

Effects of Gender on Students' Entrepreneurial Intentions: A Theory of Planned Behaviour Perspective

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Abstract

Based on a sample of 301 first, second and third-year undergrad entrepreneurship students from a university of technology in South Africa, the purpose of this research paper was to investigate the effects of gender on students' entrepreneurial intentions (EI), as well as the determinants of EI. The theory of planned behaviour (TPB) underpins this research. The study's objectives were to establish whether the TPB might assist in explaining the effects of gender on students' EI, as well as the factors that influence EI. The data was analysed using partial least square (PLS) structural equation modeling (SEM) algorithm in SmartPLS 3.3.3. The findings of this study revealed that gender has no significant relationship with students' EI, subjective norms, perceived behavioural control and attitude towards behaviour. In terms of the TPB, the findings revealed that all the antecedents of the TPB have a statistically significant correlation with EI. The findings suggest that the TPB can be regarded as a useful tool for evaluating students' EI.

Keywords

Entrepreneurial Intentions, Theory of Planned Behaviour, Gender

1. Introduction

Entrepreneurship is important to every country's economy since it has the potential to encourage job creation, innovation and creativity, as well as high employment, positive social development and economic progress (Shane & Venkataraman, 2000; Rowley, Baregheh, & Sambrook, 2011; Nasiru, Keat, & Bhatti, 2015). South Africa is in critical need of a more dynamic, job-creating, and inventive growth path, especially in the aftermath of the COVID-19 pandemic.

The unemployment rate in South Africa increased to 34.4% in the second quarter of 2021, up from 32.6% in the first quarter, while the youth unemployment rate grew to 64.40%, up from 63.30% in the first quarter (Statistics South Africa, 2021). This demonstrates that there is a clear need to support youth entrepreneurship in South Africa by encouraging more young people to see it as a viable career option. Entrepreneurship has a fundamental role in fostering innovation, increasing efficiency, and establishing a corporate culture, and perhaps most crucially, has the ability to create jobs. A higher emphasis on entrepreneurship would allow more businesses to emerge, formalizing many sectors of the South African economy.

Understanding entrepreneurship requires one to understand an individual's entrepreneurial intentions (EI), attitudes and behaviour (Krueger, Reilly, & Carsrud, 2000; Nasiru, Keat, & Bhatti, 2015). In general, EI is demarcated as a state of mind that directs an individual's attention, experience and activity towards a specified objective or path to achieving a business goal (Shapero & Sokol, 1982). The notion of EI encapsulates the traits that can be characterized by a person's attitudes, talents and contextual factors, as well as their psychological qualities (Fini et al., 2009). Being an entrepreneur is clearly a conscious action and having a strong EI can have a huge influence on an individual's intention to starting-up a new business (Tomy & Pardede, 2020). Nevertheless, gender stereotypes regarding entrepreneurship have also been demonstrated in studies to have a significant impact on people's intentions to become entrepreneurs (Gupta et al., 2009). Despite the fact that many gender disparities in entrepreneurship have been established based on real entrepreneurs, some research studies have attempted to validate these differences at the level of EI (Zhao, Seibert, & Hills, 2005). According to career models, gender is just a background element that influences job-related processes indirectly through other associated variables (Abele, 2000). Considering this, entrepreneurship may be characterized as a type of planned behaviour that can be examined with the use of EI models (Mueller, 2011).

Prior literature on EI appear to have exhausted the intent of one to become an entrepreneur or engage in entrepreneurial activities. In contrast, two primary theories have been utilized to analyze the intents to become an entrepreneur, particularly amongst university students. These two theories namely are commonly known as the theory of planned behaviour (TPB) (Ajzen, 1991) and the entrepreneurial events model (EEM) (Shapero & Sokol, 1982). The TPB outperforms other frameworks in terms of analytical power (Díaz-Casero, Hernández-Mogollón, & Roldán, 2012) and is one of the most widely accepted theories for explaining the cause and effect of EI (Liñán & Chen, 2009; Mothibi & Malebana, 2019; Mahlaole & Malebana, 2021). In view of the aforementioned, this research paper has two objectives, initially, it aims to contribute to the literature on EI by applying the TPB (Ajzen, 1991) to the South African setting. Then, it investigates the effects of gender on perceived behavioural control (PBC), subjective norms (SN)

and attitudes towards behaviour (ATB) on students' EI to establish a business in the near future. The following is how the rest of this research paper is outlined: Section 2 reviews the literature, establishes the hypotheses and conceptual model; Section 3 describes the research methodologies before presenting the study findings and discussions in Section 4; Finally, Section 5 presents the research's conclusions, limits and recommendations for future research.

