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Research

The impact of entrepreneurial education and green markets on entrepreneurial intentions: a mediation-moderation study

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Abstract
Besides traditional business models, entrepreneurial ventures harness innovation and sustainability. Educating students about green startups has been an increasing trend amid the situation of global job markets. Based on the above fact, we investigated the causal link between entrepreneurial education and entrepreneurial intentions with the perceived attributes of the green market and social support. CFA was applied using AMOS software on survey collected data from university students. The results show that entrepreneurial education is a catalyst for starting business. Results from the moderation mediation analysis indicate that social support moderates between entrepreneurial education and perceived attribute of the green markets. Moreover, this research also tested the indirect influence of entrepreneurial education on entrepreneurial intention through the perceived attribute of green market. Also, this research shows that the perceived attribute of the green market as a mediator between the predictor and the dependent variable is insignificant. The study provides an optimal point of insights for the educators and policymakers as well, as for the entrepreneurs on developing a sustainable entrepreneur landscape. This research is intended to take aspiring entrepreneurs down a greener, more Entrepreneurial path.

Keywords Entrepreneurial education · Perceived green market attributes · Entrepreneurial intentions · Mediation-moderation analysis · Sustainability · Business administration programs

1 Introduction

The topic of environmentally friendly entrepreneurship has received extensive attention in the academic fields of social sciences as well as some fields of science over the last decades [1]. Entrepreneurial ventures are more focused on environmental consciousness, incorporating green philosophy in their management styles [2]. Entrepreneurship

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has remained a significant contributor to welfare in both developed and developing economies [3, 4]. It has been the source of sustainable economic development [5–7]. Connecting to above literature found that entrepreneurial education motivates entrepreneurial intention among individuals to become entrepreneur [8–11]. Economies are facing major issue unemployment rate among youth [12, 13]. Since entrepreneurship is the basic factor of nation's wealth, economic growth and job creation [14]. Therefore, countries make struggle in entrepreneurial activities to improve economic development. Jardim et al., [15] found that primary and secondary education enhance the entrepreneurial skills of young generation, but most of the students do not plan to establish a business. In this situation, the role of sustainable leadership in higher education institutions is pivotal [16]. After startups'green entrepreneurial leadership and sustainable leadership predict better entrepreneurial performance both in large-scale as well as SMEs [17, 18].

The policymakers in different countries, particularly Pakistan, are planning to create a comprehensive entrepreneurial platform for individuals to practically implement entrepreneurial ideas successfully. Some scholars have empirically tested the association between entrepreneurial education and entrepreneurial intentions [19, 20]. Fellnhofer [21] argued that entrepreneurs are the aspirants and role models for future challenge takers. Entrepreneurial education drives entrepreneurial intentions in young generation for becoming entrepreneurs. Past study empirical analyze the impact of perceived social support including other factors on entrepreneurial intentions. Whereas, sustainability orientation moderates the relationship between self-worth and social entrepreneurial intentions [22]. Green entrepreneurship faces challenges in achieving sustainable environmental goals. Entrepreneurs seek sources of investment because it helps in the production of eco-friendly goods and services. Since developing countries have limited growth in the production of sustainable products and services, therefore government designes social support programs to encourage green business entrepreneurs [9]. Tien, Mai, Duc [8] found that green entrepreneurship positively influenced business environment in Vietnam. Green entrepreneurship develops a synergistic effect on sustainability as it positively influences entrepreneurial self-efficacy and entrepreneurial intention. Moreover, social support strengthens the association between entrepreneurial self-efficacy and entrepreneurial intention. Lotfi, Yosef and Jafari [23] conceptualize environmental concern and enhance consumer awareness on green production. They have concern for environmentally friendly products and such products positively affect the green market.

Our framework of the study is based the theory of rationale action [24] which states that individual behavior is molded by personal beliefs and social norms. In this context the entrepreneurial education provides entrepreneurial skills as well as shapes personal attitudes and societal expectations. While entrepreneurial education develops entrepreneurial intentions for starting a business [25]. Moreover, it has been established that green entrepreneurship drives green economy and provide environmental sustainability.so the green markets todays are quickly expanding, providing several chances of business growth [26]. Dickel and Eckardt [27] found an intricate connection between entrepreneurial education and entrepreneurial intention in industrialized nations through green market [28]. Green market influences entrepreneurial education under moderating mechanism of social support [29]. So the current study is aimed to determine the indirect impact of entrepreneurial education on entrepreneurial intentions through perceived attributes of green market. Social support is supposed to play a moderating role between entrepreneurial education and perceived attributes of the green market.

Our study targeted Pakistan for some convenient reasons. Green entrepreneurship helps in promoting green product innovation to better equip the performance of SMEs [2]. In Pakistan, entrepreneurial firms are not taking action to reduce environmental hazards though public concerns have increased for environmental issues. Some entrepreneurial firms have focused their concerns towards reduction in environmental degradation but such issues have hardly been addressed by researchers. Entrepreneurs are trying to capture the market opportunities for the success of entrepreneurial firms. The more entrepreneurial firms are successful in their mission the more they gain sustainability. Moreover, high degree of entrepreneurial networking also improves sustainability of firms in times of crisis [30]. The issue arises why policy makers are neglecting the attributes of green market. Similarly, researchers are required to focus on entrepreneurial education, entrepreneurial intention and social support. Furthermore, literature on entrepreneurship is scarce in Pakistan on which future research is required on green market especially on entrepreneurial education, entrepreneurial intentions and social support. Likewise, past researchers have diversified findings on entrepreneurial education, entrepreneurial intentions, green market and social support. Therefore, there is a need to understand the basic cause of inconsistent findings of previous studies.

Current study contributes to the previous literature of entrepreneurship in four main ways. First, Previous studies have limited their research on entrepreneurial education to only developed markets [5, 6, 10, 11]. Hameed and Irfan [31] analyzed entrepreneurial education, entrepreneurial challenges and its characteristics in Malaysian economy. Secondly, entrepreneurial intention has studied in European countries for economic development, job creation and innovation

[32]. Yousaf et al. [33] studied the entrepreneurial education with self-efficacy, entrepreneurial attitude and entrepreneurial intentions. Third, Green entrepreneurship is the driving force of green economy as it promotes environmental sustainability [26]. Ebrahimi and Mirbargkar [34] performed research on the characteristics of the green market as perceived in Rasht industrial city. Fourth, social support and work performance via organizational commitment have been investigated in Vietnam [35]. Further studies are required to determine the importance of entrepreneurial education and entrepreneurial intentions in Pakistan. In addition, prior researchers investigated the immediate effect of social support on entrepreneurial pathways [36]. The rationale of the current study is that students prefer jobs in companies to creating their own business. Hence, intrinsic and extrinsic motivation stimulate entrepreneurial skills among students for taking risks in business. Therefore, this study determines entrepreneurial education, perceived attributes of the green market, social support and entrepreneurial intentions in context of Pakistan.

This study addresses these research gaps through a comprehensive understanding of the conceptual model of entrepreneurial education, entrepreneurial intentions, perceived attributes of the green market, and social support. The research model of this study helps to address the following questions:

RQ1: What is the impact of entrepreneurial education on entrepreneurial intentions among Pakistani students?

RQ2: Does perceived attributes of the green market mediates the relationship between entrepreneurial education and entrepreneurial intentions?

RQ3: Does social support moderates the relationship between entrepreneurial education and perceived attributes of the green market?

This study discusses the literature review before describing techniques use in methodology, before describing statistical tools used for explaining results, discussion, implications, limitations, and conclusions.

1.1 Theory and hypothesis development

Theory of rational action refers to the educational decision made by individual actors on evaluation of cost and benefit at micro-level. This theory states that educational decision making persuade parents and children to determine cost of education. These cost are weighted against benefit to determine the expected high return from higher education [37]. Rational action refers to social action that has complementary role in decision making. Emotion has become part of cognitive process. Beliefs is the foundation of cognitive function that evoke emotions. Based on knowledge and beliefs emotions derive rationality [38]. Entrepreneurial education drives social cognition, structure their thoughts and entrepreneurial actions more rational, significant and productive. Current study employs rational action theory to study how entrepreneurial education, perceived attributes of green market and social support help students in developing entrepreneurial intentions [39]. Past research conclude that entrepreneurial education educate students on how to maintain environmental sustainability. This study asses how entrepreneurial education leads to the green market by integrating resource based view to analyze the motivation of students for green venture [40]. According to the rational action theory, entrepreneurial education teaches students about green market to maintain environmental sustainability. These factors enforce students to take rational action with social support in order to enhance their confidence level and overcome unexpected risks that entrepreneurs face in starting new business [41, 42]. Green practices gained attention for improvement of market and financial performance. Based on hypothesis, green entrepreneurial orientation and green transformational leadership significantly influence green product innovation and the overall performance. Findings reveal that green entrepreneurial orientation and green transformational leadership have significant impact on performance of entrepreneurial firms. Whereas it has empirically testes that green product innovation significantly mediates the relationship between green entrepreneurial orientation and overall performance [2]. Environmental management and Performance of the firm have controversial findings. Results reveal significant relationship between environmental management and long term sustainability of entrepreneurial firms. They find that green product innovation significantly mediates the relationship between environmental management depth, environmental management breath and entrepreneurial firm's sustainability [17]. The success of entrepreneurial firms is significantly influence by focusing on market opportunities. Researchers have limited awareness on entrepreneurial access to the business opportunities that has influence on the success of the firms. They discovered that improvement in entrepreneur's alertness towards market opportunities bring positive successful outcome for firms. Moreover, the moderating role of entrepreneurial networking has significant influence the relationship. The relationship is more meaningful in the presence of sustainability because the more the firm is successful in its mission the more is the sustainability of entrepreneurial firms [30]. Across the globe businesses have strived for knowledge management to bring innovation in products

