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ORIGINAL PAPER

# Factors influencing undergraduate students' green entrepreneurial intentions: evidence from an emerging economy

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## Abstract

Scholars are concerned about the adverse effects of traditional business ventures on the environment and society. So, humans need to embrace a green lifestyle to promote a sustainable future for the environment and society. The growing body of academic research on "going green" brings an innovative perspective to the traditional idea of entrepreneurial activity. Green entrepreneurship aims to uphold classic entrepreneurial ideas while bringing innovative opportunities for the environment and society. Therefore, this study examines the factors influencing undergraduate students' green entrepreneurial intentions. A structured questionnaire was utilized, and a convenience sampling technique was employed to collect sample data from 359 undergraduate students. Structural equation modeling was utilized to test the different relationships. The study results revealed that attitude toward entrepreneurship, entrepreneurial knowledge, entrepreneurial motivation, personality traits, environmental value, commitment to the environment, and university green entrepreneurial support significantly and positively impact students' green entrepreneurial intentions. Among these variables, environmental value has the most significant impact on entrepreneurial intentions. The main contribution of this research is the inclusion of a novel higher-order construct, personality traits, into the existing literature on entrepreneurship. It comprises four subordinate components: proactiveness for entrepreneurship, entrepreneurial self-efficacy, risk propensity, and need for achievement. Additionally, the study promotes green entrepreneurship to sustain the ecosystem and nature. It will help investors, business people, universities, students, and society to initiate proper directions.

**Keywords** Green entrepreneurial intentions · Entrepreneurial knowledge · Entrepreneurial motivation · Personality traits · Environmental value · University green support · Commitment to the environment · SmartPLS

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## Introduction

The impacts of global warming and human activities with hazardous consequences have caused numerous adverse effects on the weather patterns and overall health of the Earth's ecosystem (Cutler et al., 2020). As a result, it is crucial to take urgent measures to minimize such harm. "Sustainability" has been identified as the key solution to address the problems stemming from global warming, hazardous human activities, and their detrimental environmental impacts (Gast et al., 2017). Green entrepreneurship (GE) is essential to achieving sustainability. GE encompasses entrepreneurial elements such as innovation, risk-taking, novel business ideas, and a strong commitment to environmental sustainability among those engaged in business activities (García-Cabrera et al., 2023). A green entrepreneur is an individual who initiates a business intending to develop a good, offer a service, and implement a procedure that encourages environmental sustainability (Qazi et al., 2020). Green entrepreneurs excel in developing a business model that goes beyond mere economic profitability but also generates environmental and social value, thereby contributing to a sustainable and responsible approach to business (Gast et al., 2017; Qazi et al., 2020). Therefore, it is important to foster and promote green strategies to produce green entrepreneurs for solving urgent social and environmental challenges (Demirel et al., 2019; Yi, 2021).

Green business owners integrate environmental and business goals in order to achieve social and ethical change within their entire enterprise (Gibbs & O'Neill, 2012). They have a strong motivation to protect the environment and hold deep-seated environmental values (EV). They are committed to promoting sustainable practices and positively impacting the planet through their entrepreneurial endeavors. They realize the world needs to embrace sustainability (Mariam et al., 2023; Rahman & Reynolds, 2019), and their green values highly influence attitudes and behaviors (Chou, 2014; Rahman & Reynolds, 2019). As a result, individuals with strong EVs are highly motivated to engage in green activities, driven by a deep responsibility toward protecting the Earth (Qazi et al., 2020). These individuals are likelier to channel their passion toward sustainable actions to fulfill their psychological needs and lead meaningful lives. Their strong EVs serve as a driving force, inspiring them to take concrete steps toward contributing to a greener and more sustainable future. Therefore, personal EVs are essential in driving individual commitment and action toward a greener environment (Bhuian & Sharma, 2017). Again, the development and success of a business are greatly influenced by an individual's personality traits (PT) (Wang et al., 2016). These characteristics and traits can significantly impact an individual's ability to manage and lead a business effectively. Additionally, PT factors such as leadership style, risk tolerance, self-efficacy, adaptability, and communication skills can influence the outcomes of entrepreneurial endeavors. Therefore, PT, commitment to the environment (CE), and EV are the influential factors in shaping the success of GE initiatives.

According to scholars, students express a willingness to pursue entrepreneurship as a career. Still, they are hindered by a lack of support and resources, for

example, limited access to financial capital, mentorship, networks, and business development opportunities (Asante & Affum-Osei, 2019; Liguori et al., 2020). These constraints may prevent them from fully realizing their entrepreneurial aspirations and hinder their ability to start or sustain a business. It highlights the significance of establishing a supportive ecosystem that offers sufficient resources and support to facilitate the effective pursuit of entrepreneurial aspirations, particularly among students. Therefore, higher authorities have to spread knowledge about and offer assistance in fostering the idea of GE and implementing environmentally friendly practices in business (Vidal-Vilaplana et al., 2023). In such situation, higher educational institutions (HEIs) can play crucial roles in instilling a sense of environmental consciousness, fostering sustainable business practices, and equipping aspiring green entrepreneurs with the necessary knowledge, skills, and resources to build environmentally responsible businesses (Nybye & Wraae, 2023; Saeed et al., 2015). By fulfilling these responsibilities, HELs can contribute to creating a more sustainable and environmentally conscious business ecosystem.

Many countries are implementing initiatives to encourage and support GE to promote environmental protection. These efforts recognize the essential role that businesses can play in addressing environmental challenges and advancing sustainability goals. However, a limited body of research explores the perception of GE in diverse contexts. For example, Grinevich et al. (2019) explored the idea of GE in the setting of the sharing economy, while a case study was done by Silajdžić et al. (2015) in transition economies. Again, Sharda et al. (2015) thoroughly examined international trends, market demands, and growth-promoting factors for GE, particularly in the Indian setting. However, to the best of the author's knowledge, limited studies investigated students' intentions toward GE (Qazi et al., 2020; Soomro et al., 2020; Yi, 2021). In addition, there has not been any study on GE in Bangladeshi educational settings. It implies that the worldwide research coverage of the existing literature on GE is deficient. Again, Burzyńska et al. (2018) and Bogatyreva et al. (2019) argue that there is still much to learn about and improve in the field of GE. Hence, further research is needed in the literature to explore green entrepreneurial intentions among students. The current research aims to bridge the gap by investigating the influence of attitude toward entrepreneurship (ATE), entrepreneurial knowledge (EK), entrepreneurial motivation (EM), personality traits (PT), environmental value (EV), commitment to the environment (CE), and university green entrepreneurial support (UES) on students' green entrepreneurial intentions (GEI).

The choice of students as respondents in the present study is based on several reasons. First, the primary factor behind the significance of HEIs lies in their substantial economic contributions through the promotion of innovation, which addresses global challenges such as environmental protection, international relations, health care, resource security, and development (Kohoutek et al., 2017; Oppong, 2013). Moreover, HEIs are an inherent ally to the knowledge-based economy (KBE). Universities play a crucial role in educating the next wave of students and advancing modern inventions since they are a source of innovative education and cutting-edge research (Klofsten et al., 2019; Ratten, 2023). Again, the convergence of HEIs with industries creates a synergistic relationship that generates commercial value for

innovation. On the other hand, the academic training and skill development programs offered by HEIs give people, students, and companies the resources they need to succeed in the KBE. Furthermore, existing research studies illustrate that sustainable development is influenced by HEIs (Findler et al., 2019). For example, the HEIs play a vital role in promoting societal development (Anstadt, 2009; Escobar-Tello & Bhamra, 2013), improving the economy (Alves et al., 2015), and safeguarding the natural environment (Chen et al., 2016).

Secondly, undergraduates in higher education are at a crucial phase in their lives where they make decisions about their future career paths, including whether to pursue employment or entrepreneurship. Therefore, this pivotal stage presents an opportunity to instill important values and provide relevant training to prepare students for their future endeavors. Indeed, the concept of "going green" and fostering GE can yield significant benefits when appropriately implemented, especially during this critical stage of higher education. Thirdly, businesses often face challenges transitioning from outmoded tactics to embracing the setting of GE. Therefore, higher education students, being the upcoming generation, may exhibit a greater inclination toward GEI.

