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ENTREPRENEURSHIP EDUCATION AND OTHER EXOGENOUS VARIABLES IN THE THEORY OF PLANNED BEHAVIOR MODEL: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Introduction/Main Objectives: The aim of the study is to: 1) identify the role entrepreneurship education (EE) in the theory of planned behavior (TPB) model, and how it enhances students' entrepreneurship intention (EI), 2) identify various other exogenous variables commonly paired with EE that increase EI, 3) map the various roles of EE and the exogenous variables in improving students' EI into a single model. **Background Problems:** What is the role of entrepreneurship education and the exogenous variables in the TPB model, and how do they increase students' entrepreneurship intention? **Novelty:** This paper's novel contributions include 1) filling the knowledge gap in the field of entrepreneurship related to the TPB model, 2) proposing a map to depict the integration of EE and other exogenous variables into the TPB model, to make one comprehensive model. **Research Methods:** The data sets were drawn from the Scopus database with a systematic literature review approach, with a protocol that used the keywords "entrepreneurship education," "entrepreneurial education," and "TPB." The protocol found 108 articles in the Scopus database, published between 2006 and 2023, which were extracted. Then, the articles underwent further analysis using exclusion and inclusion criteria, resulting in 24 articles that met our requirements. Quantitative and qualitative analysis were then carried out, using statistical descriptive and bibliometric analysis. **Finding/Results:** This study shows that entrepreneurship education and the exogenous variables that influence entrepreneurship intention in the TPB model have various roles. **Conclusion:** The results expose critical research gaps and the need to develop new theoretical frameworks that combine and extend the TPB model with other relevant variables in higher education.

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INTRODUCTION

Entrepreneurship is one of the key issues that the governments of many countries are concerned about, since it can improve people's economic welfare and create jobs, which addresses the issue of unemployment (Cao and Ngo, 2019; Rustiana et al., 2021). Additionally, entrepreneurship has been seen as a way of life that promotes critical thinking in the face of risks, opportunities, and issues (Gelaidan, 2017; Wibisono and Thao, 2023).

Academics also pay close attention to entrepreneurial studies, which aim to inspire students to aspire to launch their own companies. The intention is the best predictor of what makes a person perform this kind of thing. Regarding the subject of entrepreneurship, researching the entrepreneurial intention has long been crucial (Tarek, 2016). Likewise, in the field of entrepreneurship, the variable of entrepreneurship intention is the best predictor of entrepreneurship behavior, as stated in Ajzen's theory of planned behavior (TPB) (Ajzen, 2015).

The application of this theory in entrepreneurship demonstrates that three aspects affect the entrepreneurship intention (EI), namely the attitude toward entrepreneurship (ATE), social norms (SN), and perceived behavioral control (PBC). The entrepreneurship intention is a state of mind, produced by an individual's attitude and values, and this is the driving force to start and run a business venture or enterprise (Ohanu and Ogbuanya, 2018; Rustiana et al., 2022). A person's ATE is a positive or negative assessment of his/her desire to be an entrepreneur. Subjective norms are other parties' pressure or approval, as perceived by the person who wants to become an entrepreneur. PBC is an individual's control over how easy or difficult it can be to become an entrepreneur.

Growing and developing a student's entrepreneurship intention is one of the crucial measures for higher education outcomes now. Graduates independently help the government by creating jobs for themselves, and others, through entrepreneurial activities, even when they are still in college. Entrepreneurship education has been designed and developed in such a way as to help students learn the aspects of cognition, attitude, and behavior needed to become an entrepreneur (Farransahat et al., 2021). Through entrepreneurship education, a person's mentality and mindset can be changed and directed to fit entrepreneurial behavior (Alshebami et al., 2020).

Many studies have demonstrated that entrepreneurship education (EE) can be integrated into the TPB model (Amofah & Saladrigues, 2022; Anwar et al., 2020; Rustiana et al., 2021). Amofah and Saladrigues (2022) looked into the connection between TPB and EE. There was an indirect association between EE and TPB, in addition to a direct relationship between EE and TPB through ATE, SN, and PBC. There were 216 students, aged between 20 and 24, who made up the respondents. However, the research did not indicate that EE had an impact on students ATE, PBC, or EI. In contrast, a study conducted by Anwar and Saleem (2020), involving 287 students in India, indicated that EE influenced EI both directly and indirectly through ATE and PBC, and also functioned as a moderating variable. The task technology fit (TTF) and entrepreneurship education variables were integrated into the TPB model by Rustiana et al. (2021). Three hundred and eighty-six students from private institutions in Yogyakarta acted as the respondents in that study, and the results demonstrated that entrepreneurship education had a direct impact on both TTF and EI in the TPB model.

Ashari et al. (2022) provides a new nuance in assessing the performance of measuring the

success of EE programs in the higher education environment. Students' EI can be enhanced if EE is applied effectively. This supports the government's aspiration to produce graduates who can create jobs. Sun et al. (2016) reviewed 14 articles published between 2006 and 2016, which were on the topic of the impact of EE on the EI-based TPB model. The review indicated the following: 1) most of the models for the TPB are not complete, 2) EE components are not elaborated in the models, 3) the results are not consistent, 4) most are still testing whether EE is influential rather than how EE is influential, and 5) the research methods are very different, not all use structural equation modelling to test the TPB models.

A quick search of the Scopus database on the subject of EE and TPB turns up research findings suggesting a variance in the relationship between EE and students' EI. According to Otache et al. (2019), the various studies' conclusions were contradictory, unclear, complex (as opposed to having a straightforward direct link), and inconsistent (Amofah & Saladrigues, 2022). Some studies have validated a positive relationship between EE and students' EI (Alshebami et al., 2020; Mao and Ye, 2021), while other studies have found an insignificant effect of EE on students' EI (Ashari et al., 2022; Galvão et al., 2018; Paray and Kumar, 2020). Moreover, some research reveals that the relationship between EE and students' EI is moderated by a diversity of factors such as gender (Feder and Niţu-Antonie, 2017), intended timing (Ramos-Rodríguez et al., 2019), entrepreneurial prior experience (Zhang et al., 2019), family background (Khadri et al., 2020), characteristics' attractiveness (Wu et al., 2020), self-efficacy (Srivastava et al., 2019), and even the attitude toward entrepreneurship education indicates that EE and the students' EI association is more complex than a simple direct connection (Amofah & Saladrigues, 2022; Anwar et al., 2020; Ashari et al., 2022; Otache, 2019b).

Hence, considering that the findings regarding the correlation between EE and students' EI are inconclusive, it is essential to further validate whether EE has a consistent, direct, and significantly positive effect on students' EI. The appropriate framework for this issue is broken-down via the following three sub-questions,

Q1. What are the roles of entrepreneurship education in the TPB model?