2. Literature Review

2.1. Theory of Planned Behaviour

The TPB is based on Ajzen and Fishbein's theory of reasoned action, which they published in 1980 (Ajzen, 1991), and has since evolved into a fundamental model for understanding, predicting, and changing people's social behavior (Ajzen, 2012). The TPB's main goal is to provide a comprehensive and accurate foundation for describing behavioural elements (Ajzen, 1991, 2012). The TPB assumes that people's intentions predict their behaviour (Ajzen, 1991), whereas intention refers to how much effort a person plans to put in to carry out that behaviour in the future (Entrialgo & Iglesias, 2016). The primary construct of the TPB is an individual's intent to perform a specific behavior (Ajzen, 1991, 2012). It is based on the premise that people make rational decisions and intents, which lead to specific behaviours (Küttim et al., 2014). Intentions and behaviour, according to the TPB, are influenced by three major predictors (Ajzen, 1991). To be more specific, the three predictors that influence intentions, as per the TPB are: ATB, PBC, and SN (Ajzen, 1991). **Figure 1** below shows a photographic illustration of the TPB.

The first predictor; ATB, considers a person's positive and negative assessments of various behaviours. The second predictor, SN, indicates the societal pressure on an individual to start up a business (from friends, family, coworkers,

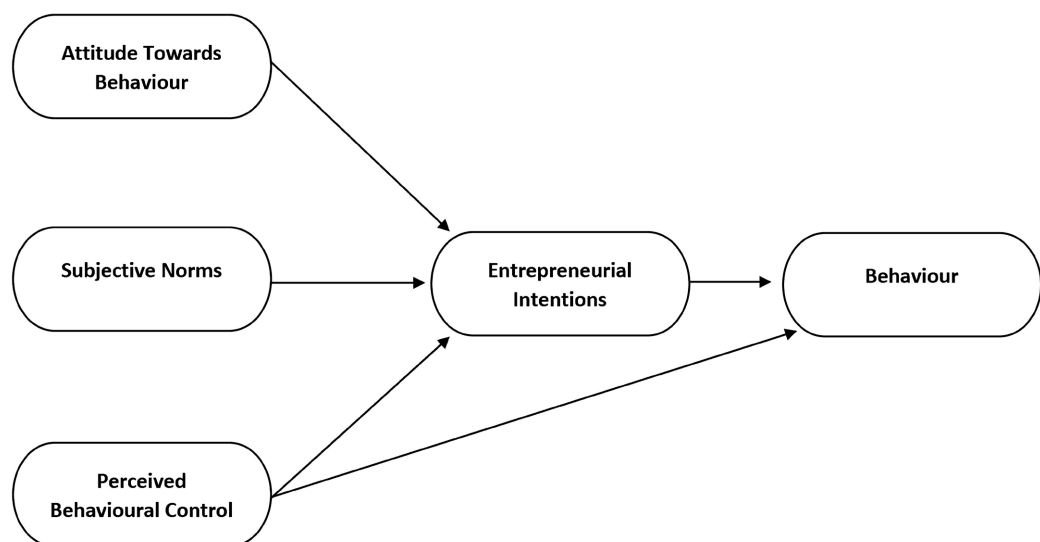


Figure 1. Theory of planned behaviour. Source: Adopted from Ajzen (1991).

etc.). Finally, PBC shows a person's skill and capability to perform a particular behaviour (Ajzen, 1991, 2012). The TPB has proven to be a reliable predictor of EI (Armitage & Conner 2001; Hagger, Chatzisarantis, & Biddle, 2002; Hussain & Norashdah, 2015; Tarek, 2017; Marire & Dhurup, 2018; Mothibi & Malebana, 2019; Ilman, Ananda, & Pohan, 2020; Mahlaole & Malebana, 2021). The stronger an individual's intention to undertake the behaviour under consideration, the more favourable the attitudes and SN, and the larger the PBC, according to Ajzen (1991). Nonetheless, depending on the behaviour, the importance of ATB, PBC, and SN may vary (Ajzen & Cote, 2008). Thus, it may be discovered that only attitude has a significant impact on EI, or that both attitude and PBC have a significant impact on EI, or that all three predictors are significant in explaining EI in some cases (Ajzen, 2012; Davids, 2017).

2.2. Attitude towards Behaviour

The degree of one's general feelings of favourable or unfavourable toward performing behavior is referred to as their ATB (Ajzen & Fishbein, 1980). ATB is essentially the result of a set of salient beliefs (known as behavioral beliefs) that executing the behaviour would result in specific outcomes (Ajzen & Fishbein, 1980; Ajzen, 2012). Consequences might be beneficial or bad, and they can harm either the individual or other parties. As a result, the more favourable the ATB, the more positive the perceived consequence of the behaviour (Ajzen & Cote, 2008). Empirical research on EI has ATB to be significantly correlated with EI (Samo & Hashim, 2016; Ebewo, Rugimbana, & Shambare, 2017; Marire & Dhurup, 2018; Agollo, Monametsi, & Phera, 2019; Urban & Chantson, 2019; Mahmoud et al., 2020; Mahlaole & Malebana, 2021).