and services. Small and medium sized firms have limited resources for the implementation of product innovation. Therefore past researchers studied product innovation that is attained through entrepreneurial orientation and knowledge management for the improvement in the performance of SMEs. Product innovation has been identified as the significant mediator between entrepreneurial orientation, performance of the small and medium enterprises and knowledge management. Using the resource based view, knowledge based view and contingency theory researchers are able to study product innovation and improve the performance of small medium enterprises [2]. Green technology encourages innovation in small and medium size enterprises for achieving sustainability among Jordanian firms. Though Jordanian firms have technological advancement and government support, SMEs in Jordan are rarely able to fulfill green activities. Researchers have rarely focused on the pathways through which green product and green process innovation diffused in small and medium size enterprises. These firms perform better when green product and green process innovations have implemented [43].

1.2 Literature review

According to Demirel and Parris [44] entrepreneurship provides solutions to the challenges entrepreneur face in starting new business (Munoz and Cohen, [45]). Government policy makers have planned to engage young individuals in entrepreneurial activity. These activities facilitate individuals to participate actively in improvement of the social wellbeing [46]. Zaring et al. [47] identified that teaching entrepreneurship has spread globally in the education system [5, 6]. Bacigalupo et al. [48] conclude that entrepreneurial education improves profitability of a venture and contributes to the growth of the economy. It also reduces unemployment by developing entrepreneurial competencies among students.

Unemployment is the biggest challenge in developing countries including Pakistan (Gul et al., [49]). Government of Pakistan is trying to reduce this challenge by forcing institutes to introduce entrepreneurship course in universities. Different universities organize seminars on entrepreneurship to foster entrepreneurial skills and abilities among young students. Martin et al. (2013); Cui [50] entrepreneurial education has good effect on learning outcome, skills, knowledge, competency, entrepreneurial attitude, and characteristics of students [51]. These competencies help students in self-employment rather than waiting for job announcements. Business should be operated with the strategy that provides benefits to the society. Therefore, entrepreneurial ventures are necessary to be identified for accomplishment of an effective outcome [52].

Entrepreneurial education and entrepreneurial goals for green entrepreneurship have examined in an earlier research papers. The outcome reveals significant direct and indirect influence through environmental knowledge and attitudes towards green entrepreneurship. The moderating variables such as risk tolerance and self-efficacy analyzed to see how entrepreneurial education educate students on developing sustainability in environment [53]. Similarly, the impact of green markets on entrepreneurial intentions across different culture has positive impact on collectivist culture in various countries [13, 54]. Previous study examined that green markets positively affect entrepreneurial performance, mediating the role of environmental innovation [55]. Past Researchers examine the regulating role of government between entrepreneurial education and green entrepreneurial intentions. The effect is strengthening under the moderating role of good governance system [56]. A comprehensive literature review on entrepreneurial education and green entrepreneurial intentions identified that moderating role of government support as well as cultural influences strengthen the effect of entrepreneurial education on green entrepreneurial intentions [56].

Past scholar conclude that how green entrepreneurship promote sustainable development by encouraging environmental innovation and jobs creation. Islam and Ahmed [57] has explored the benefits of social networks, such as access to information and resources. Previous study explores that social media particularly in developing countries facilitate the activities performed for green entrepreneurship (Khan, Wang, and Khan, 2020). Finally, a meta-analysis confirmed that green entrepreneurship improves environmental performance and encourage companies to manufacture green and organic products for customers [55].

1.3 Entrepreneurial education and entrepreneurial intentions

Previous scholars argue that in competitive entrepreneurial environment educators must adjust curriculum and extra curriculum activities to make better future for entrepreneurs [58]. Institutes arrange programs and seminars where entrepreneurial role models meet entrepreneurial aspirants to promote entrepreneurial competencies and

levels of skills for successful business endeavors. Past scholars revealed that entrepreneurial education provided by entrepreneurial role models effect entrepreneurial intentions where entrepreneurial passion has mediating effect on antecedent and dependent variable [21]. Entrepreneurial activity is an effective tool for economic growth. Therefore, past papers interpret various ways to control unemployment for the wellbeing of the society. In order to produce more entrepreneurs, entrepreneurial education performs main function in promoting entrepreneurial purpose among learners [59]. Consistent to past research findings, entrepreneurship is the catalyst for development of economy [60]. Policy makers and economic situation have influence on students' motivation for economic growth. These elements profoundly influence motivation of students and enforce them to bring innovation in society. These factors have improved entrepreneurial status and performance. Entrepreneurial education has significant effect on the intention of students to become entrepreneurs. Meanwhile, it has no significant relationship with entrepreneurial attitude. In developing countries individuals start new ventures. It is an asset for them, while entrepreneurial education is a base of success in developing countries. The findings of past literature conclude that entrepreneurial education, desire for accomplishment and locus of control are important indicators of new venture creation [61]. Previous authors conceptualize that education for achieving entrepreneurial characteristics has significant contribution in entrepreneurial research.

The rationale of previous research is to study entrepreneurial education with entrepreneurial intentions. In doing so, they determined the age of students, their gender, course details and area of specialization to develop intentions among students for starting a new venture. Entrepreneurial education and entrepreneurial intentions have made effective contributions to the work [62]. The idea of past research is to consider the moderating effect of team cooperation and this relationship has studied among learning entrepreneurship traits, self-worth of entrepreneurs, and entrepreneurial desire. The study determines the mediating effect of self-work and passion for becoming an entrepreneur between entrepreneurial education and entrepreneurial intention. Results reveal that education for entrepreneurship positively influence entrepreneurial intentions among students. It has noted that the presence of team cooperation increases self-efficacy and entrepreneurial passion. Consequently, these factors develop entrepreneurial intentions towards business endeavor [63]. Yamakawa et al. [64] note that theoretical framework of entrepreneurship enforces students to practice entrepreneurial activities in order to gain experience from new start-up. Hence, entrepreneurial intentions enforce students to take one step towards the business startup. Past study assessed social support and its relationship with entrepreneurial intentions. They take entrepreneurship education and physical efforts as moderators for stating small businesses in US. They find that social support is significantly related with entrepreneurial intentions in society. However, in previous literature, authors assessed the relationship of entrepreneurship education with the intention of achieving entrepreneurial position. Hoang et al. [65] reveal that entrepreneurial education and entrepreneurial intentions have positive relationship with each other.

Past studies conducted qualitative research on entrepreneurial education and green entrepreneurship. They evaluated motivations and experiences of green entrepreneurs and the role of entrepreneurial education in business success. For example, the study by Fellnhofer [21] found that entrepreneurial education as well as social and environmental concerns educate students on how to open new venture by overcoming environmental challenges. They have clear vision for starting new business and are able to control and direct business effectively. Kuratko and Morris [66] found that entrepreneurial education guides green entrepreneurs to build skills and abilities to overcome unexpected challenges. For example, green entrepreneurship guide entrepreneurs on how to navigate complex regulatory landscapes and secure funds from investors for developing sustainable business. Finally, Lin et al. [26] conclude that entrepreneurial education help green entrepreneurs to build supportive networks of peers and mentors. These networks build essential emotional support and practical advice for successfully participating in green entrepreneurship. Findings of previous studies provide further evidence on the important role that entrepreneurial education can play in supporting the development of green entrepreneurship. Green entrepreneurship provides abilities, skills, knowledge and networks whereas, entrepreneurial education help in changing economy to the more sustainable economic condition effectively.

Ajzen [67] proposed planned behavior theory. Ajzen and Fishbein [68], Fishbein and Ajzen [69] argue that attitudes, standards, and behavioral control influence entrepreneurial intention. This theory has explained in perspective of entrepreneurial education that how education changes students'attitudes, normative beliefs, and control perceptions. These attributes model entrepreneurial aspirations for future business opportunities. However, in order to adequately reflect the challenges of the entrepreneurial decision-making process, we incorporate reasoned action theory and social exchange theory into our framework. According to Fishbein and Ajzen's [69] reasoned action theory, human conduct is motivated by intentions, which are affected by personal attitudes and standards. This

adds to our findings by emphasizing the importance of individual attitudes and society expectations in generating entrepreneurial aspirations.