The current work significantly adds to the body of knowledge in a number of ways. First and foremost, the inclusion of the GEI idea in the research is a novel addition since it covers a developing issue that is extremely important in the modern period. Secondly, this study investigates GEI by examining how ATE, EK, EM, PT, EV, CE, and UES from universities impact GEI. This unique combination of factors has not been previously explored in research. By examining multiple variables and their impact on GEI, the study seeks to understand better the motivations and drivers behind sustainable GE. This analysis can help identify the most significant factors that contribute to GEI, which can then be used to develop strategies and policies to promote and support GE. Thirdly, this study conceptualizes personality traits (PT) as a higher-order construct comprising a combination of proactiveness for entrepreneurship (PE), entrepreneurial self-efficacy (ES), risk propensity (RP), and need for achievement (NA). By viewing PT in this way, the study aims to capture a more holistic understanding of how different aspects of personality influence GEI. Fourthly, to the author's knowledge, no study has been conducted on sustainable entrepreneurship in Bangladesh's higher education context. Therefore, the current study specifically focuses on exploring students' GEIs in higher educational settings.

## Background and hypothesis development

### Theory of reasoned action (TRA)

In this study, TRA (Fishbein & Ajzen, 1975) was employed as a conceptual framework to investigate how attitude, PT, and entrepreneurial support from universities influence the GEI of students. TRA significantly explains individuals' intentions and subsequent behaviors. Subjective norms and attitude are the two main components of TRA. Furthermore, the scholars underscored the significance of individual intention over behavior, as individuals tend to exhibit behaviors once they have

internalized the corresponding intention. Intention is the most accurate behavioral predictor. Hence, in the current setting, when undergraduates receive good assistance from the HEIs and exhibit an optimistic inclination in their attitude and personality, it is likely that their entrepreneurial intentions (EI) concerning environmental sustainability will be heightened.

### Flow theory (FT)

The FT is a psychological condition in which people are so completely engrossed in one task that they lose all sense of time and space. People will pursue the activity, even at a high cost, just for the pure delight of doing it since the experience of doing it is so intrinsically fulfilling (Csikszentmihalyi, 1975). Csikszentmihalyi introduced the flow theory in 1975 as a framework for comprehending motivation and human behavior. The FT is widely regarded as a psychological state that elucidates the heightened experience of individuals who are cognitively efficient, highly motivated, and content (Csikszentmihalyi, 1975). According to FT, incorporating motivation, personality, and subjective experience can lead to favorable outcomes and desirable results. As stated by Chan and Ahern (1999), the ultimate objective of education is to acquire knowledge and skills, and the most effective way to motivate students to learn is in an educational environment. It is a belief that the provision of high-quality systems and education alone can serve as a motivating factor for students to achieve specific behavioral outcomes (Shi et al., 2020). Through university education, students can acquire entrepreneurial skills and knowledge that can be rendered into entrepreneurial behaviors (Waris et al., 2021). So, students driven by environmental concerns will proactively seek opportunities to establish novel green enterprises (Mustafa et al., 2016).

### Generational theory (GT)

GT was initially proposed by Howe and Strauss in 1991 (Qazi et al., 2020). This theory is widely recognized as one of the most recent frameworks for understanding the cyclical patterns of societal development. Furthermore, as per Howe and Strauss (2007), values are shaped during preceding or subsequent eras, resulting in variations in values from one cohort to another. It implies that each generation has its unique set of generational values, which helps differentiate between them. According to Lepeyko and Blyznyuk (2016), generational conflicts can arise due to the differing socialization processes experienced by each generation during different periods. These differences can lead to generational variations in personalities, perspectives, thinking patterns, and values. Therefore, the fundamental reason behind any intergenerational conflict can be attributed to the disparity in values between the younger and older generations, particularly between parents and children. As such, the current research aims to examine the GEI among young adults in higher education, specifically focusing on incorporating the role of EVs into the conceptual model. Students are becoming increasingly aware of environmental issues and are

showing significant levels of concern regarding the degradation of the environment. As a result, these factors are likely to promote a green mindset among students.

## Development of hypotheses

### Attitude toward entrepreneurship (ATE)

The attitude is the integration of a person's perceptual, emotional, motivational, and mental procedures about the environment and the community they belong to (Krech & Crutchfield, 1948). ATE is a psychological inclination of a person to express a level of preference or aversion in appraising a specific outcome or concept (Eagly & Chaiken, 1993). An individual's intention to initiate a new enterprise can be perceived through their attitude, and a favorable attitude toward entrepreneurship can significantly enhance their EI (Hussain et al., 2021a, 2021b). In Athayde's study (2009), most participants exhibited a positive attitude toward entrepreneurship, with a significant 91% expressing favorability toward entrepreneurship as a career choice. Krueger Jr et al. (2000) discovered that having a cognitive infrastructure is crucial for recognizing and detecting new opportunities as they emerge. In contrast, environmental factors significantly influence individuals toward entrepreneurial pursuits (Begley et al., 2005). The foundation of EI lies in an individual's attitude, which serves as their assessment and decision-making process in pursuing business ownership and operation (Fatoki, 2010; Krueger Jr et al., 2000). Several scholars revealed a positive association between attitude and EI (Amofah & Saladrigues, 2022; Khatun & Roy, 2022; Liñán & Chen, 2009). So, the proposed hypothesis is:

**H1** ATE has a significant impact on GEI.

### Entrepreneurial knowledge (EK)

According to Øystein Widding (2005), EK is widely recognized as a key element in driving entrepreneurial activities and establishing new businesses. Again, EK significantly influences EIs, promoting individual and organizational success and economic sustainability at the national level (Hussain et al., 2021a, 2021b). Roxas (2014) defines it as an individual's knowledge of various entrepreneurial activities such as business operations, opportunity identification, resource availability, and exploitation. EK is derived from the interaction of individuals with their society, education, training (Martin et al., 2013), and practical experience, making them crucial in human resource development (Turker & Selcuk, 2009). The combination of entrepreneurial education and preexisting EK has been shown to drive individuals toward choosing entrepreneurship as a career path (Henderson & Robertson, 2000). So, EK and skills play a critical role in establishing businesses and shaping individuals' perceptions and beliefs, which can impact their inclination and behavior toward entrepreneurial activities (Roxas, 2014). The interaction between EK and environmental factors shapes an individual's intentions toward establishing a business venture, leading to positive entrepreneurial behavior (Fayolle & Degeorge, 2006; Liñán

et al., 2011). However, the research conducted by Roxas (2014) and Hussain et al., (2021a, 2021b) revealed a positive correlation between EK and the intention to initiate a green venture. So, the proposed hypothesis is:

**H2** EK has a significant impact on GEI.

### Entrepreneurial motivation (EM)

Motivation is crucial in imparting the skills necessary to start a new venture (Jwara & Hoque, 2018). EM drives individuals to formulate strategies and engage in entrepreneurial activities that facilitate launching sustainable ventures (Collins et al., 2004; Krueger Jr et al., 2000). In an entrepreneurial setting, individual motivation and perception support entrepreneurial initiatives (Roy et al., 2021; Van der Zwan et al., 2012). According to Alam et al. (2019), motivation can alter an individual's behavior and inspire them to pursue a new venture as a career path. Research indicates that when individuals are positively motivated by their personal needs, they work diligently toward achieving their desired outcomes, such as their commitment to a sustainable environment (Hussain et al., 2021a, 2021b). In addition, as described by Rekha et al. (2015), creativity involves generating original and inventive ideas, which is a fundamental aspect of the human mind. Hence, entrepreneurial endeavors that involve solving problems are not merely about doing something new but rather a crucial function that cannot be overlooked (Townsend et al., 2010). Robichaud et al. (2001) state that EMs are key to establishing a business venture. EM significantly impacts various business aspects, such as leadership style and employee motivation (Robichaud et al., 2001; Wiklund & Shepherd, 2003). So, the proposed hypothesis is:

**H3** EM has a significant impact on GEI.

### Personality traits (PT)

One's personality significantly influences career selection (Qazi et al., 2020). Some students are naturally inclined toward entrepreneurship due to their PT, such as a desire for autonomy and independence, which makes them less interested in traditional jobs (Qazi et al., 2020). It leads to their high motivation to pursue a career as an entrepreneur. Likewise, some individuals are averse to adhering to a typical nine-to-five work routine. Successful entrepreneurship requires various skills, including strategic thinking, creativity, financial management, networking, and risk-taking. Furthermore, entrepreneurship involves a great deal of hard work, perseverance, and adaptability in the face of challenges and setbacks. This indicates that PT is crucial determinants in both the establishment and triumph of a business (Brandstätter, 2011). Scholars aim to cultivate a favorable perception of the GEI by integrating several PTs, such as PE, ES, RP, and NA (Brandstätter, 2011; Qazi et al., 2020).