For instance, Ebewo, Rugimbana and Shambare (2017) found that students with a positive ATB are more likely to be entrepreneurs once they have completed their studies. A more recent study by Mahlaole and Malebana (2021) also revealed that ATB is significantly related to students' EI. Samo and Hashim (2016) established the notable importance of ATB as a predictor of student EI. Similar results have also been found by other research studies (Malebana & Swanepoel, 2015; Naia et al., 2017; Al-Shammari & Waleed, 2018). Contrary to the abovementioned findings, Bhinekawati, Nelloh and Abdurahman (2020) found no significant effect between EI and students' ATB.

2.3. Subjective Norms

SN is the second predictor of EI. In general, it is an individual's assessment of whether the majority of important individuals to that person believe he or she should or should not engage in the behaviour in question (Ajzen, 1991). According to the theory, the more an individual believes how vital others believe he or she should engage in a behaviour, the more likely the person will intend to do so (Ajzen, 1991, 2007, 2012). SN emerge from an individual's salient ideas (known as normative beliefs) about whether specific groups (colleagues, teachers

and seniors) believe he or she should engage in certain behaviours (Ajzen 1991, 2007, 2012). A number of studies have found SN to be a significant predictor of students' EI (Hussain & Norashdah, 2015; Mwiya et al., 2017; Marire & Dhurup, 2018; Mothibi & Malebana, 2019; Aga & Singh, 2020; Mahlaole & Malebana, 2021) even though others did not support this finding (Davids, 2017; Awan & Ahmad, 2017; Wibowo, 2019; Paiva et al., 2020; Alshebami et al., 2020; Mahmoud et al., 2020).

Hussain and Norashdah (2015) conducted a study on Pakistan students in Sindh and discovered that SN where significant correlation with EI. Mwiya et al. (2017) along with Aga and Singh (2020) also discovered that SN has a significant positive relation with EI. In South African context, Mothibi and Malebana (2019) revealed that SN has a significant influence on secondary school learners' EI. Similarly, Mahlaole and Malebana (2021) applied the TPB and uncovered that SN also has a significant effect on students' EI. Contrary to the aforementioned, Davids (2017) found that SN has no significant relationship with EI. Similar findings were also reported by the following studies (Awan & Ahmad, 2017; Wibowo, 2019; Paiva et al., 2020; Alshebami et al., 2020; Mahmoud et al., 2020).

2.4. Perceived Behavioural Control

The efficacy of the control component in either preventing or promoting the behaviour is referred to as PBC (Ajzen, 2007, 2015). PBC assesses the perceived efficacy or difficulty of carrying out the behaviour (Ajzen, 2012). It influences people's decision to seek an objective, as well as their level of preparation, efforts, perseverance, thought, and emotions experienced during the work (Ajzen 1991, 2007, 2012). PBC, according to Ajzen (2012), can indirectly affect behavioural outcomes by influencing intentions to engage in and endure the behaviour in the face of obstacles that develop during execution.

The link between PBC and EI has been validated across several research studies (Malebana, 2014; Malebana & Swanepoel, 2015; Iglesias-Sánchez et al., 2016; Naia et al., 2017; Galvão, Marques, & Marques, 2018). For instance, Galvão, Marques and Marques (2018) discovered that students' EI were moderately affected by PBC. In sport sciences, Naia et al. (2017) put Ajzen's TPB to the test to see which variables influenced students' EI the most. PBC had a considerable favourable impact on EI, according to their findings (Naia et al., 2017). Furthermore, Malebana and Swanepoel (2015) discovered that PBC, as well as ATB, caused the greatest variation in EI. Shah and Soomro (2017) revealed that PBC had no significant effect on EI among university students in Pakistan, which is surprising and counterintuitive to Ajzen's position and earlier studies on the TPB.

2.5. Effects of Gender in the Antecedents of Entrepreneurial Intentions

In analysing EI, gender has a significant role (Robledo et al., 2015). Gender has