Q2: What various other exogenous variables are usually joined with EE in the TPB model?

Q3. How does the relationship among the exogenous variables, entrepreneurship education, and the TPB work in one conceptual model's mapping?

In the entrepreneurial arena, this research introduces a novel approach to mapping the variables that are commonly used and integrated into the TPB model. The paper thus seeks to: 1) bridge the knowledge gap, particularly with regard to the interaction between EE, the exogenous variables, and EI in the TPB model, 2) map out the numerous influences of the exogenous variables, other than EE, that are generally integrated into the TPB model.

To answer these questions, this article begins with a brief description of entrepreneurship education, the theoretical framework (the TPB model), and the relationship between EE, the other exogenous variables, and the TPB model. Section 2, the methodology and the steps taken during the systematic literature review (SLR). The synthesized propositions and the theoretical framework are discussed in Section 3. This section contains discussion. The last part is in the form of the conclusions and implications for future research.

METHODOLOGY

The present study consisted of a systematic literature review (SLR) of the research into entrepreneurship education and applying the theory of planned behavior in the entrepreneurship area. The review sought to identify the trends and growth of knowledge in this area. The SLR methodology is called the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Pati and Lorusso, 2018). According to PRISMA, there are four steps: identification, screening, eligibility, and inclusion that will be discussed in the subsection covering the method used for the data's selection criteria.

1. The method of data selection criteria

Two search engines (Scopus and Google Scholar) were used as a first step for PRISMA to identify the journal selection process. Data sets were extracted from the Scopus database, rather than the Web of Science (WOS) database. The main reason for choosing the Scopus database was its wide coverage of internationally indexed scientific journals, which are of a quality recognized by the academic community (Galvão et al., 2018), although some of the articles identified were also available in WOS. Using Boolean operators, the search terms "entrepreneurial education," "entrepreneurial education" and "TPB" were used to find articles for the systematic literature review. In the Scopus database, there were 117 articles, while there were 216 articles in Google Scholar.

During the screening stage, 208 duplicated articles were removed from the combination of the Scopus and Google Scholar databases, which left 125 articles. Additionally, during the second screening, seven articles were excluded because they were in the form of proceedings, which left 108 articles. The third stage was the eligibility stage. The remaining articles were further reviewed to establish if they met the following criteria: 1) not included as proceedings, and 2) the minimum number of citations was 10. As a result, there were finally 24 articles that could be analyzed and synthesized. Details regarding the PRISMA method's steps can be found in Figure 1.

2. Method for analysis data

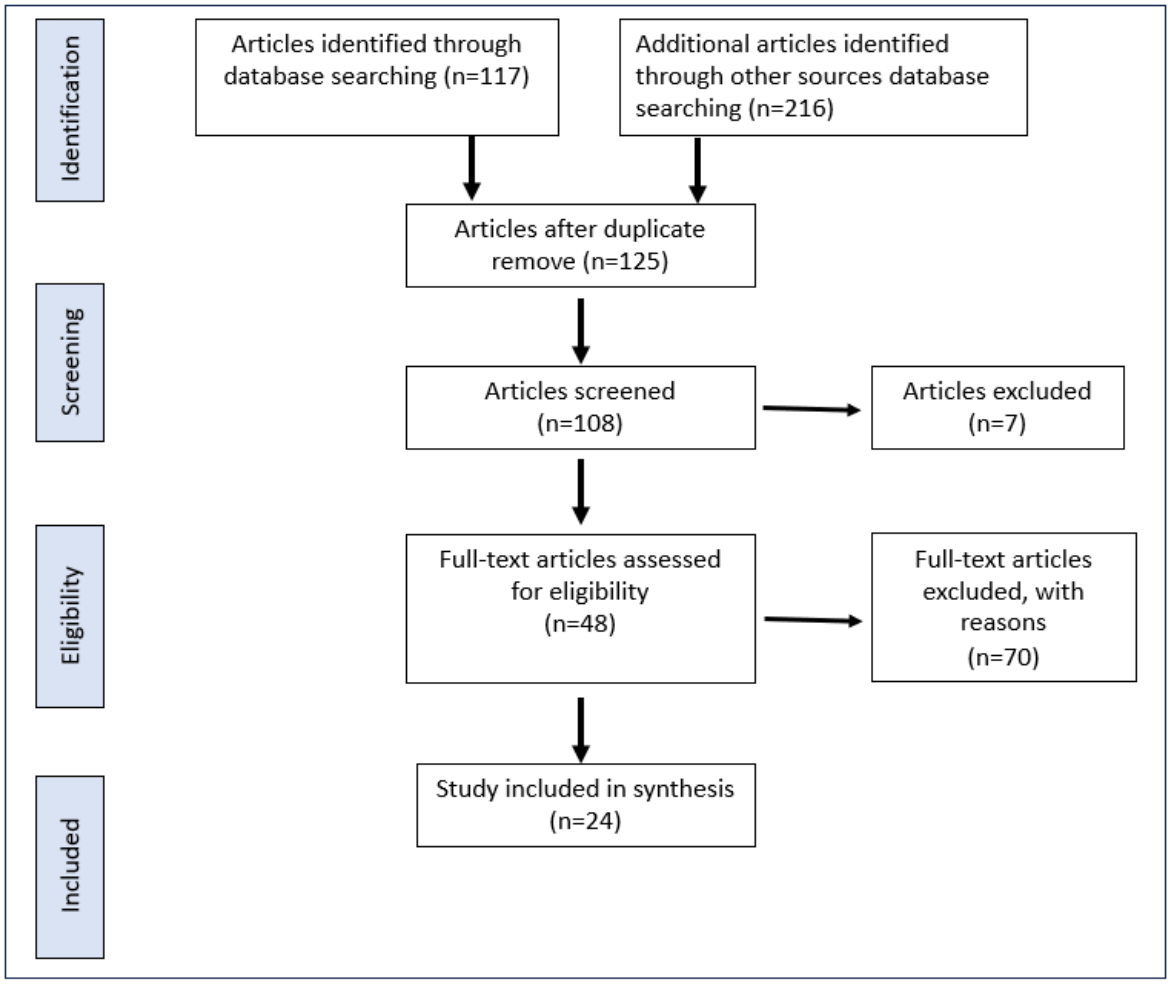
The data from the articles were extracted and included in a summary of the research information such as: 1) authors and year published, 2) direct effect of EE/other exogenous variables on the TPB model, 3) indirect effect of EE or other variables on the three antecedent variables, 4) n sample, 5) R^2, or other exogenous variables added into the TPB model, and 6) measurement of EE. Descriptive analysis and synthesis were employed to answer the three problems in the introduction section.