**Proactiveness for entrepreneurship (PE)** According to Mustafa et al. (2016), there is a correlation between a proactive personality and an intention to pursue entrepreneurship. The research findings suggest that individuals with this trait are more inclined to become entrepreneurs. In a similar vein, several researchers have investigated the influence of a proactive personality on the inclination to pursue entrepreneurship, and their findings indicate a strong and positive correlation (Qazi et al., 2020). Therefore, a high level of proactivity enhances students' capacity to think innovative. It also enables them to actively identify ideas that could benefit their entrepreneurial pursuits (Fragoso et al., 2020; Neneh, 2019; Zisser et al., 2019). As a result, individuals with this characteristic show a favorable attitude toward environmental protection, which can also influence their entrepreneurial decisions and actions.

**Entrepreneurial self-efficacy (ES)** According to Krueger Jr et al. (2000), a person's ES relates to confidence in their capacity to succeed and successfully carry out desired activities. As per Trevelyan's (2009) argument, individuals with high self-efficacy tend to persist despite limited resources and uncertainty. They are less likely to give up easily. Previous studies have explored the correlation between ES and EI (Doanh & Bernat, 2019; Nowiński et al., 2019). So, individuals with high levels of ES are more prone to launching their trades. Thus, a student's self-assurance and optimistic mindset can inspire them to pursue entrepreneurship. Additionally, Shi et al. (2020) asserted that a student's self-efficacy directly impacts their EI, regardless of their field of learning. Therefore, ES inspires them to pursue GE as a viable career option for their future.

**Risk propensity (RP)** According to Hamböck et al. (2017), entrepreneurship necessitates a forward-thinking mindset capable of envisioning the future and undertaking significant risks to translate an idea into a business reality. Again, individuals with a greater inclination for risk-taking are more prone to opt for GE as they believe they can carry out the necessary tasks and responsibilities to achieve success (Hussain et al., 2021a, 2021b). Multiple research studies have stated a direct association between RP and EI (Gu et al., 2018; Hussain et al., 2021a, 2021b; Sitkin & Weingart, 1995). According to Gist and Mitchell (1992), high RP people are more likely to feel at ease when dealing with uncertain situations to address problems (Hussain et al., 2021a, 2021b; Stoyanova, 2017). They feel more in control of the outcomes, assess the possibility of big rewards more keenly, and have higher self-efficacy (Hussain et al., 2021a, 2021b). So, people with high RP are likely to anticipate less crippling uncertainty while undertaking a business career.

**Need for achievement (NA)** The desire for excellence, success, and accomplishment in competitive settings is referred to as NA (Nasip et al., 2017). According to Elali and Al-Yacoub (2016), NA is an essential trait of the human personality and plays a significant role in shaping individuals' EI. De Pillis and Reardon (2007) proposed that enthusiasm for achievement is a key factor contributing to entrepreneurial ventures' success. Ferreira et al. (2012) have claimed that the NA is the most powerful predictor of success in entrepreneurship, as it motivates individuals to be advanced

and inventive when establishing innovative enterprises. Again, Chaudhary (2017), Çolakoğlu and Gözükara (2016), Karabulut (2016), and Matlay (2019) have investigated students' EI by examining their PT, with a particular focus on the NA trait. The findings indicate that students' desire for a prosperous future is positively associated with their intention to launch their businesses. Therefore, individuals who possess this trait are more likely to succeed as entrepreneurs. So, there is credible evidence that PT significantly impacts GEI. So, the proposed hypothesis is:

**H4** PT has a significant impact on GEI.

#### Environmental values (EV)

According to Corraliza and Berenguer (2000), EV is the subjective perception or recognition of the significance, worth, or importance that an individual attributes to the environment. The values of an entrepreneur play a crucial role in determining their attitude, perception, and behavior toward GE (Yasir et al., 2022). In GE, the term EV pertains to the fundamental principles and convictions guiding a business in its dedication to safeguarding and conserving the natural environment (Khodaei et al., 2018). According to Singh et al. (2019), this encompasses acknowledging the interdependence among the environment, society, and economy and the significance of harmonizing these three elements to achieve long-term sustainability. EV benefits the overall business ecosystem and enhances the environmental performance of new ventures (Yasir et al., 2023a). Again, Jarvis (2016) suggested that an entrepreneur's GEI is linked to their inclination to establish new core values, particularly EV. Due to escalating apprehensions regarding the environment and the reduction of natural properties, many businesses and young stars deliberately choose to engage in sustainable entrepreneurship (Arru, 2020). In addition, there is a need to promote sustainable entrepreneurship to facilitate the creation of innovative solutions to tackle problems related to waste reduction and depletion of natural resources (Yasir et al., 2021). Again, several researchers found a positive association between EV and EI (Peng et al., 2021; Yasir et al., 2021, 2023a). So, the proposed hypothesis is:

**H5** EV has a significant impact on GEI.

#### Commitment to the environment (CE)

Commitment refers to an individual's psychological attachment to environmental concerns (Davis, 1989). Ekawati et al. (2017) suggested that an organization's commitment to the environment can be a competitive advantage by fostering a positive company image. An individual's commitment can impact entrepreneurial behavior, such as managerial command and other pertinent aspects of starting a venture (Robichaud et al., 2001; Wiklund & Shepherd, 2003). Students with the capacity for ecological thought might identify ways to inform the institution of the need to launch a green enterprise (Davis, 1989). According to Delmar and Wiklund (2008),

students' dedication to the environment can inspire them to seek ways to effect positive change, driven by their internal motivation. Environmentalists who are truly committed tend to take action toward constructive efforts rather than simply observing environmental degradation passively (Hameed et al., 2021). Their dedication compels them to contribute to the environment and economy (Alcock, 2012). They cultivate a sense of concern and strive to identify solutions. This feeling inspires a drive to create sustainable and environmentally friendly businesses (Hameed et al., 2021). So, the proposed hypothesis is:

**H6** EV has a significant impact on GEI.

#### University green entrepreneurial support (UES)

Scholarly works reveal that numerous universities advocate for green initiatives within their campuses and implement environmentally conscious practices (Qazi et al., 2020). Likewise, Yi (2021) affirmed that universities integrate environmental principles with academia by introducing GE. Thus, when HEIs educate their pupils and prioritize the current environmental demands, these students tend to react positively (Teo et al., 2019). It is incumbent upon institutions to inspire and support undergraduates, enabling them to establish their green businesses upon completing their studies. Moreover, education is crucial in fostering an entrepreneurial mindset among higher education students (Ginanjar, 2016).

Consequently, entrepreneurship support from universities has a notable and favorable impact on students' entrepreneurial aspirations and conduct, particularly when facilitated through experiential learning, providing them with hands-on experience to grasp the concepts of entrepreneurship effectively (Qazi et al., 2020). It, in turn, directly influences students' EI, thereby promoting the establishment of green start-ups (Ho et al., 2014). Demirel et al. (2019) asserted that UES fosters and advances students' attitudes and actions toward environmental conservation and sustainability. At this juncture, the university's support system is critical in translating entrepreneurial aspirations into GEI among students (Qazi et al., 2020). Recently, numerous schoolers highlighted the significance of UES in establishing novel business ventures and GEI (Hameed et al., 2021; Qazi et al., 2020; Saeed et al., 2018). So, the proposed hypothesis is:

**H7** UES has a significant impact on GEI.

## Research methodology

### Proposed model

The study analyzes how ATE, EK, EM, PT, CE, EV, and UES impact intentions toward GE. Figure 1 shows the conceptual framework.