Furthermore, theory of social exchange focuses on the mutual exchange of resources and benefits in social interactions, provides an additional layer to our understanding. It suggests that the perceived benefits of entrepreneurial activities, such as personal fulfillment, financial gain, and social recognition, motivate individuals towards entrepreneurship. This theory helps explain the function of social support in entrepreneurship, as it implies that social network is an essential resource that can influence the individual's decision to pursue entrepreneurial ventures. By integrating these theories, we can better understand the multifaceted nature of entrepreneurial intentions. Entrepreneurial education not only shapes students'attitudes and perceptions but also interacts with their social environment and personal motivations, as highlighted by these theories. Our study thus offers a holistic view of the factors influencing entrepreneurial intentions, aligning with the theory of planned behavior while also drawing from the theory of reasoned action and social exchange theory to provide more profound analysis. Education on entrepreneurship positively changes attitude and perceived control on behavior. They have also declared a positive association between attitude and perceived control on behavior of an individual [70]. Entrepreneurial education influence attitude and thoughts, individual norms, and perceived behavioral control which further effect intentions of entrepreneurs to develop sustainable business for the better tomorrow. Ip et al. [71] conclude that entrepreneurial intentions have significant effect on students and enable institutes to nurture students on finding good solution for social problems. This is possible with the emergence of entrepreneurial education. Tarigan et al. [72] find that despite the efforts of educational institutes, they cannot involve students in entrepreneurial education unless they are self-motivated and able to take risk for starting business. Kah et al. [73] find that students who have intrinsic motivation for learning are able to face challenges in starting business. They need knowledge and education on entrepreneurship to gain confidence in building business. Raharjo et al. [74] argue that entrepreneurial education and self-esteem have significant effect in developing good entrepreneurial performance. Entrepreneurial education is the base of knowledge that individuals require for building a career. This objective is achieved with the help of entrepreneurial intention. Therefore, this research hypothesizes that:

H1: Entrepreneurial education has positive and significant impact on entrepreneurial intention.

1.4 Mediating the role of perceived attributes of the green market

The body of literature explains the effect of entrepreneurial education on entrepreneurial intentions. Scholars have analyzed entrepreneurial education as an indicator of entrepreneurial intentions. Past scholars' state that entrepreneurial education is the significant variable that causes variation in entrepreneurial intensions of the student [75]. The limitation of the previous study is extended by focusing upon market imperfections. Imperfect markets consist of asymmetric information, ineffective firms, and biased pricing systems (Munoz and Cohen, [45]). Entrepreneurial education facilitates individuals in making optimal strategies under the effect of market imperfections. Such imperfection creates environmental issues and generates opportunities for entrepreneurs to bring radical innovation and prompt entrepreneurial intentions. These market imperfections have an impact on economic behavior and effect individual's beliefs. Therefore, previous study conceptualizes the entrepreneurial education and entrepreneurial intentions to study how education design student's intention towards entrepreneurship.

Jaiswal et al. [76], Yi [41, 42] concluded that sustainable market attributes have underlying effect on entrepreneurial education and entrepreneurial intentions. In structural path perceived attribute of the green market is the potential mediator. Lotfi et al. [23] describes that various markets operating in different segments have environmentally friendly effect on society. These market segments of the green market are divided into four dimensions. They have effective management system for product design, manufacturing and supply chain management.

These dimensions provide various opportunities associated with imperfect market. Li et al. [77], Yi [41, 42] defines the term "green" means different components of the green market which consist sustainable qualities that contributes to the benefits of the environmental concern. Ibrahim and Al-Ajlouni [78] argue that according to the buying pattern of the consumers, they mostly prefer green products [76]. The awareness on green products has significantly increased and their commercial availability has increased enormously. Therefore, this study identifies the behavioral factor of entrepreneurship that lead individual to start business. Agu [79], Arshad et al. [80] reveal that determining entrepreneurial intentions identify future behavioral patterns of consumers for purchasing organic and green products.

Consumers are increasing demand for environmentally friendly products. Today, consumers are moving towards the green market as their concern about green products has increased. Entrepreneurs are moving towards a better environment by performing the role of sustainable citizens. They have become cautious about sustainable business for

good tomorrow. Past literature rarely explained green entrepreneurship, now it is growing rapidly to the maturity phase. Entrepreneurs have focused their research on production of green products. They explored sustainable development, new age entrepreneurship and developing green markets [81].

Past researchers Shahid and Reynaud [82] have explored the indirect relationship among different variables. The perceived attribute of the green market has mediating effect between environmental sustainability and entrepreneurial intentions. The authors find that these findings have more significant effect for business students than for students from other specializations. Green entrepreneurship is a potential solution for economic development. Past scholars examined the implications of policy on entrepreneurship with the help of the green approach. In the psychological system, green self-efficacy connects green entrepreneurship policies and green entrepreneurial behavior. Their findings identified that governmental institutions improve perceived benefits of the entrepreneurship [83].

Integrating the idea of planned behavior theory Ajzen [24] propose that individuals perform rational activity for effective outcome [84, 85]. Previous study enhances the findings of existing study by evaluating the influence of entrepreneurial education on entrepreneurial intentions and taking the perceived attribute of the green market as a mediator. The perceived attribute of the green market is an opportunity for businesses that they get form imperfect market. According to past scholars planned behavior evaluate the desire for being an entrepreneur [80, 86]. Likewise, Esfandiar et al. [87, 88] also find that planned behavior has significant effect on entrepreneurial intention. Behavioral factors such as individual and inspirational factors design beliefs and attitude of a person. Beliefs and attitudes of an individual form entrepreneurial intentions. This study argues that skills and competency are mandatory for entrepreneurs to exploit opportunity of market imperfections, hence entrepreneurial education is a fundamental factor to bring balance in economy. Entrepreneurial education encourages entrepreneurs to identify green market opportunities (i.e. green product, green supply chain management, green product design, and green production) which influences individual beliefs, thoughts and enforce them to transform their entrepreneurial education into entrepreneurial intentions. Therefore, this study hypothesizes that:

H2: Perceived attributes of the green market has positive and significant impact on entrepreneurial intention.

H2a: The relationship between entrepreneurial education and entrepreneurial intentions will be mediated by green product.

H2b: The relationship between entrepreneurial education and entrepreneurial intentions will be mediated by green design.

H2c: The relationship between entrepreneurial education and entrepreneurial intentions will be mediated by green supply chain.

H2 d: The relationship between entrepreneurial education and entrepreneurial intentions will be mediated by green production.

1.5 Moderating the effect of social support

Individuals utilize different business opportunities at global level to achieve success in entrepreneurship and make investment for the well-being of the society [41, 42, 89]. Dickel and Eckardt [27] documented that incubation hubs, entrepreneurial education and technology parks increase the growth of individuals to become an entrepreneur. Thelken and de Jong [90], Yi [41, 42] also suggested the same results on entrepreneurship. In this regard, scholars have stated that social support includes values, expectations, direction, and support that an individual receives from their social group (Sahban, Kumar and Sri Ramalu, [91]). The availability of social support from family and friends promotes individuals towards entrepreneurship [92].

Similarly, Wang and Huang [93] examine the empirical model on university students where entrepreneurial education is the paradigm of university. They find self-efficacy impacts entrepreneurial intentions significantly and positively. Social support is the significant moderator between entrepreneurial education and entrepreneurial intention. Past researchers analyzed the social entrepreneurial intentions, attitude towards social entrepreneur and social support. Their findings indicate that increase in effect of social support strengthens the direct association between social entrepreneurial intentions and attitude towards social entrepreneur [94]. Muhammed, Ringim and Kura [95] conducted research on undergraduate university students in Africa. In this study they find that social support is the significant moderator which strengthens the direct association between entrepreneurial goals and the entrepreneurial education. Previous authors observed the social support as a moderator in mediation model. According to them, entrepreneurial passion significantly as well as positively impact entrepreneurial intentions and self-efficacy.

In conceptual framework self-efficacy has mediating effect among variables. Social support has moderating effect that significantly influences the indirect relationship between entrepreneurial passion and entrepreneurial intentions.

Entrepreneurs bring new ideas in the form of innovation that has positive impact on economy and society. Therefore, needs of society and entrepreneurial competencies are supported by entrepreneurial education. The basic objective of entrepreneurial education is to strengthen value orientated education of entrepreneurs for developing sustainability in environment. Their research focuses on entrepreneurial education that provides understanding on challenges and pitfalls in starting a new venture [96].

Nuttavuthisit and Thøgersen [97] existing market imperfections deliver significant potentials to the development of the green market. Entrepreneurial education intends to gain benefits from the green market attributes. The attribute of the green market provides a platform to overcome environmental threats, achieving profits and improving societal well-being by maintaining triple bottom line approach [23, 76], Wang et al., [98]).Entrepreneurial education ensures the success of the environment through green support from society in entrepreneurship, motivation from environment, and green entrepreneurial actions [40]. Similarly, Uvarova, Mavlutova and Atstaja [99] argue that entrepreneurial education programs resolve environmental issues and promotes green entrepreneurial approach among students by encouraging business operation in perspective of green approach. Therefore, current studies suggest that entrepreneurial education provide better knowledge on the market imperfection which ultimately helps them in transforming entrepreneurial intention into reasonable action.