The major theme of this article maps out the relationship between the EE variables and other exogenous elements that are incorporated within the TPB model, in order for it to grow into a comprehensive model that may be used in future research to understand students' desires to pursue entrepreneurship.

RESULT

A few outcomes of the descriptive statistical analysis taken from Scopus included: 1) the trend of articles each year; 2) the top five journal sources indexed by Scopus; 3) the top five cited articles indexed by Scopus; and 4) a summary of the article by country/territory.

Figure 1. Article selection process based on PRISMA flow diagram



Source: SLR method based on PRISMA (Pati & Lorusso, 2018)

1. Trend of articles per year

From Figure 2, it can be seen that there is a positive trend of increasing EE research topics combined with the TPB model. The greatest increase in articles happened between 2018 and 2023; from 3 to 27 articles (an increase of 900%).

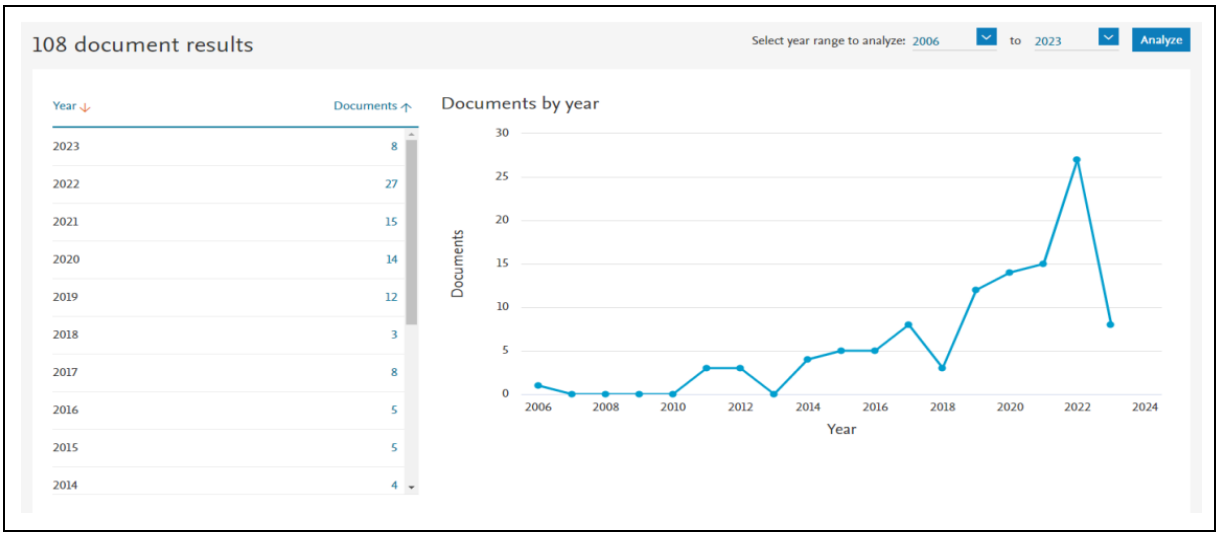
2. The top five Scopus indexed journal sources

Figure 3 shows the number of articles published in the top five Scopus indexed journal sources, namely Education and Training (11 articles); Frontiers in Psychology (three articles); Cohen Business and Management (two articles); European Journal of Training and Development (two articles), and International Entrepreneurship and Management Journal (two articles).

3. The top ten Scopus indexed articles cited.

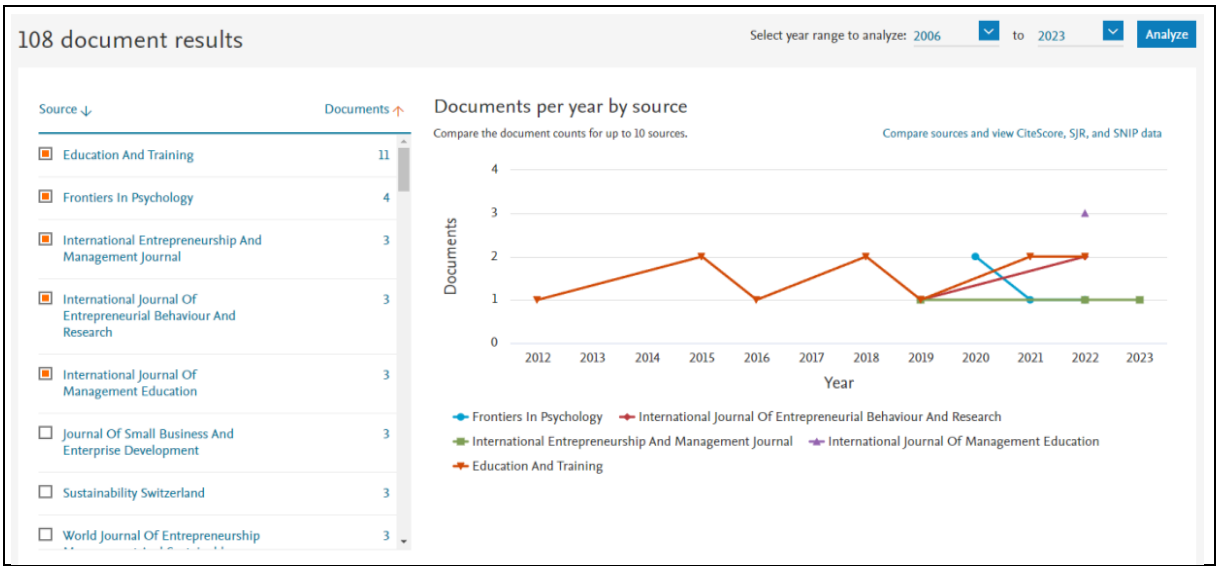
Table 1 shows that the most frequently cited article (772 citations) is by Fayolle et al. (2006) with the title "Assessing the impact of entrepreneurship education programmers: A new methodology." The least frequently cited (54 citations), based on Table 2, is the article by Farooq et al. (2018) entitled "Impact of support from social network on entrepreneurial intention of fresh business graduates: A structural equation modeling approach."

Figure 2. Trend in articles per year during the period 2006 – 2023



Source: Scopus index

Figure 3. The number of articles published in the top five Scopus indexed journal sources.



