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**Entrepreneurship Intentions Amongst South African TVET Students:
An Application of the Theory of Planned Behaviour**

By Jamie Sundelson
(SNDJAM007)

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of
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Supervisor: Professor Jeffrey Bagraim

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Abstract

The primary aim of the investigation was to explore the entrepreneurship intent (EI) of South African TVET students by applying the Theory of Planned Behaviour (TPB). Additional factors (demographics, community valuation, prior exposure to entrepreneurship and COVID-19 perceptions) were included as control variables within the model to assess the utility of the TPB. Student participants ($N = 128$) completed an online survey administered through two institutions in the Western Cape and made available by a Facebook link. The application of the TPB model scales was strongly supported by the results of the exploratory factor analyses (EFA) conducted as well as reliability analyses. Regression analyses indicated that the Theory of Planned Behaviour explained approximately 80% of the variance in entrepreneurial intention ($p < .001$). However, only attitudes were a significant determinant of entrepreneurial intention, whereas subjective norms and perceived behavioural control were not significant determinants of EI. Moreover, the control variables (demographic factors, community valuation, prior exposure to entrepreneurship) did not explain significant variance in EI, with the exception of COVID-19 perception, which was a significant determinant ($\beta = .259, t = 3.159, p < .05$). Hayes (2018) PROCESS macro was thereby used to investigate the moderation effect of COVID-19 perceptions, which were found to significantly moderate the relationship between perceived behavioural control and entrepreneurial intention. The contributions of the investigation are discussed and recommendations for future research are presented.

Keywords: entrepreneurial intent; entrepreneurship, the theory of planned behaviour, attitudes, subjective norms, perceived behavioural control, TVET students

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Introduction

Entrepreneurship, or the creation of new business ventures (Gartner, 1988), has been highlighted as a potential means of addressing South Africa's unemployment and contributing to economic growth (Mmesi, 2015; Oosthuizen & Cassim, 2016). This is particularly significant when taking into account the country's socio-economic climate, which is characterised by increasingly high rates of unemployment in addition to a gradual pace of economic development (Pasara & Garidzirai, 2020). Specifically, SA is faced with the challenge of creating much needed work opportunities for its youth (aged 15-34) in order to combat poor statistics such as the unemployment rate, which stood at 55.2% in the first quarter of 2019. During this period, the unemployment rate was 31,0% among graduates within this age range (Statistics South Africa, 2019). This is a major concern which requires attention if the country is to maintain a competitive edge within the global economic sphere (Mmesi, 2015). The promotion of entrepreneurship is a measure often considered as a response to remedy situations of economic crises (Capella-Peris, Gil-Gómez, Martí-Puig & Ruiz-Bernardo, 2019) For example, Casero et al.'s (2013) investigated the economic advantages of entrepreneurship within the context of developing countries, finding that self-employment offers a potential route out of poverty. Comparable studies show that the increase of global competition, thought to be a direct consequence of globalization, validates the necessity of promoting venture creation (Dutta & Sebel, 2013; Ebiringa, Ekwenwa & Ebiringa, 2015).

Moreover, the benefits of entrepreneurship are particularly significant given the socio-political and economic circumstances of the time, characterized by the on-going COVID-19 pandemic. Previous research has found a positive relationship between the opportunistic pursuits of entrepreneurial ventures and the economic growth rate of a specified area (Aparicio et al., 2016) Thus, it may be vital in periods of economic decline to encourage the formation of new businesses, focused on pinpointing and capitalizing on opportunities, with the objective of promoting economic activity. In the distinctive context of the COVID-19 pandemic, Maritz, Perenyi, de Waal and Buck (2020) support this idea, stating that entrepreneurs are likely to be key players during and after the health crisis.

Additionally, in evaluating the need for entrepreneurship, the role of small and medium enterprises (SMEs) must be emphasized. Research indicates that SMEs are major drivers of economic development. SMEs represent an important segment of the private sector and have increasing potential for job-creation (Chikweche & Fletcher, 2017). Furthermore, SMEs play a vital role in the reduction of poverty, with particular reference to developing economies (Ndubisi, 2014). For example, McNaughton and Gray (2017) reported that, the SME sector accounted for approximately 50% of South Africa's gross domestic product (GDP) in 2004. Therefore, the establishment of new business ventures and thereby additional job opportunities would enable more citizens to contribute to the country's economy (Mmesi, 2015; Oosthuizen & Cassim, 2016), thereby presenting a possible solution to South Africa's joblessness and slowed economic development.

South African Technical and Vocational Education and Training (TVET) colleges were established as a response to the economic challenges and human resource needs of the country by providing diversified programme offerings that promote skill development in addition to the acquisition of the knowledge values and attitudes required to be economically productive members of society (Akoojee, 2008). Specifically, TVETs aim to up-skill students in technical competencies such as electrical engineering, public management, mechanical fitting and welding, business management or tourism, thus preparing students to become functional workers in a specified trade or occupational domain. The mission of these institutions is thereby to contribute towards personal, social, civic and economic development (Akoojee, 2008). For the country to fully benefit from the construction of these colleges/institutes, however, appropriate measures are required in order to reduce the challenges that TVET graduates encounter in entering the job market. Given the opportunities that entrepreneurship presents to these youths and the country as a whole, understanding the factors that influence their venture creation intentions may therefore be important.

The Theory of Planned Behaviour (TPB) (Ajzen, 1985) has been applied broadly to better understand the determinants of intention to perform a behaviour. The theory holds that attitude, subjective norms, and perceived behavioural control, together form an individual's behavioural intentions (Ajzen, 1991). Drawing on the TPB, the current investigation will explore the role of TVET students' attitude, subjective norms, and perceived behavioural control towards their entrepreneurial intention.

Research Question:

How well does the TPB influence entrepreneurial intention amongst South African TVET students?

Structure of the Dissertation.

The structure of this dissertation comprises five sections. Section one includes an introduction and background to the topic. This is followed by section two, outlining the existing literature relevant to the study as well as the main aims, research question and hypotheses under investigation. In order to facilitate future replication, section three outlines the method employed for data collection and hypotheses testing. Subsequently, section four will present the results found in relation to the statistical analyses employed to test and corroborate the proposed research hypotheses. The final section comprises an interpretation of the main findings in relation to previous literature and the theoretical framework. This section also includes an acknowledgement of the study's limitations as well as the implications and recommendations for future research. Thereafter, the same section provides a conclusion of the dissertation.

Literature Review

The objective of this section is to explore the existing literature to date relating to the application of the Theory of Planned Behaviour (TPB), entrepreneurial intention (EI) as well as TVET students as a sample group. First, the literature search procedure is described, followed by an explanation of the TPB as a whole and its relating variables. Thereafter, a discussion of the literature surrounding entrepreneurial intent is provided. Subsequently, previous applications of the TPB in researching entrepreneurship behaviour are explored. A selection of recent EI studies using a sample of TVET students is then outlined. Lastly, the hypotheses being tested within this investigation are presented.

Literature search procedure

The literature search strategy employed for this investigation comprised four steps.

1. As a starting point, PRIMO (a web-based search engine, which scans literature across a multitude of online libraries) was used in order to generate a preliminary collection of literature. This initial step took place in March 2020 and included search terms such as: “Theory of Planned Behaviour”, “Entrepreneurial Intention/Intent”, “Technical Vocational Education and Training Colleges”, “South Africa” and combinations of such.
2. Thereafter, specific reputable and available online databases were used (JSTOR, EBSCO Host, SAGE, Web of Science, Academic Search Premier and Psych INFO) to gather additional literature and gain further insight.
3. References to seminal articles were then collected and explored to establish central definitions for each of the investigation’s main constructs of interest, which concluded the preliminary literature search.
4. Subsequently, follow up searches were conducted on an ad hoc basis as the research process unfolded in order to gain a more holistic picture of previous research as well as to fill any gaps in understanding. This literature search procedure came to an end in December 2020.

The Theory of Planned Behaviour

According to the Web of Science, the Theory of Planned Behaviour (TPB) has been cited over 13,000 times since Icek Ajzen originally published it in book (1988) and article (1991)

form. The TPB (Ajzen, 1991) was developed as an extension of the Theory of Reasoned Action in order to account for individuals' volitional control. The main aim of the TPB model was to not only predict an individual's intention to engage in a specific behaviour, but importantly to also understand the motivational factors which influence this intention and the resultant behaviour. The objective here was thereby to gain a more comprehensive understanding of the behavioural process itself. The theory posits the following three assumptions: First, behavioural intention is a direct predictor of the actual behaviour. Second, attitudes towards a behaviour, subjective norms and perceived behavioural control determine intention. Finally, these determinants are shaped by one's set of beliefs linked to each element respectively (Ajzen, 1991).

Behavioural beliefs. Behavioural beliefs denote a connection between an individual's behaviour and the personal impact of outcomes resulting from the behaviour (Ajzen, 1991). The strength of beliefs, in turn, shapes one's attitude towards the behaviour. The attitude refers to how favourable an appraisal a person has of the behaviour and can be positively or negatively orientated. The theory posits that the attitude towards a behaviour influences an individual's behavioural intention directly, whereby a positive attitude produces a stronger intention to behave in a certain way, and a negative attitude produces a weaker behavioural intention (Ajzen, 1991).

Normative beliefs. The TPB's second antecedent of intention is normative beliefs (Ajzen, 1991). This encompasses that which important people or groups in an individual's life think of the behaviour. The individual uses these perceptions as a point of reference leading to the formation of a subjective norm. Referents may thus include one's family, friends, colleagues, medical professionals or any person, who is in some way significant to the individual, relating to the behaviour of interest. In the case of an individual with a strong subjective norm, he/she is more likely to perform the behaviour if referents perceive it positively and is thus less likely to perform a behaviour that is appraised negatively by referents (Ajzen, 1991).

Control beliefs. Control beliefs, the third predictor of intention, refer to the factors within the environment that an individual considers as either facilitative or inhibiting of a particular behaviour (Ajzen, 1991). The degree of power or control that one feels one has in a given situation over these factors determines one's degree of perceived behavioural control

(PBC). Therefore, Ajzen (1991) holds that a stronger PBC level suggests that an individual believes that he/she has the ability to perform a behaviour and is thereby more likely to attempt to engage the behaviour. Conversely, weaker PBC will reduce an individual's likelihood of performing this behaviour

Entrepreneurial intention.

Intent has been defined as a state of mind, which directs one's attention towards a particular objective in order to accomplish a certain goal (Bird, 1988). Ajzen (1991) held that intention encapsulates the motivational aspect of behaviour: it is an "indication of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour" (p. 181). He stated further that generally, the stronger one's intention to engage in a certain behaviour, the more likely one is to engage in that behaviour (Ajzen, 1991).

The intention-behaviour relationship was investigated in an early study by Ajzen and Madden (1986) by recording class attendance in a sample of students and then assessing intent. The results demonstrated that intention was in fact a significant predictor of this behaviour. Bagozzi, Baumgartner and Yi (1989) found similar results when testing the mediating effect of intention between attitude and behaviour. Studies such as these formed the foundation on which the theoretical relationship between intention and behaviour was built, leading to the inclusion of intention within a vast range of behavioural investigations, including entrepreneurship.

Ajzen's (1991) formative work on intentions and the prediction of behaviour in particular established the foundation for multiple later investigations dealing with the relationship between intentions and behaviour. The success of this research led to successive inquiries in the entrepreneurial field of research, inspiring the consideration of intention as an antecedent of entrepreneurial pursuits (e.g. Bird, 1988; Krueger & Carsrud, 1993; Krueger et al., 2000). Seminal studies focusing on entrepreneurial intent have highlighted the intentional, expectancy-driven and situational nature of the decision to start one's own business (Autio, Keeley, Klofsten, Parker & Hay, 2001). Entrepreneurship is an intentional process, necessitating cognitive planning in order to perform the behaviours of recognizing opportunity, venture creation and venture development (Lortie & Castogiovanni, 2015). Krueger, Reilly and Carsrud (2000), for example, noted that entrepreneurship is a deliberate

process involving preliminary thought, which therefore requires understanding from an intentions-based perspective.

