accepted if the p-value is less than 5% or 0.05.

Hypothesis 1 (H_1) assumed that digital literacy (DL) has a positive and significant impact on entrepreneurial intention towards digital entrepreneurship (EIDE), where the hypothesis is accepted at the 5% significance level ($\beta = 0.277$, $p < 0.05$). The outcome is consistent with the previous study. Digital literacy directly affects digital entrepreneurial intention among entrepreneurs (Mugiono et al., 2020).

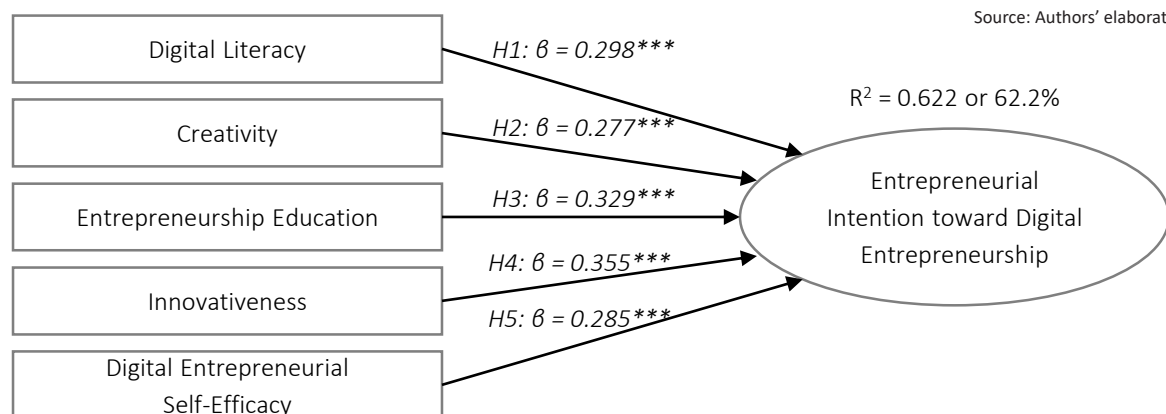
The second hypothesis mentioned creativity (CREA) that directly influences entrepreneurial intention toward digital entrepreneurship (EIDE), and it is accepted based on a regression analysis result at 5% ($\beta = 0.285$; $p < 0.05$). This study indicates that when students become creative, they will be highly encouraged to become digital entrepreneurs. Mugiono et al. (2020) also anticipated that creativity influences online entrepreneurship intentions among students.

The third hypothesis implies a positive relationship between entrepreneurship education (EE)

and entrepreneurial intention towards digital entrepreneurship (EIDE). H_3 is accepted at 5% ($\beta = 0.329$; $p < 0.05$), which states that entrepreneurship education (EE) is an essential factor that aids in creating intention among entrepreneurs to become digital entrepreneurs. The result of regression analysis is related to past studies. Entrepreneurship education is regarded as the most critical and significant ingredient that positively influences entrepreneurial intention (Jiang et al., 2017).

The fourth hypothesis also explained that innovativeness directly influences entrepreneurial choice toward digital entrepreneurship. H_4 also demonstrates that innovativeness (INN) has a positive and significant influence on entrepreneurial intention toward digital entrepreneurship based on the accepted result at 5% ($\beta = 0.355$; $p < 0.05$). Therefore, this outcome is consistent with previous studies. However, innovativeness substantially affects entrepreneurial intention (Robinson et al., 1991).

The fifth hypothesis revealed a positive and significant rapport between digital entrepreneurial self-efficacy (DIESE) and entrepreneurial in-

**Figure 2.** Regression coefficient

tention toward digital entrepreneurship (EIDE). It is accepted as the result of regression analysis at a 5% significance level ($\beta = 0.298$; $p < 0.05$). It does explain that digital entrepreneurial self-efficacy will create intention toward digital entrepreneurship. The result is consistent with previous studies. DIESE relates to digital entrepreneurial intentions (Douglas & Fitzsimmons, 2013).

From the above discussion, it can be supposed that the five variables, namely digital entrepreneurial self-efficacy (DIESE), digital literacy (DL), entrepreneurship education (EE), innovativeness (INN), and creativity (CREA), have the strength and positive impacts that predict university students' entrepreneurial intention toward digital entrepreneurship where the students can build their business on digital platforms.

CONCLUSION AND IMPLICATIONS

Entrepreneurship is considered a driving force for creating new job opportunities, promoting new ideas and business models, and having social and substantial economic benefits. This study evaluates the factors influencing entrepreneur intention toward digital entrepreneurship among university students in the Bangladeshi context. The paper tested digital literacy, creativity, entrepreneurship education, innovativeness, and digital entrepreneurial self-efficacy. The university students in their final year were the targeted population.

The regression analysis was administered to test the hypothesis, and a research model was proposed based on the previous extensive literature review. However, the regression result is deceptive in that digital literacy (DL), creativity (CREA), entrepreneurship education (EE), innovativeness (INN), and digital entrepreneurial self-efficacy (DIESE) have a positive and significant impact on entrepreneurship intention toward digital entrepreneurship of university students. In this study, DL, CREA, EE, INN, and DIESE have detailed a 62.20 percent variance in entrepreneur intention toward digital entrepreneurship among university students, which delivers pragmatic outcomes in the current body of knowledge. These variables will undoubtedly help to create entrepreneurial intention toward digital entrepreneurship.

Several future research directions have been proposed in this study. Firstly, the regression through SPSS software and the quantitative approach was utilized to test the research model. As per the recommendations of scholars, the researchers might think of a qualitative technique with a quantitative approach for better results. Secondly, his paper measured the influence of five variables on entrepreneur intention towards digital entrepreneurship. The educational institutions should focus and invest more in courses or subjects of entrepreneurship and digital skills development that inspire students to become future digital entrepreneurs. A university should know how to drive and encourage students' intention toward digital entrepreneurship.

Digital technology offers new opportunities to people continuously where students can take this technological infrastructure to become new digital entrepreneurs for developing the nation. The determinants of digital entrepreneurial intention also raise self-assurance among students to create an intention to become digital entrepreneurs. Therefore, universities should know how to drive present attitudes and intentions among students toward digital entrepreneurship. In addition, the government can encourage employment counseling agencies and universities to offer digital entrepreneurship courses to increase students' intention to become entrepreneurs.

AUTHOR CONTRIBUTIONS

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