Source: Scopus index

Table 1. The top ten Scopus indexed articles cited

Authors, year	Title	Source title	Cited by
Fayolle et al (2006)	"Assessing the impact of entrepreneurship education programmers: A new methodology"	JEIT	772
Maresch et al (2016)	"The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs"	TFSC	293
do Paço et al (2011)	"Behavior and entrepreneurial intention: Empirical findings about secondary students"	JIE	149
Marques et al (2012)	"Entrepreneurship education: How psychological, demographic, and behavioral factors predict the entrepreneurial intention"	ET	90
Karimi et al (2014)	"Effects of role models and gender on students' entrepreneurial intentions"	EJTD	76

Authors, year	Title	Source title	Cited by
Laguía et al (2019)	"A psychosocial study of self-perceived creativity and entrepreneurial intentions in a sample of university students"	TSC	63
Joensuu-Salo (2015)	"Beyond intentions – what makes a student start a firm?"	ET	61
Wach & Wojciechowski (2016)	"Entrepreneurial intentions of students in Poland in the view of Ajzen's theory of planned behavior"	EEBR	60
Iglesias-Sánchez et al, (2016)	"Impact of entrepreneurship programmers on university students"	ET	56
Farooq et al (2018)	"Impact of support from social network on entrepreneurial intention of fresh business graduates: A structural equation modeling approach"	ET	54

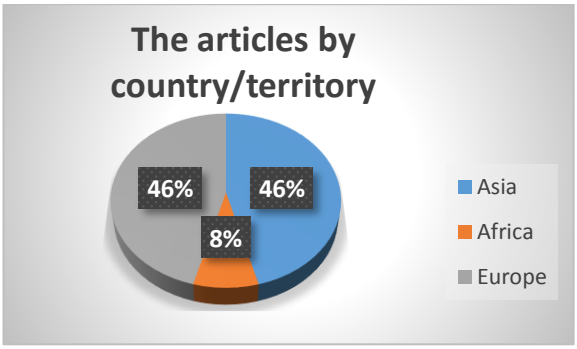
Note: JEIT (Journal of European Industrial Training), TFSC (Technological Forecasting and Social Change), JIE (Journal of International Entrepreneurship), ET (Education and Training), EJTD (European Journal of Training and Development), TSC (Thinking Skills and Creativity), EEBR (Entrepreneurial Business and Economics Review)

4. Display articles by country/territory

Since 1991, when Ajzen first proposed the TPB, it has frequently been used in entrepreneurship research, especially for seeking entrepreneurship intentions. Research related to the TPB, in the field of entrepreneurship intention, has been conducted in various countries around the world. Figure 4, so it does list the countries. The respondents are mostly students (as nascent entrepreneurs), and a few are entrepreneurs. Information about the articles by countries where students participate as respondent is shown in Figure 4.

According to Figure 4, of the 24 articles that were studied, 46% were in European countries, and the lowest relative percentage—8%—was found in African countries. Moreover, 46% reside in Asian nations. Table 2 provides more specific information, indicating that five of the articles used respondents from China. This indicates that EE subjects related to TPBs are a research area of interest for scholars in that country.

Figure 4. The article by country/territory



Source: analyzed internal from data sets

DISCUSSION

1. Discussion for RQ1: The role of the variable of EE on EI in the TPB model

The foundation for entrepreneurs is entrepreneurship education (Alshebami et al., 2020). Entrepreneurial education aims to teach the individual characteristics that will enable students to develop the required attitude and behavior (Anwar et al., 2020) to create new innovative plans for businesses, or start a business.

Tabel 2. The Articles by country/territory

Continent	n	Countries	Author
Asia	11	China (5), Malaysia, India, Vietnam, Oman, Saudi Arabia	Ashari et al., 2022; Cui et al., 2019; Mao & Ye, 2021; Mensah et al., 2021; A. T. Nguyen et al., 2019; Paray & Kumar, 2020; Xu et al., 2016; J. Q. Zhang &Wang, 2019; Alshebami et al., 2020; Anwar & Saleem, 2020;
Europe	11	Portugal (2), Spain (2), Finland (2), Romania (2), Belgium, Austria, Franch	Entrialgo & Iglesias, 2016; Feder & Niţu-Antonie, 2017; Galvão, et al., 2018; Heuer & Kolvereid, 2014; Laguía González et al., 2019a; Maresch et al., 2016; Varamäki et al., 2015; Haddad et al., 2021;Marques et al., 2012; Ramos-Rodríguez et al., 2019
Africa	2	Ethiopia, Nigeria,	Buli &Yesuf, 2015; Otache, 2019

Otache (2019) condenses the claims made by two opposing groups: One holds that an individual is an entrepreneur by birth, and the other holds that an entrepreneur is developed through the process of entrepreneurship education. Those who belong to the group that believes that being an entrepreneur comes naturally to them possess inherent traits such as a propensity for taking risks, creativity and innovation, autonomy, independence and success, tolerance for ambiguity and uncertainty, a need for power, and an internal locus of control. Gretzinger et al. (2018) citing Wu and Wu, (2008), showed that the level of education, the academic major, and academic achievement together influence one's personal attitude, and have an impact on EI. Entrepreneurship education's emphasis is on improving entrepreneurial knowledge, capacity, and skills, as well as the entrepreneurial attitudes and intentions that are congruent with the needs of the economy (Sun et al., 2017). Through entrepreneurship education, teachers teach students how to start and run a business, how to think creatively, innovate and have a strong sense of self-esteem, and strong discipline (Iwu et al., 2019). The higher learning establishments play a role by shaping their students' attitudes and behaviors (Alshebami et al., 2020; Rustiana et al., 2022). Bueckmann-Diegoli et al. (2021) stated the importance of the syllabus and curriculum of the EE program, which should be aimed at developing students' entrepreneurial attitude, so they possess the skills to: 1) inquire and explore their environment, 2) relate to and attach ideas, and 3) appraise and estimate the result of the entrepreneurial process.

On the other hand, there is a group of people who believe that an entrepreneur can "be born" through the process of entrepreneurship education, rather than being born into it. Therefore, in order to become an entrepreneur, a person must learn the essential business acumen and entrepreneurship knowledge through EE (Otache, 2019a). The students' goal to become self-employed or entrepreneurs serves as a gauge for the effectiveness of entrepreneurship education (Ashari et al., 2022). EE and EI have been joined in a variety of ways in the academic literature (Anwar et al., 2020).

According to Fayolle and Liñán (2014), there are three models that can be utilized to direct the growth of the entrepreneurial intention: 1) the model by Bird from 1988, which is a model for putting entrepreneurial ideas into practice, 2) Shapero and Sokol's model from 1982, which is the entrepreneurial event model, and 3) Ajzen's planned behavior theory from 1991.