Today, entrepreneurial intention is a rapidly developing field of research with a growing number of studies utilizing it as an influential theoretical framework. For example, Shinnar et al. (2018)'s four-year longitudinal study on respondents in the United States presented further confirmation of the positive relationship between entrepreneurial intentions and actual behaviour. However, previous research has outlined the need for a more contextualized perspective and approach to investigating the formation of EI. For instance, by means of a meta-analysis, Schlaegel and Koenig (2014) found there to be a stronger positive association between the subjective norm–EI relationship and the perceived desirability–EI relationship within Western countries. Given that non-Western societies may be characterized by different cultural norms and values, such variances may have an impact on the entrepreneurial intent of the youth in such countries. Conversely, the results of a study across 12 countries, including both developed and developing economies (Engle, 2010) found that Ajzen's model of planned behaviour, successfully predicted EI in each of the 12 nations, thereby supporting the applicability of the concept in diverse contexts (Liñán & Fayolle, 2015).

Operationalisation of Entrepreneurial Intent.

The way in which a variable is operationalized is imperative as the use of varying scales may create inconsistencies amongst research observations as well as hinder comparisons between studies. It is thereby significant to note that the operationalization of EI has evolved considerably over the years. Initially viewed as a dichotomous variable, Krueger et al. (2000) used only one item to measure EI. This study required participants to answer either 'yes' or 'no' to the question of whether or not they would ever start their own business. Following this, EI was again measured by a single item, but on a scale from 0 to 100 with 0 being extremely unlikely to become an entrepreneur and 100 being extremely likely to do so (Krueger et al., 2000). There was a notable shift in the operationalization of EI when Davidsson (1995) measured EI using three different items. An additionally significant difference here was the various response categories provided including options such as "never occurred to me" or "have seriously considered". Seeking to further improve upon the measurement of EI, Autio et al. (2001) developed a five point Likert scale comprising four

items and focusing on both part-time and full-time entrepreneurial intent. This is the most frequently used scale to date within EI research and is thereby included in the present investigation. While the operationalization of EI has evolved over time, most researchers hold that measuring EI by using a single item is too simplistic and that using multiple items and response categories captures the essence and complexity of the construct to a greater extent (Schlaegel & Koenig, 2014).

The Theory of Planned Behaviour and entrepreneurial intent.

The TPB has become one of the most dominant theoretical perspectives to study the influencing factors of entrepreneurial behaviour in recent years. (Liñán & Fayolle 2015; Lortie & Castogiovanni, 2015). Tkachev and Kolvereid's (1999) early findings suggest that the three antecedents proposed by TPB, namely: perceived behavioural control, subjective norms, and attitude toward the behaviour, in addition to prior entrepreneurial experience were significant antecedents of employment status choice intentions with a sample of 512 Russian students from three different universities. Since then, empirical research has found a considerable amount of evidence to support the TPB, especially regarding the impact of attitudes and perceived behavioural control on the formation of EI (Armitage & Conner, 2001; Rauch & Hulsink, 2015). Shook and Bratianu (2010), for example, examined EI in Romanian students using the TPB as a framework. The authors found attitude and PBC to have a strong positive correlation with EI, supporting the TPB. However, in contrast to the TPB, findings suggested that subjective norms were negatively related to EI. A more recent example of the TPB applied in an investigation of EI is Nanere, Plant, Trebilcock, Pattinama and Arwani's (2020) case study. A sample of 467 Australian university students were surveyed, with results showing that perceived control beliefs had the most significant impact on EI, followed by behavioural beliefs and then normative beliefs, further supporting the assumptions of the TPB.

Though investigations of these constructs are scarce within the context of South Africa, Gird and Bagraim's (2008) study serves as an example of such. Here, TPB was tested as a predictor of entrepreneurial intent amongst a sample of final-year commerce students at two Western Cape universities. Findings indicated that the TPB was able to significantly account for 27% of the variance in EI. Prior exposure to entrepreneurship was the only other

purported variable to enhance the TPB’s predictive power, thereby highlighting the value of the TPB as a tool for predicting EI.

The above studies serve as examples of the considerable amount of research that argues for the effectiveness of the TPB in predicting EI. Aligned with this, Sampedro et al. (2014) purported that the TPB, as a framework, is ideal to measure EI due to it being a comprehensive and well-elaborated theory as well as being widely empirically tested. He goes on to argue that the variable diversity generated by the model allows for a broader (and thus superior) explanation of intention. Furthermore, compared to other models, the TPB provides increased flexibility by incorporating both social and personal factors in the explanation of individual differences in the intention to start their own businesses (Krueger et al., 2000). Its wide application provides support for the generalisation of potential findings as well as enables the comparison and thus richer discussion of results (Vinogradov, Kolvereid & Timoshenko, 2013). The current study thereby intends to further investigate the variance explicated by means of TPB constructs in relation to entrepreneurial intent within the context of South Africa and using a sample of TVET students.

Table 1.
Summary of research articles using Theory of Planned Behaviour to predict Entrepreneurial Intention.

Authors and Year	Relevant Variables	Results
Tkachev and Kolvereid’s (1999)	<ul style="list-style-type: none"> – Employment status – choice intentions – Antecedents of the TPB (Attitude, subjective norm, PBC) – Role models – Gender – Past entrepreneurial work experience 	Self-employment attitude, subjective norms, PBC and prior entrepreneurship experience were meaningful determinants of employment status choice intentions
Krueger, Reilly and Carsrud (2000)	<ul style="list-style-type: none"> – Entrepreneurial Intention – Determinants of the TPB – Determinants of the EEM 	Attitude, PBC, perceived desirability, perceived feasibility and propensity to act were all found to be significant predictors of EI.

Autio, Keeley, Klofsten, Parker and Hay (2001)	<ul style="list-style-type: none"> - Entrepreneurial Intention - Antecedents of the TPB - Work experience - Employment status - Gender - Age 	Attitude toward behaviour, subjective norms, perceived behavioural control, age and work experience were significant predictors of EI.
Gird and Bagraim (2008)	<ul style="list-style-type: none"> - Entrepreneurial Intention - Antecedents of the TPB - Personality traits - Situational factors - Prior exposure to entrepreneurship - Demographics 	The results of this multivariate data analysis indicated that the TPB significantly explains 27% of the variance in students' EI. Of all the other purported predictors of EI tested, only prior exposure to entrepreneurship significantly added to the predictive power of TPB.
Shook and Bratianu (2010)	<ul style="list-style-type: none"> - Specific desirability - Perceived desirability/Attitude - Subjective norms - Self-efficacy - Perceived feasibility/PBC 	All variables were positively related to EI with the exception of subjective norm, which was negatively related to EI.
Vinogradov, Kolvereid & Timoshenko (2013)	<ul style="list-style-type: none"> - Antecedents of the TPB - Perceived availability of employment opportunities 	Results indicated that the availability of suitable employment moderates the relationship between subjective norm (SN) and EI. However, perceived accessibility of employment opportunities did not have a moderating effect on the relationship between attitudes and intentions or the relationship between (PBC) and EI.
Sampedro, Fernández-Laviada, Herrero Crespo (2014)	<ul style="list-style-type: none"> - Antecedents of the TPB 	Evidence that EI is influenced in a direct and positive manner by the attitude and perceived

	<ul style="list-style-type: none"> - Perceived advantages of entrepreneurship - Perceived disadvantages of entrepreneurship - Gender - University studies 	control was found. However, a direct consequence of the subjective norm on EI was not shown. Overall, the validity of the TPB was supported.
Rauch & Hulsink (2015)	<ul style="list-style-type: none"> - Entrepreneurship Education - Entrepreneurial Intention - Entrepreneurial Behaviour - Antecedents of the TPB - Age - Gender - Parent entrepreneur 	Students who engaged in entrepreneurship education showed an increase in attitudes and PBC, and consequently displayed an increased EI.
Nanere, Plant, Trebilcock, Pattinama and Arwani's (2020)	<ul style="list-style-type: none"> - Perceived control beliefs - Behavioural beliefs - Normative beliefs. 	Perceived control beliefs had the most significant impact on EI, followed by behavioural beliefs and then normative beliefs.

TVET Students and Entrepreneurship.

TVET Students have been the sample of interest in entrepreneurial research across a number of investigations in recent years. Ahmed, Wube and Tessema (2018), for example, aimed to assess the state and determinants of entrepreneurial intention of TVET students in Ethiopia. Results indicated that the participants' EI was low, correlating significantly with factors such as administrative support, training/education support and the student's attitude. Additionally, an investigation into entrepreneurship education practices in TVET institutions in Trinidad and Tobago revealed that there was a significant relationship between exposing students to entrepreneurship education and their intention to start their own business (Mack, White & Senghor, 2019). A recent study by Roslan, Misnan and Musa (2020) looked at the

influence of higher learning environment and role models towards EI amongst TVET Students in Malaysia. The results of a correlation analysis found that there was a relationship between the presence of role models and entrepreneurial education within a higher learning environment with entrepreneurial intentions. Similarly to the current study, Buli & Yesuf (2015) used the TPB to better understand the factors that affect the intention of TVET students to become entrepreneurs within the context of Ethiopia. The findings indicated that attitude toward behaviour and perceived behavioural control explained the highest variance in EI.

Other determinants of Entrepreneurship Intention.

A wide range of previous studies has taken situational and contextual considerations into account when investigating the variables that influence EI (E.g. Davidsson, 1995; Van Auken, Fry & Stephens, 2006; Carr & Sequeira, 2007; Linan, 2008; De Jorge-Moreno, Castillo & Triguero, 2012; Krueger, Liñán & Nabi, 2013; Fayolle & Gailly, 2015; Bergmann, Geissler, Hundt & Grave, 2018). Situational variables have often included the factor of prior exposure to entrepreneurship, comprising variables such as previous self-employment, familial entrepreneurial efforts as well as entrepreneurial education. Ajzen (2005) refers to these considerations as 'external' or 'exogenous' factors, suggesting that any effect on intent is as a result of their influence on attitude, subjective norm and perceived behavioural control toward entrepreneurship. Additional factors of interest in this investigation are 'cultural valuation' and 'the perceived impact of the COVID-19 pandemic on EI'. Demographic factors such as 'nationality, 'race' and 'gender' have also been considered.

Prior Exposure to Entrepreneurship. Despite a large amount of research conducted on this topic, the influence of prior exposure to entrepreneurship on entrepreneurial intent remains disputed (Zapkau et al., 2017). For instance, the literature regarding entrepreneurial education is largely polarized, with some researchers highlighting the importance of entrepreneurial education in enhancing individuals' intentions to start new businesses (e.g., Giacomini et al., 2011; De Jorge-Moreno, Castillo & Triguero, 2012; Ozaralli & Rivenburgh, 2016) and others who suggest that training may decrease the entrepreneurial desire of the individual (Oosterbeek, Van Praag & Ijsselstein, 2010).

In addition, previous studies have reported parental role modelling to be a significant familial influence on entrepreneurial intention (Mueller, 2006; Carr & Sequeira, 2007). For

example, in a recent empirical analysis of the main factors influencing 617 Romanian high school and university students in their final year, Georgescu and Herman (2020) found that students whose families had an entrepreneurial background showed higher levels of EI than those without such background. Conversely, however, an American based study by Kim, Aldrich, and Keister (2006) did not report any evidence of familial influences on entrepreneurial intent. Similarly, in the UK, Henley (2007) found the presence of entrepreneurial parents to have an impact on the conversion of EI into the act of venture creation, but less so on intentions themselves. This indicates a possible need for further investigation into this factor's influence on the development of intentions.

