

## GREEN ENTREPRENEURIAL INTENTION OF MBA STUDENTS: A MALAYSIAN STUDY

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**ABSTRACT** – Green entrepreneurship is an emerging phenomenon in business and academic field because it is an essential component in developing green economy. Due to lack of empirical study on green entrepreneurship, our current understanding of the factors that contributes to nurturing green entrepreneurial intention is limited. By employing Theory of Planned Behaviour, this study aims to explore the relationship between predictors of green entrepreneurial intention such as attitude, perceived behavioural control, subjective norms and educational support to green entrepreneurial intention (GEI). The study samples 175 individual MBA students in Malaysia. The study employs Partial Least Squares – SEM to predict GEI and evaluate the contribution of each predictor in the relationships. The model explains 76.1% the variance of Green Entrepreneurial Intention with strong predictive relevance ( $R^2=0.761$ ,  $Q^2=0.537$ ). From the structural model, beta coefficient for Perceived Attitude is 0.392, Perceived Behavioural Control is 0.399, and Perceived Educational Support is 0.169. The results imply that perceived attitude and perceived behavioural control are the key intrinsic determinants whereas education plays instrumental role as an extrinsic determinant to individual interest to become green entrepreneur. The main theoretical implication of this study is confirming the applicability of Theory of Planned Behaviour in explaining GEI with additional variable, Perceived Educational Support. Practically, this research provides education practitioner and policy makers with useful insight on cultivating GEI among MBA students, and directional indication on grooming future green entrepreneurs.

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## INTRODUCTION

Green Entrepreneurship is a growing interest in the field of business studies. It is an entrepreneurship process of venturing into green business. Green business is defined as business activities that produce environmentally sustainable products or services (Pearce & Barbier, 2000). An entrepreneur who is committed to making his business green by adopting environmentally friendly production technology or, who enters a green business by actively involved in producing environmentally friendly products is known as a green entrepreneur (OECD, 2011). On the other hand, the concept of intention is used as an indicator to measure one's willingness on becoming a green entrepreneur. Such disposition to pursue green entrepreneurship is known as GEI (Green Entrepreneurial Intention).

Green entrepreneurs have played a crucial role in the prosperity of the green economy in developing countries such as Turkey, Zambia, Indonesia, and Namibia (Allen & Malin, 2008; Gibbs & O'Neill, 2012; Schaper, 1993), especially in job creation and economic growth (ILO, 2013, 2014). Up to the year 2018, there are approximately 3,000 globally listed companies with exposure to the green economy, rising by approximately 20% since 2009 and covering 30% of globally listed market capitalization. The green economy could represent 7% of the global market capitalisation by 2030, even reach 10% with \$90 trillion in green investment (FTSE Russell, 2018).

The Malaysian government is also keen to advance in green economic development. Between 2010 and 2011, Malaysia's green industries grew by 6% and valued at RM67 billion in 2012. Green projects under the Economic Transformation Programme (ETP) is expected to create RM53 billion in Gross National Income (GNI) by 2020. Among them, the renewable energy sector was expected to create RM70 billion economic outputs, generate 50,000 jobs, and reduce carbon emission by around 40% (Bernama, 2012). As many as 200 green projects have been funded nationwide at a cost of RM2.6 billion by the government in the country's commitment towards reducing the problems of climate change in 2016 (Bernama, 2016). Pursuing green growth for sustainability and resilience is also designated as a key agenda in the 11th Malaysia Plan, which is set to be achieved through sustainable consumption and production concept in government procurement, adoption of green buildings criteria, and green certification. Green procurement is made mandatory for all government ministries and agencies, by targeting at least 20% of government procurement to go green by 2020 (Economic Planning Unit, 2015).

Despite the government's effort to advance in green economic development, Malaysians' involvement in green entrepreneurship is still less than encouraging. Based on MyHijau, an official green labelling scheme endorsed by the government of Malaysia, there are only 487 companies that are certified as green businesses under various compliance

categories with the certification scheme, producing 1,084 types of certified green products or services. At the same time, there are only a total of 2,223 types of products and 273 services, or less than 1% of local businesses that were awarded MyHijau Mark (inclusive of those without green compliance certification) (MGTC, 2018). This indicates low green entrepreneurship among Malaysian businesses, thus making it essential to study the determinants of green entrepreneurship intention (GEI) among the future entrepreneurs in Malaysia.

Acknowledging the importance of nurturing green entrepreneurs for the success of Malaysia's green economy, the Ministry of Higher Education Malaysia has devised the entrepreneurship teaching and learning transformation strategy in the National Higher Education Action Plan 2007-2010 (Zakaria, Yusoff & Madun, 2011). However, the number of green business establishments in Malaysia needs further enhancement to fulfil the Malaysian government's aspiration. There has been very little development of green entrepreneurship education, particularly at the postgraduate level, including business programmes such as Master of Business Administration (MBA), though this claim needs to be empirically proved.

Therefore, this research aims to model the determinants of Malaysian MBA students' green entrepreneurial intention. The MBA students are selected as the subject of study because they are considered as highly potential entrepreneurs since they were approaching a career decision point at the end of MBA programs and are going to return to the employment sector or become an entrepreneur (Shepherd & DeTienne, 2005). Previous researches have studied Malaysian undergraduate students' entrepreneurship intention, but the results are inconclusive, partly because they are at a younger age and have less business or working experience. In relation to that situation, the second reason this study chose MBA graduates is that they are generally more mature and have greater experience; and for some, they enroll in an MBA programme to prepare themselves to venture into business (Sandhu et al., 2011). Some exploratory studies, for instance, the work of Paramashivaiah, Puttaswamy, and Suresh (2013) studied the motivations and barriers perceived by MBA graduates towards green entrepreneurship, even though the study was limited to the basic factor exploration of probable perceptual factors and did not perform further testing of hypotheses on the relationship between the latent variables and GEI. Therefore, a further study must be conducted on the establishment of the explanatory power of educational factors for GEI on MBA students. The green entrepreneurial intention model for this research is conceptualized from the framework of Planned Behaviour Theory.

## LITERATURE REVIEW

### Theory of planned behaviour

Past literature has yet to produce a comprehensive and robust theoretical model to assess the formation of GEI. For entrepreneurial intent studies, the Theory of Planned Behaviour (TPB) emerges as one of the prevalent theoretical models. Intention models were developed based on TPB to explain behavioural activities given its coherent characteristic, parsimonious nature, high generalizability, and robustness as a theoretical framework for understanding and predicting behavior (Krueger et al. 2000). The theoretical model consists of three cognitive variables: attitude toward the behavior, subjective norms, and perceived behavioural control that measures individual intention. Ajzen (1991) explains the relationship between intention and behaviour by describing intention as "indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" under the influence of "motivational factors". Stronger intention to engage in behaviour should likely produce a similar degree of performance.