Compared to the previous two theories, the theory of planned behavior (TPB) is currently one of the most widely used theories in entrepreneurial research when it comes to explaining and forecasting entrepreneurship

intentions as a predictor of individual behavior (Ashari et al., 2022; Bueckmann-Diegoli et al., 2021; Tiwari et al., 2017). The TPB is superior to other theories in many ways. Firstly, the TPB model is one of the most popular and well-known behavioral theories that academics use. Secondly, although the TPB model has been used in behavioral research for more than 30 years to predict individual behavior through intention variables that are impacted by three factors—ATE, SN, and PBC—it is still relevant, and still used today. Thirdly, students' aspirations to start their own businesses are reliably predicted by the TPB model. Lastly, research findings demonstrate that the EI is not impacted by all three of the TPB model's factors. Using the 24 articles that met the inclusive requirements shown in Figure 3, we could answer RQ1 regarding the varied contributions of EE factors that can enhance EI. Three roles for EE factors in determining EI in the TPB model may be inferred from the data in Figure 3. These roles include 14 papers with EE as the independent variable, three articles with EE as the moderating variable, and one article with EE as the control variable. Table 3 demonstrates the various functions of the EE variable's placement, as an independent variable, a moderating variable, and a control variable in the TPB model. Examining the three antecedent variables in the TPB model can have an impact on EE's function as an independent variable, either directly or indirectly.

Table 3. Various direct and indirect effects of EE on EI

Relationship	Direct effect/Indirect effect	n articles (%)	Note
EE → EI	Anwar et al., 2020; Feder & Niţu-Antonie, 2017; Laguía González et al., 2019; Mensah et al., 2021; Otache et al., 2019; Paray & Kumar, 2020; Varamäki & Joensuu, 2015; Xu et al., 2016; Zhang et al., 2019	9	Significant
	Galvão et al., 2018; Haddad et al., 2021; Heuer & Kolvereid, 2014; Marques et al., 2012; Ramos-Rodríguez et al., 2019	5	Not significant
EE → ATE → EI	Alshebami et al., 2020; Anwar et al., 2020; Haddad et al., 2021; Mao &Ye, 2021; Otache et al., 2019; Paray & Kumar, 2020; Sun et al., 2016; Varamäki & Joensuu, 2015	8	Significant
	Feder & Niţu-Antonie, 2017; Galvão et al., 2018; Heuer & Kolvereid, 2014; Nguyen et al., 2020; Xu et al., 2016	5	Not significant
EE → SN → EI	Haddad et al., 2021; Paray &Kumar, 2020; Sun et al., 201)	3	Significant
	Feder & Niţu-Antonie, 2017; Galvão et al., 2018; Heuer & Kolvereid, 2014; Otache et al., 2019; Xu et al., 2016	5	Not significant
EE → PBC → EI	Alshebami et al., 2020; Anwar et al., 2020; Haddad et al., 2021; Mao &Ye, 2021; Paray & Kumar, 2020; Sun et al., 2016; Xu et al., 2016	7	Significant
	Feder & Niţu-Antonie, 2017; Galvão et al., 2018; Heuer & Kolvereid, 2014; Nguyen et al., 2020; Otache et al., 2019	5	Not significant

Furthermore, Table 3 shows an interesting finding: The five groups of researchers were unable to confirm the direct effect of EE on EI. The five research groups measured EE using

dummy variables, namely if students take entrepreneurship courses, or not, and their basic education (general vs vocational) level. However, some researchers show that there is a direct influence of EE on EI (Joensuu et al., 2013; Laguía et al., 2019; Otache, 2019b) when using dummy variables to measure EE.

The indirect influence of EE on EI through the three antecedent variables of the TPB model was confirmed by Paray & Kumar (2020). The indirect influence of EE on EI can be partial, in the form of an indirect influence of EE on EI through ATE, which is confirmed by researchers such as Nguyen et al. (2020), Otache et al. (2019), and Varamäki and Joensuu (2015). Other studies (Nguyen et al., 2020; Xu et al., 2016) confirm that EE's indirect influence on EI is through PBC.

The role of EE as a moderating variable is evidenced by Anwar et al. (2020), Zhang et al. (2019), who all state that ATE and PBC moderate the relationship between the EE variables and EI. The role of the EE variables in the TPB model is not only as independent and moderating variables, but also as a control variable (Paray & Kumar, 2020).

Heuer and Kolvereid (2014) were unsuccessful in proving the direct influence of EE on EI, or an indirect influence through all three of the antecedent variables (ATE, SN and PBC). As for the indication of the cause, there are three possible things: 1) there is something lacking in the theory, 2) the measurement of the variables is poor, and 3) entrepreneurship students have higher entrepreneurial intentions while they pursue their education in entrepreneurship.

Sun et al. (2016) conducted a systematic literature study into the impact of EE on EI, based on the TPB model. They had five criticisms, which can be summarized as: 1) most models are incomplete, 2) EE components are not well elaborated, 3) the results are inconsistent, 4) most researchers focus on testing EE to answer whether EE affects EI, rather than how EE affects EI, and 5) the research methods vary greatly.

Table 4 shows the individual items' measurement of EE using a questionnaire that was developed by Liñán and Chen (2009), Thung (2011), Souitaris et al. (2007), Xu et al. (2016), Keat et al., (2011), and Bae et al. (2014). What is interesting and requires further analysis is the variety of dimensions and item indicators used to measure the EE variables, namely: 1) focus on answering the question "know what" in the form of skills, competencies and entrepreneurship knowledge (Xu et al., 2016, Thung, 2011, Bae et al., 2014), 2) focus on answering the questions "know what" and "know who," which include cognitive, effective and behavioral aspects (Liñán and Chen, 2009), and 3) integrated and holistic indicator items that answer complete questions such as "know what," "know who," "know why," and "know how" (Keat et al., 2011; Souitaris et al., 2007).

2. Discussion for RQ2: The combination of exogenous variables and EE in the TPB model

This section identifies and exposes numerous other exogenous factors that are integrated with EE in the TPB model. This section also explains how researchers harmonize EE with other exogenous variables in the TPB model. Table 5 below illustrates the many roles that the exogenous variables play in the TPB model.