long been considered one of the elements impacting the process of commercializing research findings, according to [Miranda et al. \(2017\)](#). Previous research had shown that gender is significantly related to EI and the determinants of EI in the TPB ([Karimi et al., 2014](#); [Malebana & Swanepoel, 2015](#); [Robledo et al., 2015](#); [Feder & Nițu-Antonie, 2017](#); [Palupi & Santoso, 2017](#)). Gender effects in EI can be related to different perceptions of the drivers of EI. For instance, effects on ATB ([Liñán, Urbano, & Guerrero, 2011](#); [Karimi et al., 2014](#); [Maes, Leroy, & Sels, 2014](#); [Malebana, 2015](#); [Malebana & Swanepoel, 2015](#); [Robledo et al., 2015](#); [Palupi & Santoso, 2017](#)) PBC ([Liñán, Urbano, & Guerrero, 2011](#); [Sahinidis, Giovanis, & Sdrolas, 2012](#); [Karimi et al., 2014](#); [Maes, Leroy, & Sels, 2014](#); [Santos, Roomi, & Liñán 2014](#); [Malebana, 2015](#); [Malebana & Swanepoel, 2015](#); [Robledo et al., 2015](#); [Feder & Nițu-Antonie, 2017](#); [Palupi & Santoso, 2017](#)) and SN ([Karimi et al., 2014](#); [Malebana, 2015](#); [Malebana & Swanepoel, 2015](#); [Feder & Nițu-Antonie, 2017](#); [Palupi & Santoso, 2017](#)) account for the effects of gender in EI.

[Karimi et al. \(2014\)](#) used the TPB to explore the effect of gender on students and discovered that gender had a significant relationship with ATB, PBC, SN and EI. [Malebana and Swanepoel \(2015\)](#) also discovered that gender had a significant relationship with ATB, PBC, SN and EI. [Feder and Nițu-Antonie \(2017\)](#) discovered that gender had a significant positive influence on PBC, SN and EI, but no significant effect on ATB. [Malebana \(2015\)](#) discovered a significant positive relationship between gender and PBC, SN, ATB, and entrepreneurial self-efficacy. [Maes, Leroy and Sels \(2014\)](#) reported that gender had a statistically significant effect on personal attitude and PBC but found no significant relationship between gender, EI and SN. [Robledo et al. \(2015\)](#) revealed that gender had a significant positive influence on ATB, PBC and EI and an insignificant relationship with SN. [Palupi and Santoso \(2017\)](#) examined the effects of gender on EI through the antecedents proposed by the TPB and revealed that gender had a statistically significant influence on PBC, SN, ATB and EI.

Youth unemployment has a significant detrimental influence on economic growth and efficiency. In the field of entrepreneurship, gender stereotypes and youth unemployment are indeed a persistent problem ([Aldrich, 2005](#)). The disparity between male and female entrepreneurs is particularly apparent in high-growth businesses, with women accounting for a substantially smaller percentage of entrepreneurs that are capable of founding and achieving high-growth equity outcomes ([Robb, Coleman, & Stangler, 2014](#)). Gender has been studied as a factor in determining EI in numerous studies. They have often explored the influence of these factors on gender differences, but they have not always gone far enough into the cause and effects of gender particularly in South African context. Hence, it's critical for the researcher to look into the effects of gender on students' EI, as well as the factors that influence EI at a South African university of technology. Existing literature has revealed that the effects of gender can be explained by various antecedents of EI. Though, some research suggests that men and women share far more similarities than differences ([Daz-Garca &](#)

Jiménez-Moreno, 2010). As a result, the findings of gender and entrepreneurship studies are still divided. In order to improve EI and entrepreneurial activity rates among students, it is critical to instill good entrepreneurial attitudes, improve PBC, and establish socially acceptable norms. Thus, we hypothesize that:

H₁: Gender has a statistically significant relationship with EI.

H₂: Gender has a statistically significant relationship with ATB.

H₃: Gender has a statistically significant relationship with SN.

H₄: Gender has a statistically significant relationship with PBC.

2.6. Research Model

The proposed research model, shown in **Figure 2**, is based on Ajzen's (1991) TPB, but has been modified to account for the role that gender may play in encouraging students to start their own businesses. The model displays the variables employed in this study as well as their interrelationships. Gender is served as the independent variable while SN, ATB, and PBC are served as mediators, whereas EI is served as the dependent variable. Gender, according to the suggested model, has an effect on EI, which is mediated by SN, ATB, and PBC.

3. Research Methodology

This study used an online survey questionnaire, as well as a cross-sectional and quantitative research design. A quantitative research design was preferred because it can also be used to support or reject hypotheses at advanced or earlier stages of the research process (Creswell, 2014), and is frequently associated with a deductive research strategy that prioritizes the use of data in theory (Bryman & Bell, 2015). The population for this study consisted of 1003 first, second, and third year entrepreneurial students enrolled at the Tshwane University of Technology (TUT) in the year 2020. Yamane (1967) recommended using the formula below to determine the sample size for this study.

