



**THE EFFECT OF ENTREPRENEURSHIP EDUCATION ON
STUDENTS' ENTREPRENEURIAL INTENTIONS AT A
SOUTH AFRICAN PUBLIC UNIVERSITY**

by

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DECLARATION

I, Muriel Kgomotso Gill (Student number 57653615), declare that “The effect of entrepreneurship education on students’ entrepreneurial intentions at a South African public university” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Ms MK Gill

29 October 2019
Date

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I would like to acknowledge my supervisor, Professor Edward Rankhumise, for the superb mentoring, yet gentle guidance. I will forever appreciate what you have taught me, Prof.

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Most importantly, I would like to thank my God for all His wondrous gifts, for the strength and courage He has given me during this journey and the strength He gives me every day of my life.

DEDICATION

I would like to dedicate this project to my late father, Odirile Joseph Gill and my late mother, Ngelese Wilheminah Gill. If they were still alive, they would be so proud of this achievement. I also dedicate it to all my nephews and nieces, hoping that it will be a motivation to them.

I also would like to dedicate this work to Christopher and Angela More. You guys are friends that stick closer than a brother. You are always there for me, particularly in difficult seasons.

ABSTRACT

The research problem for the study was the low entrepreneurial activity in South Africa that leads to high unemployment rates. The research question wanted to investigate the effect that entrepreneurship education may have on the students' entrepreneurial intentions. Intentions were measured because the Theory of Planned Behaviour, which was employed as the framework, postulates that intention is the best predictor of behaviour. The study also investigated the effect of social norms on the students' entrepreneurial intentions; whether the students who have self-employed parents and/or have personal entrepreneurial experience, would show higher levels of entrepreneurial intentions than students with a different background.

A quantitative research design was employed to answer the research questions, and to test the hypotheses. An online survey was sent to the entire target population and anonymous responses were received. This was important and ethical as it protected the respondents' identity. A total of 92 responses out of 1 743 students were received, and 73 were complete.

The collected data was analysed using a Stata 15 statistical package. The study found that entrepreneurship education does indeed have an effect of raising the students' entrepreneurial intentions, attitudes and their perceived entrepreneurial skills gained from studying entrepreneurship. The students who come from communities where entrepreneurship is less prevalent showed the highest gain in intentions, attesting to the effect of education in an open distance learning context on their intentions. The students' entrepreneurial background did not show any effect on their intentions; those who have self-employed parents did not have higher intentions than the students with a different background.

To increase the effectiveness of entrepreneurship education, it is recommended that more practical ways of teaching entrepreneurship should be implemented. It is also recommended that entrepreneurship education should be extended to more students, and particularly to science and engineering students. This is because the latter are more likely to produce innovative products that will lead to high growth, high impact businesses that will employ more people for longer, therefore raising entrepreneurial activity and reducing unemployment.

Key words: The Theory of Planned Behaviour, entrepreneurship education, entrepreneurial intentions, entrepreneurial attitudes, entrepreneurial skills, social norms.

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LIST OF ABBREVIATIONS AND ACRONYMS

The following abbreviations are used throughout the study.

AI	Appreciative Inquiry
CEO	Chief Executive Officer
CoD	Chair of Department
DBE	Department of Basic Education
DESTTL	Department of Entrepreneurship, Supply Chain, Transport, Tourism and Logistics Management
ERC	Ethics Review Committee
ESTTL	Entrepreneurship, Supply Chain, Transport, Tourism and Logistics Management
ETA®	Entrepreneurial thought and action
FET	Further Education and Training
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
HEI	Higher Education Institution
ICT	Information and Communication Technology
IT	Information and Technology
MBA	Master of Business Administration
MIT	Massachusetts Institute of Technology
MSc	Master of Science
MVS	Missing value statistic
ODL	Open Distance Learning
RPSC	Research Permission Sub-Committee
SCCT	Social Cognitive Career Theory
TPB	Theory of Planned Behaviour
TVET	Technical Vocational Education and Training
UK	United Kingdom
UNISA	University of South Africa
URL	Universal Resource Location
US	United States of America
USA	United States of America
USD	United States Dollar

CHAPTER 1:

INTRODUCTION AND SCOPE OF THE STUDY

1.1 INTRODUCTION

The role of entrepreneurship in the process of economic development is receiving increasing attention from academics and policymakers. Due to the increasing importance of entrepreneurship, entrepreneurship education has become pivotal in stimulating economic growth. Many academics and policymakers argue that entrepreneurship education has the potential to enable the youth to acquire entrepreneurial skills, which will enable them to generate their own skilled jobs and increase their aspirations about the future (Premand, Brodmann, Almeida, Grun & Barouni, 2015).