Based on the above and following Fayolle and Gailly's suggestion (2015) that "intention models should attribute greater importance to factors related to previous entrepreneurial exposure", this investigation analysed the influence of exposure to role models (Zapkau et al. 2017) as well as the exposure to entrepreneurial education on the intention to start a business. In addition, any previous personal experience in venture creation was accounted for.

Community Valuation. Past research has suggested that entrepreneurship is a social activity, which is impacted by one's social environment (Román, Congregado & Millán, 2013; Sesen, 2013; Hopp & Stephan, 2012; Stephan & Uhlaner, 2010). Therefore, particular socio-cultural practices, values and norms may enable or hamper entrepreneurial behaviour and motivation (Krueger, Liñán & Nabi, 2013). Findings by Stephan and Uhlaner (2010) indicate that a culture which is socially supportive of entrepreneurship may be positively related to entrepreneurial activity, heightened entrepreneurial self-efficacy and increased social desirability of venture creation. Moreover, elevated levels of regional social legitimacy surrounding entrepreneurship has been shown to boost the generation of positive attitudes towards entrepreneurial pursuits (Kibler, Kautonen & Fink, 2014). Marquis and Battilana (2009, p. 294) further suggest that "local communities are institutional arenas that have an enduring influence on organizational behaviour through regulative, normative, and cultural-cognitive processes". This process is subsequently encoded as community norms, which are then reflected in everyday expectations and behaviours, possibly influencing how local community members perceive the social value of economic behaviours (Hopp & Stephan, 2012). Drawing upon these foundations, this study understands cultural valuation of

entrepreneurship as the normative perceptions, understandings and beliefs concerning venture creation in a regional community, which reflect the local social acceptance of the behaviour.

This concept concurs with Linan's (2008) findings, suggesting that EI is influenced by the valuations of entrepreneurial activity within the society that an individual belongs to, proposing that these factors play a very influential role in the configuration of personal attitudes and decisions towards entrepreneurship. Individual intent to engage in venture creation may thereby reflect the underlying system of values of the specific region or society in which he/she resides. (Bygrave & Minniti, 2000). In an attempt to pinpoint some of the environmental factors that may help to elucidate regional variations in EI, Liñán, Urbano and Guerrero (2011) also found that perceptions regarding closer-environment values do have an impact on motivational factors influencing entrepreneurial intention. Results confirmed that valuation of entrepreneurship in each region of interest contributed to the explanation of geographical differences in entrepreneurial intentions. For example, the influence of perceived valuation of the entrepreneur in the closer environment was an important antecedent of EI, positively affecting attitude towards the behaviour as well as subjective norms (Liñán, Urbano & Guerrero, 2011). Prior to this, however, Linan (2008) found social valuation to have no effect over motivational antecedents in an empirical analysis of a sample of 249 university students, thereby presenting a degree of conflict within the literature, which this study will attempt to explore.

Gender. Entrepreneurship has been traditionally thought about as a male-dominated activity (Allen, Elan, Langowitz & Dean, 2008). This gender disparity seems to be already present at the intention phase, as numerous investigations have depicted women reporting lower levels of entrepreneurial intent than their male counterparts (Tkachev and Kolvereid, 1999; Kolvereid, 1996; Matthews and Moser, 1996; Crant, 1996; Zhao, Seibert, and Hills, 2005). For example, Singh and DeNoble's 2003 study used a sample of 342 American university students, and found that gender had a significant impact on EI, with males being inclined to display higher levels of EI. This suggests that the antecedents of EI may be different between men and women. This idea will be explored further in the present investigation.

COVID-19. According to Bergmann, Geissler, Hundt and Grave (2018), the act of venture creation is influenced, in addition to individual characteristics, by the conditions of

the economic environment; a factor that should be considered in order to fully understand EI and its antecedents. Aligned with this, Welter (2011, p. 165) claims, “there is growing recognition in entrepreneurship research that economic behaviour can be better understood within its historical, temporal, institutional, spatial and social context.” Aldrich and Wiedenmayer (1993) go so far as to claim that the socio-political environment of a country is powerful enough to foster or impede entrepreneurial pursuits within that region. For example, a “hostile” environment, characterized by drastic fluctuations within the market, high unemployment and inflation rates as well as overall economic instability is more likely to produce scepticism and thereby negatively impact EI. Conversely, in an environment characterized by supportive political and business leaders, potential entrepreneurs may become increasingly motivated pursue a new venture (Ozaralli and Rivenburgh, 2016). Thus, a strong need exists to examine the heterogeneous factor of the socio-economic context within which this research takes place (Zahra & Wright, 2011). With COVID-19 being the most notable influencing factor in this regard, the existing and anticipated effect of the pandemic on EI will be addressed. Aligned with this reasoning and also using the TPB as a framework, Ruiz-Rosa, Gutiérrez-Taño and García-Rodríguez (2020) conducted an exploration of the impact of the COVID-19 crisis on social entrepreneurial intention. Results of the survey of 558 Spanish university students indicated social entrepreneurial intention had significantly decreased. Aligned with this finding, it seems reasonable to assume that the negative impact on the economy may bring about a heightened sense of fear in nascent entrepreneurs that a new venture might be unsuccessful due to decreased market demand or restricted access to resources (particularly funding). In this regard, there is a comprehensive literature base demonstrating that potential entrepreneurs may be disinclined to start their own business. Specifically, the fear of failure has been identified as a noteworthy barrier to engaging in entrepreneurial pursuits (Li, 2011; Cacciotti & Hayton; Morgan & Sisak, 2016). From this perspective, one might thereby expect a decline in EI amongst TVET students due to a negative perception of the pandemic and its effects on the economy.

Hypotheses:

H1: The TPB explains significant variance in entrepreneurial intent amongst TVET students

H1a: Attitude will explain significant variance in entrepreneurial intention

H1b: Perceptions of subjective norms will explain significant variance in entrepreneurial intention.

H1c: Perceived behavioural control will explain significant variance in entrepreneurial intention.

H2: The TPB explains variance in entrepreneurial intent amongst TVET students over and above the control variables (demographics, community valuation, COVID-19 perception and prior exposure to entrepreneurship).

Method

This section outlines the research design, participants, sampling technique and data collection procedure used in this investigation. Additionally, each instrument that was utilized to measure the constructs of interest will be outlined.

Research design

A cross-sectional, descriptive design was used for the purpose of this research investigation. This includes the observation of a sample at a single point in time (Babbie, 2007). This approach was chosen due to the cost and time constraints of the researcher. The data collected is quantitative in nature, with an electronic self-report questionnaire being used to measure the constructs of interest. This form of data collection allows for testing of multiple subjective propositions as well as facilitates the statistical analyses of the data, enabling the researcher to establish associations between the variables (Hair, Babin, Money & Samouel, 2003).

Sampling

This research investigation made use of a non-probability purposive sampling approach (Acharya, Prakash, Saxena & Nigam, 2013). Thus, students were not selected randomly, but rather, requested to voluntarily participate in the study. The cost-effective and timely nature of this approach lended itself to the requirements of this investigation (Terre Blanche, Durrheim & Painter, 2006). The researcher contacted various TVETs in South Africa in an attempt to obtain permission to make use of student contact details for the purpose of this investigation. Out of 3 formal research participation requests, two were granted by TVETs in the Western Cape. The link was then distributed to students on behalf of these colleges via an email announcement. However, this email communication was not highly effective in

attaining enough participants. After two weeks the link was then posted to the TVET South Africa Facebook Group. A reminder post was made two days later. The response rate was still low three weeks after initiation. Due to this, the researcher made the decision to offer a cash prize of R500 to one randomly selected participant. Thereafter, the link was posted (with permission) to three institution's Facebook pages all in the Western Cape. After another week, the link was posted to three different institution's Facebook pages, also in the Western Cape.

Participants

All South African students of TVET colleges were considered potential participants of this study. Furthermore, eligibility was not restricted according to any demographic factors such as age, gender or race. A total of 159 responses were collected, of which, 31 participants were removed due to incomplete response forms. Thus, the final study sample was ($N = 128$). The total sample participants' ages ranged from 18 to 32 years ($M = 22.5$; $SD = 3.15$). The sample had gender statistics of 57 females (44.5%) and 50 males (39.1%) while 2 participants selected the 'other/non-binary' option. The racial distribution was as follows; predominantly Black/African (58.6%), followed by Coloured (11.7%), White (10.2%), Indian (3.9%) and 1 participant preferred not to answer (.8%). There was thus an over-representation of Black/African participants in this sample. Aside from the missing data (19 participants), all participants were South African nationals, thereby meeting the selection criteria.

Table 2.
Demographic Characteristics.

Demographic	Category	%	N	
Characteristic				
	Race			
		Black/African	58.6	75
		Coloured	11.7	15
		Indian	3.9	5
	White	10.2	13	
	Prefer not to answer	.8	1	
Gender	Female	44.5	57	
	Male	39.1	50	
	Other/Non-	1.6	2	

	binary		
Nationality	South African	100	109
	Other	0	0

Measures.

The independent variables of this study constitute the constructs of the TPB, i.e. attitudes, subjective norms and perceived behavioural control. The dependent variable will thereby be entrepreneurial intent. The measures used in this investigation have been adapted from previous studies exploring the same phenomena. Likert-style items were used to reflect all variables of interest. The specific measures included to test the hypotheses are outlined below.

Entrepreneurial Intention. 4 items will be used to measure the EI of students, sourced from Liñán (2008). All statements were originally rated on a 7-point Likert scale but were reduced to a 5-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*, for the purpose of consistency amongst measurements in this investigation. An example of such includes the statement “I am ready to do anything to be an entrepreneur.” The EI of an individual was measured by calculating the mean of these 4 items.

Attitude. Attitude will be measured by five items. Two items have been adapted from Maes, Leroy & Sels’ (2014) study. They read; “I dream of being an entrepreneur one day” and “Being an entrepreneur is an attractive idea to me”. Maes, Leroy and Sels (2014) found a Cronbach’s α of 0.84 for this scale. The additional 3 items have been adapted from Liñán (2008). An example of such reads, “Amongst various career options, I would rather be an entrepreneur” which has been positively worded for the purpose of this study. All statements are rated on a 5-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*. Items were selected and adapted to ensure fit-for-purpose in a modern and South African context.

Subjective norm. Subjective norm will be measured by four items. The statements are in response to the question: “If you decided to create a business, would people in your life approve of that decision?” This scale attempts to measure an individual’s perception of how their family, friends, colleagues or significant people in their life feel about him/her

becoming an entrepreneur. Responses were rated on a 5-point Likert scale, ranging from (1) *strongly disagree* to (5) *strongly agree*. Similarly to the above, items in this scale were selected and adapted to ensure fit-for-purpose in a modern and South African context

Perceived behavioural control. This construct will be measured by 4 items. The first item was operationalized according to Autio et al. (2001), intending to measure how confident an individual is in their own ability to become an entrepreneur. This item reads, “I have the skills and capabilities required to succeed as an entrepreneur”. A Cronbach’s α of .75 was found for this scale (Autio et al., 2001). The succeeding three items were adapted from Liñán (2008). An example item includes “I am ready to start a viable firm”. All responses were scored on a 5-point Likert scale from (1) *strongly disagree* to (5) *strongly agree*.

Community Valuation. Five items were used to measure this construct and were adapted from Liñán’s (2008) cultural valuation scale. For the purpose of this investigation, the word ‘culture’ was changed to ‘community’ for enhanced clarity within the South African context. This scale attempts to measure an individual’s perception of his/her community’s feelings towards entrepreneurship. An example item reads; “my community values entrepreneurial activity above other activities and careers”. All statements were originally rated on a 7-point Likert scale but this was reduced to a 5-point Likert scale in order to maintain consistency throughout the survey. Responses ranged from (1) *strongly disagree* to (5) *strongly agree*.

