

# Does green entrepreneurial behavior enhance through entrepreneurship education, perceived-ability to use technology, and commitment to environment? Understanding the contribution of entrepreneurial motivation and university support

Yaofu Li, Nur Rasyidah Mohd Nordin, Shamim Akhter, Tribhuwan Kumar & Musarat Shaheen

To cite this article: Yaofu Li, Nur Rasyidah Mohd Nordin, Shamim Akhter, Tribhuwan Kumar & Musarat Shaheen (2023) Does green entrepreneurial behavior enhance through entrepreneurship education, perceived-ability to use technology, and commitment to environment? Understanding the contribution of entrepreneurial motivation and university support, *Economic Research-Ekonomika Istraživanja*, 36:3, 2153375, DOI: [10.1080/1331677X.2022.2153375](https://doi.org/10.1080/1331677X.2022.2153375)

To link to this article: <https://doi.org/10.1080/1331677X.2022.2153375>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 07 Dec 2022.



Submit your article to this journal [↗](#)



Article views: 932








View related articles [↗](#)



View Crossmark data [↗](#)

# Does green entrepreneurial behavior enhance through entrepreneurship education, perceived-ability to use technology, and commitment to environment? Understanding the contribution of entrepreneurial motivation and university support

Yaofu Li<sup>a</sup> , Nur Rasyidah Mohd Nordin<sup>b</sup> , Shamim Akhter<sup>b</sup> ,  
Tribhuwan Kumar<sup>c</sup>  and Musarat Shaheen<sup>d</sup> 

<sup>a</sup>Academic Administration, Nantong University, Nantong, China; <sup>b</sup>Department English, School of Languages, Civilisation and Philosophy, Universiti Utara Malaysia, Changlun, Malaysia; <sup>c</sup>College of Science and Humanities at Sulail, Prince Sattam Bin Abdulaziz University, Al Kharj, Saudi Arabia; <sup>d</sup>Education, Bahauddin Zakariya University, Multan, Pakistan

## ABSTRACT

In a time of environmental destruction, global warming, and continuous rise in the earth's temperature, Green Entrepreneurship has emerged as a potential solution through which ecological, economic, and social sustainability can be attained. Hence the current is operationalized in order to understand the contribution of Entrepreneurial Motivation (MOT) and University Support (SUP) in enhancing Green Entrepreneurial Behavior (BEH) powered by Entrepreneurship Education (EDU), Perceived-ability to use Technology (TEC), and Commitment to Environment (CMT). On the dataset of 487 students from Chinese education institutions, the application of PLS-SEM reported significant and positive associations among the proposed hypotheses. Precisely, EDU, TEC, and CMT are reported to enhance the level of SUP, MOT, and BEH, whereas the role of SUP and MOT in enhancing BEH is also reported. Based on the findings, there are different managerial implications that the current study has proposed.

## ARTICLE HISTORY

Received 22 July 2022  
Accepted 23 November 2022

## KEYWORDS

Green entrepreneurship;  
entrepreneurial motivation;  
university support; green  
entrepreneurial behavior;  
entrepreneurship education;  
commitment to environment

## JEL CODES

I23; Q55; Q56; L26

## 1. Introduction

The preservation of the ecology, flora, and fauna is a global issue that has urged researchers, academicians, and practitioners to serve for the potential solutions to address it. In such a situation, the phenomenon of Green Entrepreneurship has emerged as a potential solution through which ecological, economic, and social sustainability can be attained (Demirel et al., 2019; Hall et al., 2010). In addition to the financial contribution made by the Green Entrepreneurship, it is also essentially

**CONTACT** Yaofu Li  [liyaofu12@163.com](mailto:liyaofu12@163.com)

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

helpful in reducing deforestation, improving the quality of the ecology, and enhancing the level of protection of eco-systems (Shepherd & Patzelt, 2011). Because of its effectiveness and viability, different countries are encouraging and have started promoting the Green Entrepreneurship in order to attain a balance between economic, social, and environment (Yi, 2021).

Similar to other countries that are encouraging start-ups and entrepreneurs, China has formulated detailed policies through which the level of greenhouse gases can be controlled. These policies are devised with the consent of local authorities and related bodies, by which propositions for green initiatives are invited, which is referred to as 'Attractive China' (Yi, 2021). One of the outcomes of such policies and strategies was reported in 2017, in which China hosted a University level competition under the banner of 'Internet+', which was the third edition of the series. In this competition, more than 1.5 million students participated, that were belongs to 2241 educational institutions. The outcome of the competition resulted in the selection of more than 370,000 initiatives and projects proposed by over 661 teams (Gao, 2017). After the successful participation in this event, different students have actually started their business as entrepreneurs, which follows the principles of clean and green. Such businesses' business ideas and operations revolve around the consumption of renewable and green energy, smart and intelligent manufacturing, and the development of environmentally friendly materials and products (Yi, 2021). There is no doubt that the professional development of academic curricula related to green entrepreneurship and the subsequent delivery of such knowledge through academic insinuations have broadened the scope and size of the Green Entrepreneurship.

The phenomenon of Green Entrepreneurship has been recognized as a phenomenon which is relatively recent and new (Burzyńska et al., 2018). This phenomenon is a combination of two terms, environment and entrepreneurship, which were initially coined in the 1990s (Bennett, 1991; Blue, 1990). With the passage of time, the operationalization of this phenomenon is also evolved, whereas researchers have not reached to a consensus over its definition (Yi, 2021). In fact, a thorough literature review by Gast et al. (2017) has summarized different terms used by different researchers in the existing literature that are intended to measure the same phenomena. These terms include ecologically sustainable entrepreneurship, environment entrepreneurship, eco-entrepreneurship, and sustainable entrepreneurship (Burzyńska et al., 2018). The difference in the operationalization of the studied phenomena includes green entrepreneurship by Blue (1990), according to which the concept is about the development of products and services that complies with the principles of environmental protection, whereas the nature of business in ecology driven rather than mere profit-driven (Jolink & Niesten, 2015). On the other hand, Ada Domańska and Zajkowski (2018) expand the scope of the phenomena and further elaborate it by integrating the market orientation, innovation and creativity, and other related processes which assist in the transformation towards environmental preservation management and greener and cleaner production technologies.

The research related to green entrepreneurship precisely related to students' acceptance is quite limited. Though the addition of students in the context of green entrepreneurship is welcomed and is regarded as a significant and major addition

(Yi, 2021). However, there is a need to explore the determinants that enhance the level of students' green entrepreneurship behavior. These determinants can include intrinsic as well as extrinsic factors. For instance, for a student to pursue the green entrepreneurship, the intrinsic motivation is extremely important, whereas if the academic institutions are providing sufficient assistance and support, then the execution of such environmental initiatives and start-ups will become flawless and efficient (Hameed et al., 2021). However, intrinsic motivation and extrinsic university support will require an individual to raise and carry forward his commitment. For that, an individual needs to have a sound education, which is the responsibility of the academic institutions; he must possess technological proficiency so that he can cope-up the challenges and technological advancements of the market, whereas he must possess a sufficient level of concern and awareness regarding the damage that is being done to the ecology and society (Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). Hence the current study intends to seek the answers of the following research questions.