According to Nian, Bakar and Islam (2014), there is an increasing emphasis on entrepreneurship education and its ability to contribute to economic growth and job creation. This has inspired many universities to offer entrepreneurship education as a subject, both in academic and short learning programmes. This notion confirms what Mwasalwiba (2010) found when he revealed that there has been an explosive growth and interest in entrepreneurship education among researchers and educational institutions.

Universities around the world are increasingly offering entrepreneurship courses in an attempt to stimulate entrepreneurship. For example, in the United States of America (US), the number of universities offering such courses has grown from just a handful in the 1970s, when entrepreneurship education first commenced, to more than 1 500 in 2011, and the number of entrepreneurship courses has grown to more than 2 000 (Nieuwenhuizen, Groenewald, Davids, Janse van Rensburg & Schachtebeck, 2016).

European and Asian universities are also increasing their efforts to offer entrepreneurship education (Sharma, 2015:170; Nian *et al.*, 2014). According to Radipere (2015), European universities introduced entrepreneurship education to play a key role in helping students to create their own ventures. Furthermore, African universities are increasingly offering entrepreneurship programmes, with the aim of stimulating entrepreneurial intentions among students during, or after their studies, in

order to help reduce unemployment and contribute towards economic growth (Sharma, 2015). In Nigeria, the government gave a directive that every university student must earn some credits in entrepreneurship. In addition, the Kenyan government made it compulsory for every student undergoing trade and vocational training, to also complete a course in entrepreneurship (Sharma, 2015).

In South Africa, a noticeable increase in entrepreneurship education started around 1998 (Nicolaidis, 2011). Nicolaidis (2011) reports that in 2001, the South African Department of Education stated the following: “The South African education curriculum at school level as well as in Higher Education system needs to be transformed so as to make entrepreneurship one of the most important subjects that should be taught.” According to Jenvey (2015), the South African Task Team on Entrepreneurship, Education and Job Creation recommended to the South African Government that every school should incorporate entrepreneurship from the pre-school year to Grade 12, and that business courses at higher education level need to be made more practical.

The Department of Basic Education (DBE) seems to have heeded the recommendation because the curriculum includes Economic and Management Sciences from Grade 7 onwards, though it is not clear when it was first introduced. According to the curriculum statement of the DBE, students are to receive two hours of instruction in the Economic Management Sciences per week, 30% of which is devoted to entrepreneurship. The curriculum also stipulates that there should be a practical Entrepreneurship Day (South African Department of Basic Education, 2011). According to Nicolaidis (2011), entrepreneurship education in South Africa is gaining momentum, and it is just a matter of time before a culture of entrepreneurship manifests itself.

However, Jenvey (2015) contradicts Nicolaidis’ (2011) statement of entrepreneurship education that is gaining momentum in the country, by stating that South Africa has the lowest level of entrepreneurship education in Africa. Singer, Hettington and Menipaz (2019) seems to corroborate Jenvey’s (2015) claim; for it ranks South Africa’s entrepreneurship education at post-school level at number 45 out of the 54 survey countries. At school level, the country’s entrepreneurship education is ranked a little bit better at 38 out of the 54 surveyed countries.

There is no doubt that the South African government recognises the need to increase entrepreneurship education, as seen by its inclusion in the curriculum from Grade 7 onwards and specifying the number of hours per week the learners are to receive instruction in entrepreneurship and its mandatory practical entrepreneurship day. What Jenvey (2015) is saying is that, even with such government initiatives, entrepreneurship education in South Africa is low when compared to other African states. BusinessTech (2015) corroborates Jenvey's findings by stating that youth entrepreneurial activity in South Africa is at 12.8%, which is low when compared to the 55.4% in Uganda and 21.6% in Botswana.