Due to the multifaceted nature of the research questions and the need for a thorough understanding of entrepreneurial education, perceived characteristics of the green market, social support, and intentions to be entrepreneurs, a mixed-methods methodology was used in this study [21, 26]. Quantitative analysis provides a robust and objective assessment of the relationships between these variables [100], while qualitative data provides insights on entrepreneurial practices and the nuanced mechanisms through which entrepreneurial education, perceived attributes of green market and social support influence entrepreneurial intentions [101]. Muhammed, Ringim and Kura [95] imply that entrepreneurial education significantly influence entrepreneurial goals that is moderated by perceived social support. This relationship is strengthening with the support given from society. Their findings indicate the substantial power of social support and entrepreneurial education on entrepreneurial intentions. Based on the planned behavior, individuals with personal attitudes, standards and behavioral control transform new ideas into intentions for starting business. Current study hypothesizes that:

H3: Social support has significant moderating effect on the relationship between entrepreneurial education and perceived attributes of the green market.

Conceptual model in Fig. 1 above represents relationship between entrepreneurial education, entrepreneurial intentions, perceived attributes of the green market and social support.

2 Methods

2.1 Pilot survey and sampling technique

Our sample consist 299 respondents including both undergraduate and postgraduate students. These students have business academic background. Most students have business experience or family business backgrounds that

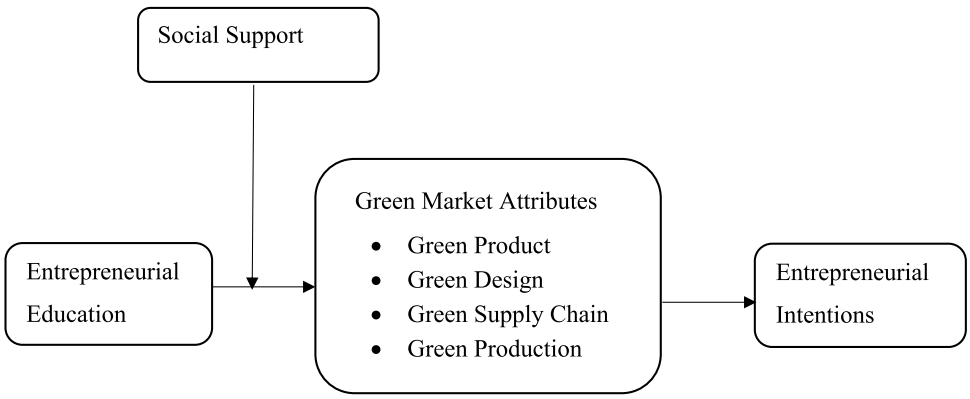

Fig. 1 Conceptual framework depicting the hypothetical relationship among variables

is enhancing the relevance of the sample to our research. Rate of response include 85.6% male and 14.4% female. Sample includes 34.0% BS students while 66.0% Master students. Moreover, 5.5% females and 94.5% male have business experience. Current study evaluates the influence of entrepreneurial education on entrepreneurial intentions. This study also analyzes perceived attributes of the green market as mediator between entrepreneurial education and entrepreneurial intention. Social support is analyzed as moderator between entrepreneurial education and entrepreneurial intentions through green market attributes. The research collected data through online platform in which an electronic link was distributed to survey respondents. The study is quantitative in nature. The sampling method is nonprobability sampling and adopted convenience sampling for collecting data from students having business academic background. This sampling method is adopted because it enables researchers to collect data conveniently from business students. Kah et al. [73] find that motivation for learning business education gives students courage and confidence to take risks for starting new business.

2.2 Measures

This paper is based on structured questionnaires. It consists 35 items constructed on entrepreneurial education, social support, perceived attributes of the green market and entrepreneurial intentions (EDU, SS, GM, and EI) respectively. This study used 7 point Likert scale rating from strongly disagree 1 to strongly agree 7 and 5 point Likert scale from strongly disagree' 1 to 'strongly agree'5 and identified the responses of students. All the items determine individual level entrepreneurial characteristics, and they were previously validated by past researchers.

2.2.1 Entrepreneurial education

Entrepreneurial education (EE) has measured integrating questionnaire of [102]. Current research measured adapted questions created on seven-point Likert scale with Cronbach alpha 0.766. The sample item adopted from previous study is "The courses given in your degree program related to entrepreneurship".

2.2.2 Entrepreneurial intention

Entrepreneurial intention items flow from strongly disagree 1 to strongly agree 7 and the Items have adopted from the past study of Linan and Chen [103]. Entrepreneurial intention has Cronbach's α 0.93. The sample item adopted from previous study is "My professional goal is to become an entrepreneur".

2.2.3 Social support

Social Support (SS) items have measured on five-point scale from 'strongly disagree' 1 to 'strongly agree'5. The items on social support have Cronbach's alpha α 0.91 respectively [104]. The sample item adopted from previous study is "My family members have always thought I should choose an entrepreneurial career".

2.2.4 Perceived attributes of the green market

Green market (GM) attributes have measured using items of previous study by [82]. This study used seven-point Likert scale rating from strongly disagree = 1 to strongly agree = 7. Perceived attributes of the green market has Cronbach's α 0.7–0.8. The sample item adopted from previous study is "I think green product(s) is (are) made from materials that make the product(s) recyclable".

3 Results

3.1 Data analysis

Data analysis has been carried out with a focus on ensuring transparency in collected data. Initially, descriptive statistics were computed to establish means and standard deviations for key variables, which include Entrepreneurial Education (EDU), Social Support (SS), Perceived Attributes of the Green Market (GM), and Entrepreneurial Intention (EI). To address potential multicollinearity, a correlation evaluation was performed to examine relationships among these variables.

It is crucial to acknowledge that nonprobability sampling techniques were utilized, a limitation that will be explicitly recognized in the conclusion. The sampling method was designed to offer insights into the specific context of the study rather than making generalized claims about the broader population. Before the main data collection, pretesting procedures were employed to refine survey instruments. This involved seeking feedback from a small sample to assess item clarity, identify ambiguities, and ensure respondents interpreted questions as intended. The pretesting phase aimed to increase the reliability of instruments by addressing potential sources of confusion or misinterpretation. When assessing the bias of traditional approaches, Harman's single-factor analysis provides additional insights into the robustness of the study's findings.

Transitioning to data simplification, Principal Component Analysis (PCA) was applied, involving factor analysis and the Kaiser–Meyer–Olkin (KMO) technique for determining the essential number of components. An orthogonal varimax rotation was then employed to refine the factor structure.

To address construct validity, a meticulous approach was taken, applying a combination of scale validation procedures, including Churchill's [105] and Rossiter's C-OAR-SE [106, 107]. Additionally, confirmatory factor analysis (CFA) was conducted to enhance the rigor of measurement tools. Structural Equation Modeling (SEM) played a pivotal role in constructing and estimating relationships among EDU, SS, GM, and EI. A path diagram with standardized beta coefficients illustrated the strength of paths. Finally, a regression analysis assessed the effect of EDU, SS, and GM on EI, involving the calculation of regression coefficients, p-values, and the R-squared value. The multistage statistical methodology adopted aimed to ensure a rigorous and comprehensive reviewing the details, contributing to the robustness of the study findings.

3.2 Means, standard deviation, reliabilities and correlation analysis

Table 1 presents the scales' meaning, standard correlation analysis results and standard deviation. The table shows highest mean of perceived attribute of the green market GM (M = 5.196; SD = 0.891) followed by EDU (M = 5.092; SD = 1.091), EI (M = 5.049; SD = 1.111) and SS (M = 3.662; SD = 1.029). Hence, all the variables retained in the analysis as their Cronbach's alpha is 0.655 which shows effective internal consistency between items and scales of predicted variables and dependent variable. In correlation analysis, all the variables are positively correlated, where the inter-item correlation observed between EDU and EI (r = 0.53), GM and EI (r = 0.408) and SS and EI (r = 0.326). There is no problem of multicollinearity as all the values' correlation is not above 0.5, respectively.

Results illustrates the outcome of the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity, crucial indicators for factors analysis sustainability in the dataset. The KMO measure, with a value of 0.814, exceeds the commonly accepted threshold, signifying a high degree of sampling adequacy. This suggests that the dataset possesses sufficient shared variance among variables, appropriate for factor analysis.