In practice, the TPB model has been frequently applied in the domain of entrepreneurship. Baron (2004) highlighted that "given the impressive success of a cognitive approach in other fields (e.g., psychology, education), there are grounds for predicting that it may also yield positive results when applied to the field of entrepreneurship". When deciding to become an entrepreneur, one most likely does it voluntarily and consciously (Krueger et al., 2000). The entrepreneurial intention, or the intention to start up, would be a necessary antecedent in performing entrepreneurial behaviors (Fayolle, Gailly, & Lassas-Clerc, 2006; Kolvereid, 1996). There are three fundamental components in Ajzen's TPB model: attitudes, subjective norms, and perceived behavioral control. These components are often referred to as cognitive variables in empirical studies (Liñán & Chen, 2009). Attitudes refer to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991). Iakovleva, Kolver, Eid, and Stephan (2011) explained subjective norms as the perceived social pressure to perform or avo a behavior by a person. It can also be defined as a person's perception of whether a behavior is important in his or her life (Krueger et al., 2000). On the other hand, perceived behavioral control refers to the ability and feasibility to execute a target behavior (Ajzen, 1991).

GEI as a branch of entrepreneurial intention can be explained based on the framework of Ajzen's (1991) Theory of Planned Behavior (TPB). If an individual finds a green entrepreneur to be attractive as a career choice believes that green entrepreneurship brings significant meaning to him, it will increase his intention to become a green entrepreneur. Likewise, an individual will have a stronger desire to become a green entrepreneur if he believes he can manage the challenges and risks associated with green entrepreneurship. If an individual receives stronger support from his surroundings, it is more likely that the said individual will be interested in becoming a green entrepreneur.

### Green entrepreneurial intention

In the early stage, green entrepreneurship was defined as the attitudes of "environmental entrepreneurs" which inform environmental concern that creates relevant areas of value that can be exploited entrepreneurially (Anderson, 1998). Volery (2002) further opined that "green entrepreneurs" should be differed from "environment-conscious entrepreneurs",

where the former are those who are both aware of environmental issues and whose business venture is in the environmental marketplace to pursue environmental-centered opportunities, while the latter are individuals who develop innovation that reduces resource use and environmental impacts. The definition is similar with statements from Isaak (2002), and Pearce and Barbier (2000) that describe green entrepreneurs as individual who seeks to transform a sector of the economy towards sustainability by starting a business in that sector with a green design, green processes and life-long commitment to sustainability. Lacroix and Stamatiou (2007) further refined green entrepreneurs from traditional entrepreneurs by emphasizing their willingness to make a business decision that is both monetarily beneficial as well as makes ecological actions concurrent with social quality. More recently, OECD (2011) concisely explained the concepts as follows: “the term “green entrepreneurship” will be interpreted as “entrepreneurship” in “green” sectors, where “green” refers to specific types of outputs”. The term “green” is defined in a double-faceted manner; the first involves the use of a set of indicators that assess environmental efficiency in production, while the second outlines the types of economic activity in conjunction with environmental goods and services.

The intentionality of green entrepreneurs varies dramatically in the level of significance placed on environmental goal – superseding financial return, equivalent to a financial goal or merely considering it as a secondary factor after business feasibility. The intentionality will separate a true green entrepreneur from ‘accidental ecopreneurs’ - entrepreneurs whose firms operate in an environmentally friendly manner, but more as an unanticipated by-product of other business processes (Schaper, 2005). Limited quantitative GEI studies were found in the literature. Past studies focused mainly on the conceptual rationale of green entrepreneurship (Anderson, 1998; B. Cohen & Winn, 2007; Isaak, 2002; Schick et al., 2002), characteristics of green entrepreneurs (Schaper, 1993, 2005, 2010), current issues and challenges faced by green entrepreneurs (Volery, 2002), model and theoretical framework building (Majid & Koe, 2012; Schaltegger, 2002; York & Venkataraman, 2010), and the motivation and drives of green entrepreneurs (Gagnon, 2012; Kirkwood & Walton, 2010, 2014).

Few quantitative studies were focused on the formation of green entrepreneurial intent or orientation among SME managers and owners (Koe, Omar, & Majid, 2014; Koe et al., 2015; Koe & Majid, 2013) and student populations (Ahmad et al., 2015; Kuckertz & Wagner, 2010; Paramashivaiah et al., 2013; Sudyasjayanti, 2017; Yoon & Hui, 2015). A study in India examined the GEI of engineering and MBA graduates which found positive perception towards green entrepreneurship and green business opportunity, on top of the perceived barriers concern with marketing green products and acquiring financial assistance (Paramashivaiah et al., 2013). A recent Malaysian study by Ahmad et al. (2015) investigated the inclination towards green entrepreneurship among Generation Y undergraduates. Among the variables examined, sustainable orientation and sustainable education were found to significantly relate to the inclination, while self-efficacy was found to be non-significant.

### Perceived attitude

Attitude is a human character to respond favorably or unfavorably to an object, person, institution, or event (Ajzen, 2005), and the very first determinant of behavioral intentions (Ajzen, 1991). Armitage and Conner (2001) stated that there was a positive relationship between the positivity of attitude towards a behavior with the degree of the individual's intention to perform that behavior. In the entrepreneurship context, it is reasonable to distinguish between general attitudes of an individual and specific attitudes toward entrepreneurship (Robinson, Stimpson, Huefner & Hunt, 1991). The significance of attitudes to entrepreneurial intention has been ascertained in a wide range of literature, including model comparison study (Krueger et al., 2000), cross-country study (Autio et al., 2001), self-employment intention study (Douglas & Shepherd, 2002), and multi-dimension attitudes study (Gelderen et al., 2008). Some studies, however, found that attitude is partially significant to entrepreneurial intention. Schwarz et al. (2009) found a significant relationship between attitudes toward change and money with entrepreneurial intention among students in Austria, but not the attitude towards competitiveness. In another study that involves levels of factor-regression test, the attitude was found to be negatively significant to entrepreneurial intention at the first level, and the opposite result was obtained at the second level (Liñán, Rodríguez-Cohard, and Rueda-Cantuche, 2011). In the cross-culture study of Liñán and Chen (2009), a stronger effect of attitudes to entrepreneurial intention was found on Spanish respondents in comparison to Taiwanese respondents.