Table 4. Summary of the complex measurement of EE from researchers

Authors and year	Measurement of EE (complex and simple)	Source
(Anwar et al., 2020)	Entrepreneurship education courses must develop the following aspects: 1. Knowledge of entrepreneurial environment. 2. Greater recognition of the entrepreneurial figure. 3. Preference be an entrepreneur. 4. The necessary abilities to be an entrepreneur. 5. The intention to be an entrepreneur.	Liñán & Chen (2009)
(Otache et al., 2019)	EE is measured by five items. EE is the process of teaching students' entrepreneurial competencies, skills, and the insight they need to establish their own businesses.	Thung (2011)
(F. Zhang et al., 2019)	21-item scale of entrepreneurial learning, containing five aspects: 1. Why entrepreneurs act 2. What needs to be done? 3. How to start a venture 4. Who do you need to know. 5. When do you need to act.	Souitaris et al. (2007)
(Mao &Ye, 2021)	Eight items in four dimensions: students attend courses on: 1. Economics 2. Entrepreneurial theory 3. Entrepreneurial awareness 4. Entrepreneurial practices	Xu et al. (2016)
(Xu et al., 2016)	Entrepreneurship education consists of any pedagogical process of education for entrepreneurial attitudes and skills. This consists of four items: 1. Entrepreneurial theory course 2. Entrepreneurial practice course 3. Entrepreneurial awareness or attitude course 4. Course related to economics	Bae et al. (2014)
(Paray & Kumar, 2020)	The term of EE is measured by eight items: 1. Feel confident about tackling unfamiliar work-based problems. 2. Helping develops the ability to plan and organize day-to-day work. 3. Helping develops job-related skills. 4. Providing new business ideas. 5. Helping develops critical thinking skills. 6. Having lots of genuine business experiences that are not available in the classroom. 7. Developing communication skills. 8. Increasing practical business knowledge.	Keat et al. (2011)

Several of the exogenous variables that are commonly paired with EE to boost the students' EI in the TPB model can be categorized into three components, as shown in Table 5. These aspects

are: 1) personal, 2) family, and 3) institutional. First, the personal aspects include psychological characteristics (Iglesias et al., 2016; Joensuu, 2015; Ramos et al., 2019), personal traits (Marques et al., 2012; Xu et al., 2014), self-perceived creativity (Laquia et al., 2019), entrepreneurial self-efficacy (Shi et al., 2020; Wu et al., 2020; Mensah et al., 2021), and the locus of control and gender (Marques et al., 2012; Xu et al., 2014). Second, the family aspects include family background/family support (Galvao et al., 2018, Marques et al., 2012; Ramos et al., 2019), role models (Joensuu, 2015; Iglesias et al., 2016), cultural harmony (Mao & Ye, 2021), cultural distance, and social support (Farooq et al., 2018; Nguyen et al., 2020). Third, the institutional aspects include student internship motivation (Laguia et al., 2019), know-what about entrepreneurship (Sun et al., 2016), know-how of entrepreneurship (Sun et al., 2016), and level of education/major in education (Iglesias et al., 2016).

Table 5 also provides information on the students' gender and family support/background, two exogenous variables that have an impact on students' EI growth, both directly and indirectly. The study by Galvão et al. (2018) of 289 Portuguese university students discovered that family support and background have a direct impact on emotional intelligence (EI) and an indirect effect on EI through PBC alone. Family support is the attribute of someone who has an entrepreneurial family background, strong familial ties, and a propensity for entrepreneurship. When parents include entrepreneurial understanding in their everyday actions, folks are intrigued by a great deal of entrepreneurial learning.

Ramos-Rodríguez et al. (2019) citing Hair & Sarstedt (2014) state that the classification of the R^2 limit value is as follows: a) > 0.67 is deemed high, b) ≥ 0.33 is deemed moderate, and c) ≥ 0.19 is deemed weak. Table 5 displays the average R^2 value (0.452) for each structural model, indicating a moderate value. Accordingly, the exogenous variables and EE may account for 45.2% of the EI of students in the TPB model.

Table 5. Summary of the effect of EE and other exogenous variables in the TPB model

No.	Authors, year	Direct effect of EE on				Antecedent of TPB			Indirect or moderating effect of EE/other variables on EI	n	R^2	Other exogenous variables added in the TPB model	Measurement of EE
		ATE	SN	PBC	EI	ATE	SN	PBC					
1	(Buli & Yesuf, 2015)	-	-	-	-	0.63	0.15	0.35	-	107	0.451	-	TVET = technical and vocational education training
2	(Galvão et al., 2018)	ns	0.183	ns	ns	0.546	ns	0.463	-	289	0.584	IV: family background	dummy variable: intake entrepreneurship course
3	(Iglesias-Sánchez et al., 2016)	-	-	-	-	0.16	ns	0.050	-	382	0.74	-	dummy variable: non EEP and EEP
4	(Varamäki & Joensuu, 2015)	-	-	-	0.513	0.193	0.008	0.526	-	3,754	0.47	IV: gender, role models, entrepreneurial competence (innovativeness, tolerance of ambiguity, creative problem solving and the ability to organize)	basic education: general and vocational
5	(Marques et al., 2012)	-	-	-	ns	0.542	ns	0.505	-	202	n. a	IV: family antecedent, locus of control, need for recognition, tolerance of ambiguity	basic education: general and vocational
6	(Otache et al., 2019)	0.236	0.183	0.231	0.161	0.367	ns	ns	EE→ ATE → EI	250	n. a	-	five items from Tung, 2011 and Souitaris et al., 2007.
7	(Mao & Ye, 2021)	D: ns F:0.23	D: ns F:0.18	D: 0.39 F:0.42	-	0.51	ns	0.57	-	211	n. a	IV: cultural capital (bicultural identity integration), social capital (ambidextrous social network), human capital (bilingual proficiency, entrepreneurship education)	eight items from Xu et al., 2016

No.	Authors, year	Direct effect of EE on				Antecedent of TPB			Indirect or moderating effect of EE/other variables on EI	n	R^2	Other exogenous variables added in the TPB model	Measurement of EE
		ATE	SN	PBC	EI	ATE	SN	PBC					
8	(Ramos-Rodríguez et al., 2019)	-	-	-	ns	0.801	ns	0.228	-	851	0.552 – 0.659	IV: gender; family business background	dummy variable → in take entrepreneurship course
9	(Varamäki & Joensuu, 2015)	0.47	-	-	-	0.31	0.28	0.19	EE→ ATE→ EI	197	0.28	male student	dummy variable: active-based entrepreneurship course
		0.20	-	-	-	0.22	0.37	ns	EE→ ATE→ EI	-	0.19	female student	
10	(Ashari et al., 2022)	-	-	-	-	0.447	0.301	0.189	-	230	n. a	EE*ATE → EI EE*SN → EI EE*PBC → SN	one item, yes or no (entrepreneurship course)
11	(Botezat et al., 2022)	-	-	-	-	0.594	0.303	0.019	-	313	0.59	IV: the COVID 19 pandemic environment MV: EK*ATE→ EI EK*SN→ EI EK*PBC→ EI ESE*ATE→ EI ESE*SN→ EI ESE*PBC→ EI inspiration and resources (IR) CV: gender; family background; field of study	one item: enroll in the EE program. EE is proxied by EK and IR
12	(F. Zhang et al., 2019)	0.259	0.245	0.215	0.412		-		EL*ATE→ EI. EL*SN→ EI EL* PBC→ EI	410	0.439	MV: prior exposure to entrepreneurship	entrepreneurial learning: 21 items from Souitaris et al., (2007) consists of five aspects: 1. why do entrepreneurs act? 2. what needsto be done? 3. how do I start aventure? 4. who do I need to know? 5. when do I need to act