RQ1: To what extent Entrepreneurship Education is helpful in enhancing the University Support for Green Entrepreneurship, Entrepreneurial Motivation, and Green Entrepreneurial Behavior?

RQ2: To what extent Perceived-ability to use Technology is helpful in enhancing the University Support for Green Entrepreneurship, Entrepreneurial Motivation, and Green Entrepreneurial Behavior?

RQ3: To what extent Commitment to the Environment is helpful in enhancing the University Support for Green Entrepreneurship, Entrepreneurial Motivation, and Green Entrepreneurial Behavior?

For seeking the answers to the aforementioned research questions, the remaining study is organized as follows, the next section discusses the proposition of the hypotheses, followed by methodology, results, and estimations, whereas in the last, the study is concluded and recommendations are proposed.

## **2. Literature review**

### **2.1. Theoretical background**

Theoretically, the current study is grounded on the Flow Theory which is proposed by Csikszentmihalyi (1975), stating that 'the state in which people are so intensely involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it'. This theory highlights the triggers of motivation, which can be intrinsic or extrinsic, which undoubtedly lead to the desired outcome and lead the individual to perform a certain behavior (Csikszentmihalyi, 1975). In the context of the current study, the flow theory states the understanding that the students who are motivated environmentally require triggers like university support, education, and skills that enhance their level of motivation toward Green Entrepreneurial Behavior (Mustafa et al., 2016, Waris et al., 2021).

## ***2.2. Entrepreneurship education with university support for green entrepreneurship, entrepreneurial motivation and green entrepreneurial behavior***

Entrepreneurship Education is the combination of concepts, knowledge and understandings that is precisely related to the entrepreneurship, which is given to the students interested in the said discipline with an objective to enhance their skills and expertise in the said area (Wardana et al., 2020, Anjum et al., 2021). These educational programs enable the students pursuing the education to expand their level of understanding in accordance with the market opportunities and treats so that they can properly understand their strengths and weaknesses (Donald et al., 2019). Because of the effectiveness and importance of the educational programs involving entrepreneurship education, researchers have shown their satisfaction and confidence in terms of the legitimacy that transform the respective students' capabilities for financial, social and environmental sustainability (UNESCO, 2009). It has been reported that the newer generations are found to be more conscious and concerned with respect to the ecological wellbeing (Delmar & Wiklund, 2008), which motivates them to take environmental initiatives by fulfilling their environment and social responsibilities with due diligence (Alam et al., 2019). In addition to this, when these students are being taught in the educational institutions and universities, apart from the curricula and tasks related to the courses they are enrolled, the assistance and support from the universities and their respective management are also required for the skills development (Hameed et al., 2021). This assistance and support include creating and developing new businesses and taking environmental initiatives that can provide further employment opportunities and helps in poverty alleviation (Bergmann et al., 2016; Etkowitz, 2004). On the other hand, the provision of Entrepreneurship Education also assists in transforming the individual's aptitude and behavior toward entrepreneurship (Robichaud et al., 2001). Hence it has been proposed as:

- H1: Entrepreneurship Education is helpful in enhancing the University Support for Green Entrepreneurship.
- H2: Entrepreneurship Education is helpful in enhancing the Entrepreneurial Motivation.
- H3: Entrepreneurship Education is helpful in enhancing the Green Entrepreneurial Behavior.

## ***2.3. Perceived-ability to use technology with university support for green entrepreneurship, entrepreneurial motivation, and green entrepreneurial behavior***

In the era of technological advancements, the survival of an individual will become extremely difficult if he/she lacks technology proficiency (Rauf et al., 2021). Similarly, for a student pursuing an Entrepreneurship education, technology becomes extremely crucial as it enables the student to remain updated with the recent market changes (Lackéus & Middleton, 2015). In addition, a comparative study conducted by Zhang

et al. (2014) reported that students with technological proficiency are reported to have relatively higher emotional intelligence levels than those with a lack of technological proficiency. On the other hand, in the educational institutions, it is a sign of professionalism and sophistication when the knowledge transfer is being made with a higher level of technology usage (Fekete, 2021). This does not mean that institutions are equipped with the recent technological hardware and machines; rather, the institutions should have resourceful individuals who can assist in creating and delivering the education while developing the technological proficiency (McKenzie, 2001).

Moreover, researchers have highlighted that for developing an entrepreneurial mindset, technology's availability, usage, and proficiency are essential (Secundo et al., 2021). Since technology assists in removing the conventional lengthy processes and unnecessary paperwork, an integration of technology also benefits the ecology (Rauf et al., 2021). Hence for an environmental-based entrepreneurs, the technology proficiency becomes crucial and important (Guerrero et al., 2020). Similarly, a student pursuing entrepreneurship and developing technological proficiency at the same time, will also get assistance from the university, whereas his level of motivation and aptitude towards the environment and ecological-friendly entrepreneurship also enhances (Hameed et al., 2021; Rauf et al., 2021). Hence it is assumed that:

- H4: Perceived-ability to use Technology is helpful in enhancing the University Support for Green Entrepreneurship.
- H5: Perceived-ability to use Technology is helpful in enhancing the Entrepreneurial Motivation.
- H6: Perceived-ability to use Technology is helpful in enhancing the Green Entrepreneurial Behavior.

#### ***2.4. Commitment to the environment with university support for green entrepreneurship, entrepreneurial motivation, and green entrepreneurial behavior***

Commitment to the Environment is explained and considered by the researchers as the psychological attachment to the issues pertaining to the ecology and environment (Davis et al., 2009). From an organizational perspective, it leads the organization to have a sustainable competitive advantage which further enables in building of a positive green of the firm in the eyes of the consumers (Ekawati et al., 2017). Management committed to the ecology and environment will eventually transform the existing operations of the business into more environment friendly by eliminating waste and processes that cause a higher level of greenhouse gas emissions and destruction to the environment (Robichaud et al., 2001; Wiklund & Shepherd, 2003). Hence, this understanding regarding green and clean needs to be inculcated among the students during their academic life or professional learning and development (Shen, 2008). Precisely for meeting the changing needs, universities provide different kinds of support and assistance like incubation centers, etc., (Chedli, 2016, Yi, 2021), which enhance the ability of the students not just to think economically or financially

but also to think ecologically (Davis et al., 2009; Yi, 2021). Hence it can be said that when the students demonstrate a higher level of commitment to the environment, it will force the universities to take environmental initiatives and support the green and clean enterprises (Hameed et al., 2021). In addition to this, when students are more inclined to have environmental sustainability, it will identify the market needs and address them through creative solutions to the market problems by keeping the environmental costs minimal (Suasana & Ekawati, 2018). Such kind of pro-environment aptitude of the students is being highly determined and driven by the student's commitment to the ecology and environment. Hence it is assumed that:

H7: Commitment to the Environment is helpful in enhancing the University Support for Green Entrepreneurship.