Although empirical evidence on individual attitude towards green entrepreneurship is absent, there is nonetheless a large body of studies that link attitudes and green behaviours in general, as confirmed in a meta-analysis on 128 studies between 1971 and 1987 (Hines, Hungerford & Tomera, 1987). In more recent studies, attitudes have been widely adopted as a predictor to many green behaviours, such as the purchase of green products (e.g. Abdul Wahid et al., 2011; Aman, Harun, & Hussein, 2012; Chen & Tung, 2014; Rahim, Shamsudin, Mohamed, & Radam, 2013; Ramayah, Lee, & Mohamad, 2010; Rezai et al., 2013), adoption of green HR initiatives (Sawang, Kivits, Coast, & Queensland, 2014), intention to revisit green hotel (Han & Kim, 2010), use of public bike system (Chen, 2016), the practice of recycling (Ramayah et al., 2012; Ramayah & Rahbar, 2013), etc. The strong interest of researchers on the role of personal attitude towards green behaviour indicates a strong theoretical correlation between personal attitude and green entrepreneurial intention. Thus, a positive attitude (positive attractiveness and higher satisfaction) is expected to increase one's intention to become a green entrepreneur, as shown in the hypothesis:

*H1: Attitude positively influences Green Entrepreneurial Intention among Malaysian MBA students.*

## Perceived behavioural control

Perceived behavioural control was originally formulated as the perceived ease or difficulty in which the behaviour involved is performed (Gelderen et al., 2008), making perceived behavioural control compatible with Bandura's (1982) concept of perceived self-efficacy (Ajzen, 1991), that influences individual choices, goals, emotional reactions, effort, ability to cope and persistence (Bandura, 1982, 1986). Literature has confirmed high self-efficacy underlies most human performance (Bandura, 1993, 1999; Bandura, Pastorelli, Barbaranelli & Caprara, 1999). Self-efficacy also serves as an excellent measure of perceived behavioral control in a business venture (Ajzen, 1991). Entrepreneurial self-efficacy is operationalized by Scherer, Adams, Carley, and Wiebe (1989) as expertise in various business activities such as accounting, production, marketing, human resources, and general organizational skills. Martinez and Campo (2011) found that the notion of self-efficacy was firmly embedded in the entrepreneurship literature, by adopting a standard measurement for entrepreneurial self-efficacy which was developed by Mcgee, Peterson, Mueller, and Sequeira (2009).

Empirical support for the relationship between perceived behavioural control and entrepreneurial intention is evident. Krueger et al. (2000) compared Ajzen's theory of planned behavior (TPB) to Shapero's model of the entrepreneurial event (SEE) and reported a strong connection between global perceived feasibility (SEE), self-efficacy (TPB), and entrepreneurial intentions. Autio et al. (2001) found that perceived behavioural control emerges as the most important determinant of entrepreneurial intent in their TPB model involving samples from Finland, Sweden, the US, and the UK, which is similar to a study by Liñán and Chen (2009) which involved students from Taiwan and Spain. The significance of perceived behavioural control to entrepreneurial intention has also been confirmed in studies in Netherlands (Gelderen et al., 2008), Spain (Liñán, Rodriguez-Cohard, et al., 2011), U.S. (Wilson, Kickul, & Marlino, 2007), etc. A study by Wilson et al. (2007) is particularly important to this study due to its choice of MBA students as target respondents.

In contrast, Ahmad et al. (2015) has examined the effect of self-efficacy on green entrepreneurship inclination among generation Y and found no effect on that end. However, the lack of details on the specific measurement constructs in the literature suggested that a more robust and valid measurement instrument may offer a different result, in light of strong empirical evidence from past entrepreneurship research. Therefore, in this study, entrepreneurial self-efficacy is measured as an independent variable under the label of perceived behavioural control with a hypothesized impact on green entrepreneurial intention among MBA students in Malaysia. The hypothesis developed is as follow:

*H2: Perceived Behaviourial Control positively influences Green Entrepreneurial Intention among MBA students.*

## Subjective norms

The concept of subjective norms has been assessed by the social norm and normative belief in both the theory of reasoned action and the theory of planned behavior (Madden, Ellen & Ajzen, 1992). Individuals' elaborative thoughts on subjective norms are the perceptions of whether they are expected by their friends, family, and society to perform the recommended behavior (Ajzen, 1991). While most models are conceptualized within individual cognitive space, TPB considers social influence such as social norms and normative belief, based on collectivistic culture-related variables. Among different sources of perceived normative belief, TPB suggests that perceived family support provides the important foundation of subjective norms in which potential entrepreneurs use to determine if their intent to start a new venture is accepted and supported by others, deemed significant by them (Ajzen, 1991). It is extensively believed that family background or childhood experiences, interaction with others in business, and previous job experiences influence the development of entrepreneurial-related attitudes (Morris & Lewis, 1995). Ajzen's (2002) revised approach also suggested that these individuals are likely to have higher levels of entrepreneurial intent if they perceive that their family supports those actions. In the domain of green entrepreneurship, references, such as spouse (Yaacob, 2010) or other industry players (De Clercq & Voronov, 2011) have been found to influence an individual's embarkation on green business.

Although the effect of subjective norms on entrepreneurial intention is evident (Kolvereid, 1996; Krueger et al., 2000), the effect is not absolute in all circumstances. Social norms were found to be a more significant explanatory variable when the dependent variable was non-committal instead of behavioural expectancies. (Gelderen et al., 2008). Subjective norms have been found to modify the effect of perceived attitude and perceived behavioural level on entrepreneurial intention rather than having a direct effect on the intention (Liñán & Chen, 2009). According to Liñán et al. (2011), perceived social norms are only found to be positively significant to entrepreneurial intention at the first level of factor regression but insignificant at the second level.

A perceived subjective norm is defined as the perceived agreeableness of references to target respondents' decision to become green entrepreneurs in this study. This study has adopted measurements from Liñán and Chen (2009) that assessed the perceived agreeableness of three references towards target respondents' decision to become a green entrepreneur which are close family, friends, and colleagues in the university. In addition to this common group of references, the study also assessed the perceived agreeableness of government and society at large. This is because Malaysia is a typical collectivist society (Hofstede, 2001), where social opinion has a significant influence on one's behavior. On the other hand, the Malaysian government has been the major source of start-up funding and support since 2007. Government contribution to the total venture capital in Malaysia was 36% (RM1.2 billion from a total of RM3.31 billion) in 2007, 54% in 2011 and 2012 (from a total amount of RM5.46 billion and RM5.7 billion in 2011 and 2012) and significantly increased to 61% (RM3.54 billion from a total of RM5.8 billion) in 2013 (Nor, 2015). Thus, perceived



government support to green entrepreneurship is hypothesized to have a significant impact on green entrepreneurial intention as part of perceived subjective norms. The hypothesis developed is as follows:

*H3: Subjective norms positively influence perceived green entrepreneurial intention among Malaysian MBA students.*

### Perceived educational support

Entrepreneurship education was pioneered by universities in the United States of America (Kuratko, 2003). Gürol and Atsan (2006) found that the number of U.S. colleges and universities offering entrepreneurship courses has grown from an insignificant number in the 1970s to more than 1,600 in 2003. Emphasis on entrepreneurship education began to gain greater attention outside of the United States from the early 1990s, led by institutions in Asian, European, and African countries (Gürol & Atsan, 2006). Entrepreneurship education has historically concentrated at the tertiary level, which later drawn suggestions from many scholars that entrepreneurship education should start early within the education system (Kroon & Meyer, 2001; Stevenson & Lundström, 2001). The tremendous impact of entrepreneurship education on entrepreneurship development caused many countries to encourage more countries to introduce entrepreneurship education at all levels of the education system - schools, colleges, and universities (Fayolle & Klandt, 2006). Education in entrepreneurship also expanded formal classroom education to include the development of an entrepreneurial culture, promote enterprise, create new ventures, and foster entrepreneurial mindsets through education and learning (Kuratko, 2003).