Demographic characteristics. Single items were used to measure the demographic characteristics of gender, age, race and nationality. These demographic characteristics were selected in order to allow for deeper insight into the characteristics of the sample group.

Exposure to Entrepreneurship. This variable was measured using three separate categorical items, with questions relating to (a) whether or not students have ever started their own business; (b) whether one or both of their parents are entrepreneurs; or (c) whether any of their close family members are entrepreneurs. All questions called for a yes or no response.

COVID-19. To measure the perception of the COVID-19 pandemic, a scale was constructed comprising 3 items rated on a Likert scale from 1 to 5, with (1) being *strongly disagree* and 5 being *strongly agree*. An example item reads, “COVID-19 has significantly increased my intention to become an entrepreneur.”

Ethical considerations.

Prior to the commencement of any research activities, permission from the University of Cape Town’s Commerce Faculty Ethics in Research Committee was granted (REF: REC 2020/06/010). The letter confirming this ethical approval can be found in Appendix D. The investigation also conformed to the American Psychological Association (APA) 6th Edition Code of Conduct and Ethical Principles of Psychologists (Hair, Money, Samouel & Page, 2007). Importantly, involvement in this study was entirely voluntary and respondents were able to withdraw at any point in time. Participants were also assured of the confidentiality and anonymity of their responses, with the researcher alone having access to the data. The cover page of the electronic questionnaire outlined this information as well as described the aims and nature of the study. Additionally, permission from group administrators to post on specified Facebook pages was obtained.

Procedure.

Once ethical approval was obtained, an online questionnaire was created using Qualtrics in order to measure variables of interest within the sample group. The questionnaire included clear instructions as well as a thank you message following completion. The questionnaire took approximately 15 minutes to complete. Prior to the official commencement of this investigation, a pilot study was conducted during which the questionnaire was sent out to 5 participants. This initial step allowed for any potential errors or issues to be detected and rectified. After closing the survey, a random draw was conducted amongst the participants who indicated by means of an email to the researcher that they would like to take part in the raffle. The winner was then contacted using the contact details provided and arrangements were made to electronically transfer the cash prize.

Statistical Analysis.

The collected data was imported into IBM Statistical Package for Social Sciences (SPSS) version 26 directly from the Qualtrics server. The data was then cleaned and coded

according to the conventional statistical techniques suggested by Tabachnick, Fidell and Ullman (2007). Next, the descriptive statistics of the data, including the means and standard deviations, were observed. The reliability of each scale was also determined by measuring internal consistency using Cronbach's coefficient alpha (α) before the data obtained from them were used in any further analyses. Pearson's product moment correlational analysis was conducted in order to determine the strength and significance of the relationships between the variables of interest (Pallant, 2011). A regression analysis was then used in order to test the hypotheses of this investigation. Subsequently, ANOVA was utilized to assess whether significant variations might be observed amongst the variables measured and across specific factors. Finally, a moderation analysis was conducted using Hayes' (2018) PROCESS macro.

Results

The results section outlines the statistical findings of the research. Initial psychometric analyses included an exploratory factor analysis (EFA) to determine the variability amongst the underlying dimensions of each scale used. Scale reliabilities are then reported. The descriptive statistics measured are subsequently outlined, followed by the findings of the correlation analysis. Thereafter, the analyses relating to testing the main hypotheses are reported, including a simple linear regression and hierarchical multiple regression. Next, the results of the ANOVA analysis are outlined. The subsequent section aims to test the moderating effect of COVID-19 perceptions by running a moderation analysis using Hayes' (2018) PROCESS macro.

Exploratory factor analysis (EFA).

An exploratory factor analysis (EFA) was executed in order to determine the factor structure of all scale items used within this investigation without imposing any preconceived structure on the outcome (Fabrigar & Wegener, 2011). Before this analysis could be conducted, multiple conditions needed to be met. Firstly, inter-correlations between items of each scale should be below .30 with at least five respondents per item (Tabachnick, Fidell & Ullman, 2007). Secondly, in order for the data to be deemed appropriate for factor analysis, the Kaiser-Meyer Olkin (KMO) Test is required to produce values greater than .50 (Williams, Brown & Onsman, 2010).

Furthermore, Bartlett's Test of Sphericity was required to yield significant results to demonstrate that the items within each scale adequately correlated with another. Lastly,

Kaiser's criterion factors needed to generate Eigenvalues greater than 1 (Kaiser, 1960). Factor loadings greater than .30 were considered necessary (Hair et al., 2007). These conditions were all met.

Theory of Planned Behaviour. To test the dimensionality of the constructs, all of the items used to measure the antecedents of the TPB were inputted into a factor analysis. This analysis resulted in three separate factors, directly corresponding to the three conceptual variables represented by the items.

Table 3.
Factor Analysis: Independent Variables (TPB)

Item	Factor 1	Factor 2	Factor 3
Att_1	.747	.186	.375
Att_2	.739	.002	.199
Att_3	.794	.307	.159
Att_4	.843	.237	.110
Att_5	.857	.231	.218
PBC_1	.095	.818	.274
PBC_2	.006	.784	.223
PBC_3	.344	.775	.069
PBC_4	.243	.743	.110
SubNorm_1	.370	.103	.680
SubNorm_2	.145	.165	.773
SubNorm_3	.175	.134	.515
SubNorm_4	.103	.195	.799
Eigenvalue	3.571	2.767	2.373
% Variance Explained	27.470	21.285	18.251

Note. Extraction Method: Principal Axis Factoring.

Rotation method: Varimax Rotation

3 factors extracted.

N = 128

Casewise deletion of missing data.

Entrepreneurial Intent. The dependent variable (entrepreneurial intent) was entered into a separate factor analysis. All four items loaded onto one factor (see Appendix B Table B1). All of the items loaded above .77 on the factor (ranging from .812 to .942). These are

significant and acceptable loadings for the sample size (Hair et al., 2007). All items were therefore retained.

Attitude. All five items loaded strongly onto one factor (see Appendix B Table B2). All of the items loaded above .77 on the factor (ranging from .826 to .935). These are significant and acceptable loadings for the sample size (Hair et al., 2007). All items were therefore retained.

Subjective Norm. All four items loaded onto a single factor (see Appendix B Table B3). While two of the items loaded above .77 on the factor, one item loaded at .714 and another at .595. Despite being comparatively low loadings, these are still significant and acceptable loadings for a sample size of over 120 (Hair et al., 2007). Therefore the items were retained and included as part of the summary variable.

Perceived behavioural control. All four items loaded onto one factor (see Appendix B Table B4). All of the items loaded above .77 on the factor with the exception of one item, which loaded at .726. This is still, however, a significant and acceptable loading for a sample of this size (Hair et al., 2007). All items were thereby retained.

Community Valuation. All five items loaded onto a single factor (see Appendix B Table B5), four of which loaded above .77 on the factor, while one of the items loaded at .714. Similarly to the above, this is still considered a significant and acceptable loading and was thereby retained (Hair et al., 2007).

COVID-19. All three items in this scale loaded strongly onto a single factor (see Appendix B Table B6). All of the items loaded above .77 on the factor (ranging from .778 to .948). These are significant and acceptable loadings for the sample size (Hair et al., 2007). All items were therefore retained.

Reliability analysis.

To conduct the reliability analysis, Cronbach's coefficient alpha (α) was used to measure the internal consistency of each scale. The reliability of all factors that emerged after the EFAs was assessed. The Cronbach's alpha values which emerged for each of the six

scales were all $>.70$, ranging from .816 to .943. Cronbach alpha levels above .70 are regarded as having satisfactory internal consistency, with higher values indicating higher consistency between the scale items (Hair et al., 2007). All scales thereby exceeded the conventional acceptance level. All of the construct measures presented inter-item correlations of above .30, representing a suitable minimum (Hair et al., 2007). Therefore, all items within each scale were retained, and each scale was deemed to be satisfactorily reliable (Field, 2013).

Descriptive statistics.

The following descriptive statistics provide a more comprehensive understanding of the value and distribution of the data gathered by depicting how the scores relating to each variable are distributed within the sample. The descriptive statistics analysed were as follows; minimum scores (min), maximum scores (max), means (M), standard deviations (SD), skewness, kurtosis and standard error around the mean (SE) (Table 4 provides a summary of these statistics).

TPB variables. The reported mean scores for attitude ($M = 4.34$, $SD = 0.98$), subjective norms ($M = 4.22$, $SD = 0.93$) and PBC ($M = 3.82$, $SD = 0.93$) were positive with means greater than 3, above the midpoint on the 5-point scale utilized for all three measures. The sample group thereby displayed relatively positive attitudes, subjective norms and PBC regarding entrepreneurial intent. Kurtosis is interpreted as the peak of the data, or more specifically, a measure of the combined weight of the tails in relation to the rest of the distribution (Field, 2014). The kurtosis values ranged from -0.07 to 4.52. According to Hair et al. (2003), a kurtosis of 3 or more is considered to be too peaked, and too flat if a kurtosis is below -3. The attitude scale (4.52) may thereby be considered too peaked. Skewness may be considered a measure of a dataset's symmetry. The closer the skewness value is to zero, the closer the data points are to being normally distributed (Field, 2014). All three distributions had negatively skewed ranges from -2.21 to -0.99.

Entrepreneurial Intent. EI was observed as having a positive distribution of scores ($M = 4.22$, $SD = 1.09$). The minimum score recorded was 1 and the highest was 5, both of which are at the extremes of the five-point Likert scale used. The mean of 4.22 is above 3, suggesting an inclination of the sample group towards a high level of intention to engage in entrepreneurship. Entrepreneurial intention scores were negatively skewed (skewness = -

1.78) indicating that the data is relatively skewed to the left on a normal distribution curve. The kurtosis score for EI was 2.34, indicating that the data is platykurtic and meaning that the distribution of the data is flat, with the central peak being lower and wider in relation to a normal distribution curve, thus producing fewer and less extreme outliers (Field, 2014).

Community Valuation and COVID-19. Respondents reported moderate levels of positive community valuation ($M = 3.85$, $SD = 0.95$). Results also indicated moderate levels of perceived negative impact of COVID-19 on EI ($M = 3.78$, $SD = 1.11$). Scores in both scales were negatively skewed. The kurtosis score for the Community Valuation and COVID-19 scales were 0.36 and -0.07 respectively.

Table 4.
Descriptive statistics for each variable scale

Variables	Mean	SE	Min	Max	Skewness	Kurtosis
EI	4.22	0.10	1	5	- 1.78	2.34
Attitude	4.34	0.09	1	5	- 2.21	4.52
Subjective Norm	4.22	0.08	1	5	- 1.79	3.12
PBC	3.82	0.09	1	5	- 0.99	0.76
Community	3.85	0.09	1	5	- 0.89	0.36
COVID-19	3.78	0.11	1	5	- 0.78	-0.07

Note. SE = standard error around the mean, *min* = minimum, *max* = maximum.

Correlation analysis.

Correlation analysis was assessed using the Pearson product moment correlation coefficient. The relationships between all continuous variables were analysed. In order to test hypotheses H1a, H1b and H1c, EI was tested in relation to the antecedent variables of the TPB (Attitudes H1a, Subjective Norms H1b and PBC H1c). Community valuation and the perceived impact of COVID-19 were included in this analysis as control variables. P values were classified as follows: $*p \leq .05$, $**p \leq .01$, $***p \leq 0.001$. Results were interpreted based on Cohen's conventions. As such, a correlation coefficient of .10 was considered a weak or small correlation; a coefficient of .30 represented a moderate association and a coefficient of .5 or above was representative of a strong correlation (Cohen, 1988).