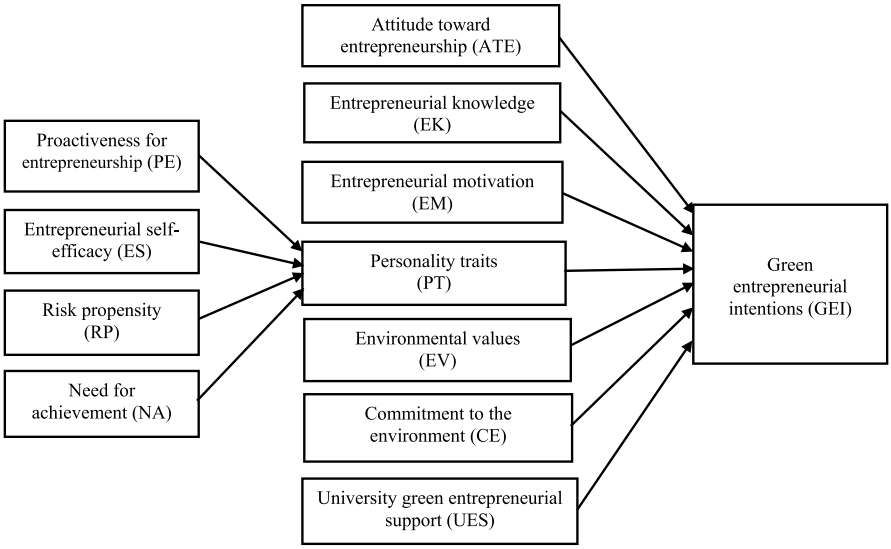


**Fig. 1** Proposed model

### Personality traits (PT) as a higher-order construct (HOC)

The study proposed that PT is a reflective–formative HOC comprising reflectively measured lower (first)-order constructs (LOC), namely PE, ES, RP, and NA. Thien (2020) proposed HOCs as a methodological approach to increase parsimony in the model by reducing the number of hypothesized relationships. Additionally, adopting HOCs aids in mitigating collinearity concerns (Sarstedt et al., 2019), simplifies the interpretation of results, and enhances the generation of dependable and valid pragmatic outcomes (Thien, 2020). To choose the measurement model as reflective or formative, the researcher followed the guidance of Jarvis et al. (2003). PT is designated as a HOC assessed through four LOCs—PE, ES, RP, and NA—each with distinct observations. These variables signify their distinct conceptual meanings. Thus, all four constructs are considered reflective LOCs. According to Jarvis et al.'s guidelines, PT is a formative HOC assessed by four reflective LOCs illustrated in Fig. 1. In summary, LOCs are assessed through their measurement items. At the same time, HOCs are evaluated by employing either a two-stage approach or a repeated indicator with the items of their LOCs (Sarstedt et al., 2019).

The key reasons for suggesting PT as an HOC are as follows: Several recent works on EI have utilized the proposed dimensions of PT (PE, ES, RP, and NA) to examine their impact on EI. Incorporating four independent variables in the structural model leads to four distinct paths. Integrating these four exogenous factors decreases the overall number of relations, producing a simpler, more straightforward model to interpret regarding outcomes. Second, by using all four recommended aspects, multiple earlier investigations have supported and assessed the idea of PT as a multidimensional phenomenon (Çolakoğlu & Gözükara, 2016; Krueger Jr et al., 2000; Liñán & Chen, 2009; Qazi et al., 2020). These studies also led to the merging

of the most prevalent constructs into a unified HOC. Thirdly, complex genetic, environmental, and sociocultural interaction affects PT. Environmental elements, including family environment, culture, life experiences, and personal growth, also significantly stimulate the development of these qualities, even if genetics contribute a role in PT (Bouchard & Loehlin, 2001; Oishi, 2010). These characteristics increase the motivation to take necessary action, for example, EI. The previous conversation laid the groundwork for merging all four suggested dimensions of PT into a unified HOC. Numerous past individual research studies have demonstrated that these four factors related to personality have a notable impact on cognitive function concerning PT and action processing.

## Data collection

The research is quantitative and relies on data obtained through a cross-sectional survey. The data were gathered through a survey that utilized a paper and pencil questionnaire. The study used convenience sampling to select respondents (Chowdhury & Roy, 2015; Islam et al., 2021; Roy & Ahmed, 2016). The reason for selecting this method was its capability to gather data of superior quality (Yao et al., 2015), along with its efficiency, affordability, and the ability to regulate the type of respondents (Chatzigeorgiou et al., 2019; Chowdhury et al., 2019). This study's target population was business students enrolled in private universities in Bangladesh. The survey received a total of 407 responses from the participants. After removing incomplete questionnaires, 359 valid responses were used for further proceedings.

G*power software (version 3.1.9.4), as outlined by Faul et al. (2009), was employed to determine the minimum required sample size based on statistical power. By using an effect size of 0.05, it was determined that a sample size of 262 was necessary to attain a statistical power of 0.95. Hence, the sample size was deemed sufficient to perform the statistical analysis. Before the main study, a pilot study involving 40 participants was carried out to guarantee the accuracy and functionality of the responses (Hulland et al., 2018). The researcher employed a preexisting scale for gauging the variables but modified the phrasing of the various indicators to align better with the concept of GEI. A seven-point Likert scale was utilized in the research instrument. Respondents recorded their responses from strongly disagree (1) to strongly agree (7) to assign a score to each item.

## Instrumentation

In this research, a majority of the items were adopted from the widely cited scales in entrepreneurial settings, specifically from the literature on higher education. As previously mentioned, the researcher posited PT as a HOC that is reflective–formative. The PT construct comprises four elements: PE, ES, RP, and NA. PT items are adapted from earlier work- PE (Bateman & Crant, 1993; Qazi et al., 2020), ES (Alvarez-Risco et al., 2021; Qazi et al., 2020; Shook & Bratianu, 2010), RP (Karimi et al., 2016; Qazi et al., 2020; Sitkin & Weingart, 1995) and lastly NA (Karabulut, 2016; Qazi et al., 2020). Five items were taken for ATE (Liñán & Chen, 2009), six

items for EK (Roxas, 2014), and six items for EM (Hameed et al., 2021; Taormina & Lao, 2007). The items of EV are also adopted from previous studies (Chou, 2014; Dumont et al., 2017; Qazi et al., 2020). Again, CE items were adapted from earlier work (Alcock, 2012; Hameed et al., 2021). This study employed six items for UES (Hameed et al., 2021; Mustafa et al., 2016; Qazi et al., 2020; Saeed et al., 2015). Finally, six items measure GEI (Alvarez-Risco et al., 2021; Hsu & Wang, 2019; Liñán & Chen, 2009; Qazi et al., 2020). Appendix A displays the measurement items for the research variables.

### Demographic information

Based on the demographic characteristics, the gender ratio analysis revealed that 57.10% of the respondents are male, whereas 42.90% are female. Regarding age distribution, the majority of respondents, which account for 94.70%, fall under the 21–25 age group, followed by 2.80% of respondents in more than 25 age group. Only a small percentage of respondents belong to the less than 21 age group, which accounts for 2.50%. 53.20% of the students are rural, and the rest are urban (46.80%). 54% reported that family members or relatives are involved in business. Most of the students are second-year students (43.20%). Table 1 presents the demographic information of the students.

## Data analysis and results

Structural equation modeling (SEM) has been employed in this study to investigate and evaluate the impact of the research constructs on the educational setting (Chin et al., 2020; Hair et al., 2019). This study utilizes PLS-SEM as it has the capability to handle higher-order reflective–formative constructs, which is the main reason for selecting this technique (Chin et al., 2020). The present investigation suggests

**Table 1** Students' profile

| Variables | Categories | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 205 | 57.10 |
| | Female | 154 | 42.90 |
| Age | Less than 21 | 9 | 2.50 |
| | 21–25 | 340 | 94.70 |
| | More than 25 | 10 | 2.80 |
| Academic year | 2nd | 155 | 43.20 |
| | 3rd | 119 | 33.10 |
| | 4th | 85 | 23.70 |
| Permanent resident | Rural | 191 | 53.20 |
| | Urban | 168 | 46.80 |
| Family members/ relatives involved in business | Yes | 194 | 54.00 |
| | No | 165 | 46.00 |

incorporating the "PT" as a reflective–formative type two HOC aimed at developing a comprehensive model that favors using PLS-SEM for data analysis. Another rationale for opting for PLS-SEM lies in the study's primary goal of forecasting the crucial constructs and a complex research model (Hair et al., 2017). SmartPLS 3.3.5 software was utilized to test the various hypotheses. A bootstrapping process with 5,000 iterations (Kashyap & Agrawal, 2020; Roy, 2023a, 2023b) was conducted to evaluate the statistical importance of the constructs' weights and path coefficients. In line with Hair et al.'s (2019) recommendation, a two-stage method for data analysis has been implemented to assess both the measurement and structural models. In the initial phase, the measurement model was examined, followed by the calculation of the structural model in the subsequent step.