Previous studies have shown that entrepreneurship education is significant in cultivating the spirit of entrepreneurship among graduates in universities (Carter & Collinson, 1999; Galloway & Brown, 2002; Ibrahim & Soufani, 2002; Katz, 2003; Kolvereid & Moen, 1997; Robinson & Haynes, 1991; Solomon et al., 2002), with a few exceptions (Oosterbeek, Praag & Ijsselstein, 2010). Cheng et al. (2009) noted that entrepreneurship studies equip people with “innovative enterprise skills to grasp the opportunities”. Co and Mitchell (2006) reported that young people have benefited from entrepreneurship education by developing more entrepreneurial dispositions and developed a clear understanding of risks and rewards, teaching opportunity seeking, and recognition skills. In Malaysia, Mohamed et al. (2012) found that the Basic Student Entrepreneurial Programme (BSEP) for university graduates has effectively developed intention towards becoming agro-entrepreneurs among the participants.

Empirical research has so far revealed significant differences in terms of attitudes and intention levels of students who take part in entrepreneurship education programs and those who do not (Fayolle & Liñán, 2014). A meta-analysis by Bae, Qian, Miao, and Fiet (2014), which was based on 73 studies, found a small but significant correlation between entrepreneurship education and entrepreneurial intentions, which is also greater than the relationship between general business education and entrepreneurial intentions. Nonetheless, whether and how a generalization of those results to a range of settings may occur remains a pending question (Zhao et al., 2005). Fayolle and Gailly (2015) further revealed that little knowledge exists regarding the potential causal link between some educational variables (e.g. participant selection and past entrepreneurial exposure, course contents, pedagogical methods, teachers' professional profiles, available resources, etc.) and the impact of entrepreneurship education programs on the antecedents of intention and/or behavior (attitudes, values, skills, etc.). For example, Krueger and Carsrud (1993) questioned how the process of drawing up a business plan affects intentions, which remained unanswered. Fayolle and Linan (2014) further listed a series of critical yet unexplored variables in entrepreneurship education on students' intentions: the influence of the type of pedagogies, educator's profile and background, educators' entrepreneurial intention, contents of entrepreneurship education programs (theoretical versus practice-based knowledge), etc. A meta-analysis by Martin, McNally, and Kay (2013) also suggested a research direction into issues relating to the reciprocal relationships between students' entrepreneurial intentions, the quality of their entrepreneurial learning, and the development of their entrepreneurial competencies in educational settings. These unexplored territories suggested vast possibilities for new studies into entrepreneurship education and entrepreneurial intention.

For this study, it is hypothesized that education is instrumental in cultivating the necessary skills and forming the fundamental knowledge that is crucial to green entrepreneurial intention. Thus, it is hypothesized that MBA students receive a certain degree of educational support which motivates them to become green entrepreneurs. The hypothesis is developed as follows:

*H4: Perceived education support positively influence green entrepreneurial intention among Malaysian MBA students.*

## METHODOLOGY

### Population and sampling

The study targeted MBA students in Malaysia as the population of the study. A non-probability sampling method was adopted for this study. As contemplated in Hulland et al. (2017) and Sarstedt, Bengart, Shaltoni, and Lehmann (2017), there is a body of literature that supports the use of non-probability samples when the selection of sampling strategy suits the sampling objectives as well as the scope of research and the research goal which is to attain theory generalization, and the complete sampling frame is not available in a given context. Purposive sampling was adopted as the primary trait of MBA students which are clearly identified and control question was included in the survey questionnaire to differentiate target respondent from others (i.e. asking if the respondent is currently enrolled in MBA programme, the name of institution, etc.).

A total of 175 valid responses were collected from current MBA students. There are more females among the respondents (64%) than males (36%). The majority of the respondents belonged to the age group of 25-34 years (61.14%) followed by 35 – 44 (23.34%). In terms of ethnicity distribution, there are more Chinese (66.29%) than Malays (17.71%) and Indians (13.71%). The majority of the respondents are working in the capacity of executives (62.29%), followed by managers (13.14%). In a total of 175 respondents, USM is the biggest source of respondents (40%) followed by UUM (22.29%) and a wide range of other institutions.

### Measurement instrument

All items in the questionnaire were measured using the Likert scale. These scales used fixed choice response formats and were designed to measure variables addressing individual attitudes, trust, opinions, and emotion (Ratray & Jones, 2007). All five variables of the study were measured on a seven-point Likert scale, i.e., (1) totally disagree to (7) totally agree. Target respondents were asked to reveal their agreement to specific statements that form the measurement item. The scale of agreement is from 1 to 7, where 1= total disagreement and 7=total agreement.

**Table 1.** Measurement construct instrument

Construct	Measurement Item	Source
Green Entrepreneurial Intention (GEI)	1. Becoming a green entrepreneur is my preferred career choice.	Kolvereid (1996)
	2. My professional goal is to become a green entrepreneur.	Liñán & Chen (2009)
	3. I am committed to start and run my own green business.	
	4. I am determined to create a green business in the future.	
	5. I have been thinking about green business ideas.	
Perceived Attitude (PA)	1. Being a green entrepreneur brings more advantages than disadvantages to me.	Liñán & Chen (2009)
	2. A career as a green entrepreneur is attractive to me.	Bamberg (2003)
	3. If I had the opportunity and resources, I would like to become a green entrepreneur.	
	4. Being a green entrepreneur would entail great satisfaction for me.	
	5. The society should act in a more environmentally conscious way.	
	6. I support environmental protection measures even if this will cause a loss of jobs.	
	7. I am concerned about the environmental conditions our children must live under.	
	8. News reports concerning environmental problems makes me angry.	
	9. I believe the world is approaching an environmental disaster.	
Perceived Behavioural Control (PBC)	1. To start a green business and keep it working would be easy for me.	Liñán & Chen (2009)
	2. I am prepared to start a viable green business.	Chen et. al. (2014)
	3. I can control the creation process of a new green business.	
	4. I know the necessary practical details to start a green business.	
	5. I know how to develop a green entrepreneurial project.	
	6. If I tried to start a green business, I would have a high probability of success.	
	7. If I start-up a green business, I can succeed in accomplishing my business ideas.	
	8. If I start-up a green business, I can achieve most of my business goals.	
	9. If I start-up a green business, I can perform effectively on my business missions.	
	10. If I start-up a green business, I can effectively overcome environmental problems.	