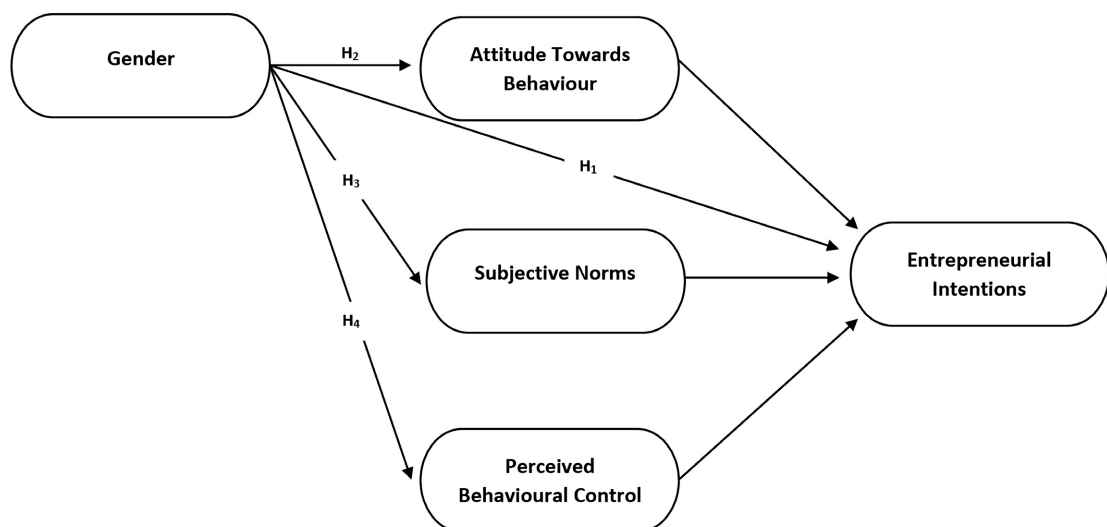


Figure 2. Research model. Source: Adapted from Ajzen (2012) and Malebana (2012).

$$n = \frac{N}{1 + N(e)^2}$$

whereas n represents the sample size, N denotes the population size, and e denotes the precision level. Once this formula was utilized, the sample size that resulted was as follows:

$$n = \frac{N}{1 + N(e)^2} = n = \frac{1003}{1 + 1003(0.05)^2} = 286 \text{ students}$$

Thus, with a 95 percent confidence interval and a 5% margin of error, the proposed sample size for this research was 286 first, second, and third-year undergrad entrepreneurial students. The online survey questionnaire was however completed by a convenience sample of 301 students who were willing to participate in the study out of the total population.

A structured online survey questionnaire based on a previously validated EI questionnaire (Liñán & Chen, 2009; Malebana, 2012) was used to collect data. No adjustments were made to any of the questions from previous EI questionnaires (Liñán & Chen, 2009; Malebana, 2012). The key justification for including these items is that they have been validated in other research studies, making the questionnaire more reliable. After getting ethical approval from the TUT Research Ethics Committee, the data was collected. The data collection process started when the researcher asked for and received permission to distribute the online survey questionnaire via WhatsApp Messenger, using a Google Forms survey hyperlink. An entrepreneurship educator from TUT aided the researcher by giving contact information for class reps, granting access to three WhatsApp Messenger groups made up completely of TUT entrepreneurial students. Due to how straightforward the online survey questionnaire was to understand and the researcher reposting the online survey questionnaire on a daily basis for three weeks on WhatsApp Messenger, the researcher was able to retrieve a large volume of positive responses.

4. Data Analysis

The data from the online survey was captured in Microsoft Excel via a spreadsheet and analysed using partial least square (PLS) structural equation modeling (SEM) in SmartPLS 3.3.3. The demographic profile of respondents was analysed using descriptive statistics and the relationship between the dependent and independent variable were examined using PLS-SEM.

4.1. Demographic Profile of Respondents

Males' students made up 49.2% of the respondents, while females made up 44.9%, and 6% did not specify their gender. 31.2% of the respondents were between the ages of 18 and 21, 42.9% were between the ages of 21 and 23, and 25.9% were aged 24 and above. 31.2% were first-year students, 34.2% were second-year students, and 34.6% were third-year students, according to their

academic level. The profile of respondents is shown in **Table 1**.

4.2. Assessment of Measurement Model

The research measurement model was assessed using the PLS algorithm in SmartPLS 3.3.3. The measurement model was evaluated using factor loadings, Cronbach's alpha, composite reliability, average variance extracted, convergent validity and discriminant validity. The proportion of indicator variation explained by the latent variable is referred to as indicator reliability (Asgari, 2016). Manifest variables with outer loadings of 0.7 or higher are deemed highly satisfactory (Hair et al., 2017) whereas 0.5 is considered adequate. Outer loadings of 0.4 should be acceptable (Hulland, 1999), however Henseler, Ringle and Sarstedt (2016) recommend that manifest variables with m between 0.4 and 0.7 be considered for deletion. If omitting these indicators improves the composite reliability, they should indeed be dropped. **Figure 2** depicts the conceptual model's outer loadings for manifest variables with loadings greater than 0.7. **Table 2** below shows that these loadings are deemed highly satisfactory and indicate that the individual item reliability requirement has been met successfully.