TPB variables and entrepreneurial intention. Significant positive relationships were observed between attitudes, subjective norms and PBC in relation to EI. The

relationship between attitude and intention was the strongest ($r = .812, p < 0.01$). This result represents a strong correlation, thereby supporting hypothesis H1a. A moderately strong relationship was observed between subjective norm and EI ($r = .405, p < 0.01$). The results for hypothesis H1b were thereby additionally supported. Finally, PBC and EI demonstrated a moderate positive relationship ($r = .363, p < 0.01$), thus adding support to hypothesis H1c. See Table 5 below for the correlation matrix related to these findings.

Community Valuation, COVID-19 and Entrepreneurial Intention. Correlation analysis was also run between community valuation, the perceived impact of COVID-19 and EI. A significant positive relationship was found between community valuation and EI ($r = .263, p < 0.01$). A significant positive relationship was also found between the COVID-19 scale and EI ($r = .340, p < 0.01$). Both of these results showed moderate correlations.

Table 5.
Correlation Matrix: TPB, Entrepreneurial Intent, Community Valuation and COVID-19

Variable	M	SD	1a	1b	1c	2	3	4
1a. Attitude	4.34	0.98	(.943)					
1b. PBC	3.82	0.93	.447**	(.856)				
1c. Sub Norm	4.22	0.93	.474**	.360**	(.816)			
2 EI	4.22	1.09	.812**	.363**	.405**	(.925)		
3 Community	3.85	0.95	.311**	.633**	.428**	.263**	(.892)	
4 COVID-19	3.78	1.11	.340**	.510**	.195*	.340**	.358**	(.884)

Note. $N = 103$. ** $p < 0.01$, * $p < 0.05$; M = mean, SD = standard deviation; Scale reliabilities are reported on the diagonal.

Regression Analysis.

First, a linear multiple regression analysis was run to test hypotheses H1a, H1b and H1c. Based on the theory underpinning the TPB, the independent variables of attitude, subjective norms and PBC were entered into the initial step of the model with EI being the dependent variable. Thereafter, a four-step hierarchical multiple regression analysis was conducted to assess the TPB variables as determinants of EI and the value of including the following control variables to the model; demographic variables (gender, race and age), community valuations and COVID-19 perceptions as well as the exposure to

entrepreneurship variables. Assumptions were also tested before the regression analyses were run.

The linear multiple regression model was significant ($R^2 = .803$, adjusted $R^2 = .797$, $F, 114 = 149.263, p < .001$). The results indicated that attitude was a significant determinant of intention ($\beta = .815, t = 15.517, p < .001$). However, subjective norms ($\beta = .072, t = 1.211, p = 0.474$) and PBC ($\beta = .033, t = .621, p = .897$) were not significant determinants. Therefore, the TPB model held less predictive validity than anticipated with attitude being the only significant determinant of EI, accounting for 70.4% of the variance in this dependent variable. Therefore, hypothesis H1a was supported and hypotheses H1b and H1c were rejected in favour of the null hypotheses.

Table 6.
Summary of Multiple Regression Analysis: TBP

	β	<i>SE</i>	<i>t</i>	95.0% CI ^a	
				LL	UL
Attitude	.918**	.059	15.517	.801	1.035
Subjective Norm	.072	.059	1.211	-.045	.188
PBC	.033	.054	.621	-.073	.140
R^2	.803**				

Note. N = 114 after listwise deletion of missing data; β = unstandardized betas; CI = confidence intervals; LL = lower limit; UL = upper limit.

^a 95% confidence intervals for unstandardized betas.

* $p < .05$

** $p < .001$

Table 7 presents the results for the hierarchical regression of entrepreneurial intent on the control variables, employed to test hypothesis H2. The demographic variables of race, gender and age were inputted into the first step. Gender (dummy variable: 0 = Male; 1 = Female), race (dummy variable: 0 = Black; 1 = White). This was followed by community valuation and COVID-19 variables added in the second step. The exposure to entrepreneurship variables were subsequently inputted into the third step. These variables included self-employment experience, entrepreneurship education and exposure by means of

a self-employed family member or friend. Finally, the TPB variables were entered into the fourth step of the model.

In step 1, the demographic control variables explained 8.6% of the variance in EI, however, the model was statistically insignificant $F(3, 98) = 3.060, p = .032$. After entry of community valuation and COVID-19 in Step 2, the total variance explained by the model as a whole was 28.1%, $F(2, 96) = 13.008, p < .001$. In this step, only COVID-19 was a significant determinant of EI ($\beta = .259, t = 3.159, p < .05$) while the community valuation variable was found to be an insignificant determinant. The entry of the exposure to entrepreneurship variables (namely; ‘self-employment experience’, ‘entrepreneurship education’ and ‘self-employed family member or friend’) in Step 3 did not make a significant incremental contribution to the variance explained in EI, R^2 change = .040, F change (3, 93) = 1.840, $p = .067$). After the entry of the TPB antecedents in step 4, the total variance explained by the model as a whole was approximately 79%, F change (3, 90) = 66.532, $p < .001$. In the final model, however, only attitude ($\beta = .886, p < .001$) was statistically significant. Therefore hypothesis H2 was rejected in favour of the null hypothesis.

Table 7.
Summary of Hierarchical Regression Analysis for Dependent Variable: EI

Variable	β				t	95.0% CI ^a	
	Step 1 (Gender, Race & Age)	Step 2 (Community Valuation and COVID- 19)	Step 3 (Exposure to Entrepreneurship)	Step 4 (TPB)		LL	UL
Gender	-.298	-.292	-.276	-.128	-1.286	-.326	.070
Race	-.250	-.074	-.218	-.004	-.033	-.242	.234
Age	-.065	-.089	-.084	-.025	-1.511	-.057	.008
Community		.278	.318	.041	.562	-.103	.185
COVID-19		.259*	.329**	.057	1.008	-.055	.169
Self- employment experience			-.430	.038	.284	-.225	.300
Ent. Education			.191	.011	.101	-.202	.224
Self-employed			-.101	-.034	-.294	-.263	.195

family member or friend					
Attitude				.886**	11.971
Sub Norm				.066	.949
PBC				.000	.001
R ²	.086	.281**	.321**	.789**	
Change in R ²		.195**	.040	.468**	

Note. $N = 102$ after listwise deletion of missing data; β = unstandardized betas; CI = confidence intervals; LL = lower limit; UL = upper limit. ^a 95% confidence intervals for unstandardized betas. * $p < .05$ ** $p < .001$

Assumptions of regression analysis. Prior to running the regression analyses, the following assumptions were evaluated. Field (2014) suggests that a value between 1 and 3 meets the assumption of independent errors. The calculated Durbin-Watson score was 1.986. This value was > 1 and < 3 , indicating that any errors present within the data are independent and random, thereby meeting this assumption's criteria. Normality was assessed by observing P-P plots, where normality is represented by the points falling near to the diagonal line (Tabachnick, Fidell & Ullman, 2007). Despite slight deviations in the P-P plots, the assumption was considered acceptable. For the assumption of multi-collinearity between the independent variables to be met, the results of the variance inflation factor (VIF) is observed. The VIF should be < 10 across all independent variables. Each step of the hierarchical multiple regression showed VIF values ranging from 1.042 to 2.505. Multi-collinearity may therefore be assumed. Homoscedasticity was examined by means of generating scatterplots, showing standardized residuals against standardized predicted values. No pattern or tunnelling of the residuals was depicted, therefore meeting the assumption of homoscedasticity. The scatterplots were additionally analysed to determine linearity (See Appendix C, Figures C1 and C2). The lack of curvature observed in the data confirmed that the assumption of linearity was met. Finally, the assumption of sample size was assessed against Tabachnick, Fidell and Ullman's (2007) guidelines. Specifically, the sample size should be a minimum of eight times larger than the amount of independent variables utilized within the model. There were three independent variables used in the first model and the sample size is 115, therefore meeting this assumption. The second model had 11 independent variables. The sample size is 103; thus, the minimum acceptable sample size is 88. This assumption is therefore met.

ANOVA Analysis (Gender, Race and COVID-19).

ANOVA was conducted to examine differences in entrepreneurial intention across gender (dummy variable: 0 = Male; 1 = Female), race (dummy variable: 0 = Black; 1 = White) and COVID-19 perception (dummy variable: 0 = Negative COVID Perception; 1 = Positive COVID perception). However, none of the results were significant ($p > .05$), indicating no meaningful differences between the subgroups.

COVID-19 moderation effect.

Given that COVID-19 introduced significant variance to the model predicting EI, this variable was assessed for its potential to moderate the relationship between the antecedents of the TPB and EI. First, Hayes (2018) PROCESS macro was employed to investigate the moderation of TVET students' perception of the COVID-19 pandemic on the relationship between perceived behavioural control and entrepreneurial intention.

Table 8 signifies that the interaction between COVID19 perception and PBC was significant ($b = -.19$, 95% CI [-.32; -.06], $t = -2.80$, $p = .006$), which is confirmed by the fact that zero was not included in the confidence intervals.

COVID-19 perception significantly moderated the relationship between PBC and EI. Table 8 was examined in combination with the model depicted in Figure 3 to probe this effect. The relationship between PBC and EI was significant only when TVET students scored low on the COVID-19 scale as opposed to high. In other words, the moderation was significant in the case of those who had a negative perception of COVID-19 and its impact on their entrepreneurship prospects.

PBC was significantly related to EI when COVID-19 perception was one standard deviation below the mean ($b = .47$, 95% CI [.24; .70], $t = 4.02$, $p < .001$) and at the mean ($b = .26$, 95% CI [.03; .49], $t = 2.24$, $p = .028$), but not when COVID-19 was one standard deviation above the mean ($b = .05$, 95% CI [-.26; .35], $t = .29$, $p = .77$) as the confidence interval did include zero.

The Johnson-Neyman technique indicated that the relationship between PBC and EI was significant for all values of COVID-19 perception below .12 ($b = .23$, 95% CI [.00; .47],

$t = 1.98, p = .05$) standard deviations below the mean. The moderation results have been outlined in the table below, formatted in alignment with Field's recommendations (2014).

Table 8

Moderation Analysis: COVID-19 Perception Moderating the Relationship between PBC and EI.

Independent Variables	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	4.37 [4.19; 4.55]	.09	47.53	$p < .001^{**}$
PBC (centred)	.26 [.03; .49]	.12	2.24	$p = .028^*$
COVID-19 (centred)	.12 [-.05; .30]	.09	1.38	$p = .170$
PBC X COVID-19 (centred)	-.19 [-.32; -.06]	.07	-2.80	$p = .006^*$

Note. $R^2 = .27. p < .001$

$n = 103$ after listwise deletion. b = standardized coefficient. Brackets [lower; upper] contain the confidence intervals.