H8: Commitment to the Environment is helpful in enhancing the Entrepreneurial Motivation.

H9: Commitment to the Environment is helpful in enhancing the Green Entrepreneurial Behavior.

### ***2.5. University support for green entrepreneurship and entrepreneurial motivation with green entrepreneurial behavior***

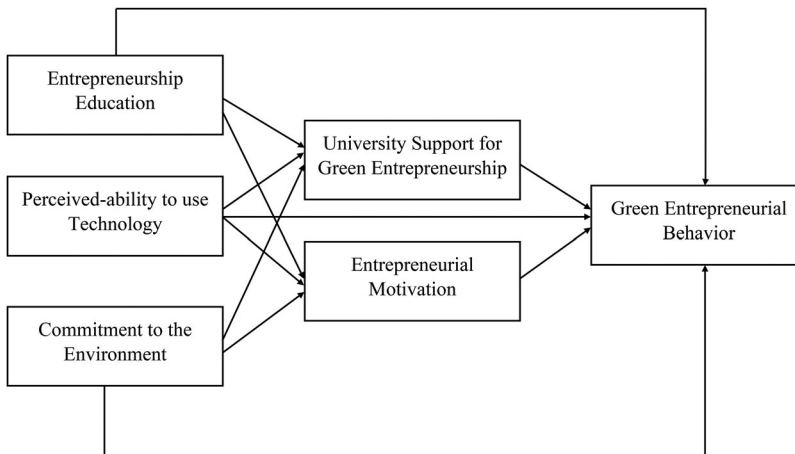
The creation of new business is highly fueled by the universities and their assistance and support which is provided for better fulfillment of needs and profit maximization at the minimal ecological costs (Bergmann et al., 2016; Etzkowitz, 2004). This is because universities have already been recognized as the source and resource for fostering ecological concerns among the students (Hameed et al., 2021). In addition to this, the universities' support also enhances the level of sustainable development in the market through the provision of incubators, green start-ups, and the transfer of sustainable knowledge (Anjum et al., 2021; Wagner et al., 2021; Yi, 2021). In addition to this, the success of any business is highly dependent on the knowledge and expertise of the individual; hence green assistance by the university to their students also enlarges the green understandings of the potential entrepreneurs (Rideout & Gray, 2013). On the other hand, for an individual to start a new enterprise, a sufficient level of motivation is regarded as an important ingredient (Anjum et al., 2021; Jwara & Hoque, 2018). The entrepreneurs' motivation keeps them intact with the formulation of business strategy to the execution so that the launched ventures become sustainable (Collins et al., 2004; Krueger et al., 2000). Hence, when entrepreneurs have higher motivation levels, they are more likely to develop their green aptitude for safeguarding and preserving the ecology and environment (Rekha et al., 2015; Van der Zwan et al., 2012). Hence it is assumed that (Figure 1):

H10: University Support for Green Entrepreneurship is helpful in enhancing the Green Entrepreneurial Behavior.

H11: Entrepreneurial Motivation is helpful in enhancing the Green Entrepreneurial Behavior.

The hypotheses proposed are graphically shown as Figure 1.





**Figure 1.** Framework of the study.  
Source: Authors' Construction.

### 3. Methodology

In the scenario where a research study is composed of propositions of hypotheses, after recognizing the problem statement and a thorough literature review, the quantitative research approach is more appropriate (Cooper et al., 2006). This kind of research involves and based on the quantitative data where the outcome is generated through the application of certain mathematical and statistical analysis. Precisely, within the quantitative research approach, the most common is the survey research design in which there is a collection of data through the assistance of the questionnaire, which is addressed to the potential targeted respondents, and then the statistical analysis is applied on the said collected data. This research design is mostly followed because of its easiness, time efficiency, and cost-effectiveness. However, its operationalization needs to be done carefully; failure to do so could lead to unwanted biases (Podsakoff et al., 2003). For this, Hulland et al. (2018) have identified various concerns and proposed suggestions to overcome the highlighted concerns precisely related to the research design involving survey methodologies. In addition, the procedural remedies recommended by Podsakoff et al. (2012) were thoroughly considered to eliminate the potential unwanted biases during the conduction of the present study.

For designing the survey questionnaire, the present study relied on the adapted scales because of their reported legitimacy and assured validity. The questions for having the responses against the studied phenomena, respondents were asked to respond with their level of agreement on a 5-point Likert Scale. In this Likert Scale, '1 represents Strongly Disagree', '2 represents Disagree', '3 represents neither Disagree nor Agree', '4 represents Agree', and '5 represents Strongly Agree'. The sources of the adapted scales, along with the number of measuring items used, to ascertain the respondents' responses against the studied phenomena, are listed in Table 1.

For the purpose of collecting the data from the potential respondents, which in the present study are the students from higher education institutions in China who are being taught the subjects of Entrepreneurship, 800 questionnaires were distributed



**Table 1.** Source of measures.

Constructs	Number of Items	Sources
Entrepreneurship Education	6	Denanyoh et al. (2015) and Opoku-Antwi et al. (2012)
Perceived-ability to use Technology	4	Fekete (2021)
Commitment to the Environment	7	Alcock (2012)
University Support for Green Entrepreneurship	4	Saeed et al. (2018)
Entrepreneurial Motivation	8	Taormina and Lao (2007)
Green Entrepreneurial Behavior	5	Kautonen et al. (2015)

among them. The Chinese students belonged to both gender, and enrolled in different levels of graduation, whereas they also possess the belonging from different academic disciplines like Business, Computer Sciences and Engineering, etc. from the circulated 800 questionnaires, 638 were received back. At the stage of data screening, in accordance with the propositions by Hair et al. (2010), 151 questionnaires were discarded because of having missing values and were identified as univariate and multivariate outliers.

The final data comprised of 487 responses. As already discussed, the current study is based on the students getting an education in green entrepreneurship in the academic institutions. Therefore the data is collected from the students respectively. Among the final collected data, 200 students have reported their gender as females, which constitutes 41% of the data, whereas 287 of them have reported themselves as males, which constitutes 59% of the data. In addition to this, the division of data in terms of age reported that 98 of the respondents had categorized themselves from the age group of 20 or less years, which constitutes 20% of the data, and 183 of the respondents have categorized themselves from the age group of 21-30 years which constitutes 38% of the data, 153 of the respondents have categorized themselves from the age group of 31-40 years which constitutes 31% of the data, and 53 of the respondents have categorized themselves from the age group of 41 and above which constitutes 11% of the data.