Construct	Measurement Item	Source
Perceived Subjective Norm (PSN)	1. If I decided to become a green entrepreneur, my family will support my decision.	Liñán & Chen (2009)
	2. If I decided to become a green entrepreneur, my friends will support my decision.	
	3. If I decided to become a green entrepreneur, my MBA course-mates will support my decision.	
	4. If I decided to become a green entrepreneur, I will receive support from the government.	
	5. If I decided to become a green entrepreneur, I will receive support from the society.	
Perceived Educational Support (PES)	1. The MBA education I have received has helped me to develop knowledge about the green entrepreneurial environment.	Liñán, Rodríguez-Cohard et al. (2011)
	2. The MBA education I have received has helped me to develop greater recognition of a green entrepreneur's figure.	
	3. The MBA education I have received has helped me to develop a preference to become a green entrepreneur.	
	4. The MBA education I have received has helped me to develop the necessary abilities to become a green entrepreneur.	
	5. The MBA education I have received has helped me to develop the intention to become a green entrepreneur.	

### Pilot testing

The pilot data were used to gauge the psychometric properties of the survey instrument before the final samples were collected. The respondents of the pre-testing study were MBA students from selected HEIs in Penang. The total sample for the pre-testing study was 30 respondents. The pilot study respondents were excluded from being selected for real data collection. Pilot-testing data was not meant for model testing. It was used to check the reliability of the individual scale. The reliability statistics (Cronbach's alpha) for each scale were tabulated in table 3. The results of the pilot study show that all the  $\alpha$  values for the study variables were above the cut-off of 0.70. Therefore, the reliability of the measured constructs is confirmed.

**Table 2.** Construct reliability of pilot sample

Research Variables	No. of Items	Cronbach's Alpha
Perceived Attitude	9	0.906
Perceived Behavioural Control	10	0.978
Perceived Subjective Norms	5	0.902
Perceived Educational Support	5	0.979
Green Entrepreneurial Intention	8	0.959

### Common method bias

Common method bias is problematic if a single latent factor would account for the majority of the variance explained (Podsakoff and Organ, 1986). Bagozzi, Yi, and Phillips (1991) described the method of assessing the impact of CMV through latent variables' correlations. The common method bias will be evident when a substantially large correlation is found among principal constructs ( $r > 0.9$ ). However, CMV will be not an issue in any study if the correlation among constructs is less than 0.9 (Tehseen, Ramayah & Sajilan, 2017). In this study, all the correlation values between variables were less than 0.9. Thus, the CMV did not appear to be a significant issue.

**Table 3.** Correlation between Latent Variables

Variables	GEI	PA	PBC	PES	PSN
GEI	1	0.663	0.817	0.549	0.702
PA	0.766	1	0.588	0.589	0.461
PBC	0.817	0.588	1	0.569	0.770
PSN	0.549	0.589	0.569	1	0.540
PES	0.702	0.461	0.770	0.540	1

## FINDINGS AND DISCUSSION

### Result of analysis

The data collected in this study were analyzed with PLS-SEM. SEM is a second-generation multivariate data analysis method that is often used in research because it can test theoretically supported linear and additive causal models (Hårdle, 2011). The use of SEM is commonly justified in social sciences for its ability to impute relationships between unobserved constructs (latent variables) from observable variables (Hancock, 2015). The measurement model is shown in Figure 1. In this study, the recommendation by Hair et al. (2014a) was used to explain how the reflective model for PLS-SEM should be analyzed for internal consistency, indicator reliability, convergent validity, and discriminant validity before evaluating the structural model.

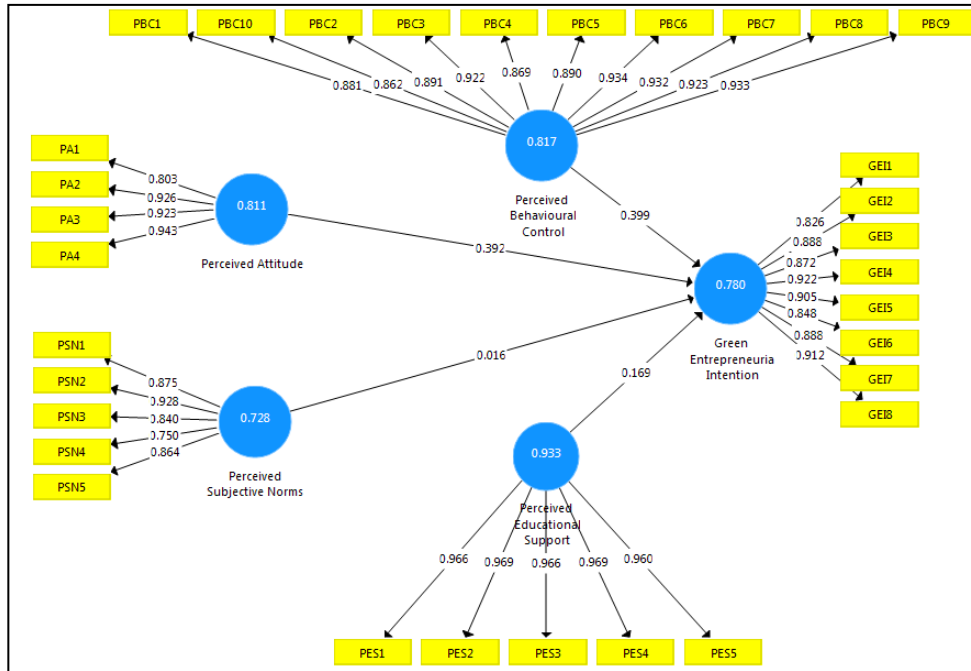


Figure 1. Measurement model

Convergent validity of the model was analyzed which included indicator loading, average variance extracted (AVE), and composite reliability (CR). Table 4 shows the indicator loadings for all the items that exceeded the recommended value of 0.708, as suggested by Hair et al. (2014a). The AVE of all variables was in the range of 0.750 to 0.943, which exceeded the recommended value of 0.50, and CR ranges from 0.930 to 0.986, which also exceeded the recommended value of 0.70 by Hair et al. (2014a). Thus, this study ensured the existence of convergent validity.

Table 4. Result of measurement model

Construct	Measurement Items	Factor Loading	AVE	CR
Green Entrepreneurial Intention (GEI)	GEI1	0.826	0.780	0.966
	GEI2	0.888		
	GEI3	0.872		
	GEI4	0.922		
	GEI5	0.905		
	GEI6	0.848		
	GEI7	0.888		
	GEI8	0.912		
Perceived Attitude (PA)	PA1	0.803	0.811	0.945
	PA2	0.926		
	PA3	0.923		
	PA4	0.943		
Perceived Behavioural Control (PBC)	PBC1	0.881	0.817	0.978
	PBC2	0.862		
	PBC3	0.891		
	PBC4	0.922		
	PBC5	0.869		



Construct	Measurement Items	Factor Loading	AVE	CR
Perceived Subjective Norms (PSN)	PBC6	0.890	0.728	0.930
	PBC7	0.934		
	PSN1	0.875		
	PSN2	0.928		
	PSN3	0.840		
Perceived Educational Support (PES)	PSN4	0.750	0.933	0.986
	PSN5	0.864		
	PES1	0.966		
	PES2	0.969		
	PES3	0.966		
	PES4	0.969		
	PES5	0.960		

*CR= Composite Reliability, AVE= Average Variance Extracted*

The discriminant validity of the model was tested by examining the correlations between the measures of a potentially overlapping construct, following Fornell and Larcker (1981). As presented in Table 5, the square roots of AVE of all constructs are greater than the off-diagonal elements in their corresponding row and column. These results suggested that the required discriminant validity for the research model has been achieved.