No.	Authors, year	Direct effect of EE on				Antecedent of TPB			Indirect or moderating effect of EE/other variables on EI	n	R^2	Other exogenous variables added in the TPB model	Measurement of EE
		ATE	SN	PBC	EI	ATE	SN	PBC					
13	(Heuer & Kolvereid, 2014)	ns	ns	ns	ns	ns	ns	ns	-	807	0.049	CV: gender, new business start-ups experience	EE is measured by in- take of entrepreneurial course/class
14	(Feder & Nitu-Antonie, 2017)	ns	ns	ns	0.079	0.598	0.089	0.380	-	650	0.522	IV: entrepreneurial models (EM); psychological characteristics (PC); educational background (EB) MV: G*PA → EI G*SN → EI G*PBC → EI	EE is measured by educational background
15	(Anwar et al., 2020)	0.558	-	0.517	0.187	0.308	0.196	0.348	EE*ATE → EI. EE*PBC → EI	408	0.575	-	Measurement of EE use 5 items from Linan and Chen (2009)
16	(Maresch et al., 2016)	-	-	-	-	0.223	0.105	ns	EE*ATE → EI. EE*SN → EI EE*PBC → EI	3581	0.382	-	Entrepreneurship education is measure by number of entrepreneurship courses had taken
17	(Laguía González et al., 2019b)	-	-	-	0.13	0.21	0.10	0.23	-	559	0.33	IV: family support forcreativity, creativity course, university support forcreativity, self-perceived creativity CV: socio demographic background (age, business plan, work experience, former entrepreneur, family entrepreneur, entrepreneurship course).	EE is measured by taking entrepreneurial course/class
18	(Paray & Kumar, 2020)	0.459	0.387	0.329	0.298	0.275	0.41	0.468	-	309	0.469	CV: gender, education level, and degree background	EE is measured with eight items (Keat et al.,2011)

No.	Authors, year	Direct effect of EE on				Antecedent of TPB			Indirect or moderating effect of EE/other variables on EI	n	R^2	Other exogenous variables added in the TPB model	Measurement of EE
		ATE	SN	PBC	EI	ATE	SN	PBC					
19	(Alshebami et al., 2020)	0.248	-	0.411	-	0.553	ns	0.253	-	184	n. a	PBC as self-efficacy	EE is measured with five items
20	(Sun et al., 2017)	0.164	0.421	0.285	-	0.25	0.29	0.34	-	201	0.50	IV: k-why k-who k-how k-what	EE is measured with 4-word questions (what, why, who, and how)
21	(Haddad et al., 2021)	0.28	0.15	0.27	ns	0.19	0.49	0.16	-	407	n. a	-	EE is measured with DLE (diverse learning environment)
22	(Xu et al., 2016)	ns	ns	0.101	0.089	0.375	ns	0.596	EE→ATE→ EI. EE→SN→ EI EE→PBC→ EI LOC→ATE →EI. LOC→SN→EI LOC→PBC→EI Innovations →ATE →EI. Innovations →SN→EI Innovations →PBC→EI	1,018	n. a	IV: personal trait (LOC, innovativeness, need for achievement, short-term risk taking). MV: demographic variables CV: gender, grade, entrepreneurial experience	EE is measured with four items
23	(Mensah et al., 2021b)	-	-	-	0.062	0.264	0.126	0.231	-	811	0.525	IV: self-efficacy (SE), student internship motivation (SIM) SE→ EI SIM → EI	EE is measured with five items: 1. entrepreneurship attitude 2. society and individual entrepreneurship 3. generating ideas 4. financial preparation for entrepreneurship ventures 5. skillsto deal with risksand uncertainty

No.	Authors, year	Direct effect of EE on				Antecedent of TPB			Indirect or moderating effect of EE/other variables on EI	n	R^2	Other exogenous variables added in the TPB model	Measurement of EE
		ATE	SN	PBC	EI	ATE	SN	PBC					
24	(Nguyen et al., 2020)	0.209	-	ns	-	ns	ns	0.431	-	600 (V)	n. a	IV: family support (FS), society support (SS); FS→ PA FS→ SN SS → SN SS → PBC CV: gender (G), major (M) G→ EI M→EI	EE is measured by takingentrepreneurial course/class
		0.409	-	0.390	-	0.474	0.282	0.256	EE→ATE →EI. EE→PBC→EI	550 (SK)	n. a	IV: family support (FS), society support (SS) FS→ PA FS→ SN SS → SN SS → PBC CV: gender (G), major (M) G→ EI M→EI	
				total					n	11,038	-		
				of R^2					average	-	0.452		

Notes: IV = independent variable; MV = moderating variable; CV = control variable; D = direct effect; ID = indirect effect; ATE = at titude toward entrepreneurship, SN = subjective norms, PBC = perceived behavioral control; LOC = locus of control; D = domestic, F = foreign, V = Vietnam, SK = South Korea. * The red color means this effect is not significant; n.a = not available

3. Discussion of RQ3: Conceptual map the relationship between exogenous variables, entrepreneurship education and the TPB in one model mapping

An analysis of prior research indicates that there is currently no mapping that integrates and characterizes EE with other exogenous latent variables in an extended model of TPB. According to Hair et al. (2014), an exogenous latent variable is one that functions solely as an independent variable in a structural model. As a result, the mapping of factors in this article aims to give a general picture of how these variables relate to the three TPB antecedent variables in developing students' EI. Figure 5 presents the mapping's findings. This concept map helps by providing an overview of the various elements that may be related to TPB in the context of entrepreneurship.

The exogenous variables serveas moderating variablesin two different locations in Figure 5. First, EE with ATE, SN, and PBC is moderated by certain exogenous variables (i.e., gender and demographic characteristics). Second,the moderating variables, including EE and gender, influence the relationship between ATE, SN, and PBC with EI.

Additionally, Figure 5 illustrates the presence of antecedent variables that function as independent variables for other exogenous variables, such as know-what about entrepreneurship (Sun et al., 2017), university support for creativity (Laguía et al., 2019), and family support for creativity.