In terms of the level of education, 143 of the respondents have reported themselves as Undergraduates, which constitutes 29% of the data, 178 of the respondents have reported themselves as Graduates, which constitutes 37% of the data, 102 of the respondents have reported themselves as Post-graduates which constitutes 21% of the data, whereas 64 of the students have reported their education level other than mentioned above. In terms of belonging to the academic disciplines, 47 of the respondents have reported themselves as enrolled in the Engineering program, which constitutes 10% of the data, and 156 of the respondents have reported themselves as enrolled in the Business program, which constitutes 32% of the data, 93 of the respondents have reported themselves as enrolled in Social Sciences program which constitutes 19% of the data, 89 of the respondents have reported themselves as enrolled in Computer Sciences program which constitutes 18% of the data, 69 of the respondents have reported themselves as enrolled in Media Studies program which constitutes 14% of the data, whereas 33 of the respondents have reported themselves as enrolled in the programs other than mentioned above, which constitutes 7% of the data. The decomposition of the demographic profiles are summarized in [Table 2](#).

**Table 2.** Descriptive statistics.

		Frequency	Percent
Gender	Female	200	41%
	Male	287	59%
	Total	487	100%
Age		Frequency	Percent
	20 or less years	98	20%
	21-30 years	183	38%
	31-40 years	153	31%
	41 and above	53	11%
	Total	487	100%
Education		Frequency	Percent
	Undergraduate	143	29%
	Graduate	178	37%
	Post Graduate	102	21%
	Others	64	13%
	Total	487	100%
Majors		Frequency	Percent
	Engineering	47	10%
	Business	156	32%
	Social Science	93	19%
	Computer Sciences	89	18%
	Media Studies	69	14%
	Others	33	7%
	Total	487	100%

Source: Authors estimation.

## 4. Estimations and results

In the present study, the relationships proposed among the variables were assessed through the second-generation statistical technique named as 'Partial Least Squares-Structural Equation Modeling' (PLS-SEM). This technique is known for its higher level of predictability and variation explanation even in the critical conditions like complex models, non-normal data and relatively smaller sample sizes (Hair et al., 2019). In this technique, prior to understanding the kind of relationships that studied phenomena possess, the inner and outer models of the studied models need to be evaluated (Hair et al., 2016). Moreover, the application of PLS-SEM is made through the assistance of SamrtPLS software which was developed by Ringle et al. (2015).

### 4.1. Assessment of the outer model

In the outer model, which is also referred to as Measurement Model, the relationships of the observed variables against which the data is collected from the respondents are assessed with their respective latent variables, which the observed variables intend to measure. This outer model is further assessed by ensuring convergent and discriminant validity. The convergent validity entails the level of convergence that the observed variables must possess with their respective group of observed variables (Mehmood & Najmi, 2017). The assessment of convergent validity is made through three criteria. The internal consistency is further assessed by Cronbach's Alpha and Composite Reliability, for which the suggested threshold by Hair et al., (2016) is 0.7. The factor loadings, for which the suggested threshold by Hair et al., (2016) is also 0.7. The 'Average Variance Extracted' (AVE) for which the suggested threshold by Hair et al.,

**Table 3.** Measurement model results.

Variables	Items	Factor Loadings	Cronbach's Alpha	Composite Reliability	AVE
Entrepreneurship Education	EDU1	0.790	0.788	0.767	0.649
	EDU2	0.820			
	EDU3	0.748			
	EDU4	0.753			
	EDU5	0.808			
	EDU6	0.741			
Perceived-ability to use Technology	TEC1	0.828	0.763	0.778	0.631
	TEC2	0.847			
	TEC3	0.831			
	TEC4	0.824			
Commitment to the Environment	CMT1	0.822	0.814	0.802	0.619
	CMT2	0.845			
	CMT3	0.777			
	CMT4	0.741			
	CMT5	0.733			
	CMT6	0.776			
	CMT7	0.795			
University Support for Green Entrepreneurship	SUP1	0.841	0.830	0.765	0.588
	SUP2	0.818			
	SUP3	0.833			
	SUP4	0.732			
Entrepreneurial Motivation	MOT1	0.786	0.831	0.710	0.550
	MOT2	0.735			
	MOT3	0.786			
	MOT4	0.832			
	MOT5	0.772			
	MOT6	0.776			
	MOT7	0.840			
	MOT8	0.772			
Green Entrepreneurial Behavior	BEH1	0.737	0.839	0.718	0.517
	BEH2	0.813			
	BEH3	0.803			
	BEH4	0.797			
	BEH5	0.732			

Source: Authors estimation.

(2016) is also 0.5. The outcome mentioned in Table 3 clearly depicts meeting the discussed criteria against their respective thresholds.

On the other hand, the discriminant validity entails the level of divergence that the observed variables of a group must possess from the observed variables of the other group (Mehmood & Najmi, 2017). It is assessed by three criteria. The first criteria is cross-loadings, which according to Gefen and Straub (2005) must have a difference of greater than 0.1. The outcome mentioned in Table 4 clearly depicts meeting the discussed criteria of Cross loadings against their respective thresholds.

The other criteria for ensuring the discriminant validity is the Fornell-Larcker criterion proposed by the Fornell and Larcker (1981). As per this criterion, an individual construct's square root of AVE must be higher than the values of the correlations, which is possessed by that particular construct with the other constructs of the same model. Referring to Table 5, the value listed at the diagonal is the square root of AVE, whereas all of the other values are the values of the correlations. Thus the outcome mentioned in Table 5 clearly depicts the meeting of the discussed criteria of Fornell and Larcker (1981) against the respective threshold.