Bartlett's Test of Sphericity have estimated chi-square value 10968.967 with significant p-value 0.000, adds further support to the decision to conduct factor analysis. The test assesses whether the correlation matrix significantly deviates

Table 1 Mean, standard deviation, Cronbach's alpha, and correlation matrix of the construct

Variables	M	SD	1	2	3	4
1. EDU	5.092	1.091	1.0000			
2. SS	3.662	1.029	0.147	1.0000		
3. GM	5.196	0.891	0.298	0.207	1.0000	
4. EI	5.049	1.111	0.533	0.326	0.408	1.0000

Internal reliability between items and the scale is calculated by Cronbach's alpha: 0.655

M Mean, *SD* Standard Deviations

from an identity matrix, implying that variables are interrelated. The obtained low p-value indicates a rejection of the null hypothesis, confirming the presence of significant interrelations among the variables. In essence, the combined results of the KMO measure and Bartlett's Test affirm the appropriateness of factor analysis in dataset. The high sampling adequacy and significant departure from an identity matrix underscore the presence of meaningful relationships among variables, providing a robust foundation for extracting latent factors through factor analysis.

From the outcome of Harman's single-factor test, it appears that the data does not strongly exhibit common method bias. The eigenvalues and percentage of variance explained by the first component (35.796%) do suggest some influence, but this proportion may not be substantial enough to definitively conclude the presence of common method bias. The gradual increase in cumulative percentage as additional components is considered indicates a distributed variance across multiple factors.

It is important to note that while the first component explains a significant portion of the variance, other factors contribute to the overall reason for the data fluctuation. This nuanced pattern suggests that shared method-related variance may not be overwhelmingly dominant. However, it is crucial to interpret these findings with caution. Harman's single-factor test provides an indication rather than a conclusive proof of common method bias.

The Component arrangement, derived from Principal Component Analysis (PCA), provides valuable insights into the scale validation process. Each row corresponds to an individual item or variable, while columns represent the extracted components resulting from the analysis (labeled as Component 1 to 8). The factor loadings within each cell indicate the direction and intensity of the connection between the component and the object that has been learned.

From a scale validation perspective, the factor loadings offer a crucial assessment of the items'alignment with the underlying constructs. Higher absolute values signify a more robust association, aiding in the identification of items that contribute significantly to each component. Researchers can leverage this information to refine the scale, potentially removing items with weaker factor loadings or exploring potential sub-dimensions within the scale.

The concluding note,"8 components extracted,"highlights the number of elements identified during the analysis. This information is essential for determining the adequacy of the chosen number of components and evaluating the overall structure of measurement model within the context of scale validation.

In statistical tool, SPSS Amos has used to estimate the model consisting entrepreneurial education, social support, perceived attribute of the green market and entrepreneurial intention. The paths from Entrepreneurial education, social support and perceived attributes of the green market are pointing towards entrepreneurial intention shown in Fig. 2. The path diagram consists of three paths followed by the covariance among exogenous variables. The exogenous variable is

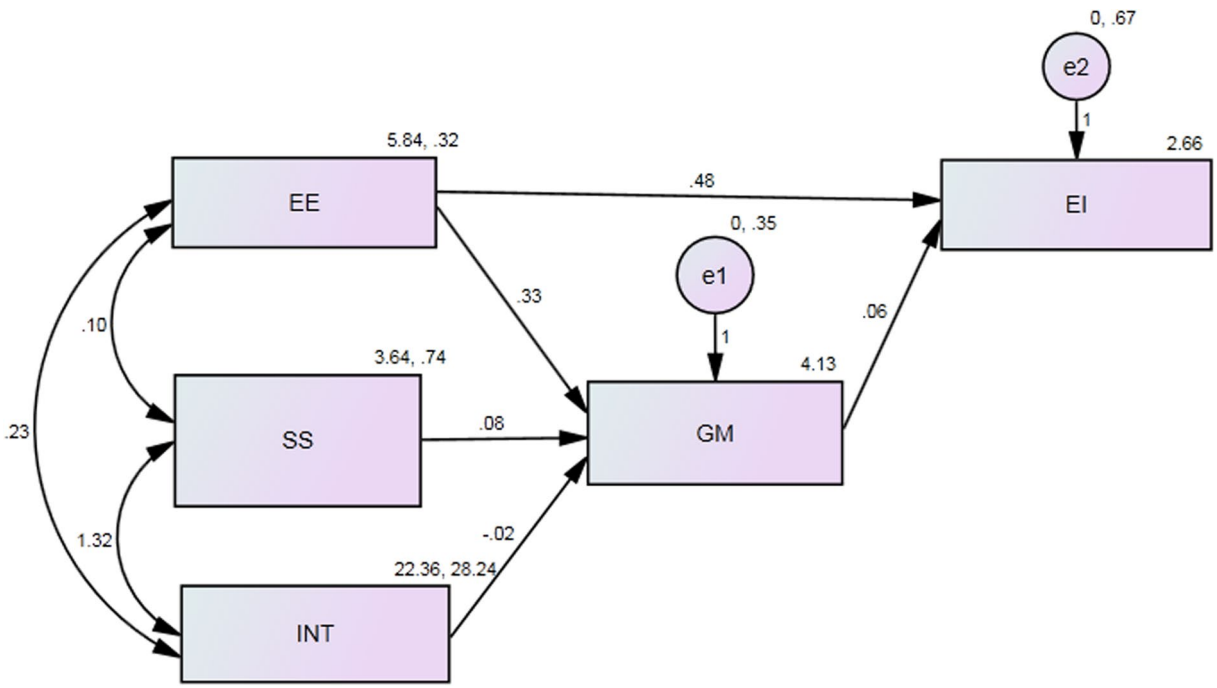

Fig. 2 Illustrating results of the structural equation model. *p < 0.01. *EE* Entrepreneurial Education, *SS* Social Support, *INT* Interaction Term, *GM* Green Market, *EI* Entrepreneurial Intentions

a variable whose paths are drawn away from it; they are not drawn towards it. They predict other variables in the model, but they are not predicted by other variables. An endogenous variable is a variable that has arrows towards it. They are predicted by other variables within the estimated model.

3.3 Measurement model and principal component analysis

Before moving towards structural equation modeling, this study conducted component analysis and followed the step by step process of Principal Component Analysis with the Stata version 14.0 software. Principal Component Analysis determines the outcome loading of the items on a variable. The proposed model constructed in SEM Builder and the maximum likelihood function of SEM Builder is to estimate the parameters by covariance.

Firstly, this study utilized principal component analysis which reduces larger set of data into smaller set of components. The original sets of variables are correlated to some degree and the purpose is to describe the total changes in the variables. The part of variation that is overlapping and shared information is excluded. The components are extracted which helps to explain the changes in variables. The components are resultant variables depending on the variance and the covariance of the original data set of variables. Following the steps of principal component analysis, the first step is factor analysis which consists of a variable list. The list of variables processed through principal component factor method, resulting in eigenvalue, cumulative and uniqueness in outcome. This step results in artificial variable, it is necessary to end up in deciding number of components. The second step is to execute Kaiser Meyer Olkin known for the measure of sampling adequacy. Henry Kaiser proposed that the minimum acceptable measure of sampling adequacy is 0.5. If any measure is below this level, then it is necessary to eliminate the lowest one. It is necessary to drop the lowest variable through one by one process. All quantize of sampling adequacy MSA's must be above 0.5 level of sampling adequacy. Next step is Horn's parallel analysis (PA) to decide how many components in a principal component analysis derive the variance observed in a data set of n number of observation on p variables (Horn, 1965). Results of Horn's Parallel Analysis for principal components consist of both adjusted and unadjusted eigenvalue of seven components or factors. This study focuses on unadjusted eigenvalue criteria of seven factors and further proceeds towards factor analysis of seven retained factors. The result consists of cumulative, factor loadings (pattern matrix) and unique variances. In this step, decide number of components/factors based on communality which must be above 0.5, where uniqueness measured as 1-communality. The value of uniqueness should be less than 0.5 and if any factor fails to fall below 0.5 then uniqueness with above 0.5 must be dropped and restart the PCA process again. Finally, apply theorthogonal varimax (Kaiser on) criteria on retained factors which remove the variables that show high loadings on each factor.