For constructs to be considered internally consistent, Cronbach Alpha values of more than 0.7 are required (Hair et al., 2017). **Table 2** shows that all four constructs have a Cronbach Alpha value of greater than 0.7, indicating that they are internally consistent. For the constructs to be internally consistent, the measurement model's composite reliability values should be greater than 0.8 (Hair et al., 2017). As demonstrated in **Table 2**, all variables included in this study had composite reliability values more than 0.8. The fact that all of these values are greater than 0.8 implies that these six variables are internally consistent. The

Table 1. Profile of respondents.

Variables	Description	Frequency	Percentage
Gender	Male	148	49.2
	Female	135	44.9
	Not Disclosed	18	6
	Total	301	100
Age	18 - 20	94	31.2
	21 - 23	129	42.9
	24 - Above	78	25.9
	Total	301	100
Entrepreneurship Education Level of Study	First Year	94	31.2
	Second Year	103	34.2
	Third Year	104	34.6
	Total	301	100

Source. Microsoft Excel generated from online questionnaire data for this study.

Table 2. Factor loadings, reliability and validity of construct.

Items	1	2	3	4	5
Gender	1.000				
Entrepreneurial Intentions					
EI2		0.845			
EI3		0.866			
EI4		0.877			
EI5		0.903			
EI6		0.911			
Attitude towards Behaviour					
ATB1			0.790		
ATB2			0.845		
ATB3			0.759		
ATB4			0.846		
ATB5			0.803		
ATB6			0.722		
Subjective Norms					
SN1				0.834	
SN2				0.785	
SN3				0.788	
SN4				0.825	
SN5				0.759	
SN6				0.810	
Perceived Behavioural Control					
PBC2					0.819
PBC3					0.836
PBC5					0.830
PBC7					0.841
PBC8					0.855
PBC9					0.722
Cronbach's Alpha	1.000	0.928	0.884	0.889	0.901
Composite Reliability	1.000	0.945	0.912	0.915	0.924
Average Variance Extracted	1.000	0.775	0.633	0.641	0.670

Source. SmartPLS generated from online questionnaire data for this study.

average variance extracted is a parameter for determining convergent validity (Ravand & Baghei, 2016). For a concept to have adequate convergent validity, it must have a score of at least 0.5 (Fornell & Larcker, 1981). **Table 2** shows that

the average variance extracted values for all of the variables in this research were greater than 0.5, signifying good convergent validity.

In order to attain discriminant validity, the square root of the average variance extracted value must be higher than the square correlation with other structures (Fornell & Larcker, 1981). As indicated in **Table 3**, discriminant validity has been achieved, and the latent structure's correlation has been compared to the square root of the average variance extracted (Fornell & Larcker, 1981).

According to Hair et al. (2017), two methods for testing discriminant validity are the Fornell-Larcker criterion and the cross loading heterotrait-monotrait (HTMT) ratio. The HTMT criterion was also used in this study due to the inadequacies of the Fornell-Larcker criterion; as a result, we used the HTMT ratio as advised by Henseler, Ringle, and Sinkovics (2009). **Table 4** demonstrates that HTMT values are lower than the fundamental assumption of 0.85, implying that discriminant validity concerns are not present.

4.3. Assessment of Structural Model

The proposed structural model was analysed once the validity and reliability of the measurement model have been assessed (**Figure 3**). R^2 value assessment by PLS is also known as coefficient of determination (R^2). The R^2 of endogenous latent variables should be higher than 0.26 for a good model, according to Chuan and Penyelidikan (2006). Hair et al. (2017) considered R^2 values of 0.75, 0.50, and 0.25 for the dependent variables to be significant, moderate, and weak, respectively. The cumulative effect of factors on the endogenous latent variable EI

Table 3. Fornell-Larcker criterion.

Items	1	2	3	4	5
Gender	1.000				
Entrepreneurial Intentions	-0.048	0.881			
Attitude Towards behaviour	-0.025	0.753	0.795		
Subjective Norms	0.084	0.430	0.404	0.801	
Perceived Behavioural Control	0.008	0.654	0.589	0.343	0.818

Source. SmartPLS generated from online questionnaire data for this study.

Table 4. Heterotrait-Monotrait ratio (HTMT).

Items	1	2	3	4	5
Gender					
Entrepreneurial Intentions	0.050				
Attitude Towards behaviour	0.089	0.811			
Subjective Norms	0.093	0.459	0.430		
Perceived Behavioural Control	0.032	0.711	0.650	0.376	

Source. SmartPLS generated from online questionnaire data for this study.