**Table 4.** Results of loadings and cross loadings.

Variable	EDU	TEC	CMT	SUP	MOT	BEH
Entrepreneurship Education	<b>0.790</b>	0.264	0.278	0.285	0.268	0.274
	<b>0.820</b>	0.318	0.236	0.254	0.305	0.250
	<b>0.748</b>	0.314	0.326	0.281	0.251	0.313
	<b>0.753</b>	0.299	0.275	0.312	0.306	0.316
	<b>0.808</b>	0.301	0.256	0.306	0.329	0.302
Perceived-ability to use Technology	<b>0.741</b>	0.291	0.304	0.278	0.266	0.306
	0.306	<b>0.828</b>	0.309	0.272	0.295	0.269
	0.293	<b>0.847</b>	0.288	0.287	0.256	0.268
	0.322	<b>0.831</b>	0.293	0.325	0.266	0.327
Commitment to the Environment	0.302	<b>0.824</b>	0.239	0.329	0.308	0.235
	0.292	0.259	<b>0.822</b>	0.330	0.308	0.321
	0.325	0.240	<b>0.845</b>	0.278	0.258	0.265
	0.231	0.233	<b>0.777</b>	0.311	0.233	0.269
	0.310	0.319	<b>0.741</b>	0.263	0.319	0.278
University Support for Green Entrepreneurship	0.284	0.288	<b>0.733</b>	0.292	0.241	0.246
	0.281	0.278	<b>0.776</b>	0.289	0.250	0.271
	0.292	0.275	<b>0.795</b>	0.326	0.255	0.255
	0.320	0.252	0.310	<b>0.841</b>	0.289	0.282
	0.318	0.290	0.263	<b>0.818</b>	0.319	0.261
Entrepreneurial Motivation	0.264	0.299	0.318	<b>0.833</b>	0.242	0.237
	0.241	0.303	0.282	<b>0.732</b>	0.265	0.249
	0.317	0.311	0.243	0.304	<b>0.786</b>	0.234
	0.281	0.326	0.266	0.284	<b>0.735</b>	0.291
	0.251	0.327	0.293	0.285	0.786	0.237
Green Entrepreneurial Behavior	0.312	0.315	0.278	0.245	0.832	0.316
	0.310	0.289	0.271	0.241	0.772	0.251
	0.286	0.241	0.231	0.291	0.776	0.277
	0.256	0.279	0.325	0.327	0.840	0.265
	0.315	0.328	0.302	0.300	0.772	0.282
Green Entrepreneurial Behavior	0.238	0.298	0.289	0.301	0.239	<b>0.737</b>
	0.282	0.300	0.275	0.284	0.261	<b>0.813</b>
	0.330	0.254	0.314	0.252	0.277	<b>0.803</b>
	0.280	0.275	0.237	0.320	0.301	<b>0.797</b>
	0.261	0.307	0.238	0.231	0.283	<b>0.732</b>

Source: Authors estimation.

**Table 5.** Discriminant validity Fornell-Larcker criterion.

	EDU	TEC	CMT	SUP	MOT	BEH
EDU	<b>0.805</b>					
TEC	0.583	<b>0.794</b>				
CMT	0.489	0.437	<b>0.787</b>			
SUP	0.347	0.344	0.469	<b>0.767</b>		
MOT	0.357	0.444	0.390	0.494	<b>0.742</b>	
BEH	0.355	0.546	0.509	0.315	0.425	<b>0.719</b>

Source: Authors estimation.

The last criteria utilized for the assessment of discriminant validity is the 'Heterotrait-Monotrait ratio of correlations' (HTMT) which is proposed by Henseler et al. (2015). Though this criterion is relatively new, it has shown acceptance and legitimacy across diverse research models belonging to different research areas. The cut-off value according to this criterion is 0.85. The outcome mentioned in Table 6 clearly depicts the meeting of the discussed criteria of HTMT against the respective threshold.

**Table 6.** Results of HTMT ratio of correlations.

	EDU	TEC	CMT	SUP	MOT	BEH
<b>EDU</b>						
<b>TEC</b>	0.640					
<b>CMT</b>	0.639	0.496				
<b>SUP</b>	0.702	0.455	0.485			
<b>MOT</b>	0.462	0.416		0.790		
<b>BEH</b>	0.622	0.593	0.626	0.530	0.480	

Source: Authors estimation.

**Table 7.** Predictive power of construct.

	R-Square	Q-Square
<b>SUP</b>	0.229	0.129
<b>MOT</b>	0.286	0.122
<b>BEH</b>	0.155	0.124

Source: Authors estimation.

#### 4.2. Assessment of the inner model

After the assessment of the outer model, in the second phase, the inner model is assessed in which the relationships among the latent variables of the research model are assessed. At this stage, there are two criteria that are used in the present study. These are ‘coefficient of determination’ and ‘Cross-Validated Redundancy’, which are represented by R-Square and Q-Square, respectively. For R-Square, the propositions by Cohen (1988) state that the generated outcome should be considered as weak if it is less than 0.02 whereas it should be considered as substantial if it is greater than 0.26. However, any value which is in between the aforementioned ranges should be considered as moderate. On the other hand, for Q-Square, the acceptable threshold is a value exceeding zero, as Hair et al., (2016) discussed. The outcome mentioned in Table 7 clearly depicts meeting the discussed criteria of by R-Square and Q-Square against the respective thresholds, respectively.

#### 4.3. Hypotheses testing

After the assessment of the inner and outer models of the studied model, the proposed hypotheses are assessed. Firstly, the effects of Entrepreneurship Education (EDU) with University Support for Green Entrepreneurship (SUP), Entrepreneurial Motivation (MOT), Green Entrepreneurial Behavior (BEH) are assessed. For EDU with SUP, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.134$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in EDU can enhance the level of SUP by 13.4%. This means that when an individual is being provided with a sound education for entrepreneurship in the university, in addition to the said education, the university also provides other assistance and support that will be helpful for the student in making the entrepreneurship more environmentally friendly and green. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). For EDU with MOT, the generated outcome resulted in a positive and significant level of the

**Table 8.** Results of path coefficients.

Hypothesized Path	Path Coefficient	C.R	P-Value	Remarks
EDU → SUP	0.134	9.298	0.000	Supported
EDU → MOT	0.242	10.089	0.000	Supported
EDU → BEH	0.159	8.079	0.000	Supported
TEC → SUP	0.340	8.993	0.000	Supported
TEC → MOT	0.241	6.267	0.000	Supported
TEC → BEH	0.130	9.009	0.000	Supported
CMT → SUP	0.116	8.294	0.000	Supported
CMT → MOT	0.285	11.922	0.000	Supported
CMT → BEH	0.334	8.289	0.000	Supported
SUP → BEH	0.186	9.809	0.000	Supported
MOT → BEH	0.328	9.271	0.000	Supported

Note: Level of significance (5% i.e. 0.050).

Source: Authors' estimation.

association at 5% level of significance ( $\beta = 0.242$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in EDU can enhance the level of MOT by 24.2%. This means that when an individual is provided with the sound education for entrepreneurship in the university, it will increase the level of motivation, commitment, and persuasion of the student to pursue the entrepreneurship. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). On the other hand, For EDU with BEH, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.159$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in EDU can enhance the level of BEH by 15.9%. This means that when an individual is provided with a sound education for entrepreneurship in the university, it will enhance and assist the student to have a higher level of behavior regarding entrepreneurship, which is also environmentally friendly. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). The generated results of the hypotheses discussed above, are listed in Table 8.