CONCLUSION AND SUGGESTION

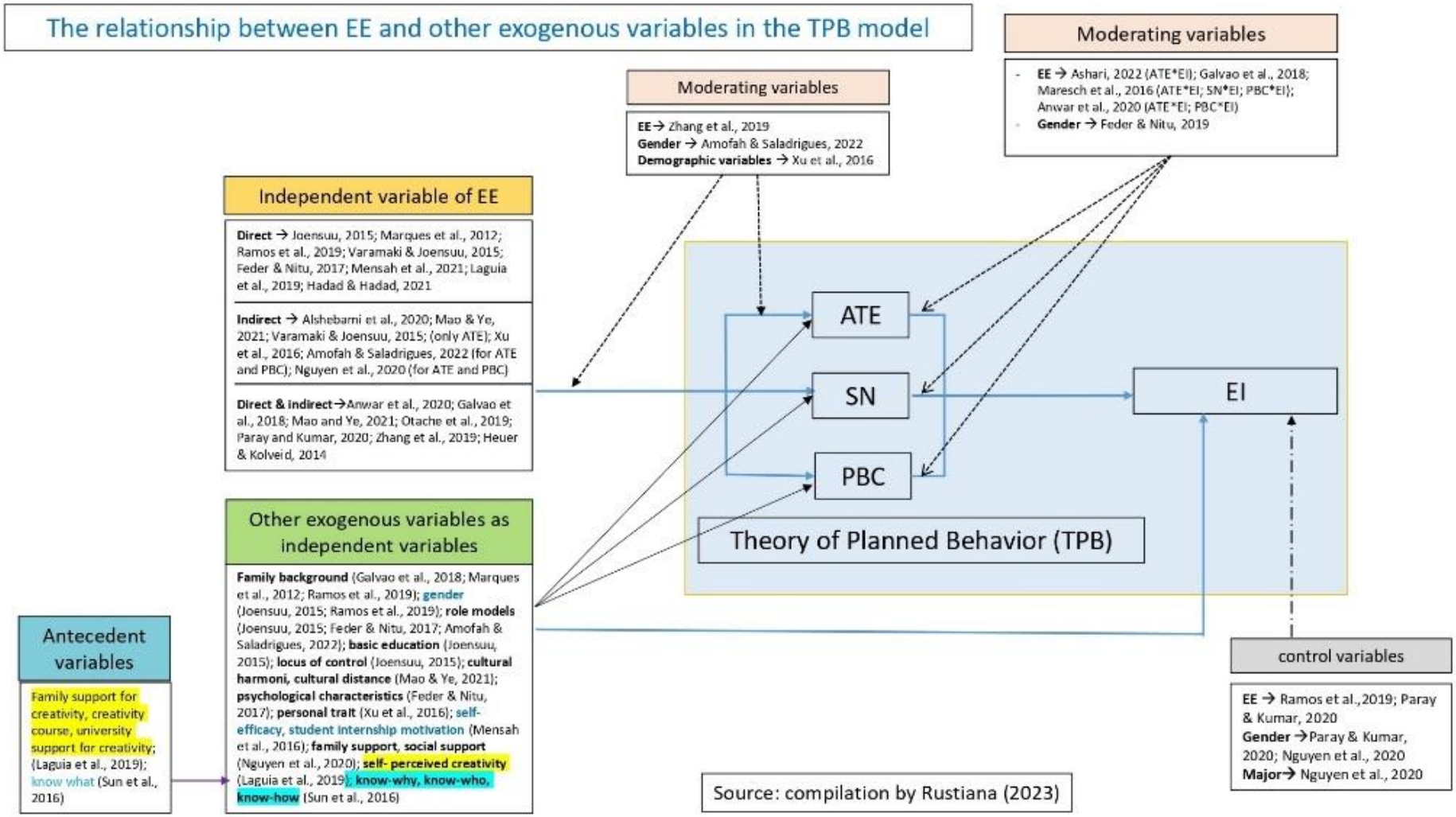
Using the TPB model, this study examined the effects of entrepreneurship education and other exogenous variables on entrepreneurial intention. This study employed the four-stage PRISMA method in conjunction with the SLR strategy. Various procedures were followed in order to identify relevant articles, check them to see if they were eligible to be included, and to exclude those that were not. Twenty-four papers from a total of 108 articles were retrieved for analysis from the search results acquired from two indexed journal databases, Scopus and Google Scholar.

From the 24 papers that underwent a thorough evaluation, the results of their synthesis and analysis provided answers for RQs 1, 2, and 3. In the TPB model, the EE variable serves three purposes to address RQ1. First, as an independent variable, EE has a direct effect on students' EI. Moreover, EE, as an independent variable, indirectly raises EI through ATE, SN, and PBC—the three antecedent variables of the TPB. Second, EE acts as a moderating variable by regulating the relationship between the three antecedent variables and EI. Finally, the EE variable is used as a control variable in the TPB model.

In order to address RQ2, which asked what exogenous variables are frequently included in conjunction with the EE variables in the TPB model? This article groups different exogenous factors into three categories: social, personal, and institutional. However, it's not always possible to prove that exogenous variables have a direct or indirect effect on EI. Consequently, this poses a challenge for additional research by academics.

This article contributes to the literature by providing a map of the relationship between the EE variable and the other factors connected to EI in the TPB model. Researchers will now be able to select different exogenous variables that are utilized to raise EI that is joined with TPB, in order to pursue their studies' goals and to obtain a more comprehensive understanding of the research's concepts.

Figure 5. The map of the relationship between EE and the other exogenous variables in the TPB model



Source: own mapbased on compilation data set

The limitation of this study is that SLR is based on only two databases: Scopus and Google Scholar. We recommend that for future SLRs, researchers add databases such as WOS or others. Furthermore, for more detailed analysis, metanalysis could be applied to get a more detailed picture related to the research's issues.

Three implications can be drawn from this research. First, the approach to determining the effectiveness and efficiency in the design of the EE curriculum and learning process needs to be reconsidered. Entrepreneurial negotiation, effective communication, leadership, financing, new product development, creativity and service-based learning, information technology, and related activities are all important for students to enhance their ability to recognize, evaluate, and explore business opportunities. These topics are related to the entrepreneurship course content offered by Galvão et al. (2018). Second, the TPB model uses the combination of significant exogenous variables (e.g., gender, family background, personal trait, role models) with EE to raise students' EI. Third, in the future, scholars may take into account how the EE variables in the TPB model are chosen in relation to a study's goals (Wu, 2017), and the effects or results for stakeholders like the community, instructors, lecturers, and students.

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