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

	GEI	PA	PBC	PES	PSN
GEI	0.883				
PA	0.781	0.901			
PBC	0.820	0.718	0.904		
PES	0.702	0.551	0.771	0.966	
PSN	0.562	0.580	0.568	0.545	0.853

Discriminant validity can also be assessed with the HTMT (Heterotrait-Monotrait Ratio) approach. HTMT equals the disattenuated correlation between two constructs, whereby HTMT value close to 1 indicates the true correlation between the two constructs is most likely different from one, and they should differ (Henseler, Hubona, Ray, Hubona and Ash, 2016). If the HTMT value is below 0.90, discriminant validity can be established between two reflective constructs, which is shown in Table 6. Thus, discriminant validity was achieved based on HTMT inference. Overall, the measurement model showed adequate convergent and discriminant validity.

**Table 6.** Discriminant validity (HTMT criterion)

	GEI	PA	PBC	PES	PSN
GEI					
PA	0.825				
PBC	0.845	0.755			
PES	0.722	0.573	0.788		
PSN	0.593	0.632	0.603	0.573	

The structural model is presented in Figure 2, where the measurement of path coefficient ( $\beta$ ) and the percentage of variance explained ( $R^2$ ) are marked in the figure. The significance and relevance of the structural model relationships were determined by comparing the t-values to the critical t-values for significance levels of 0.05 and 0.010 for every path coefficient. Bootstrapping was used to compute the empirical t-value for the significance of path coefficients using 5000 subsamples as recommended by Hair et al. (2014b). The result is shown in Figure 3.

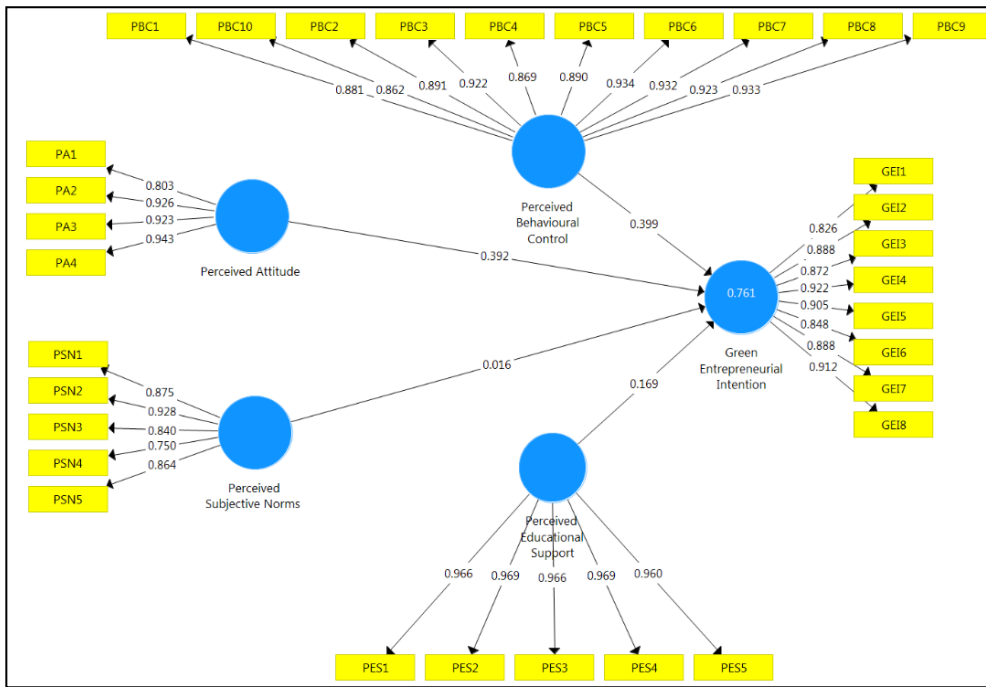


Figure 2. Structural model

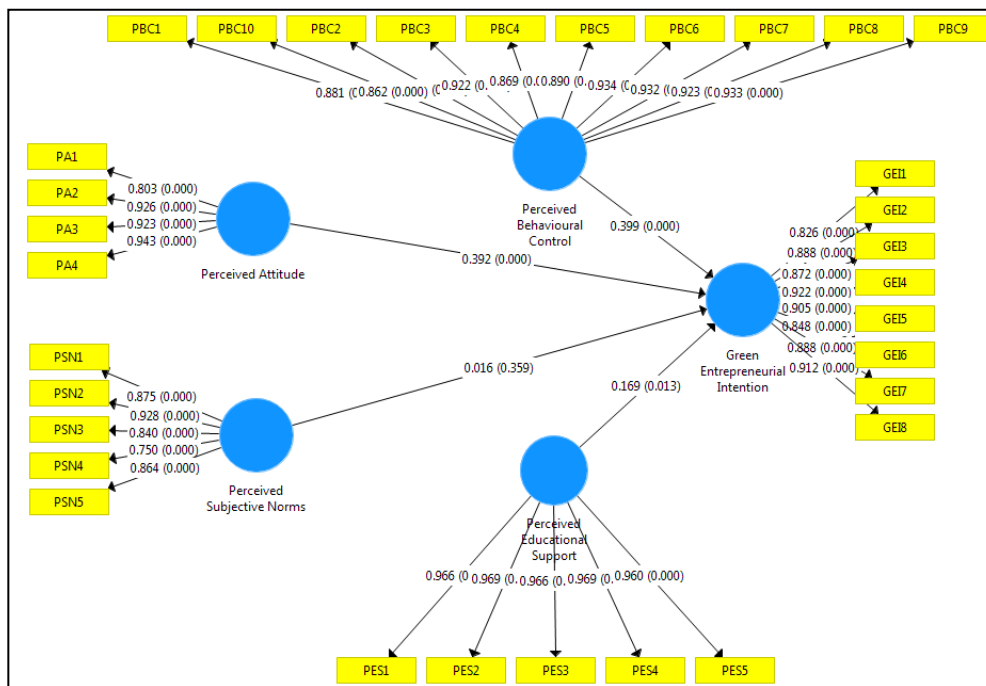


Figure 3. Bootstrapping result model

The level of collinearity was assessed through the value of the variance inflation factor (VIF). VIF is the reciprocal of the tolerance (i.e.  $VIF=1/TOL$ ) (Hair et al., 2014b). The assessment of VIF values of all constructs is shown in Table 7. The VIF values for all the independent variables are all below the threshold of 5 (Hair et al., 2011b), indicating no multicollinearity problem in the model.