Secondly, the effects of Perceived-ability to use Technology (TEC) with University Support for Green Entrepreneurship (SUP), Entrepreneurial Motivation (MOT), Green Entrepreneurial Behavior (BEH) is assessed. For TEC with SUP, the generated outcome resulted in a positive and significant level of association at 5% level of significance ( $\beta = 0.340$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in TEC can enhance the level of SUP by 34%. This means that when an individual is proficient in using technology in the university, in addition to the routine education, the university also provides other assistance and support that will be helpful for the student for making the entrepreneurship more environmentally friendly and green. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). For TEC with MOT, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.241$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in TEC can enhance the level of MOT by 24.1%. This means that when an individual is proficient in using technology in the university, it will increase the level of motivation, commitment, and

persuasion of the student to pursue the entrepreneurship. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). On the other hand, For TEC with BEH, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.130$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in TEC can enhance the level of BEH by 13%. This means that when an individual is proficient in using technology in the university, it will enhance and assist the student to have a higher level of behavior regarding entrepreneurship which is also environmentally friendly. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). The generated results of the hypotheses discussed above, are listed in Table 8.

Thirdly, the effects of Commitment to the Environment (CMT) with University Support for Green Entrepreneurship (SUP), Entrepreneurial Motivation (MOT), Green Entrepreneurial Behavior (BEH) is assessed. For CMT with SUP, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.116$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in CMT can enhance the level of SUP by 11.6%. This means that when an individual is concerned and committed with adverse effects that are caused to the environment due to the negligence of the people and society, in addition to the routine education, the university also provides other assistance and support that will be helpful for the student for making the entrepreneurship more environmentally friendly and green. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). For CMT with MOT, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.285$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in TEC can enhance the level of MOT by 28.5%. This means that when an individual is concerned and committed to adverse effects caused to the environment due to the negligence of the people and society, it will increase the level of motivation, commitment, and persuasion of the student to pursue entrepreneurship. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). On the other hand, For CMT with BEH, the generated outcome resulted in a positive and significant level of association at 5% level of significance ( $\beta = 0.334$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in CMT can enhance the level of BEH by 33.4%. This means that when an individual is concerned and committed with adverse effects caused to the environment due to the negligence of the people and society, it will enhance and assist the student to have higher level of behavior regarding entrepreneurship which is also environmentally friendly. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). The generated results of the hypotheses discussed above, are listed in Table 8.

Lastly, the effects of University Support for Green Entrepreneurship (SUP) and Entrepreneurial Motivation (MOT), with Green Entrepreneurial Behavior (BEH) is



assessed. For SUP with BEH, the generated outcome resulted in a positive and significant level of association at 5% level of significance ( $\beta = 0.186$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in SUP can enhance the level of BEH by 18.6%. This means that when the university is supporting an individual by various initiatives, which are being taken for promoting entrepreneurship that is for environment preservation and conservation, it will enhance and assist the student to have a higher level of behavior regarding entrepreneurship which is also environmental friendly. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). On the other hand, for MOT with BEH, the generated outcome resulted in a positive and significant level of the association at 5% level of significance ( $\beta = 0.328$ ,  $p < 0.05$ ). The statistical interpretation of this outcome is 1% increase in MOT can enhance the level of BEH by 32.8%. This means that when an individual possesses a higher level of motivation, commitment, and persuasion to pursue the entrepreneurship, it will enhance and assist the student to have a higher level of behavior regarding entrepreneurship which is also environmentally friendly. These findings are coherent with the earlier studies that have reported the similar outcome (see Anjum et al., 2021; Hameed et al., 2021; Rauf et al., 2021; Yi, 2021). The generated results of the hypotheses discussed above are listed in Table 8.

## 5. Conclusion and recommendation

The phenomenon of Green Entrepreneurship is a combination of two terms: environment and entrepreneurship, which were initially coined in the start of 1990s. The concept is about development of products and services that complies to the principles of environment protection whereas the nature of business in ecology driven rather mere profit driven. With the passage of time, the operationalization of this phenomenon has evolved. In a time of environmental destruction, global warming, and continuous rise in the earth's temperature, Green Entrepreneurship has emerged as a potential solution through which ecological, economic, and social sustainability can be attained.

Different countries are encouraging and have started promoting the Green Entrepreneurship in order to attain a balance between economic, social, and environment. Though the quality of education is highly dependent on the institution, similarly for broadening and expanding the Green Entrepreneurship, there is also a need for quality entrepreneurship education. In addition to this, a student must possess technological proficiency so that he can cope-up the challenges and technological advancements of the market, whereas he must possess a sufficient level of concern and awareness regarding the damage that is being done to the ecology and society. On the other hand, for Green Entrepreneurship the intrinsic motivation of the student is extremely important, whereas if the academic institutions are providing sufficient assistance and support, then the execution of such environmental initiatives and start-ups will become flawless and efficient.

Hence the current study is operationalized in order to understand the contribution of Entrepreneurial Motivation and University Support in enhancing Green

Entrepreneurial Behavior powered by Entrepreneurship Education, Perceived-ability to use Technology, and Commitment to the Environment. On the dataset of 487 students from Chinese education institutions, the application of PLS-SEM reported significant and positive associations among the proposed hypotheses. Precisely, EDU, TEC, and CMT are reported to enhance the level of SUP, MOT, and BEH, whereas the role of SUP and MOT in enhancing BEH is also reported.

Based on the findings, the current study proposes different managerial implications. Firstly universities need to enhance the quality of entrepreneurship education, which must possess a higher level of sustainability objectives. These objectives should comply with the United Nations' proposed Sustainable Development Goals. Secondly, the institutions need to enhance their level of assistance and support in bringing green and environmental initiatives and start-ups. Thirdly, the university should have a sound integration of technology usage within their academic programs so that students can develop their technology proficiency. Fourthly, the university should also develop the psychological capabilities of the students so that their motivation and commitment to the environment is encouraged, developed, and accordingly promoted. Moreover, it is highly recommended that the curricula be updated regularly so that it keeps on improving over time by incorporating the aspects of ecology, society, and economy. Lastly, proper awareness of environmental devastation should also be communicated to the students to develop a sense of responsibility towards ecology and the environment.

Based on the limitations, there are multiple future recommendations that the current study offer. Firstly, the phenomenon of Green Entrepreneurship is an under-explored area and there is a dearth of literature explaining the level of association of this phenomenon with the others. Moreover, the current study has focused only on three determinants: EDU, TEC, and CMT. Hence more exploration of determinants can enhance the literature. Statistically, the current study only explains the level of association, which are linear. Application of statistical techniques which can explain the nonlinear relationships among the variables can be a good avenue. In addition, there is a need to have an in-depth exploration that can be fulfilled through the application of a qualitative research approach, where in-depth interviews of the experts can enrich the existing understanding of the green entrepreneurship. Furthermore, the delivery of entrepreneurial education is an important task that needs to be further explored from the perspective of the resource person, which includes teachers, course facilitators, and trainers. Lastly, the current study is focused on explaining the environment perspective only. Hence, more contributions in the literature can be made by linking the studied framework with all three aspects of sustainability, including economic and social as well as the environment.