## Common method bias (CMB)

CMB is often observed in studies that collect responses from a solitary source (Avolio et al., 1991). It can pose a challenge in quantitative research that relies on self-reported data. CMB can undermine the validity of research findings (MacKenzie & Podsakoff, 2012) and distort the structural relationships among variables (Kline, 2015). Kock's (2015) full collinearity test was employed for the present study. It was found that latent constructs' pathological variance inflation factor (VIF) values are below the 5.0 threshold. It suggests that CMB is not a concern for this study.

## Measurement model

### Assessment of reflective constructs

In order to assess the adequacy of the model, various aspects such as factors loadings ($\lambda$), construct reliability, convergent validity, and discriminant validity were evaluated. Table 2 demonstrates that $\lambda$ values of the LOC (reflective) exceed the cutoff value of 0.70 by a significant margin. According to Hair et al. (2017), a composite reliability (CR) and Cronbach's alpha ($\alpha$) score of $>0.7$ indicate a substantial internal consistency, while an average variance extracted (AVE) value $>0.5$ indicates the presence of convergent validity. For evaluating the discriminant validity, the study used the Fornell and Larcker (1981) and heterotrait–monotrait ratio (HTMT) criteria. As displayed in Table 3, all the HTMT ratio values are considerably lower than the cutoff point of 0.85 (Kline, 2015). Tables 2 and 3 contain the outcomes of the measurement model evaluation. The study effectively demonstrated convergent and discriminant validity based on the findings.

### Assessment of the formative construct

The current work hypothesized PT as a reflective–formative HOC. To examine the reflective–formative HOC, the researcher followed a disjoint two-stage approach (Becker et al., 2012; Hair et al., 2017; Roy, 2023a). During the first stage, the scores of the latent variable for the LOC were computed. In the second stage, the latent

**Table 2** Construct validity assessment

| Constructs | Items | $\lambda$ | $\alpha$ | CR | AVE |
|---|---|---|---|---|---|
| Attitude toward entrepreneurship (ATE) | ATE1 | 0.844 | 0.907 | 0.931 | 0.730 |
| | ATE2 | 0.882 | | | |
| | ATE3 | 0.861 | | | |
| | ATE4 | 0.843 | | | |
| | ATE5 | 0.840 | | | |
| Commitment to the environment (CE) | CE1 | 0.824 | 0.922 | 0.942 | 0.763 |
| | CE2 | 0.915 | | | |
| | CE3 | 0.879 | | | |
| | CE4 | 0.861 | | | |
| | CE5 | 0.887 | | | |
| Entrepreneurial knowledge (EK) | EK1 | 0.869 | 0.929 | 0.944 | 0.739 |
| | EK2 | 0.858 | | | |
| | EK3 | 0.852 | | | |
| | EK4 | 0.850 | | | |
| | EK5 | 0.864 | | | |
| | EK6 | 0.865 | | | |
| Entrepreneurial motivation (EM) | EM1 | 0.861 | 0.936 | 0.950 | 0.758 |
| | EM2 | 0.904 | | | |
| | EM3 | 0.851 | | | |
| | EM4 | 0.886 | | | |
| | EM5 | 0.864 | | | |
| | EM6 | 0.857 | | | |
| Entrepreneurial self-efficacy (ES) | ES1 | 0.884 | 0.933 | 0.948 | 0.751 |
| | ES2 | 0.876 | | | |
| | ES3 | 0.890 | | | |
| | ES4 | 0.847 | | | |
| | ES5 | 0.833 | | | |
| | ES6 | 0.867 | | | |
| Environmental value (EV) | EV1 | 0.852 | 0.916 | 0.937 | 0.748 |
| | EV2 | 0.887 | | | |
| | EV3 | 0.871 | | | |
| | EV4 | 0.848 | | | |
| | EV5 | 0.865 | | | |
| Need for achievement (NA) | NA1 | 0.848 | 0.898 | 0.925 | 0.710 |
| | NA2 | 0.848 | | | |
| | NA3 | 0.842 | | | |
| | NA4 | 0.849 | | | |
| | NA5 | 0.827 | | | |

**Table 2** (continued)

| Constructs | Items | $\lambda$ | $\alpha$ | CR | AVE |
|---|---|---|---|---|---|
| Proactiveness for entrepreneurship (PE) | PE1 | 0.875 | 0.905 | 0.930 | 0.726 |
| | PE2 | 0.864 | | | |
| | PE3 | 0.856 | | | |
| | PE4 | 0.850 | | | |
| | PE5 | 0.814 | | | |
| Risk propensity (RP) | RP1 | 0.883 | 0.921 | 0.941 | 0.761 |
| | RP2 | 0.884 | | | |
| | RP3 | 0.855 | | | |
| | RP4 | 0.859 | | | |
| | RP5 | 0.880 | | | |
| University green entrepreneurial support (UES) | UES1 | 0.853 | 0.910 | 0.930 | 0.691 |
| | UES2 | 0.837 | | | |
| | UES3 | 0.843 | | | |
| | UES4 | 0.831 | | | |
| | UES5 | 0.781 | | | |
| | UES6 | 0.839 | | | |
| Green entrepreneurial intention (GEI) | GEI1 | 0.914 | 0.953 | 0.962 | 0.810 |
| | GEI2 | 0.914 | | | |
| | GEI3 | 0.904 | | | |
| | GEI4 | 0.910 | | | |
| | GEI5 | 0.868 | | | |
| | GEI6 | 0.887 | | | |

variable score derived from the PLS algorithm was utilized to compute the weight and significance. The formative construct was determined by analyzing the indicators' VIF values and weight. Table 4 displays the findings. All measures had a VIF < 5.0, indicating that collinearity was not a significant issue (Kock, 2015). A 5000-resample bootstrapping method was employed to evaluate weight significance. Study outcomes demonstrate that weights were statistically significant at a *p*-value of less than 0.01. It exhibits the proportional contribution of the formative constructs toward forming a reflective–formative construct of higher order.

## Assessment of the structural model

After validating the measurement model, it was necessary to scrutinize the structural model to validate the proposed hypotheses (Hair et al., 2017; Roy, 2022). The structural model underwent an evaluation utilizing path coefficients ($\beta$), $R^2$, and $Q^2$, with results confirming the support for all direct hypotheses. Table 5 represents the outcomes. The study results revealed that ATE ($\beta = 0.175$, $p < 0.01$), EK ($\beta = 0.142$, $p < 0.01$), EM ($\beta = 0.144$, $p < 0.01$), PT ($\beta = 0.154$, $p < 0.01$), CE ($\beta = 0.135$,