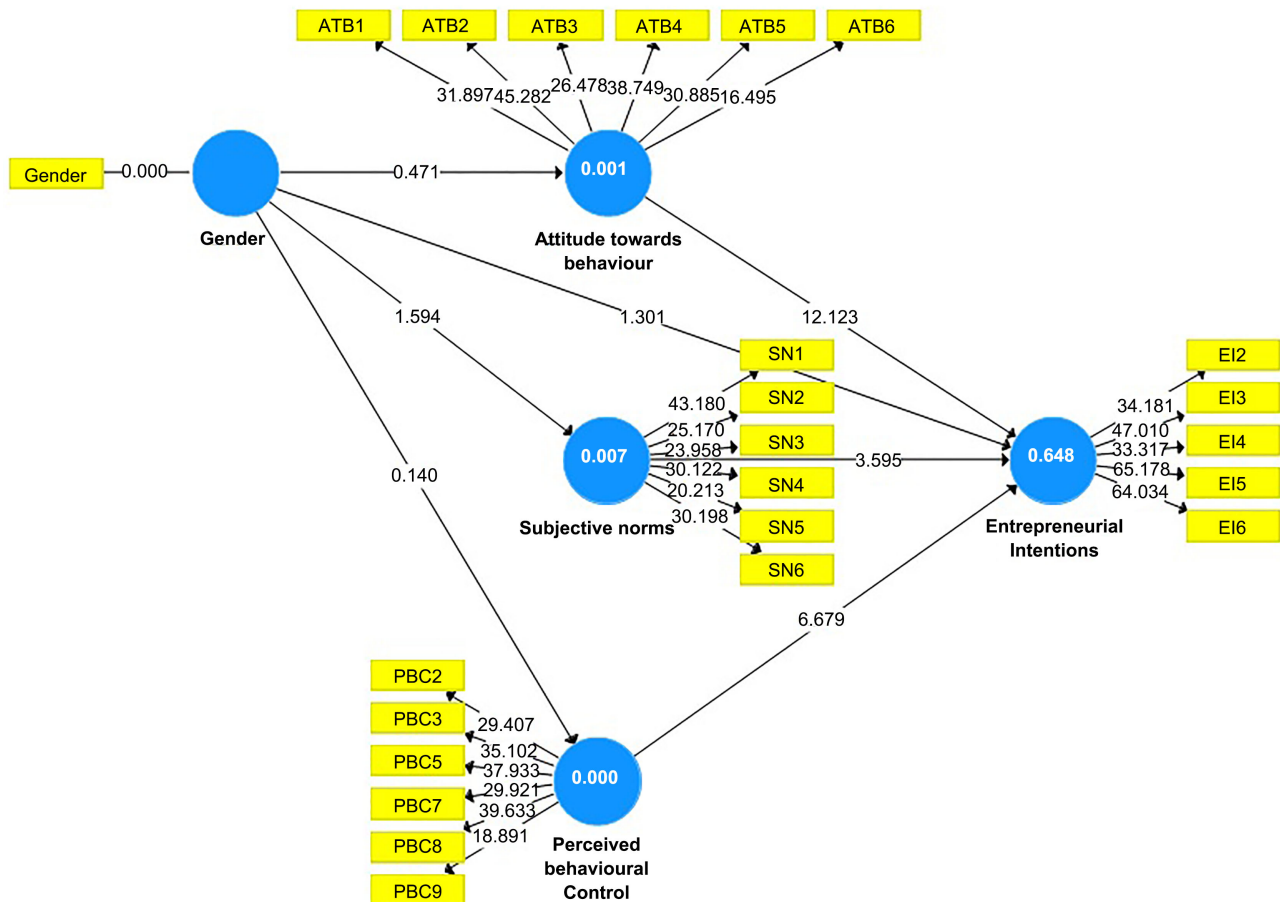


Figure 3. Structural model output.

in this study is 0.648, indicating that the variables have a positive overall impact. A structural model assessment was used to evaluate the relationship between latent constructs and to validate the conceptual model (Hair et al., 2017). Following the assessment of the measurement model, the research explored the structural model by performing a PLS Bootstrapping on 5000 replicates to determine the significance of the path coefficient (Ringle, Wende, & Becker, 2015; Hair et al., 2017). The full estimates of the structural equation model are shown in Figure 3.

To investigate the significance of the structural relationships, the path coefficients and their respective significance levels were evaluated. Table 5 below shows that gender has no statistically significant relationship with PBC, attitude toward behavior, SN, or EI, according to Table 5. The findings imply that gender has no effect or plays no significant role in students' intentions to establish a business in the future. These findings do not provide support for the proposed study hypothesis and therefore, H₁, H₂, H₃ and H₄ are rejected. Table 5 further illustrates that PBC ($\beta = 0.305, p < 0.05$), SN ($\beta = 0.117, p < 0.05$) and ATB ($\beta = 0.525, p < 0.05$) has a statistically significant and positive correlation with EI. The findings suggest that the TPB can be regarded as a valuable tool for evaluating students' EI.