* $p < .05$ ** $p < .001$

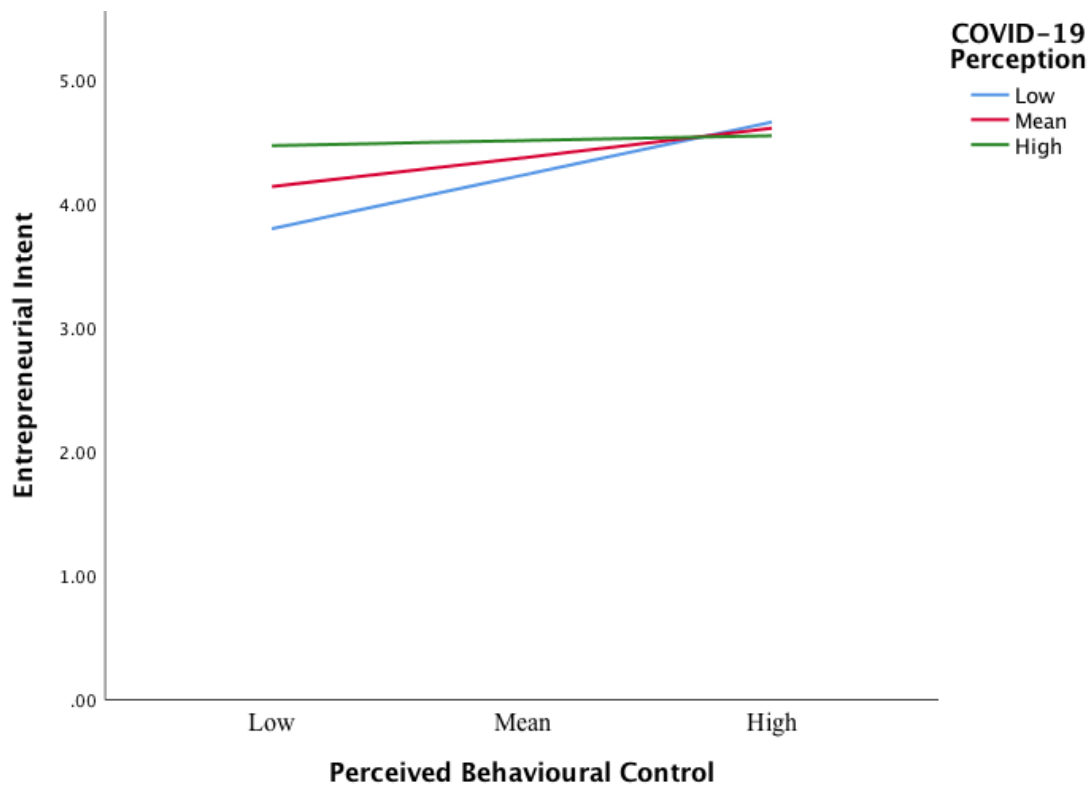


Figure 3 Moderation analysis: COVID19 perception moderating the relationship between PBC and EI.

Next, the moderation of TVET students' perception of the COVID-19 pandemic on the relationship between attitude and entrepreneurial intention was investigated. Following this, the moderation of COVID-19 perception on the relationship between subjective norms and entrepreneurial intention was explored. Results indicated that COVID-19 perception did not significantly moderate either of these relationships.

Discussion

The present investigation intended to explore the TPB model's utility in investigating entrepreneurship intention amongst TVET students. Further exploration was conducted with the addition of demographics, community valuation, COVID-19 perception and exposure to entrepreneurship as control variables within the model. This study further aimed to contribute to the existing TPB literature, surrounding the model in its entirety as well as EI particularly within a South African context. This chapter will discuss the central findings of the current research investigation as well as outline the main contributions and practical implications of such. Thereafter, the limitations and related recommendations for future research will be addressed before concluding the study.

Analysis of psychometric properties of the scales within the study.

Given that the present study utilized adapted versions of internationally developed and validated measures within a South African context, the quality and applicability of these measures will be discussed. The reliability analyses conducted in this study demonstrated strong support for the use of all scales. The Cronbach alpha values were found to be high ranging from .816 to .943. These values are much higher than acceptable levels of reliability, thereby adding credence to the results. The EFA analyses across all of the present study's scales exhibited a one-dimensional structure. This is aligned with the findings of the authors who originally developed the measures adapted for the purpose of this investigation (Liñán, 2008; Autio et al., 2001; Maes, Leroy and Sels, 2014). The findings from the validity and reliability analyses thereby confirmed the applicability of the scales to the South African context.

In terms of the TPB specifically, the present findings suggest higher levels of reliability for the attitude, subjective norm and PBC scales than that of previous research. TPB scales

have been criticized in the past for being low in internal consistency. Particularly, measures of subjective norms have most often had low Cronbach's co-efficient alpha values (Armitage & Connor, 2001). An EFA was conducted based on the assumptions of the TPB in addition to research surrounding the theory proposing that there should be a three-factor structure between attitudes, subjective norms and PBC (Ajzen, 2002). Focusing on the concept of discriminant validity, Hagger and Chatzisarantis (2005), for example, tested the distinct factors of the three predictors. They found that each variable loaded onto a separate factor, thus further validating the findings of the current study. Prior research that has applied the TPB variables in relation to EI found similar validity and reliability scores (Shook & Bratianu, 2010; Liñán & Fayolle, 2015). The factor analyses thereby supported the dimensionality of the attitudes, subjective norms, perceived behavioural control measures.

Relationships between the variables

Ajzen's (1991) meta-analysis of the TPB found an average multiple correlation of attitude, subjective norm and PBC with intention of $R = .71$ (19 correlations). The following section outlines the correlations found between these variables within the present investigation.

Attitudes and intention. Prior exploration of these constructs has resulted in moderate to strong relationships between intention and attitude (Armitage & Conner, 2001). In the present study, a significant and very strong correlation was found ($r = .812, p < .01$). TPB research investigating the relationship between intention and attitude across varying behaviours have found this correlation to be the strongest compared to the other antecedents of the TPB model (subjective norms and PBC) (Armitage & Conner, 2001). This is consistent with the present findings, indicating a strong attitude-intention correlation when compared to subjective norms ($r = .405, p < 0.01$) and PBC ($r = .363, p < 0.01$) correlations with intent. This thereby suggests that entrepreneurial intent may be largely attitudinally driven within the current sample group.

Subjective norms and intention. The subjective norm-intention correlation has previously been found to be significantly weaker than the relationships between other TPB antecedents with intention (Ajzen & Madden, 1986; Sheppard et al., 1988; Armitage & Conner, 2001). As a result, some previous researchers have disregarded the subjective norm construct entirely from their investigation (e.g. Sparks, Shepherd, Wieringa, &

Zimmermanns, 1995). Within the entrepreneurship domain specifically, a similar weak relationship has been observed when compared to attitude and PBC with intention (Krueger et al., 2000). The present study, however, contradicts this trend as the subjective norm-intention relationship was the second strongest ($r = .405, p < 0.01$).

Given that the majority of TPB studies have used single-item measures for the subjective norm component, Armitage and Conner (2001) argue that the weak correlations previously found may be a function of poor measurement. They propose that subjective norm shows a reasonably strong relationship with intention when appropriately measured with multiple-item scales, as is the case in the present study.

Perceived behavioural control and intention. Due to its addition to the TRA model to construct the TPB, the relationship between intention and PBC has been widely and closely observed in the research (e.g. Kautonen et al., 2015). Previous studies exploring various behaviours have seen the PBC-intention correlation to be strong ($r = .43$) (Armitage & Conner, 2001). Despite being the weakest TPB correlation, the present study validated prior findings as the PBC to intention relationship was strong and significant ($r = .363, p < 0.01$). This result additionally corroborates previous investigations arguing for the utility of the inclusion of PBC to form the TPB model (Rivis, Sheeran & Armitage, 2009).

Influence of demographic characteristics on results

Although the exploration of demographic factors' influence on EI was not the main aims of this research, ANOVA analysis was utilized in order to further understand the results. However, no significant variations were observed across factors (gender, race and age). The absence of meaningful difference in the resultant means indicates that EI is not significantly influenced by such demographic factors. This is contrary to many previous studies investigating the influence of gender within the entrepreneurship domain (Tkachev and Kolvereid, 1999; Kolvereid, 1996; Matthews and Moser, 1996; Scherer, Brodzinski, and Wiebe, 1990; Crant, 1996; Singh and DeNoble, 2003; Zhao, Seibert and Hills, 2005).

The current findings are also in contrast with prior studies demonstrating that race/ethnicity is a significant predictor of EI (Farrington, Louw, & Venter, 2012). The present study is, however, aligned to those which have found age (Gird & Bagraim, 2008;

Kristiansen & Indarti, 2004) to be an insignificant determinant of EI. Conversely however, in a separate regression analysis of entrepreneurial intent on demographic variables within the South African context, Gird and Bagraim (2008) reported a statistically significant but extremely weak relationship with EI. This weak association may be due to the fact that, within the TPB research domain, demographics are thought only to influence intent by means of their influence on attitude, subjective norm, and PBC (Ajzen, 1991).

How does the TPB influence entrepreneurial intention?

Attitude, subjective norms, and PBC collectively explained approximately 80% of the variation in intention, which is greater than the typical 30–45% seen in previous investigations of entrepreneurial intentions (Kolvereid, 1996; Tkachev and Kolvereid, 1999; Krueger et al., 2000; Van Gelderen et al., 2008; Liñán & Chen, 2009; do Paço et al., 2011). This result is also larger than those of meta-analyses in other behavioural domains (Armitage & Conner, 2001; Sheeran, 2002), as well as the closest comparable study of entrepreneurship intent of TVET students in Ethiopia (Buli & Yesuf, 2015). Additionally, the current R^2 value is higher than that of Gird and Bagraim's (2008) South African-based investigation wherein an R^2 of 0.27 was found. This seems to provide some evidence for the usefulness of the TPB in explaining EI amongst TVET students in SA. However, only attitude was shown to be a significant antecedent, while subjective norms and PBC did not seem to account for any additional variance in the dependent variable. The results thereby imply that, with the exception of attitude, the TPB's antecedent variables are less important predictors of entrepreneurial intention amongst TVET students within a South African context.

Attitude. The results of the study found that attitude explained significant variance in EI amongst South African TVET students, thereby supporting Hypotheses H1a ($\beta = .815, p < .001$). The more positive one's attitude was towards venture creation, the more likely one was to intend to engage in this behaviour. This suggests that when students appraise entrepreneurship favourably, there is an increased willingness to start a business. Comparable findings have been reported by numerous researchers, including Kolvereid (1996), Tkachev and Kolvereid (1999) and Ajzen (1991). Likewise, Basu and Virick (2008) held that attitudes have a greater explanatory power on EI when compared to PBC and subjective norms. All studies included in Lortie and Castogiovanni's (2015) meta-analysis supported the attitude-intention relationship. The results further corroborate those of Gird and

Bagraim (2008) with reference to the increased explanatory power of attitudes on EI, implying that attitudes have a greater impact in South Africa on the decision to start a business when compared to the other predictors of EI. Since intentions have been shown to precede the performance of behaviour (Ajzen & Madden, 1986; Bagozzi, Baumgartner & Yi, 1989) the results thereby suggest that attitude may be a noteworthy determinant of entrepreneurial behaviour in South Africa.

Subjective Norm. Subjective norm did not significantly contribute to the predictive ability of the model ($\beta = .072, p = 0.474$). The current results thereby failed to confirm the role of subjective norm in the formation of EI in the case of South African TVET students. This indicates that the opinion of people that are close to these students (family, friends and peers), exert less influence on intention to engage in entrepreneurial pursuits. This is aligned to prior research, which has generally found subjective norms to be the weakest predictor of EI (Schlaegel & Koenig, 2014). Similar results have been found within earlier investigations, reporting subjective norms to have the lowest impact on entrepreneurial intention (Krueger et al., 2000; Autio et al., 2001; Gird & Bagraim, 2008; Mueller, 2011; Otuya et al., 2013). Out of all of the relationships investigated in a meta-analysis by, Lortie and Castogiovanni (2015), the influence of subjective norms on intentions received the lowest support in the literature. For instance, Linan and Chen (2009) found no support for the subjective norms to intentions relationship within their study involving university students from Spain and Taiwan by means of a structural equation modelling approach. Kautonen, van Gelderen and Fink (2015) suggest that this pattern of results may be due to a residual effect of the frequent use of student samples in the research, as norms set by others may be less relevant for students than for the wider adult population. At large, there seems to be a lack of agreement surrounding the significance of subjective norms as a valuable contributor to the TPB. Some studies go as far as to suggest that with the subjective norm variable removed, the remaining antecedents are synonymous with those of Shapero's Entrepreneurial Event model (SEE) (Krueger et al., 2000), therefore calling the relevance the of the TPB into question.