This study performed confirmatory factor analysis (CFA) to observe the loading of items on each construct shown in Fig. 3. This figure shows covariance among variables, estimated model, standardized regression weights, and squared loadings. To identify the fitness of loadings, analyze model validity measure and model fit measures. There was trouble with RMSEA and PClose value and model fit measure recommended to remove item G17 from model on the basis of the standardized residual covariance. In the output chi-square = 212.222 and probability level is 0.000($p < 0.01$), respectively. In standardized regression weights loadings for, GM17, GM16, GM18, GM19, GM15 are significant ($\beta = 0.863$, $\beta = 0.783$, $\beta = 0.810$, $\beta = 0.792$, $\beta = 0.738$, $p < 0.01$), therefore this study has not removed G17 item and used it for further analysis. EIITEM3, EIITEM4, EIITEM5 for EI are significant ($\beta = 0.718$, $\beta = 0.819$, $\beta = 0.789$, $p < 0.01$). SS2, SS3, SS1 for SS are significant ($\beta = 0.827$, $\beta = 0.740$, $\beta = 0.0.583$, $p < 0.01$), EEITEM5, EEITEM4 for EE are also significant ($\beta = 0.690$, $\beta = 0.775$, $p < 0.01$). Modification indices are done to remove trouble in model fit measures. This study created covariance among error terms e5, e4, and e3, covariance between e5 and e3 will reduce discrepancies up to 6.695, e5 with e4 reduces discrepancy up to 6.185. If we covariate e3 with e4, it will reduce discrepancies up to 46.584. Likewise, covariance of e5 with e2 reduces discrepancies up to 63.647 and e2 with e1 reduces 5.542 respectively. Furthermore, covariance between e6 and SS reduces variance by 11.644. After creating covariation, model fit measures have declared an excellent outcome. Now there is no validity issue, and the estimated model is excellent. In standardized regression weights SE refers to estimate of the standard error while CR is the critical ratio. The value of critical ratio is obtained by dividing the covariance estimates to the standard error. The value of the critical ratio should be greater than 1.96 to verify its significance. All values of CR are significant as each item of different constructs have values above 1.96 respectively.

The standardized regression weights lie between 0.84 to 1.00 for GM and its squared loadings range from 0.21 to 0.62 respectively. The standardized regression weights for EI are 1.00, to 1.140 while its squared loadings are 0.44 to 0.55. In case of SS the regression weights range from 0.76 to 1 whereas, squared loadings have range from 0.23 to

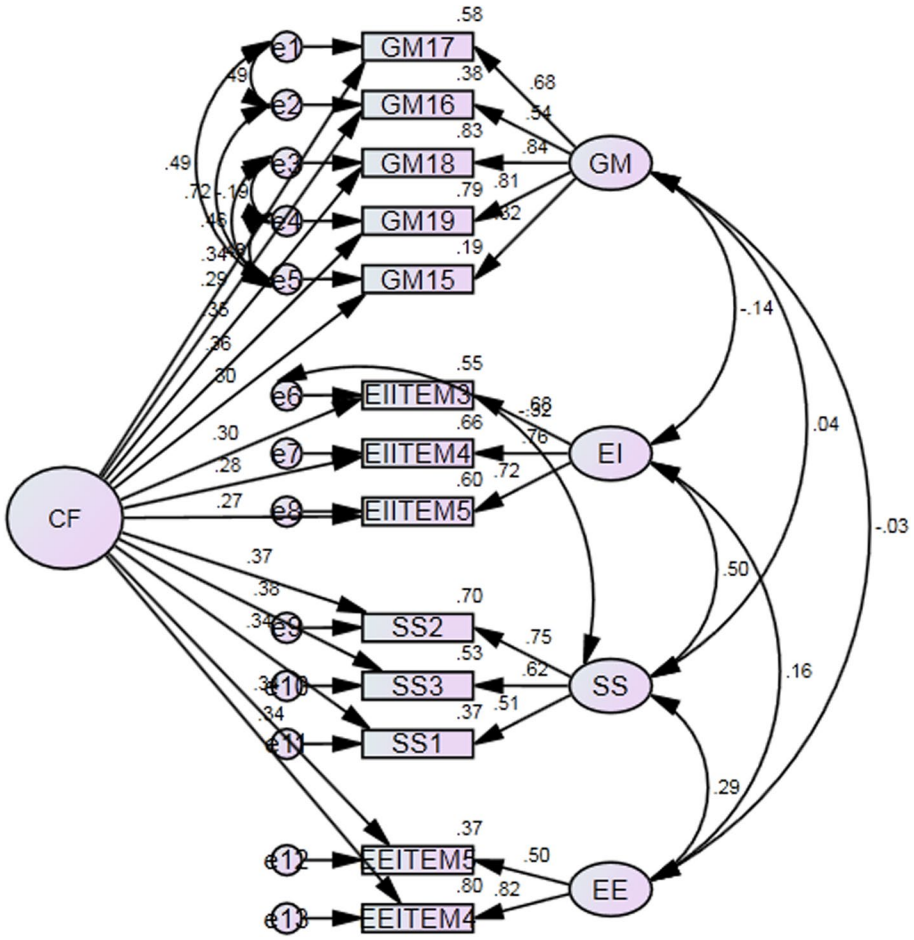

Fig. 3 Confirmatory factor analysis of proposed model. Represents standardized regression weights presented above single headed arrows, values above each observed variable shows the squared loadings of individual items of variable, values above curved arrows are covariance among variables. CF is the common factor bias. GM perceived attribute of the green market, EI entrepreneurial intention, SS social support, EE entrepreneurial education, e1, e2, e3, …, e13 represents error term

0.55. In EE standardized regression weights have values from 1.00 to 1.18 and its squared loading is 0.32 and 0.47 respectively. The covariance among each construct ranges from 0.03 to 0.34 respectively.

3.4 Model fit summary

Table 2 shows the root mean sure error of approximation (RMSEA) of the model is 0.036 which is less than 0.08. Furthermore, the goodness of fit index is (GFI) is 0.961 suggesting an acceptable model fit of value above 0.9. The adjusted

Table 2 Model fit indices

Statistic measurement	Test indices	Test standard	Result	Model fit verification
Absolute fit measurement	RMSEA	≤0.08	0.036	Good Fit
	GFI	≥0.9	0.961	Good Fit
	AGFI	≥0.9	0.932	Good Fit
	CMIN/df	≤3.84	1.342	Good Fit
Incremental fit measurement	NFI	≥0.9	0.957	Good Fit
	RFI	> 0.9	0.935	Good Fit
	IFI	≥0.9	0.989	Good Fit
	TLI	≥0.9	0.983	Good Fit
	CFI	≥0.9	0.988	Good Fit

goodness of fit index (AGFI) is 0.932 referring to level above 0.9 and Chi-Square X2/df (CMIN/DF) is 1.342 representing a good fit.

However, the relative fit indices or the incremental fit index that is determined by Normed Fit Index (NFI = 0.957), Relative Fit Index (RFI = 0.935), Incremental Fit Index (IFI = 0.989), Tucker Lewis Index (TLI = 0.983) and Comparative Fit Index (CFI = 0.988), all of them are above 0.90.

3.5 Reliability and validity of the model

The measurement model represents factor loadings, indicating the path coefficients between the indicators and the latent variable have significant value ($p < 0.01$). This study finds the internal consistency of the indicators through composite reliability (CR) for each latent construct. Composite reliability requires CR values higher than 0.6 [108]. The given table shows CR values, considered within acceptable range. CR values range from 0.702 (EE) to 0.885 (GM). AVE values above 0.5 shows good convergent validity [108]. According to Fornell and Laker [109], AVE requires values above 0.4, when composite reliability values are above 0.6. The values of AVE ranging from 0.52 (SS) to 0.607 (GM). Furthermore, to determine the model's discriminant validity, the square root of the construct's AVE should be higher than the correlation between constructs of the model [109]. AVE values must be greater than MSV and the square root of all construct's AVE should be greater than inter construct correlation. The overall values of model fit indexes, reliability and validity suggest an acceptable model fit [110]. The Cronbach value ranges from 0.727 to 0.779, which is considered good and acceptable.

Finally, this study assessed the presence of common method bias through common latent factor shown in Table 3. This procedure conducted CFA to compare proposed model with the one factor model. One factor model loading all the items onto a common method factor [111]. Results indicate that proposed model fits the data with respect to the one factor model [111]. This model shows that only one item has a problem of common meth bias while the rest of the items are protected. Therefore, study undergo further analysis while CMB is the insignificant threat of the one factor model [112].

3.6 Hypothesis testing

Now this study conduct moderation mediation analysis using Hayes process model 7 in Amos. The variable X (entrepreneurial education) predicts the variable Y (entrepreneurial intention) through indirect effect of mediator M (perceived attribute of the green market). The model shown in Fig. 4 also evaluated the moderating effect of M (social support) on the relationship between entrepreneurial education and perceived attribute of the Green market.

According to the Hayes process framework, the statistical model identified a direct relationship between predictor entrepreneurial education (ENTEDU)X and dependent variable (ENTINT) Y. This model compute interaction term to perform moderation analysis. The interaction term (INTEESS) is obtained by multiplying the predictor variable entrepreneurial education (ENTEDU) X and moderating variable social support (SOCSUP) W. The interaction term is the predictor variable of the mediator which is perceived attribute of the green market (GREMKT) M. All three exogenous variables in the figure are correlated with each other.