**Table 3** Discriminant validity assessment

| | ATE | CE | EK | EM | ES | EV | NA | PE | RP | UES | GEI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Fornell–Larcker criterion* | | | | | | | | | | | |
| ATE | **0.854** | | | | | | | | | | |
| CE | 0.599 | **0.874** | | | | | | | | | |
| EK | 0.647 | 0.593 | **0.860** | | | | | | | | |
| EM | 0.659 | 0.595 | 0.715 | **0.871** | | | | | | | |
| ES | 0.592 | 0.463 | 0.619 | 0.593 | **0.866** | | | | | | |
| EV | 0.681 | 0.598 | 0.746 | 0.694 | 0.632 | **0.865** | | | | | |
| NA | 0.604 | 0.541 | 0.580 | 0.638 | 0.631 | 0.607 | **0.843** | | | | |
| PE | 0.598 | 0.514 | 0.586 | 0.612 | 0.685 | 0.599 | 0.616 | **0.852** | | | |
| RP | 0.569 | 0.560 | 0.596 | 0.565 | 0.625 | 0.602 | 0.651 | 0.628 | **0.872** | | |
| UES | 0.674 | 0.632 | 0.757 | 0.740 | 0.588 | 0.654 | 0.613 | 0.551 | 0.590 | **0.831** | |
| GEI | 0.768 | 0.701 | 0.788 | 0.780 | 0.672 | 0.790 | 0.670 | 0.671 | 0.667 | 0.783 | **0.900** |
| *HTMT Ratio* | | | | | | | | | | | |
| ATE | | | | | | | | | | | |
| CE | 0.654 | | | | | | | | | | |
| EK | 0.703 | 0.640 | | | | | | | | | |
| EM | 0.716 | 0.640 | 0.765 | | | | | | | | |
| ES | 0.642 | 0.497 | 0.664 | 0.631 | | | | | | | |
| EV | 0.746 | 0.650 | 0.809 | 0.748 | 0.682 | | | | | | |
| NA | 0.669 | 0.595 | 0.634 | 0.696 | 0.687 | 0.668 | | | | | |
| PE | 0.659 | 0.563 | 0.639 | 0.664 | 0.745 | 0.658 | 0.684 | | | | |
| RP | 0.621 | 0.607 | 0.642 | 0.607 | 0.669 | 0.653 | 0.715 | 0.687 | | | |
| UES | 0.739 | 0.690 | 0.821 | 0.801 | 0.632 | 0.713 | 0.677 | 0.606 | 0.642 | | |
| GEI | 0.825 | 0.748 | 0.836 | 0.826 | 0.710 | 0.845 | 0.724 | 0.722 | 0.709 | 0.838 | |

The above matrix's diagonal values (bold) represent the square roots of AVEs, whereas the off-diagonal values represent correlations between the latent components

**Table 4** HOC assessment

| HOC | LOCs | VIF | OW | *t*-values | 95% BC-CIs |
|---|---|---|---|---|---|
| Personality traits (PT) | PE | 2.247 | 0.290 | 3.386* | [0.065, 0.404] |
| | ES | 2.287 | 0.282 | 4.386* | [0.122, 0.398] |
| | RP | 2.132 | 0.291 | 3.116* | [0.150, 0.418] |
| | NA | 2.116 | 0.308 | 4.627* | [0.174, 0.417] |

*OW* Outer weight, *LOC* lower-order construct, *HOC* higher-order construct, *BC-CIs* bias-corrected confidence intervals

*$p < 0.01$

$p < 0.01$), EV ($\beta = 0.182$, $p < 0.01$), and UES ($\beta = 0.141$, $p < 0.01$) are significant predictors of GEI. Therefore, the results validated all proposed hypotheses (H1, H2, H3, H4, H5, H6, and H7). See Fig. 2.

**Table 5** Results of the structural model

| Hypotheses | Direct paths | $\beta$ | SE | $t$-values | $p$-values | Supported |
|---|---|---|---|---|---|---|
| H1 | ATE—> GEI | 0.175 | 0.043 | 4.098 | 0.000 | Yes |
| H2 | EK—> GEI | 0.142 | 0.042 | 3.412 | 0.001 | Yes |
| H3 | EM—> GEI | 0.144 | 0.034 | 4.221 | 0.000 | Yes |
| H4 | PT—> GEI | 0.154 | 0.049 | 3.147 | 0.003 | Yes |
| H5 | CE—> GEI | 0.135 | 0.033 | 4.036 | 0.000 | Yes |
| H6 | EV—> GEI | 0.182 | 0.048 | 3.752 | 0.000 | Yes |
| H7 | UES—> GEI | 0.141 | 0.046 | 3.081 | 0.003 | Yes |

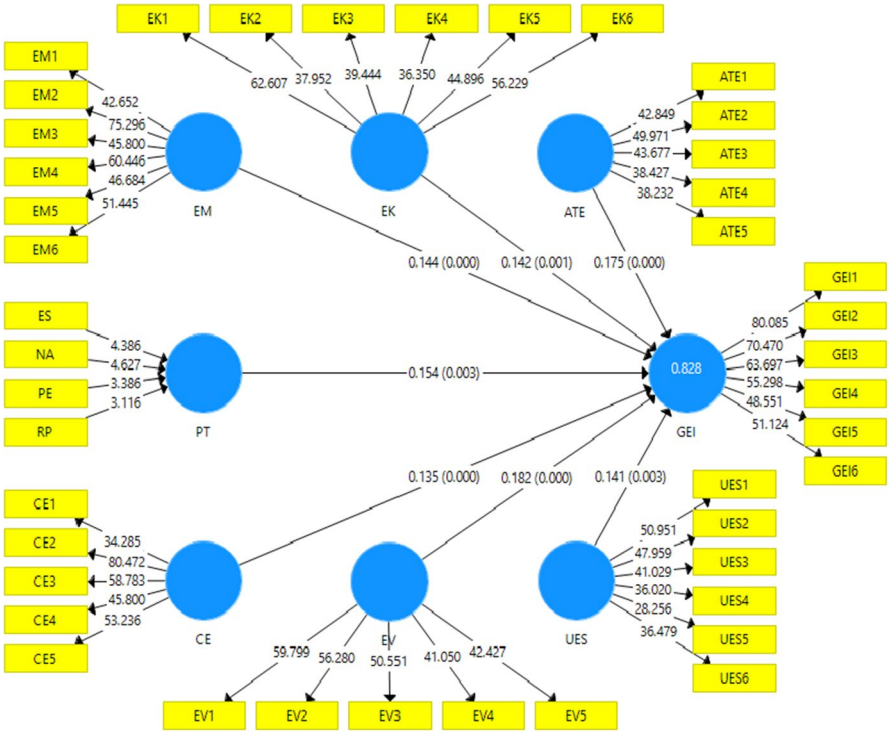


**Fig. 2** Results of the structural model

## Assessment of the explanatory power and predictive relevance

The coefficient of determination ($R^2$) and predictive relevance ($Q^2$) were calculated to assess the structural model's adequacy. The $R^2$ value for the model was 0.828. Therefore, all the independent variables ATE, EK, EM, PT, CE, EV, and UES explained 82.8% of the variation of GEI. The model thus has a strong capacity for the explanation. Again, the Stone–Geisser $Q^2$ was used to evaluate the predictive

relevance (Stone, 1974). According to Chin et al. (2020), if the $Q^2$ value exceeds 0, the model has a strong predictive relevance. For this study, the $Q^2$ value was 0.661. So, the findings demonstrate greater consistency in the model's predictive capacity.

## Discussion

The main purpose of this study was to investigate the influence of ATE, EK, EM, PT, EV, CE, and UES on students' GEI. As per the findings, the first hypothesis indicated a significant and positive correlation between ATE and GEI. It affirmed the outcomes of the previous research (Amofah & Saladrigues, 2022; Krueger Jr et al., 2000; Mahfud et al., 2020). So, students with positive ATE have a greater tendency to accept GE. Individuals with entrepreneurial mindsets are inclined to seize opportunities, and as a result, they are more inclined to embrace GE (Neneh, 2019). Again, these individuals may possess a stronger aspiration to assume leadership roles within their businesses to generate value for their organizations. Likewise, students who exhibit a favorable attitude toward environmental conservation consider it vital, encouraging them to pursue GI. Such people may change the modern day by adopting new ecological strategies and bringing creative, constructive thinking.

Again, the outcomes substantiated a significant and robust association between EK and GEI, supported by earlier studies (Hussain et al., 2021a, 2021b; Roxas, 2014). So, the rise in EK can be credited to the exposure of students to the cognitive facets of enhancing their mental capacity to pursue entrepreneurship. Therefore, delivering training in action-based entrepreneurship that focuses on creating EK may help develop EIs. Furthermore, the findings suggested that EM is a strong predictor of GEI. Within entrepreneurship, EM and the perceptions held by individuals play a crucial role in supporting entrepreneurial initiatives. The findings align with prior research (Collins et al., 2004; Krueger Jr et al., 2000; Van der Zwan et al., 2012). However, Hameed et al. (2021) found no significant result for EM and GEI. Motivation has the ability to influence an individual's behavior and inspire them to pursue entrepreneurship as a career choice by creating a new venture. Therefore, based on the results, it can be inferred that students with the EM to achieve success tend to have higher EI.