Perceived Behavioural Control. Similarly to subjective norm, PBC did not significantly contribute to the predictive ability of the model ($\beta = .033, p = .897$). The results thereby suggest that PBC does not play an important role in the formation of EI in the case of South African TVET students. In contrast to the assumptions of the TPB, this demonstrates that the degree of perceived control over venture creation does not meaningfully impact

intent to engage in this behaviour for the population represented within this study. Hypothesis Hc was thereby rejected in favour of the null hypothesis. However, this result is not aligned with a large portion of the findings within prior research (Kolvereid, 1996; Tkachev & Kolvereid, 1999; Krueger et al., 2000; Autio et al., 2001; Van Gelderen et al., 2008; Liñán, 2008; Naktiyok, Karabey & Gulluce, 2010; Byabashaija & Katono, 2011; Hui-Chen, Kuen-Hung & Chen-Yi, 2014). Although, evidence concerning whether perceived behavioural control moderates the intention-behaviour relationship is equivocal. For example, Armitage and Conner (2001) reviewed 19 studies and found that only nine (47%) obtained a significant interaction between perceived behavioural control and intention. Similarly, García-Rodríguez et al. (2015) did not find any statistical support for this relationship in their more recent research on university students in Senegal and Spain. Conversely, Bhuyan and Pathak (2017) reported a positive relationship between the PBC and the EI of university students in Uttarakhand, India. Thus, the extent to which students consider their level of control over entrepreneurial pursuits as important when considering engaging in this behaviour is unclear. A possible explanation given for an insignificant relationship between PBC and EI is that this particular antecedent becomes more important when engaging in actual behaviour and not in the formation of EI (Kautonen et al. 2015).

Does exposure to entrepreneurship influence EI?

Prior exposure to entrepreneurship was added to the model as a control variable to evaluate the predictive value it may add to the TPB model. This included self-employment experience, entrepreneurship education and the presence of a self-employed family member or friend - none of which were found to be significant determinants of intention to become an entrepreneur. The present research therefore casts doubts on the impact of prior exposure to entrepreneurship on the formation of EI amongst South African TVET students.

In contrast to the current findings, prior entrepreneurial experience, education, and entrepreneurial family members have all been found to be meaningful predictors of EI (Zhao et al. 2005; Carr & Sequeira 2007; Guerrero, Lavín & Álvarez, 2009; Dimov, 2010; Lim et al., 2010) A possible explanation for this contrast is that the number of respondents with prior exposure was too low to find significant contributions. Specifically, the majority (62.3%) of TVET students had no experience in venture creation, and most (57.5%) had never taken a

course in entrepreneurship. However, 73.6% of respondents indicated that they had a family member or friend who owned a business, presenting a degree of possible ambiguity within the results.

As a whole, past research investigating the influence of prior entrepreneurial exposure on entrepreneurial intention presents largely inconclusive findings (Shook et al., 2003; Chlosta et al., 2012). A possible reason for the inconclusive nature of the research to date, including the current investigation, is the failure to account for the qualitative dimension of prior entrepreneurial exposure (Carr & Sequeira, 2007, Kim et al., 2006). Hence, ambiguous results may stem from the fact that prior exposure that has been positively perceived may affect individuals' entrepreneurial intention differently when compared to prior exposure perceived in a negative light (Krueger, 1993, van Auken et al., 2006).

Does community valuation influence EI?

This investigation set out to explore community valuation as a control variable; however, it did not add any predictive value to the TPB model. This finding is contrary to a large portion of the literature around social valuation of entrepreneurship and social legitimization of entrepreneurship (Liñán, 2008; Liñán et al., 2011; Kibler et al., 2014). Within the South African context, researchers have reported that social and cultural norms play an important role in enhancing positive perceptions regarding entrepreneurship as a viable career (Herrington & Kew, 2014; Malebana, 2014).

Kibler et al. (2014) offer a potential explanation for this finding, proposing that when individuals derive support for entrepreneurial pursuits from their immediate social circle, they are more likely to deem it unnecessary to obtain the approval of the residual local environment when developing EI. The current results indicated that 63.3% of TVET students feel that their close family would approve if they ever started a business and 61.3% supposed that their friends would approve. Thus, in this context, the impact of community valuations on EI may be negligible.

However, the present study found community valuation to be highly correlated ($r = 812; p < 0.01$) with PBC and moderately correlated with subjective norms ($r = 405; p < 0.01$),

indicating that it may indirectly affect EI as a result of its influence on the TPB antecedents, thus supporting the theory itself (Ajzen, 2005).

The Moderating Effect of COVID-19

TVET students' perception of the COVID-19 pandemic was found to significantly moderate the relationship between PBC and EI. Based on the TPB (Ajzen, 1991), Krueger (2000) argues that entrepreneurial intentions develop from, amongst other factors, the feasibility of entrepreneurial action. Following from this, perceived lack of security or economic instability can impact these feasibility perceptions and thus one's intention to start a business. As such, a negative perception of COVID-19's effect on the economy may thereby reduce one's perceived control over creating a successful venture, thus negatively impacting EI. The results of this moderation analysis add support for this idea, and are corroborated by previous entrepreneurship literature related to the concept of risk (Nabi & Linan, 2013). To the extent that a crisis is regarded as threatening, individuals will experience a heightened perception of risk alongside a decrease in expected returns from starting a business. This may subsequently present a strong disincentive for an individual to pursue an entrepreneurial venture, thus diminishing EI (Arrighetti et al., 2016). In the present context, it may be reasonable to assume that this effect may potentially be compounded by a heightened sense of uncertainty and increased need to take safety measures required to ensure adequate levels of social distancing are maintained. Conversely, however, previous investigations note that the necessity motive may encourage more individuals to engage in venture creation during a time of crisis (Santos et al., 2017). The increase in unemployment and a lack of alternative routes may influence people to deem the possibility of starting a new business as a viable option. Arrighetti et al.'s findings (2016) provide an example of research that corroborates these effects in their study on a sample of Italian potential entrepreneurs.

Contribution of the present investigation.

Theoretical Contribution. The present study also builds on the limited research that has tested the predictive validity of the Theory of Planned Behaviour in South Africa (for example, Gird & Bagraim, 2008; Malebana, 2014; Malebana & Swanepoel, 2015; Nieuwenhuizen, 2016). Recognising that research on entrepreneurship intent has, to date, mainly been conducted within Western regions, this investigation was performed in an under-

researched emerging market context. The results, although limited, suggest that the TPB may be applied to better understand the determinants of entrepreneurial intention within the context of South Africa. Such findings are particularly relevant when considering that prior research usually assumes but fails to test that theories may be applied effectively from developed to developing country contexts (Bruton et al. 2008).

Practical Implications. Given that entrepreneurship is an intentional activity, an understanding of the factors influencing one's intent to engage in this behaviour is essential in improving the promotion of entrepreneurship efforts. This is particularly relevant in South Africa where the unemployment rate (and especially youth unemployment rate) is high and where entrepreneurs are thought to play an instrumental part in job creation and poverty alleviation (Nieman, 2001). The current results suggest that entrepreneurship must be perceived as desirable before TVET students can develop intentions to engage in entrepreneurial pursuits (Krueger et al., 2000). This highlights the need for decision makers in TVET institutions and national policy to focus on enhancing the desirability of self-employment in order to energise and channel student intentions towards entrepreneurship. Considering the primary purpose of TVET colleges to support the promotion of knowledge, skills, attitudes and values required for students to be economically productive members of society, implementation at the educational level may include the designing of academic programmes to reduce any adverse perceptions of entrepreneurship and enhance awareness of the potential positive outcomes of venture creation.

Moreover, based on the analysis above, the pandemic may have detrimental effects to entrepreneurship intention. Thus, efforts are needed to decrease the negative perception of COVID-19's impact on entrepreneurial pursuits amongst TVETs. An important practical implication arising from this study is that educational initiatives (within both public policy and TVET curriculums) intended to increase entrepreneurial activity should place emphasis on the representation of entrepreneurship as both desirable and feasible despite the pandemic in order for students to develop the intention to start a new business. This implication is important as a means of enhancing entrepreneurial intent and thereby stimulating entrepreneurial activity. As discussed in the literature review, this has been linked to economic development (Louw et al., 2003) and may thus be critical following the damaging effects of the pandemic on South Africa's economy.

Limitations and Recommendations for future research

Sampling limitations. As a result of time and resource constraints, the present study made use of a purposive sampling method. In addition, many institutions were not willing to participate due to pressure brought about by the COVID-19 pandemic. This served to reduce the variability within the study's sample group (Acharya, Prakash, Saxena & Nigam, 2013). To increase generalizability, it is thereby recommended that a wider range of institutions be included in the study.

An additional limitation is the small sample size gained and utilized within the investigation. The current study sample of 128 participants does not represent an adequate proportion of the general population given that approximately 700 000 students are enrolled in South African TVET colleges in a given year (Department of Higher Education and Training, 2018). Thus, a greater sample would have further enhanced the representation of the population in question, thereby increasing the reliability, validity and overall generalizability of the study. Future researchers should therefore pursue bigger sample sizes to evaluate the findings of this study with greater statistical power.

Measurement limitations. Behavioural decision-making models such as the TPB have largely relied upon self-report measures, despite evidence pointing to the increased vulnerability of such data to self-presentational biases (Armitage & Conner, 2001). The present investigation made use of self-report questionnaires to collect the current data. Although the respondents were assured of the anonymity of their responses, this method presents a risk to the research's validity due to the potential for social desirability bias, whereby participants may have responded untruthfully (Brannick, Chan, Conway, Lance & Spector, 2010). It is thereby recommended that social desirability scales be included in future investigations to account for the bias that might occur within responses (Beck & Ajzen, 1991).

Design limitation. An additional potential limitation of this dissertation relates to its cross-sectional design. The participants were assessed at one specific point in time. The data collected was thereby a representation of this particular time period, thus inhibiting causal linkages. Due to the prospect of entrepreneurial intention evolving over time, De Jorge-Moreno, Castillo and Triguero (2012) suggest making use of longitudinal data to enhance the

richness of the results by capturing EI in more depth and with greater accuracy. The cross-sectional nature of the investigation also increases the likelihood for common method variance to occur, as the research might be impacted by systematic tendencies amongst responses (Podsakoff, 2003), including social desirability bias, transient mood state and acquiescence. Future research should thereby build on this research by employing a longitudinal design to counteract these potential limitations as well as to assess the extent to which EI is sustained and acted upon (Autio et al., 2001).

Beyond the TPB. The variables of interest in this study were limited to those included in the TPB as well as a select few factors included as control variables. Future researchers may examine alternative theories, identifying additional determinants of variance in EI beyond those taken into account by the TPB antecedents. This would provide a richer and more holistic understanding of EI and how it is formed within a South African context and amongst TVET students in particular.

Conclusion

The present study set out to investigate the utility of the Theory of Planned Behaviour model in exploring entrepreneurship intention amongst TVET students within a South African context. Further exploration was conducted with the addition of demographics, community valuation, COVID-19 perception and exposure to entrepreneurship as control variables within the model. It established that attitudes, subjective norms and perceived behavioural control are strongly correlated to EI. Furthermore, attitude was a significant determinant of intention to engage in venture creation amongst the sample of TVET students, thus partially supporting the tenants of the TPB. These results suggest that a positive perception of entrepreneurship is necessary for TVET students to develop intentions to engage in entrepreneurial pursuits. The current results thereby emphasize the need for decision makers in TVET institutions and national policy to focus on enhancing the desirability of entrepreneurship to energize and channel individual intention towards self-employment.

Additionally, the findings of this investigation suggest that subjective norms, perceived behavioural control, demographics, community valuation and exposure to entrepreneurship are were not meaningful determinants of EI amongst this sample group, while COVID-19 perception was a significant determinant. Moreover, TVET students' perception of the COVID-19 pandemic was found to significantly moderate the relationship between perceived behavioural control and entrepreneurial intention. Given the current sampling, measurement and design limitations, the present results, although promising, should be treated with caution until further investigations confirm these findings.