As a result, Entrepreneurial education ENTEDU predicting entrepreneurial intention ENTINT is significant ($\beta = 0.269$, $p < 0.01$, path = F), confirming H1. The explanatory power of this model is estimated through multiple squared correlation value. The R^2 explains the explanatory power of the model that is 7%. This shows 7% of variation in the dependent variable entrepreneurial intention ENTINT is due to its predictor entrepreneurial education ENTEDU. These are the reported

Table 3 Reliability and Validity of the model

Variables	CR	AVE	MSV	MaxR(H)	GM	EI	SS	EE
Green market	0.885	0.607	0.054	0.896	0.779			
Entrepreneurial intentions	0.821	0.604	0.342	0.823	0.052	0.777		
Social support	0.767	0.528	0.342	0.799	0.225**	0.585***	0.727	
Entrepreneurial education	0.702	0.542	0.218	0.717	0.233**	0.334***	0.467***	0.736

Cronbach's alpha values are presented on the diagonal

CR Composite reliability, *AVE* Average Variance extracted, *MSV* Maximum Shared Variance, *MaxR(H)* maximum reliability

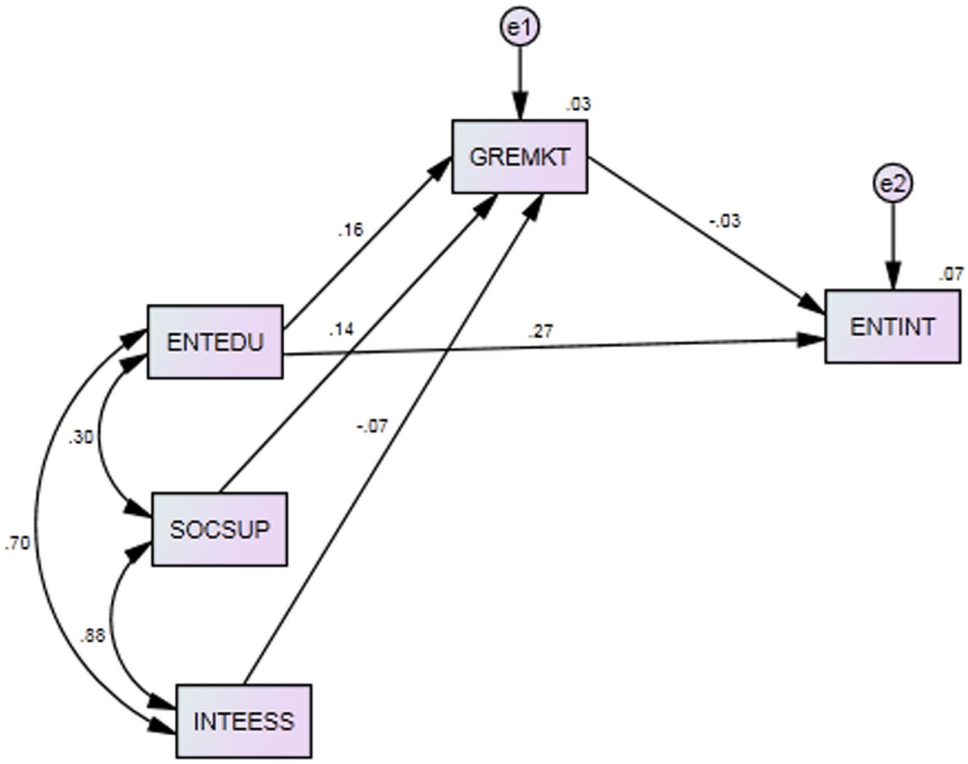

Fig. 4 Estimated coefficients and regression weights of structural equation model analysis

results of standardized regression weights. Independent variable entrepreneurial education ENTEDU predicting mediator that is perceived attributes of the green market GREMKT is insignificant (β = 0.159, p > 0.01, path = A). Likewise, the effect of green market GREMKT on entrepreneurial intention ENTINT is also insignificant (β = – 0.028, p > 0.01, path = B), H2 has not confirmed. The effect of the moderator social support SOCSUP on mediator GREMKT is also insignificant (β = 0.14, p > 0.01, path = D) respectively. The interaction term that is product of entrepreneurial education and social support INTEESS predicting mediator GREMKT is also insignificant (β = – 0.073, p > 0.01, path = C), thus not confirming H3.

Further, results show estimates with confidence interval (lower and upper bounds with 95% Confidence interval) with the help of percentile method in user defined estimates. To test the overall slope, if zero lies within the confidence interval then the effect of variable has no statistical significance. Each of the sample slopes is not statistically significant. Low, medium, and high moderator that is social support SS has no significant effect on mediator that is perceived attribute of the green market because zero lies within lower bound and upper bound. In Low SS β = 0.173, Lower bound = –0.810 and Upper bound = 0.614, p > 0.01, for medium SS β = 0.159, Lower bound = – 0.569 and Upper bound = 0.466, p > 0.01 and high SS β = 0.145, Lower bound = – 0.330 and Upper bound = 0.335, p > 0.01 respectively. Additionally, Low, medium, and high conditional indirect effects are also insignificant. Low CIE conditional indirect effect β = – 0.006, Lower bound = – 0.071, Upper bound = 0.046 and p > 0.01. In medium CIE β = – 0.005, Lower bound = – 0.054, Upper bound = 0.032 and p > 0.01. High CIE β = – 0.005, Lower bound = – 0.038, Upper bound = 0.021 and p > 0.01. Likewise, Index moderated mediation IndModMed β = – 0.000, Lower bound = – 0.010, Upper bound = 0.013 and p > 0.01. Index moderated mediation is not significant as zero lies within lower bound and upper bound which shows that moderated mediation has no existence in estimated model.

3.7 Smart PLS 4 results

The complete sheet contains results such as path coefficients, T-values, P-values, and confidence intervals. Here's a quick summary of the key relationships and their interpretations:

1.1.1.1. Entrepreneurial Education → Green Markets:

Path Coefficient: 0.190, T-Statistic: 2.83 (greater than 1.96, indicating significance at the 5% level), P-Value: 0.0047 (less than 0.05, significant), Interpretation: Entrepreneurial education positively impacts green markets significantly.

2.2.2.2. Green Markets → Entrepreneurial Intentions:

Path Coefficient: 0.371, T-Statistic: 4.49 (highly significant), P-Value: 0.000007 (highly significant), Interpretation: Green markets strongly and positively influence entrepreneurial intentions.

3.3.3.3. Social Support → Green Markets:

Path Coefficient: 0.388, T-Statistic: 5.21 (highly significant), P-Value: 0.000 (highly significant), Interpretation: Social support has a strong positive and significant effect on green markets.

4.4.4.4. Social Support x Entrepreneurial Education → Green Markets (Interaction Effect)

Path Coefficient: – 0.026, T-Statistic: 0.64 (insignificant), P-Value: 0.522 (not significant), Interpretation: The interaction between social support and entrepreneurial education does not significantly impact green markets.

The data includes information on model fit and reliability criteria. Here's what stands out:

3.8 Model fit

Model fit is mentioned but specific statistics (e.g., SRMR, NFI, etc.) are not visible here. Further rows or columns may contain detailed metrics.

3.9 Reliability and validity

Average Variance Extracted (AVE): This metric checks convergent validity. AVE values greater than 0.5 are generally acceptable. Composite Reliability (rho_c): Values above 0.7 are acceptable for internal consistency. Cronbach's Alpha: A widely accepted reliability measure, where values greater than 0.7 are considered reliable.

Comparing the results obtain from AMOS and Smart PLS 4 it has been found social support moderates the relationship between entrepreneurial education and perceived attributes of the green market. Perceived attributes of the green market has no significant mediation effect between entrepreneurial education and entrepreneurial intentions. In Smart PLS 4 perceived attributes of the green markets has strong positive and significant mediation between entrepreneurial education and entrepreneurial intentions. However, social support has not significant moderation effect between entrepreneurial education and perceived attributes of the green markets. Model fit (Average Variance Extracted, Composite Reliability and Cronbach's Alpha) confirms the reliability and validity of the model, hence model is a good fit model.

4 Discussion

This study conceptualizes that gaining professional degrees in business administration gives better understanding on business community and its operation. They get knowledge not only in the form of lectures and seminars but also gain practical experience in business. Students invest their knowledge in building effective business plans. Entrepreneurial education leads them towards entrepreneurial intention. In order to minimize market imperfection, they grab opportunities in the form of the perceived qualities of sustainable market. Problem arises when entrepreneurs give minimum importance to the green production and end products which are the attributes of the green market. Do Nguyen and Nguyen [113] analyze that entrepreneurial education is positively related to entrepreneurial intention mediating the role of entrepreneurial capacity. Findings of previous study find that entrepreneurial education has positive as well as significant impact on entrepreneurial intentions of students. Previous researchers Zeng and Ren [114] evaluated the stimulating factors of green entrepreneurship in Zhejiang. They find that environmental regulation has no significant impact on the green entrepreneurship. Environmental regulation enforces enterprise to bring more technological innovation and increase productivity which stimulates green entrepreneurship. Mathushan and Pushpanathan [115] studied green innovation and green entrepreneurship sustainability. The result states that entrepreneurs are not prepared to take risks

for starting green business or green innovative practices. The management and education departments have failed to recognize the significant role of green entrepreneurship development. Based on prior findings of research, current study shows that to maintain environmental regulation and green entrepreneurship, it is necessary to obtain entrepreneurial education. Alternatively, acquiring innovative technology plays integral role in encouraging green entrepreneurship. This indicates that instead of entrepreneurial education, innovative technology acquisition has significant effect on green entrepreneurship. Similarly, previous findings indicate that entrepreneurs are not able to take challenge in developing green businesses. The capacity to develop green entrepreneurship weakens due to inadequate entrepreneurial intentions. Therefore, this study says that perceived attribute of the green market has no significant indirect path from entrepreneurial education to entrepreneurial intentions.