Table 7. VIF values

	GEI	PA	PBC	PES	PSN
GEI					
PA	2.278				
PBC	3.568				
PES	2.589				
PSN	1.702				

The results of data analysis revealed that Perceived Attitude has a significant positive influence on Green Entrepreneurial Intention ( $\beta = 0.392$ ,  $p < 0.01$ ). Therefore, hypothesis H1 was supported. The Perceived Behavioural Control also showed a significant positive relationship with Green Entrepreneurial Intention with  $\beta = 0.399$ , and  $p < 0.01$ , supporting H2. H4 was also supported as Perceived Educational Support was positively related to Green Entrepreneurial Intention at  $\beta = 0.169$ ,  $p < 0.05$ . H3 was not supported as the p values are greater than 0.1 for the relationship between Perceived Subjective Norm and Green Entrepreneurial Intention (H1c). The results are presented in Table 8.

**Table 8.** Results of structural model analysis

Hypothesis	Relationship	Beta	SE	T-value	Decision
H1	PA -> GEI	0.392	0.069	5.696***	Supported
H2	PBC -> GEI	0.399	0.096	4.153***	Supported
H3	PSN -> GEI	0.016	0.045	0.360	Not Supported
H4	PES -> GEI	0.169	0.076	2.224**	Supported

\*\*\*significance at 0.01

\*\*significance at 0.05

In PLS, the main evaluation criterion for the goodness of structural model is that the  $R^2$  measures the coefficient of determination and the level of significance of the path coefficient (beta value) (Hair et al., 2011b). The recommended value according to Cohen (1988) for  $R^2$  between 0.02-0.12 is weak, 0.13-0.25 is moderate, and 0.26 and above is substantial. Hair et al. (2011a) qualified these figures and suggested that high  $R^2$  is dependent on specific research context. The endogenous construct of Green Entrepreneurial Intention showed the value of  $R^2$  as 0.761 which means that 76.1% of the variance of the construct Green Entrepreneurial Intention can be explained by all four of the exogenous construct, i.e. Perceived Attitude, Perceived Behavioural Control, Perceived Subjective Norms, and Perceived Educational Support.

The study estimated the effect size of all the variables. Sullivan and Feinn (2012) argued that both statistical significance (P-value) and substantive significance should be reported in study results. Hair et al. (2014b) suggested that change in  $R^2$  should be examined when an exogenous variable is omitted from the model to calculate the effect size ( $f^2$ ) which explains the substantive impact of the omitted variable on endogenous variables. Commonly used guidelines for effect size were given by Cohen (1988) which are 0.02, 0.15, and 0.35 representing small, medium, and large effects respectively. Researchers, however, have concluded that a variable obtained small effect size does not mean that the variable is unimportant. They also concluded that researchers should carefully estimate the effect size based on their knowledge and the method used for study rather than just comparing it with the given standard values (Chin, Marcolin & Newsted, 2003; Preacher & Kelley, 2011). Table 9 represents the effect size of all exogenous variables of the study. The result indicated that Perceived Attitude has close to large effect in producing  $R^2$  for the construct of Green Entrepreneurial Intention (0.283), and medium effect were found on Perceived Behavioural Control (0.187) and no effect on Perceived Subjective Norm (0.001) in the generation of  $R^2$  for Green Entrepreneurial Intention. Perceived Educational Support was found to have a close to medium effect on  $R^2$  for Green Entrepreneurial Intention (0.046).

**Table 9.** Effect size (Cohen's d) of the variables

Exogenous Construct	Endogenous Construct Green Entrepreneurial Intention
Perceived Attitude	0.283
Perceived Behavioural Control	0.187
Perceived Subjective Norm	0.001
Perceived Educational Support	0.046

The predictive accuracy of the model was assessed by using  $R^2$ . In addition, Stone-Geisser's  $Q^2$  value was used to determine the model's predictive relevance. When the value of  $Q^2$  is greater than zero, it indicates that the model has accurately predicted the data points of the endogenous constructs (Hair et al., 2014b). In order to obtain  $Q^2$ , blindfolding in Smart-PLS was performed. The blindfolding procedure was performed by omitting every sixth data point in the endogenous construct's indicators and using construct cross-validated redundancy. The omitted data points were then treated as missing data in Smart-PLS. The difference between the omitted data points and the predicted ones was used for calculating the  $Q^2$  (Hair et al., 2014b). The Stone-Geisser's  $Q^2$  values for Green Entrepreneurial Intention (0.537) was more than 0, indicating that the model has sufficient predictive relevance.

## Discussion

The positive significance of Perceived Attitude to Green Entrepreneurial Intention of MBA students suggested that cultivation of a positive attitude towards green entrepreneurship will significantly enhance the respondents' intention to become green entrepreneurs. More importantly, green entrepreneurship is perceived as a career choice that brings personal

advantages and satisfaction to the respondents, particularly when opportunities and resources are made available to that venture. On the other hand, the positive significance of Perceived Behavioural Control shows the instrumentality of the variable to their green entrepreneurial intention. Strengthening the confidence of respondents towards green entrepreneurship will significantly enhance the respondents' intention to become green entrepreneurs. The self-confidence or perceived behavioural control is manifested in many dimensions. Mental preparedness, perceived ease and control, availability of knowledge, confidence to success, and confidence to achieve green business goals and mission are key dimensions in the overall perceived behavioural control towards green entrepreneurship. The study included Perceived Educational Support as an additional exogenous construct to the TPB model. The result showed that the level of educational support received by MBA students positively influenced their Green Entrepreneurial Intention. The outcome indicated structural improvement of the current MBA education programme will greatly improve the interest of students toward green entrepreneurship. Specifically, the MBA programme structure should emphasize incorporating greater knowledge about green entrepreneurship and green entrepreneur, instilling teaching elements that will raise the interest for green entrepreneurship and develop practical green entrepreneurial skills of the students.

Perceived Subjective Norms is the only independent variable found to not affect the Green Entrepreneurial Intention of MBA student. Even though the outcome was inconsistent with the hypothesized outcome, a similar result was found in Autio et al. (2001), Liñán and Chen (2009), Gelderen et al. (2008), and Liñán et al. (2011), where the predictor was found to have a weak link with entrepreneurial intent. The result was also in contrast with previous green behaviour studies by Chen and Chai (2010), Abdul Wahid et al. (2011), and Rahim, Shamsudin, Mohamed, and Radam (2013). Subjective norms were found to have a significant relationship with the intention to perform green consumption behaviours. The contrasting result showed that the role of subjective norms is not universal, but rather heavily dependent on the specific cultural and social context of the particular group of respondents as well as the context of behaviour. In this case, green entrepreneurship is not perceived primarily as a green behaviour, but rather more as a business or commercial behaviour. In summary, this showed that green entrepreneurship is a unique path of entrepreneurship, where individuals are unlikely to take the initiative to become green entrepreneurs in order to conform to the expectation of others. This could somehow reflect the perception of potential green entrepreneurs regarding the social norms in Malaysia, in which the society generally lack awareness and concern about green entrepreneurship. This perception may have caused the potential green entrepreneurs to believe that their decision to become a green entrepreneur is of no importance to their references, thus insignificant to their GEI.