Similarly, hypothesis four revealed that PT significantly and positively influences GEI, and the results are analogous to the study of Qazi et al. (2020). The results indicate that the PT of students positively impacts increasing their GEI. It implies that personality plays a critical role in shaping one's intentions. Again, all the PT characteristics (PE, ES, RP, and NA) are positively and significantly related to PT. So, students with a proactive personality identify opportunities, take initiatives and are action-oriented. Such undergraduates are more likely to adopt green entrepreneurship because students with a proactive attitude are highly passionate to grasp opportunities. Further, proactive students may have a greater desire to become business leaders to create value for their firms. Also, they are keen to adopt such practices that are beneficial for the masses. In recent times, such undergraduates can bring changes by providing innovative solutions and new practices. Similarly, ES has in the development and sustainability of

entrepreneurship through intentions and behavior. Additionally, the researcher can conclude that students with higher confidence tend to achieve a goal and hence motivated to adopt different things to achieve success. Hence, the positive and significant association depicts that self-efficacy determines what goals students choose to continue, how those goals will be accomplished, and how pupil reflect upon their performance. If these elements are part of the personality, then it results in the higher green entrepreneurial intention.

Again, RP is positively related to EI through PT. It shows that when students are willing to take the risk so ultimately, they go for something new. Hence, the factor of RP increases green entrepreneurial intention of young undergraduates. Therefore, many students prefer to start such a business that includes a lot of risk and uncertainty. The NA is a trait in which the individual desires to do something better or more efficiently than what has been done before. Additionally, the level of NA will make someone able to overcome all obstacles, to produce high-quality work and to compete to be the best. Hence, according to the results, students who are passionate about achieving success have high entrepreneurial intentions. Similarly, people who are eager to achieve success are more encouraged to initiate green businesses because they believe that by adopting green strategies, they might get success earlier. Also, people will encourage their efforts, and it will be their unique characteristics in the entrepreneurship.

Again, the results stated that CE significantly predicts GEI. The study's findings support the association that has been hypothesized and are consistent with past findings (Hameed et al., 2021; Suasana & Ekawati, 2018). It illustrates that an individual's CE plays a crucial role in improving their GE behaviors. Students who recognize the importance of an eco-friendly environment are likelier to pursue entrepreneurship focused on sustainable practices. Furthermore, the study analysis suggests a positive correlation between EVs and intentions to pursue GE. This result is consistent with earlier research (Peng et al., 2021; Yasir et al., 2021, 2023b), such as Nuringsih and Puspitowati (2017), who propose that green values foster sustainable entrepreneurship, although it differs from the findings of St-Jean and Labelle (2018). The current study indicates that EV is the most significant predictor of GEI, as evidenced by its highest b-coefficient value. So, individuals with a positive attitude toward EV hold the belief that adhering to such values will facilitate the growth and success of sustainability or GE. Therefore, the desire to achieve the benefits of environmental preservation and value creation can be reinforced by a sustainable entrepreneur's confidence in their capability to succeed in a start-up. Finally, there is a significant positive association between UES and GEI. The findings align with previous studies (Fichter & Tiemann, 2018; Qazi et al., 2020; Yi, 2021). This outcome suggests that it is crucial to support competitive authorities in their efforts to educate students on green businesses and promote GE. It demonstrates that pupils are more likely to acquire GEI when HEIs encourage and foster a sustainable environment. As a result, when pupils encounter substantial assistance from their educational institutions, it inspires them to uphold the principles that their organizations espouse.

## Conclusion, implications, and future directions

The growing academic research on "sustainable entrepreneurship" brings a fresh viewpoint to the long-established understanding of entrepreneurship. Today, entrepreneurship is not just about economic success; it requires adopting environmentally friendly approaches. Therefore, GE focuses on sustainability, encompassing social justice, economic well-being, and environmental stability. GE aims to maintain traditional entrepreneurship's essence while offering additional benefits for society, the economy, and the environment. Thus, this current work adds to the growing literature on this critical topic by focusing on a particular aspect. This study specifically aims to assess how ATE, EK, EM, PT, CE, EV, and UES influence the GEI of students. Furthermore, individuals deeply committed to environmental and societal issues are valuable assets, as they are more likely to support initiatives promoting GE.

Today, there are many issues related to society and the environment. People are becoming increasingly conscious of the negative impacts of environmental degradation and the implications of global warming. Therefore, promoting the idea of "going green" among people from all sectors is crucial. As students in higher education will soon be occupying positions in various sectors, it is essential to prioritize this generation and focus on their development. The results indicate that students with high levels of ATE, EK, EM, PT, EV, and CE are more likely to embrace the concept of GE. Likewise, with support from educational institutions, their inclination toward GE is likely to grow. Therefore, higher education institutions can play a vital role in promoting GE, as students are eager to embrace it.

### Practical implications

This research offers valuable insights for policymakers and implementers. Educators and trainers focused on entrepreneurship education can use these findings to enhance their teaching methods by incorporating cognitive and behavioral approaches. The author suggests replacing traditional entrepreneurship education with GE education, as the prior only focuses on enhancing students' theoretical skills in identifying entrepreneurial opportunities. GE education emphasizes social, economic, and ecological values to develop students' understanding of the principles and processes of GE through theoretical instruction. Given the current state of the world, sustainable development has become a critical topic, with ozone depletion, climate change, and biodiversity loss posing severe threats to life on Earth. GE can help mitigate these issues by promoting environmentally friendly practices such as reducing deforestation, improving agriculture and freshwater supply, and preserving biodiversity. Students are particularly receptive to these values and can be an asset in promoting GE. It is essential for policymakers, educational institutions, and governments to leverage students' EVs by growing effective guidelines and offering applicable chances.

The study can aid policymakers in comprehending students' GEI and facilitate establishing a green entrepreneurial-friendly environment by integrating

green entrepreneurial support at universities. Universities should organize seminars and workshops to educate students on the perception and fruitful examples of GE. Again, teachers in entrepreneurship courses can enhance students' awareness of GE by sharing the success stories of environmentally friendly businesses. Moreover, educators should integrate green topics into the academic curriculum, enabling undergraduates to absorb the profits and importance of environmentally friendly practices across different courses, including management, marketing, organizational behavior, and consumer behavior. Such initiatives can augment pupils' skills in GE and enable them to recognize the benefits of environmentally sustainable practices. Therefore, universities should take responsibility for initiating counseling sessions to identify students' personalities, attitudes, and traits. When individuals are self-aware, they tend to display a positive attitude.

Once more, HEIs ought to establish training facilities to aid GE projects. The GE educational system strongly emphasizes hands-on instruction to assist students in applying their GE principles in business sectors and corporate training courses inside the institution. It offers them a practical experience of establishing a green entrepreneurial enterprise, including its beginning, development, and final decision-making procedure. The experience encompasses crucial aspects of enterprise setup. For example, team formation, raising capital for the venture, conducting research and development for products and enterprises, and ultimately initiating the green venture. The activities mentioned above can potentially improve students' GE abilities by allowing them to put the knowledge they have acquired into practice.

Similarly, the government should provide financial support and tax breaks to universities and enterprises committed to building green industrial platforms to accelerate development. The university's offering of advice and tools for entrepreneurs would hasten and support the growth of green entrepreneurial ideas by graduates and pupils. Developing centers of excellence for technology transfer and allocating a team of experts to teach students about legal responsibilities, property rights, commercial negotiating tactics, and the registration and management procedures of a legal start-up are other ways to do this. Finally, non-governmental organizations can assist students involved in starting a green profession. This study's outcome will enlighten students on the necessity of GE and make them aware of the relevant issues in the green business domain.

This study's scope is not limited to Bangladesh alone because "going green" and "sustainable environment" are important global issues. Furthermore, the educational systems of numerous nations are now integrated due to globalization. Therefore, other countries can use the research's conclusions. The results of this research have important implications for the local environment and other parts of the world with higher education systems comparable to Bangladesh's. The findings suggest that international universities should promote environmental issues among their higher education students through effective campaigns. It can help instill positive intentions among students to start green or eco-friendly businesses. Additionally, at this stage, counseling students is crucial as their PT, EK, and EM play a significant part in their GEI. Moreover, educational institutions should offer various undergraduate support forms, including financial and non-financial assistance. International institutions

should encourage students to start enterprises in many areas to promote green policy adoption globally and develop cross-cultural linkages.