### **Disclosure statement**

No potential conflict of interest was reported by the authors.

### **Funding**

This work was supported by Jiangsu higher education reform research project: Research on the transformation of college students in the process of survival Entrepreneurship (2019jsjg215).

## ORCID

Yaofu Li  <http://orcid.org/0000-0002-9132-5243>  
 Nur Rasyidah Mohd Nordin  <http://orcid.org/0000-0001-7954-0250>  
 Shamim Akhter  <http://orcid.org/0000-0002-1815-6973>  
 Tribhuwan Kumar  <http://orcid.org/0000-0001-7259-9364>  
 Musarat Shaheen  <http://orcid.org/0000-0001-7391-6640>

## References

- Ada Domańska, B. Ź., & Zajkowski, R. (2018). Green entrepreneurship as a connector among social, environmental and economic pillars of sustainable development. *Why Some Countries Are More Agile? Problems of Sustainable Development*, 13(2), 67–76.
- Alam, M. Z., Kousar, S., & Rehman, C. (2019). Role of entrepreneurial motivation on entrepreneurial intentions and behaviour: Theory of planned behaviour extension on engineering students in Pakistan. *Journal of Global Entrepreneurship Research*, 9(1), 1–20. <https://doi.org/10.1186/s40497-019-0175-1>
- Alcock, I. (2012). Measuring commitment to environmental sustainability: The development of a valid and reliable measure. *Methodological Innovations Online*, 7(2), 13–26. <https://doi.org/10.4256/mio.2012.008>
- Anjum, T., Heidler, P., Amoozegar, A., & Anees, R. T. (2021). The impact of entrepreneurial passion on the entrepreneurial intention; moderating impact of perception of university support. *Administrative Sciences*, 11(2), 45. <https://doi.org/10.3390/admsci11020045>
- Bennett, S. J. (1991). *Ecopreneuring: The complete guide to small business opportunities from the environmental revolution*. Wiley.
- Bergmann, H., Hundt, C., & Sternberg, R. (2016). What makes student entrepreneurs? On the relevance (and irrelevance) of the university and the regional context for student start-ups. *Small Business Economics*, 47(1), 53–76. <https://doi.org/10.1007/s11187-016-9700-6>
- Blue, J. (1990). *Ecopreneuring: Managing for results*. Scott Foresman.
- Burzyńska, D., Jabłońska, M., & Dziuba, R. (2018). Opportunities and conditions for the development of green entrepreneurship in the polish textile sector. *Fibres and Textiles in Eastern Europe*, 26(2), 13–19. <https://doi.org/10.5604/01.3001.0011.5733>
- Chedli, M. K. E. (2016). Entrepreneurial motivation and performance of enterprises. *Economics, Management and Financial Markets*, 11(1), 175.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Academic Press [Database].
- Collins, C. J., Hanges, P. J., & Locke, E. A. (2004). The relationship of achievement motivation to entrepreneurial behavior: A meta-analysis. *Human Performance*, 17(1), 95–117. [https://doi.org/10.1207/S15327043HUP1701\\_5](https://doi.org/10.1207/S15327043HUP1701_5)
- Cooper, D. R., Schindler, P. S., & Sun, J. (2006). *Business research methods* (Vol. 9, pp. 1–744). Mcgraw-hill.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. Jossey-Bass.
- Davis, J. L., Green, J. D., & Reed, A. (2009). Interdependence with the environment: Commitment, interconnectedness, and environmental behavior. *Journal of Environmental Psychology*, 29(2), 173–180. <https://doi.org/10.1016/j.jenvp.2008.11.001>
- Delmar, F., & Wiklund, J. (2008). The effect of small business managers' growth motivation on firm growth: A longitudinal study. *Entrepreneurship Theory and Practice*, 32(3), 437–457. <https://doi.org/10.1111/j.1540-6520.2008.00235.x>
- Demirel, P., Li, Q. C., Rentocchini, F., & Tamvada, J. P. (2019). Born to be green: New insights into the economics and management of green entrepreneurship. *Small Business Economics*, 52(4), 759–771. <https://doi.org/10.1007/s11187-017-9933-z>

- Denanyoh, R., Adjei, K., & Nyemekye, G. E. (2015). Factors that impact on entrepreneurial intention of tertiary students in Ghana. *International Journal of Business and Social Research*, 5(3), 19–29.
- Donald, W. E., Baruch, Y., & Ashleigh, M. (2019). The undergraduate self-perception of employability: Human capital, careers advice, and career ownership. *Studies in Higher Education*, 44(4), 599–614. <https://doi.org/10.1080/03075079.2017.1387107>
- Etzkowitz, H. (2004). The evolution of the entrepreneurial university. *International Journal of Technology and Globalisation*, 1(1), 64–77.
- Ekawati, N. W., Kertiyasa, N. N., Giantari, G. A. K., & Sariyathi, N. K. (2017). Ecopreneurship and green innovation for the success of new spa products. *Journal of Business and Retail Management Research*, 11(3), 13–24.
- Fekete, I. (2021). Information and Communications Technology (ICT) literacy of Hungarian English majors: A validation study. *Journal of Adult Learning, Knowledge and Innovation*, 4(1), 31–39. <https://doi.org/10.1556/2059.2020.00002>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Gao, B. (2017). Third 'internet+' college students innovation and entrepreneurship competition, The People's Daily.
- Gast, J., Gundolf, K., & Cesinger, B. (2017). Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of Cleaner Production*, 147, 44–56. <https://doi.org/10.1016/j.jclepro.2017.01.065>
- Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information Systems*, 16(1), 5. <https://doi.org/10.17705/1CAIS.01605>
- Guerrero, M., Urbano, D., & Gajón, E. (2020). Entrepreneurial university eco-systems and graduates' career patterns: Do entrepreneurship education programmes and university business incubators matter? *Journal of Management Development*, 39(5), 753–775. <https://doi.org/10.1108/JMD-10-2019-0439>
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.
- Hair, J. F., Black, B., Babin, B., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. *Social Science Electronic Publishing*, 25(5), 439–448.
- Hameed, I., Zaman, U., Waris, I., & Shafique, O. (2021). A serial-mediation model to link entrepreneurship education and green entrepreneurial behavior: Application of resource-based view and flow theory. *International Journal of Environmental Research and Public Health*, 18(2), 550. <https://doi.org/10.3390/ijerph18020550>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hulland, J., Baumgartner, H., & Smith, K. M. (2018). Marketing survey research best practices: Evidence and recommendations from a review of JAMS articles. *Journal of the Academy of Marketing Science*, 46(1), 92–108. <https://doi.org/10.1007/s11747-017-0532-y>
- Jolink, A., & Niesten, E. (2015). Sustainable development and business models of entrepreneurs in the organic food industry. *Business Strategy and the Environment*, 24(6), 386–401. <https://doi.org/10.1002/bse.1826>