### Implications

This study adapted the TPB framework by Ajzen (1991) to develop the research model. The model has extended the theoretical framework by the inclusion of an educational variable (Perceived Educational Support). The first theoretical implication of this study is the applicability of the TPB framework in green entrepreneurship study, specifically in the area of green entrepreneurial intention. Two out of three cognitive variables (Perceived Attitude and Perceived Behavioural Control) were found to significantly influence the formation of GEI. This suggested that green entrepreneurial intention is mainly an outcome of the combined effect from the positive attitude towards green entrepreneurship and positive self-confidence or self-efficacy towards green entrepreneurship. The  $R^2$  value of the research model showed that 76% of the variance in GEI is explained by the exogenous variables. The level of the explanatory power of the model is considered substantial (Cohen, 1988). Secondly, the inclusion of Perceived Educational Support as an exogenous variable in the TPB model returned a fruitful outcome, where the variable was found to be significantly correlated with GEI. This showed that the TPB model is highly agile and adaptive to various research contexts, as purported by Devonish, Alleyne, Charles-Soverall, Marshall, and Pounder (2010) that intention-based models are likely to vary across cultures and there is a need to test (challenge) current models of entrepreneurial intentions. The same notion was also supported by Ajzen (2011) that pointed out the possibility for additional variables other than the main elements of TPB due to the inadequacy of common instruments used to measure intention, especially when measurements for attitude, subjective norms, and perceived behavioural control are not perfectly reliable and valid.

The reflective domains in Perceived Attitude showed that the primary goal of policymakers should be focusing on offering more benefits or advantages to the potential green entrepreneur in order to increase their intention to become green entrepreneurs. This can be done through a financial incentive programme sponsored by the public authority for the innovative green entrepreneurial project or a successful green business start-up. The personal satisfaction dimension implying the role of public recognition programme such as a public award for a successful green entrepreneur would greatly enhance the overall image of a green entrepreneur, thus encouraging more participants. The opportunity and resource dimension implied that government and businesses should help the nascent green entrepreneur to obtain necessary resources such as financial aid, training, technical support, etc., to enable the growth of the green venture. A market for green products and services must be developed to provide green business opportunities, which can be accomplished through green procurement by both government authorities and business organisations. Finally, it is also crucial for policymakers to develop qualification and competency standards for the certification of green business professionals. This will be instrumental in upgrading the occupational status of green entrepreneurs and employees of green business organization as professional personnel, rather than the common impression of voluntary and social activists. The significance of Perceived Behavioural Control suggested that policymakers and practitioners should focus on enhancing the self-efficacy or confidence level of potential green entrepreneurs. Furthermore, the significance of Perceived Educational Support implied that policymakers and educational institutions should consider revamping the current educational structure to be more effectively targeting the relevant dimensions of the predictor variable to increase

their green entrepreneurial intention. For business managers who are interested to develop their green entrepreneurial project, they should consider providing training for their employees who are lack interest, by targeting mainly on eliminating their concern for knowledge and confidence issues.

## CONCLUSION

Green entrepreneurship is the next key economic and business agenda in and beyond Malaysia. The huge economic potential of green business venture presents an enormous opportunity for both the industry and academia to leverage the emergence of green entrepreneurship and identify ways to encourage more people to venture into green entrepreneurship. From an educational perspective, green entrepreneurship is the next major area of interest for professional and career development which signify a huge demand for relevant educational programmes and educators. Hence, the education institution, policymaker, and business managers must update their understanding of GEI and fully comprehend the relevant determinants of GEI to help them redesign and restructure the education and training programmes for the cultivation of GEI. The research also showed that the TPB framework is holistic in assessing GEI and meaningful for education practitioners, policymakers, and business managers that are concerned with the development of green entrepreneurship. The insignificance of perceived subjective norms showed that potential green entrepreneurs are not influenced by the opinion of peers, instead, the person's attitude and level of confidence are instrumental to his GEI. Hence, policymakers and educational practitioners should focus on moulding the right attitudes toward green entrepreneurship and helping the students to build their self-confidence as green entrepreneurs. Educational practitioners should carefully examine the existing design of the entrepreneurship curriculum and programme structure, and align them to increase their GEI cultivation capability.

### Limitations of the research

Although this study uncovered interesting insights into the determinants affecting the emergence of GEI, it is not without limitations. The research model adopted is cross-sectional which measures beliefs and GEI at a single point in time. It did not determine the change in user reactions over time. However, perceptions and beliefs change over time as individuals gain experience with green entrepreneurship ventures. The research model also did not measure the variation in the socio-demographic and economic profile of the respondents. The survey respondents of this study consist of MBA students from various occupational backgrounds, economic status, and age groups. Different levels of job positions, nature of the occupation, and age may have an influence on the level of GEI, the degree and direction of attitude, perception of self-behavioural control, subjective norms, and educational support. The omission in the classification of respondents based on these demographic differences may affect the accuracy of research findings. Finally, this research only collected sample data from the MBA student population. The robustness of the research findings, especially with regards to an educational variable may be restricted to the only population of this educational background. This means that the prediction power of the examined determinants variables on GEI in this research may be true for people with MBA education background but could be different for people from another education major (engineering or science) or different level of study (undergraduate or doctorate).

### Future research

First and foremost, future research could extend this study to include respondents from more HEIs, if not all. The coverage of respondents in this study consists only of MBA students from selected HEIs. Secondly, a longitudinal approach and demographic control variables can be added to enhance the findings in this research. The researcher can use the longitudinal survey type to capture the GEI at different stages of the personal life cycle or over a period of time in order to reflect and realize how the GEI level could change as one has different exposure or going through different stages in life. Moreover, the different stages of MBA study (i.e. junior year and senior year) also play a significant role in determining the level of GEI. Demographic control variables such as respondent's age, ethnicity, marital status, family size, and income level could be considered as moderating variables in future studies. Future research could also consider exploring the educational effect of different fields and levels of study on the emergence of GEI. Researchers can also consider comparing the level of GEI of respondents from different levels of studies (e.g. undergraduate versus postgraduate) and the effect of different determinants on different levels of students. Comparison between different major studies will also be meaningful since there is still a considerable gap in the literature. Future research can also consider adopting other measurement constructs to measure more complex aspects of education, such as the structure of lesson and teaching content, competency of educator and entrepreneurial experience of educator, etc., and to explore the relationship between these variables and GEI. Lastly, future research can also consider using mixed methods of quantitative and qualitative approaches to better generalize and deep dive into the area of green entrepreneurship in Malaysia. Case studies or in-depth interviews will enable researchers to obtain insights into the barriers or challenges that discourage GEI alongside positive cognitive factors.



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