## Theoretical implications

This study adds a number of fresh perspectives to the body of knowledge. Firstly, it explores the correlation between GEI and ATE, EK, EM, PT, CE, EV, and UES. Secondly, it considers PT a HOC, incorporating four LOCs (PE, ES, RP, and NA). Earlier research has predominantly focused on EI to enhance the economy, reduce unemployment, and promote small businesses, with little attention paid to the green dimensions of entrepreneurship. There remains a gap in our understanding of students' intentions toward GE and how the idea of being environmentally conscious can be encouraged among young people. By analyzing the interactions between resource elements, like UES, and human factors, such as PT, the researcher also contributed to an integrated approach.

In addition, researches assert that the availability of entrepreneurial resources is crucial to the survival and expansion of businesses. Hence, previous studies have highlighted the importance of resources in translating entrepreneurial intentions into tangible actions toward initiating a venture. Again, this research addresses a gap in the literature on university entrepreneurship by focusing on sustainability and ecology. This research also contributes to sustainable entrepreneurship by emphasizing the need for promoting UES and students' inclinations to initiate green businesses in the current era. This research aims to use GE to advance sustainability and protect ecosystems and also offers guidance as well as both financial and non-financial advantages for communities, universities, businesses, investors, and students.

## Limitations and future directions

This study aims to investigate the intention of students toward GE. This study adds a number of valuable ideas to the body of knowledge and is quite pertinent today. Despite the contributions of this research, there are still areas that require attention, particularly as the study focused solely on undergraduate students of private universities. In the future, it would be beneficial for researchers to focus on students from the public sector. Future research may compare students' perspectives at public and private institutions because there are substantial differences between the two regarding curriculum, teaching methods, study hours, and extracurricular activities. It will offer novel perspectives on the concept. The data collection process primarily used a cross-sectional approach in the study. A longitudinal approach may be used to explore long-term environmentally sustainable behavior comprehensively. Again, this research is restricted to the population of Dhaka city. Hence, the researcher suggests that future researchers investigate individuals from other cities. In addition, researchers ought to integrate novel variables and theories into their study, such as those related to an individual's subjective norms and the moderating effect of their commitment to the environment. It will provide further insight into the intention of entrepreneurship. Finally, this study solely examines the linear relationships

among the variables, and future research could also explore potential nonlinear relationships.

## Appendix A

Measurement items

| | |
|---|---|
| Attitude toward entrepreneurship (ATE) | |
| 1. A career as an entrepreneur is attractive to me | (Liñán & Chen, 2009) |
| 2. If I had the opportunity and resources, I'd like to start a firm or business | |
| 3. Being an entrepreneur would entail great satisfaction for me | |
| 4. Being an entrepreneur implies more advantages for me | |
| 5. Among various options, I would rather be an entrepreneur | |
| Entrepreneurial knowledge (EK) | |
| 1. I have sufficient knowledge of the legal requirements to start a business | (Roxas, 2014) |
| 2. I know how to find the resources (e.g., financial) to set up a business | |
| 3. I have sufficient knowledge to organize a business | |
| 4. I have sufficient knowledge in marketing a product/service | |
| 5. I have sufficient knowledge in commercializing a business idea | |
| 6. I have sufficient knowledge in managing a business | |
| University green entrepreneurial support (UES) | |
| 1. My university offers elective courses on green entrepreneurship | (Hameed et al., 2021; Mustafa et al., 2016; Qazi et al., 2020; Saeed et al., 2015) |
| 2. My university offers project work focused on green entrepreneurship | |
| 3. My university offers practices focused on green entrepreneurship | |
| 4. My university creates awareness of green entrepreneurship as a possible career choice | |
| 5. My university motivates and help students to start a green business | |
| 6. My university provides students the financial and policy-related advice to start a new business | |
| Entrepreneurial self-efficacy (ES) | |

| | |
|---|---|
| 1. I can tolerate unexpected changes in business conditions | (Alvarez-Risco et al., 2021; Qazi et al., 2020; Shook & Bratianu, 2010) |
| 2. I can react quickly to take advantage of business opportunities | |
| 3. I can originate new business ideas and products | |
| 4. I can create products that fulfill customers' unmet needs | |
| 5. I have enough skills to develop an ecological venture | |
| 6. I believe that in the future, I will be able to develop a successful green venture | |
| Proactiveness for entrepreneurship (PE) | |
| 1. I feel driven to make a difference in my community | (Bateman & Crant, 1993; Qazi et al., 2020) |
| 2. I am always looking for better ways to do things | |
| 3. When I have a problem, I tackle it head-on | |
| 4. I am constantly on the lookout for new ways to improve | |
| 5. I can spot a good opportunity long before others can | |
| Need for achievement (NA) | |
| 1. I desire and pursue success | (Karabulut, 2016; Qazi et al., 2020) |
| 2. I will seek added responsibilities in my green business | |
| 3. I will try hard to improve my performance so that I can make my business successful | |
| 4. I enjoy completing tasks | |
| 5. I attribute success or failure to myself rather than to others and circumstances | |
| Risk propensity (RP) | |
| 1. I am willing to take risks when choosing a work or doing a business | (Karimi et al., 2016; Qazi et al., 2020; Sitkin & Weingart, 1995) |
| 2. I prefer a high-risk work that offers high rewards | |
| 3. I view risk on a work as a situation to be rewarded | |
| 4. If I have the right to make decisions, I would choose more risky alternatives which could have a major impact on my business | |
| 5. If I have the right to make decisions, choose more risky alternatives based on the assessment of others on whom I must rely | |
| Entrepreneurial motivation (EM) | |

| | |
|---|---|
| 1. I want to be a business owner | (Hameed et al., 2021; Taormina & Lao, 2007) |
| 2. I want to profit from my endeavors or business | |
| 3. I enjoy having authority at work | |
| 4. I think that having a business can improve my financial status | |
| 5. I see a good future for myself if I start a business | |
| 6. I like to make business decisions | |
| Commitment to the environment (CE) | |
| 1: I am environmentally friendly in most things that I do | (Alcock, 2012; Hameed et al., 2021) |
| 2: The environment is a high priority for me compared with a lot of other things in my life | |
| 3: I frequently feel the need to reduce carbon emissions which affect quality of life and environment | |
| 4: I personally need to change my way of life so that future generations can continue to enjoy a good quality of life and environment | |
| 5: Most people in Bangladesh today need to change their way of life so that future generations can continue to enjoy a good quality of life and environment | |
| Environmental values (EV) | |
| 1. I feel a personal obligation to do whatever I can to prevent environmental degradation | (Chou, 2014; Dumont et al., 2017; Qazi et al., 2020) |
| 2. People important to me thought that I should prevent environmental degradation | |
| 3. If I start green work so most people who are important to me would encourage me | |
| 4. If I will prevent environmental degradation so it will help me to make my interpersonal relationship closer | |
| 5. It would make a good impression on other people | |
| Green entrepreneurial intentions (GEI) | |

| | |
|---|---|
| 1. I have seriously thought about becoming a green entrepreneur | (Alvarez-Risco et al., 2021; Hsu & Wang, 2019; Liñán & Chen, 2009; Qazi et al., 2020) |
| 2. I plan to develop a venture that addresses the ecological problems of my community | |
| 3. My future initiatives will prioritize ecological benefits over financial ones | |
| 4. My professional goal was to become a green entrepreneur during my study at university | |
| 5. I was willing to do anything to become a green entrepreneur during my study at university | |
| 6. I like to start a green enterprise that assists in alleviating environmental issues during my study at university | |

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**Data availability** The data that support the findings of this study are not openly available due to securing the anonymity of the respondents and their institutions. However, anonymized data sets are available from the corresponding author upon reasonable request.

## Declarations

**Conflict of interest** The author declares no conflict of interest.

**Ethical approval** The researcher confirms that the research was performed in accordance with relevant guidelines/regulations applicable when human participants are involved (e.g., Declaration of Helsinki or similar).

**Informed consent** Informed consent was obtained from all participants in this study.

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