- Jwara, N., & Hoque, M. (2018). Entrepreneurial intentions among university students: A case study of Durban University of Technology. *Academy of Entrepreneurship Journal*, 24(3), 1–19.
- Kautonen, T., Van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship theory and practice*, 39(3), 655–674.
- Krueger, N. F., Jr, Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5–6), 411–432. [https://doi.org/10.1016/S0883-9026\(98\)00033-0](https://doi.org/10.1016/S0883-9026(98)00033-0)
- Lackéus, M., & Middleton, K. W. (2015). Venture creation programs: Bridging entrepreneurship education and technology transfer. *Education + Training*, 57(1), 48–73. <https://doi.org/10.1108/ET-02-2013-0013>
- McKenzie, J. (2001). How teachers learn technology best. *From Now On The Educational Technology Journal*, 10(6). <http://www.fno.org/mar01/howlearn.html>.
- Mehmood, S. M., & Najmi, A. (2017). Understanding the impact of service convenience on customer satisfaction in home delivery: Evidence from Pakistan. *International Journal of Electronic Customer Relationship Management*, 11(1), 23–43. <https://doi.org/10.1504/IJECRM.2017.086752>
- Mustafa, M. J., Hernandez, E., Mahon, C., & Chee, L. K. (2016). Entrepreneurial intentions of university students in an emerging economy. *Journal of Entrepreneurship in Emerging Economies*, 8, 162–179.
- Opoku-Antwi, G. L., Amofah, K., Nyamaah-Koffuor, K., & Yakubu, A. (2012). Entrepreneurial intention among senior high school students in the sunyani municipality. *International Review of Management and Marketing*, 2(4), 210–219.
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539–569. <https://doi.org/10.1146/annurev-psych-120710-100452>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Rauf, R., Wijaya, H., & Tari, E. (2021). Entrepreneurship education based on environmental insight: Opportunities and challenges in the new normal era. *Cogent Arts & Humanities*, 8(1), 1945756. <https://doi.org/10.1080/23311983.2021.1945756>
- Rekha, S. K., Ramesh, S., & JayaBharathi, S. (2015). Emphirical study on the relationship between entrepreneurial mindset and the factors affecting intrapreneurship: A study in Indian context. *International Journal of Entrepreneurship*, 19, 53.
- Rideout, E. C., & Gray, D. O. (2013). Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *Journal of Small Business Management*, 51(3), 329–351. <https://doi.org/10.1111/jsbm.12021>
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). *SmartPLS 3*. SmartPLS GmbH.
- Robichaud, Y., McGraw, E., & Alain, R. (2001). Toward the development of a measuring instrument for entrepreneurial motivation. *Journal of Developmental Entrepreneurship*, 6(2), 189.
- Saeed, S., Yousafzai, S., Yani-De-Soriano, M., & Muffatto, M. (2018). The role of perceived university support in the formation of students' entrepreneurial intention. In Adam Lindgreen, Christine Vallaster, François Maon, Shumaila Yousafzai, and Beatriz Palacios Florencio (Eds.), *Sustainable entrepreneurship* (pp. 3–23). Routledge.
- Secundo, G., Mele, G., Del Vecchio, P., Elia, G., Margherita, A., & Ndou, V. (2021). Threat or opportunity? A case study of digital-enabled redesign of entrepreneurship education in the COVID-19 emergency. *Technological Forecasting and Social Change*, 166, 120565. <https://doi.org/10.1016/j.techfore.2020.120565>
- Shen, Y. (2008). The effect of changes and innovation on educational improvement. *International Education Studies*, 1(3), 73–77. <https://doi.org/10.5539/ies.v1n3p73>

- Shepherd, D. A., & Patzelt, H. (2011). The new field of sustainable entrepreneurship: Studying entrepreneurial action linking “what is to be sustained” with “what is to be developed.” *Entrepreneurship: Theory and Practice*, 35(1), 137–163.
- Suasana, I. G. A. K. G., & Ekawati, N. W. (2018). Environmental commitment and green innovation reaching success new products of creative industry in Bali. *Journal of Business and Retail Management Research*, 12(4), 246–250.
- Taormina, R. J., & Lao, S. K. M. (2007). Measuring Chinese entrepreneurial motivation: Personality and environmental influences. *International Journal of Entrepreneurial Behavior & Research*, 13(4), 200–221. <https://doi.org/10.1108/13552550710759997>
- UNESCO (The United Nations Educational, Scientific and Cultural Organization). (2009). *Review of contexts and structures for education for sustainable development*. A.E. Wals (Ed.). UNESCO.
- Wagner, M., Schaltegger, S., Hansen, E. G., & Fichter, K. (2021). University-linked programmes for sustainable entrepreneurship and regional development: How and with what impact? *Small Business Economics*, 56(3), 1141–1158. <https://doi.org/10.1007/s11187-019-00280-4>
- Van der Zwan, P., Verheul, I., & Thurik, A. R. (2012). The entrepreneurial ladder, gender, and regional development. *Small Business Economics*, 39(3), 627–643. <https://doi.org/10.1007/s11187-011-9334-7>
- Wardana, L. W., Narmaditya, B. S., Wibowo, A., Mahendra, A. M., Wibowo, N. A., Harwida, G., & Rohman, A. N. (2020). The impact of entrepreneurship education and students’ entrepreneurial mindset: The mediating role of attitude and self-efficacy. *Heliyon*, 6(9), e04922. <https://doi.org/10.1016/j.heliyon.2020.e04922>
- Waris, I., Farooq, M., Hameed, I., & Shahab, A. (2021). Promoting sustainable ventures among university students in Pakistan: An empirical study based on the theory of planned behavior. *On the Horizon*, 29(1), 1–16. <https://doi.org/10.1108/OTH-10-2020-0035>
- Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13), 1307–1314. <https://doi.org/10.1002/smj.360>
- Yi, G. (2021). From green entrepreneurial intentions to green entrepreneurial behaviors: The role of university entrepreneurial support and external institutional support. *International Entrepreneurship and Management Journal*, 17(2), 963–979. <https://doi.org/10.1007/s11365-020-00649-y>
- Zhang, Y., Duysters, G., & Cloodt, M. (2014). The role of entrepreneurship education as a predictor of university students’ entrepreneurial intention. *International Entrepreneurship and Management Journal*, 10(3), 623–641. <https://doi.org/10.1007/s11365-012-0246-z>