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List of Appendices / Appendices

Appendix A: Questionnaire

Full questionnaire administered within the current study



Dear Participant,

This survey is part of an important approved investigation of entrepreneurial intention amongst TVET students in South Africa. It is with your help that I hope to build on the understanding of what drives young individuals to become entrepreneurs within our country.

Thank you for your participation in this study.

Jamie Sundelson

If you have any questions, feel free to contact us using the details below.

Researcher: Jamie Sundelson

Email: SNDJAM007@myuct.ac.za

Supervisor: Jeffrey Bagraim

Email: jeffrey.bagraim@uct.ac.za

Please note:

- The research contributes to my Organisational Psychology Masters dissertation.
- The research has been approved by the Commerce Faculty Ethics in Research Committee.
- Participation in this study does not pose any risks to you as a participant.
- Participation is voluntary; you may drop-out at any point.
- Once you complete and submit this survey, you are acknowledging acceptance that participation in this study has been at your own free will.
- All data will be kept confidential and shared only for the purpose of this research project.
- All identifying information will be removed from this questionnaire and destroyed as soon as all data has been collected.

Please indicate the option that best applies to you.

- I am currently enrolled in a TVET College.
- I am planning on enrolling in a TVET College.
- Neither of the above

Entrepreneurial Intent

1. I am ready to do anything to be an entrepreneur.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
2. I will make every effort to start and run my own business.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
3. I am determined to create a business venture in the future.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
4. My professional goal is to be an entrepreneur.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree

Attitude

1. I dream of being an entrepreneur one day.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
2. If I had the opportunity and resources, I would love to start a business.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
3. Amongst various career options, I would rather be an entrepreneur.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
4. Being an entrepreneur would give me great satisfaction.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
5. Being an entrepreneur is an attractive idea to me.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree

Subjective Norm

1. If you decided to create a business, would people in your life approve of that decision?
 - My close family would approve
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
 - My friends would approve
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree

- Other people my age would approve
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
- Members of my home community would approve
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree

Perceived Behavioural Control

1. I have the skills and capabilities required to succeed as an entrepreneur.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
2. I am able to control the creation process of a new business.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
3. I am ready to start a viable firm.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
4. I know how to develop an entrepreneurial project.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree

Community Valuation

1. My community values entrepreneurial activity above other activities and careers.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
2. My community is highly favourable towards the entrepreneurial activity.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
3. The entrepreneur's role in the economy is generally valued in my community.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
4. Most people in my community consider it acceptable to be an entrepreneur.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree
5. In my community, entrepreneurial activity is considered to be worthwhile, despite the risks.
Strongly disagree: ___1___: ___2___: ___3___: ___4___: ___5___: Strongly agree

Prior Exposure

1. Do you currently have, or have you ever had, experience in creating a new business?
 - No
 - Yes
2. Have you ever taken a course in entrepreneurship?

- No
 - Yes
3. Does a family member or friend currently own or have they ever owned a business?
- No
 - Yes

Perception of COVID-19

1. COVID-19 has significantly increased my intention to become an entrepreneur.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
2. Due to COVID-19, I am now more likely to start my own business.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree
3. Due to COVID-19’s effects on the job market, a career as an entrepreneur is now more attractive to me.
Strongly disagree: ___1___ : ___2___ : ___3___ : ___4___ : ___5___ : Strongly agree

Tell me about yourself:

What is your gender?

- Male
- Female
- Other/Non-binary
- Prefer not to answer

What is your race? (As defined in South African equity legislation)

- Black African
- Coloured
- Indian
- Asian
- White
- Prefer not to answer

What is your nationality?

- South African
- Other, please specify_____

How old are you (in years)? _____

What is your field of study? _____

Appendix B: EFA Tables

Table B1.

Factor Analysis: Dependent Variable (Entrepreneurial Intent)

Item	Factor 1
EntInt_1	.942
EntInt_2	.867
EntInt_3	.866
EntInt_4	.812
Eigenvalue	3.050
Explained Variance	76.242

Extraction Method: Principal Axis Factoring.

1 factor extracted.

$N = 128$

Casewise deletion of missing data.

Table B2.

Factor Analysis: Independent Variable (Attitude)

Item	Factor 1
Att_1	.935
Att_2	.913
Att_3	.882
Att_4	.830
Att_5	.826
Eigenvalue	3.858
Explained Variance	77.164

Extraction Method: Principal Axis Factoring.

1 factor extracted.

$N = 128$

Casewise deletion of missing data.

Table B3.

Factor Analysis: Independent Variable (Subjective Norm)

Item	Factor 1
SubNorm_1	.829
SubNorm_2	.801
SubNorm_3	.714
SubNorm_4	.595
Eigenvalue	2.193
Explained Variance	54.818

Extraction Method: Principal Axis Factoring.

1 factor extracted.

$N = 128$

Casewise deletion of missing data.

Table B4.*Factor Analysis: Independent Variable (Perceived Behavioural Control)*

Item	Factor 1
PBC_1	.813
PBC_2	.802
PBC_3	.774
PBC_4	.726
Eigenvalue	2.432
Explained Variance	60.790

Extraction Method: Principal Axis Factoring.

1 factor extracted.

N = 128

Casewise deletion of missing data.

Table B5.*Factor Analysis: Community Valuation*

Item	Factor 1
ComVal_1	.857
ComVal_2	.808
ComVal_3	.804
ComVal_4	.769
ComVal_5	.714
Eigenvalue	3.134
Explained Variance	62.676

Extraction Method: Principal Axis Factoring.

1 factor extracted.

N = 128

Casewise deletion of missing data.

Table A6.*Factor Analysis: COVID-19*

Item	Factor 1
COVID_1	.778
COVID_2	.948
COVID_3	.819
Eigenvalue	2.175
Explained Variance	72.499

Extraction Method: Principal Axis Factoring.

1 factor extracted.

N = 128

Casewise deletion of missing data.

Appendix C: Figures

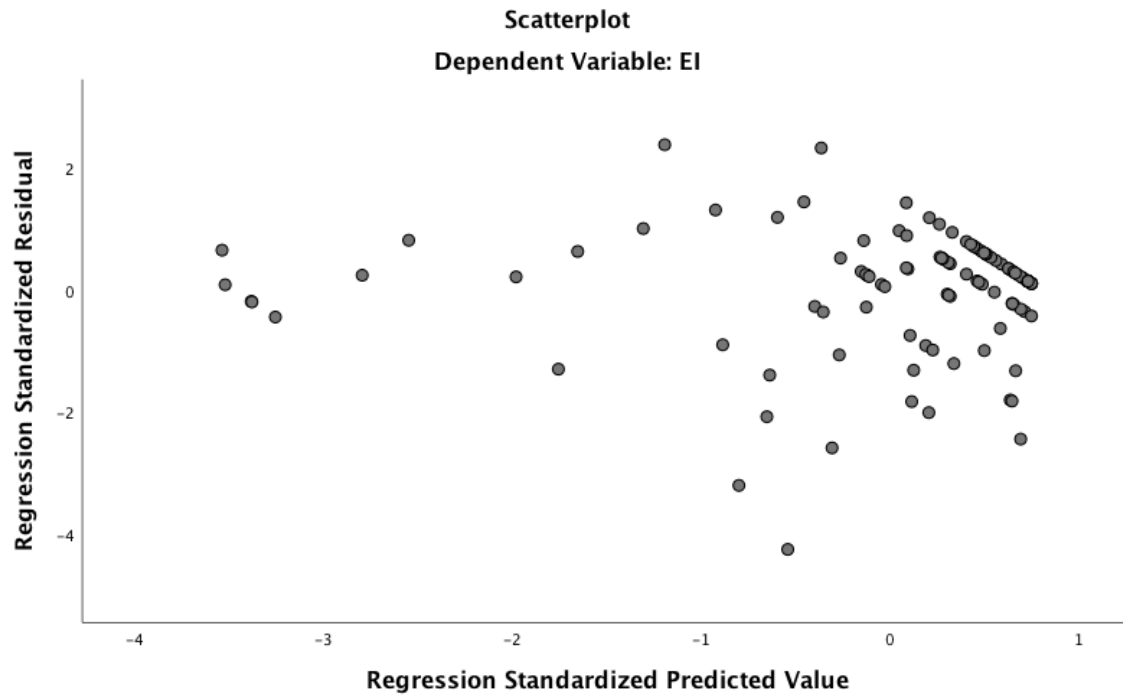


Figure C1. Linear Regression analysis: Scatterplot of standardised residuals of poor communication skills and loafer apathy predicting unavailability.

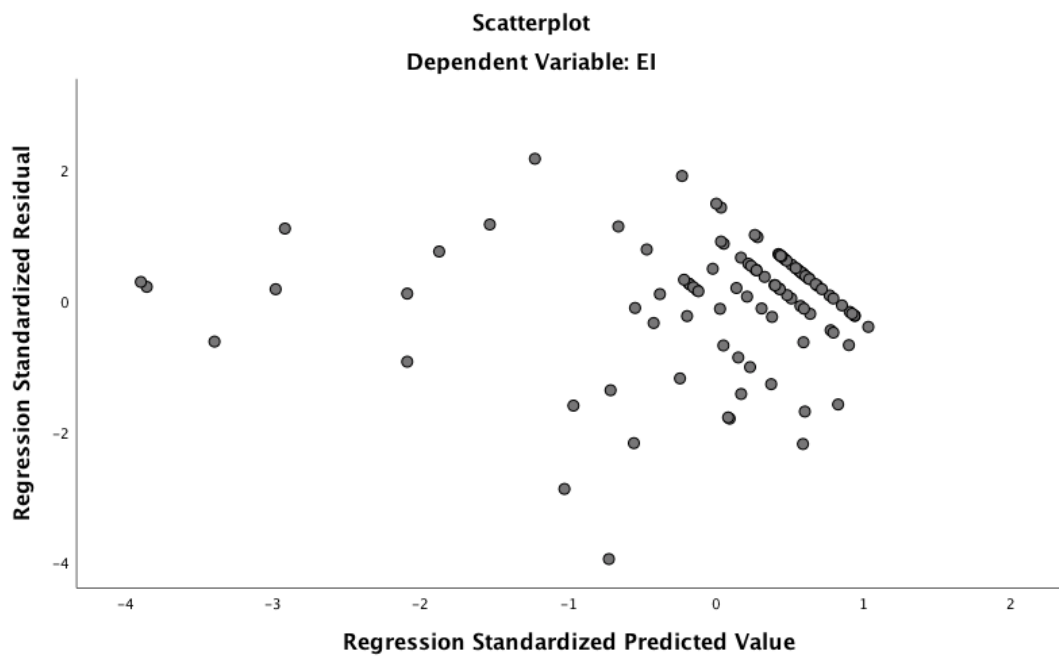


Figure C2. Hierarchical Regression analysis: Scatterplot of standardised residuals of poor communication skills and loafer apathy predicting unavailability.

Appendix D: Ethics Approval



Faculty of Commerce
Private Bag X3, Rondebosch, 7701
2.26 Leslie Commerce Building, Upper Campus
Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Internet: www.uct.ac.za

 @Commerce UCT  UCT Commerce Faculty Office

18/06/2020

Jamie Sundelson
School of Management Studies
University of Cape Town
REF: REC 2020/06/010

**Entrepreneurship Intentions Amongst South African TVET Students:
An Application of the Theory of Planned Behaviour**

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 30-Jun-2021 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

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Jacques Rousseau
Commerce Research Ethics Chair
University of Cape Town
Commerce Faculty Office
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695 / 4375
Office Fax: +27 (0)21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Website: <https://www.commerce.uct.ac.za/Pages/Ethics-in-Research>