Table 5. Path coefficient.

Path	Path Coefficient	Mean	Standard Deviation	T Statistics	P Value	Significant Level
Gender -> EI	-0.047	-0.047	0.036	1.301	0.193	n.s
Gender -> ATB	-0.025	-0.025	0.054	0.471	0.638	n.s
Gender -> PBC	0.084	0.084	0.052	1.594	0.111	n.s
Gender -> PBC	0.008	0.007	0.054	0.140	0.888	n.s
ATB -> EI	0.525***	0.524	0.043	12,123	0.000	***
SN -> EI	0.117***	0.118	0.033	3.595	0.000	***
PBC -> EI	0.305***	0.307	0.046	6.679	0.000	***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Conclusions, Implication, Limitations and Recommendations

5.1. Discussion and Conclusions

Concern regarding the generalization of findings from previous studies due to constraints and the current youth unemployment rates prompted the creation of this study. The purpose of this research paper was to examine the influence of gender on EI among entrepreneurship students at a South African university of technology. The findings of this paper revealed that gender has no statistically significant relationship with the antecedents of the TPB, namely, SN, ATB, PBC and EI. These findings suggest that entrepreneurial students' intentions to establish a business in the near future are unaffected by their gender. These findings are consistent with those of previous research studies which discovered that gender has no bearing on students' EI (Maes, Leroy, & Sels, 2014; Mothibi & Malebana, 2019), SN (Maes, Leroy, & Sels, 2014; Robledo et al., 2015; Mothibi & Malebana, 2019), PBC (Mothibi & Malebana, 2019) and ATB (Feder & Nițu-Antonie, 2017; Mothibi & Malebana, 2019). Nevertheless, the findings of this paper contradicted those of previous research studies, which found that gender is statistically significantly related to PBC, ATB SN and EI (Karimi et al., 2014; Malebana, 2015; Malebana & Swanepoel, 2015; Palupi & Santoso, 2017).

The findings of this research further revealed that EI has a significant relationship with all the antecedents of the TPB. These findings supported those of prior research which uncovered that SN, ATB, and PBC had a significant correlation with EI (Hussain & Norashdah, 2015; Tarek, 2017; Marire & Dhurup, 2018; Mothibi & Malebana, 2019; Iman, Ananda, & Pohan, 2020; Mahlaole & Malebana, 2021). The findings suggest that the TPB is a useful tool for evaluating students' EI. Even so, the findings contradict those of preceding studies which revealed that SN (Awan & Ahmad, 2017; Davids, 2017; Wibowo, 2019; Paiva et al. 2020; Alshebami et al., 2020; Mahmoud et al., 2020), ATB (Bhineka-wati, Nelloh, & Abdurahman, 2020) and PBC (Shah & Soomro, 2017) have an insignificant relationship with EI.

5.2. Implications for Policymakers

The study paper's conclusions have important ramifications for policymakers, both theoretically and practically. The findings of this study revealed that gender has no significant influence on students' EI and the antecedents of the TPB, suggesting that gender has no bearing on whether an individual will become an entrepreneur or establish a business in the future. Hence, policymakers should actively support equality in entrepreneurship and promote equal opportunities for both male and female students. Policymakers must also keep working to eliminate barriers that male and female students experience during entrepreneurship and many other career opportunities, while still acknowledging that providing equal opportunities to men and women is a required but unsatisfactory condition for promoting gender equality throughout entrepreneurship (Vracheva & Stoyneva, 2020). Furthermore, policymakers should consider offering financial support to potential individuals and groups in the form of subsidies and grants to entrepreneurs in order to help them launch new enterprises that would inevitably stimulate the economy. Policymakers should provide a plethora of solutions to facilitate this process (Terjesen & Amoros, 2010).

5.3. Limitations and Recommendations for Future Research

This research paper has some limitations which are the basis for recommendations in relation to the foundation for future research initiatives, for starters, this paper's main focus was to evaluate the effects of gender on students EI, thus neglecting to evaluate the significant levels of gender differences between male and female students. Future scholars should consider conducting a multi-group analysis to determine the effects of gender and gender differences on students EI in a South African context. Secondly, because this research study was cross sectional in design, it only provides a picture of the research setting, In the future, a longitudinal study is required to better grasp the shift and effects of gender on students' intentions to start a business. Thirdly, the research study was based on a convenient sample of students from TUT. To strengthen the generalizability of the conclusions, more universities from the country (South Africa) should be included in future research studies. Last but not least, the participants in this study were TUT students enrolled in an undergraduate entrepreneurship program. The perspectives of students enrolled in other TUT programs were not considered in this study. The findings were confined to first, second and third-year entrepreneurial students' perspectives. In order to generalize the findings of this study, future scholars should consider conducting a comparative study in other South African universities.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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