Boudreaux, Jha and Escaleras [116] suggest that natural disaster encourages venture development, moderating the effect of good quality governance between natural disaster and start up activity and vice versa. Entrepreneurship start up activity requires individuals to gain entrepreneurial education and entrepreneurial intention in order to manage a disaster. The association between entrepreneurial education and entrepreneurial intention is insignificantly moderated by social support. According to previous findings instead of social support high quality governance motivates entrepreneurs for startup following the entrepreneurial intention. The outcome of interest is achieved when social support is acting like a moderator. In this research entrepreneurial education has no significant indirect effect on entrepreneurial intention. There is no mitigating effect from moderator that is social support on the indirect link between entrepreneurial education and entrepreneurial intentions through the perceived attribute of the green market. Companies are unable to pay back loans to the social supporters due to ineffective governance structure. Despite of good social support companies can't achieve growth until good governance policies are adopted.

4.1 Theoretical implication

In this research the rational action theory adds new findings to the entrepreneurial literature. Rational action permits individuals to recognize characteristics of the vibrant market and inspire individuals to explore opportunities for the development of sustainable society. The focus of this research is to take rational action that motivates individuals to use rational approach and choices for taking right decision in entrepreneurship. Hunt, Lerner, Johnson, Badal and Freeman [117] identified that entrepreneurship is nothing without reasoned intentionality. Glaesser and Cooper [118] rational action theory support individuals in making rational decision for education. The assumption of rational action theory states that decision making process requires cost benefit analysis. Therefore, entrepreneurs gain entrepreneurial education, incorporating strategic actions for increasing green production which in turn gives positive return. These attributes are achieved with entrepreneurial intentions and rational action in entrepreneurial decision.

In previous studies, extent literature has shown findings on entrepreneurial education with an intention for opening enterprise. The mediating effect of perceived attribute of the green has neglected, previous study researched perceived attribute of the green as a mediator among business training and entrepreneurial intention [119, 120]. The benefit of researching the perceived attribute of the green market is that companies must deliver quality products to the customers who have awareness on green products. This whole process requires an efficient entrepreneurial education, green production and entrepreneurial intention in starting new business. Current study ensures the significance of entrepreneurial education on entrepreneurial intention. Students, who receive business education, tend towards entrepreneurial intention [121]. Research on entrepreneurship has focused on scanning the entrepreneurial environment which reduces the market imperfections and unsustainable economic behaviors with rational action. Previous researchers have not provided adequate findings on entrepreneurial education and entrepreneurial intention with green market effect and social support under theory of rational action. Current study determines the perceived attribute of the green market and social support under the mediation moderation mechanism [122]. According to Boudon [123] and Breen and Goldthorpe [124] states that Rational Action Theory (RAT) is the key factor of social phenomena, consistent to educational decision making, parents and children consider educational cost and weighting them against perceived benefits or expected higher earnings. Likewise, entrepreneurship inculcates the importance of entrepreneurial education, stimulating entrepreneurial intention among students for taking risk in starting new venture. This relationship requires entrepreneur to study the entrepreneurial education and entrepreneurial intention with mediating mechanism of perceived attribute of the green market and moderating effect of social support to remove obstacles in producing environmental friendly products with the support of family, government and rational action in entrepreneurship.

4.2 Practical implication

In emerging nation, students gain benefit from government and non-government support that encourage them for entrepreneurial action. These organizations should devise policies to arrange seminars and educational platforms which is the catalyst for entrepreneurial intentions. Similarly, policy makers concern the designing of skills development to encourage students in developing entrepreneurial intentions to form new businesses. In social context, policy makers should carry out practical strategies for developing entrepreneurial education and entrepreneurial intentions. Entrepreneurial education and entrepreneurial intentions should be given through suitable training and education system. Our findings imply that providing customized training and educational programs may be useful in developing entrepreneurial education and enhancing entrepreneurial intentions for students under government support system. Therefore, government should conduct trainings and workshop on regional level to help students in gaining entrepreneurial education and encouraging entrepreneurial intentions.

Moreover, seminars and workshops should provide knowledge on how to handle socio cultural barriers at regional level to educate students on entrepreneurship in handling cultural trauma. Furthermore, entrepreneurs must encourage students to open business in rural area to remove poverty, providing them support and assistance in business until it reaches level of growth. Government aid persuades students in gaining knowledge, advice, and understanding on social awareness programs to overcome cultural restrictions that discourage students from pursuing entrepreneurial intentions. The findings of this research hold significant implications for policymakers and businesses. The rise of entrepreneurial training and education courses imparts knowledge on running a profitable firm while protecting the environment. Passionate entrepreneurs use entrepreneurial education and rational thinking style to handle uncertain and unpredictable situations of the market, thus efficiently engaging students in entrepreneurial decision making process.

4.3 Educational implications

Current study also carries significant educational implications for institutions and educators. Given the pivotal role of entrepreneurial education in shaping sustainable entrepreneurial intentions, educational institutions should consider integrating green market concepts and sustainability practices into their curricula. This can better prepare students from various academic backgrounds, not just business administration, to embrace entrepreneurship with an environmentally conscious approach. Additionally, educators can tailor their teaching methods to foster a mindset that encourages students to explore entrepreneurial opportunities in the green market. Emphasizing the practical application of entrepreneurial knowledge, as well as providing real-world exposure to the green market, can empower students to become more innovative and sustainability-driven entrepreneurs. Furthermore, by recognizing the importance of social support as a moderator, educational institutions can create an environment that encourage peer collaboration and mentorship, thus revitalizing the association between entrepreneurial education and the perception of the green markets. These educational initiatives can contribute to a more holistic and impactful entrepreneurial education landscape, nurturing a new generation of entrepreneurs ready to address environmental challenges while pursuing business success.

4.4 Limitations and future direction

In spite of the outcome of this study, the current research has some constraints. The sample is composed of only business administration students; it is necessary to include students from other fields of studies. This approach encourages ideas from diverse domains for making quality decisions. The study collected data on survey based methodology. Future study must adopt qualitative techniques with the goal to gain knowledge greater depths on variables. The proposed model must include performance base variable. It provides insight regarding successful business. The current research did not specifically declare gender differences which should be considered for future research. Gender study must be observed with entrepreneurial intention and entrepreneurial decision making behavior. Thus, the exploration of gender discrimination extends findings of academic literature and provides implication to reduce gender gap in entrepreneurship. Future researchers may also study behavioral biases like locus of control and how they impact human behavior in making optimal entrepreneurial decisions.

Author contributions Author Contributions Statement M.I. (Muhammad Irfan) conceptualized and designed the study, conducted the data analysis using AMOS, and wrote the main manuscript text. F.A. (Faryal Arif) contributed to the literature review, interpretation of results, and drafting of the introduction and conclusion sections. M.A. (Muhammad Adnan) contributed to refining the methodology, assisted in data analysis, and provided critical revisions to enhance the manuscript's overall coherence. A.A. (Ammar Ahmed) provided theoretical insights, helped structure the discussion, and contributed to strengthening the study's practical implications. H.A. (Hameeda Akhtar) assisted in survey design, data collection, and provided insights for the discussion of findings. S.Z.A.S. (Syed Zulfiqar Ali Shah) contributed to the research design, provided valuable feedback on the manuscript, and helped refine the analysis and discussion. M.U. (Muhammad Umair) assisted in literature review synthesis, manuscript formatting, and aligning the study with journal requirements. All authors reviewed and approved the final manuscript.

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Data availability The datasets generated and/or analyzed during the current study are available in the Dataverse repository. The data can be accessed via the following link: https://doi.org/https://doi.org/10.7910/DVN/DIGRWM. Moreover, Data is provided within the manuscript or supplementary information files.

Declarations

Ethics approval and consent to participate This study was reviewed and approved by the Research Ethics Committee of the International Islamic University Islamabad (IIUI). Ethical approval was granted on August 22, 2023, under reference number No. IIUI/ORIC/Bioethics/110. The research, which involved university students, adhered to the IIUI Research Ethics Guidelines. For experiments involving human participants, informed consent was obtained from all participants involved in the study. Participants were fully informed of the nature of the research, the procedures involved, and their right to withdraw from the study at any time without consequence. In cases where participants were under 18, consent was obtained from a parent and/or legal guardian. The confidentiality of all participant data was ensured, and no data was shared without prior consent. The study complies with ethical standards for research involving human participants as outlined by IIUI's Institutional Ethical Review Committee.

Consent for publication All authors have given their consent for the publication of this manuscript.

Competing interests The authors declare no competing interests.

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