Based on the above background, this study focuses on the effect of entrepreneurship education on the entrepreneurial intentions of university students in an open distance learning (ODL) context. The study also seeks to establish the effect of social norms on the entrepreneurial students' intentions. These social norms are measured mainly by the students' entrepreneurial background, particularly the self-employment status of one or both of the parents, and the students' own entrepreneurial experience. Khalili, Zali and Kaboli (2015) are of the view that although it is predictable that "the social norms have a direct effect on the entrepreneurial intention, however, it is assumed that some other factors can mediate this relation".

The following sections will present the background to the study, as well as the problem statement, purpose of the study, and aim and objectives of the study, and the different hypotheses that the researcher aims to test. The discussion will include the limitations of the study. The research design and methodology used in this study will then be presented, followed by a description of the data collection and data analysis processes. Finally, the structure of the study will be outlined.

1.2 BACKGROUND TO THE STUDY

Unemployment is rife in many communities, especially in South Africa where unemployment stood at 27.2% in the second quarter of 2018 (Trading Economics, 2018). Many people seeking employment have no other option but to rely on entrepreneurs to embark on new ventures and then to employ them (Lekoko, Rankhumise & Ras, 2012). Most importantly, these entrepreneurs starting their own ventures need to be capacitated with entrepreneurial skills and capabilities to optimise

their chances of success, which emphasises the importance of entrepreneurship education. There are fortunately also government initiatives that support small business development through training support and tax relief.

Despite the high unemployment rate and general belief that entrepreneurship creates jobs, according to BusinessTech (2015), entrepreneurial activity in South Africa stays low and youth entrepreneurial activity in South Africa is low, in comparison to other African countries. For example, in 2015, youth entrepreneurial activity in South Africa was at 12.8%, while in other African states it ranged from 55.6% in Uganda to 21.6% in Botswana (BusinessTech, 2015).

Entrepreneurship education possesses the ability to change attitudes, and a positive desirable attitude towards a behaviour and a higher perceived feasibility can lead to an intention, which when acted upon, can result in a change in behaviour (Liñán, Rodriguez-Cohard & Rueda-Cantuche, 2011). This will lead towards higher levels of entrepreneurial activity which are needed in this country, raising it from the 11% it was at in 2017.

1.3 PROBLEM STATEMENT

A general understanding of the concept of entrepreneurial activity is necessary in this section. According to Singer, Hettington and Menipaz (2019), entrepreneurial activity is the sum total of nascent businesses, new businesses and established ventures, less the businesses that are closing down.

Entrepreneurial activity in South Africa is low. Singer, Hettington and Menipaz (2019) ranks the country number 27 out of the 54 countries surveyed. A number of factors are clearly contributing to the low entrepreneurial activity in South Africa; one of them being the country's entrepreneurial framework and late efforts in emphasising entrepreneurship education by the government. However, when it comes to the social norm and the way the South African society views entrepreneurship, there seems to be conflicting reports.

The Singer, Hettington and Menipaz (2019) report states that South Africans give a valuation score of 74.9% to 'high status to entrepreneurs' and a score of 69% to 'entrepreneurship a good career choice'. However, Jenvey (2015) and Ed (2015) agree that South Africans have been primarily trained for corporate jobs and they hold

corporate jobs in a higher regard than entrepreneurship. In the light of these conflicting reports on the importance of entrepreneurship to the South African society, this study aims to determine the students' perceptions of entrepreneurship education on their entrepreneurial intentions.

Additionally, the researcher aims to investigate the effect of a background in entrepreneurship on the students' entrepreneurial intentions. The students' entrepreneurial background will be measured by their parents' self-employment status and the students' own entrepreneurship experience, to determine if their entrepreneurial background has an effect on their entrepreneurial intentions.

1.4 THE RATIONALE FOR THE STUDY

The rationale for the study is to find out if there is a positive linear relationship between entrepreneurship modules in an Open Distance Learning environment and the students' entrepreneurial intentions. If there is, then according to the Theory of Planned Behaviour, then it is to be expected that the students, within a reasonable time after completing their studies, will control their behaviour to start their own enterprises. This will lead to increased entrepreneurial activity, job creation and reduction of unemployment rate.

1.5 RESEARCH QUESTIONS

The general research questions formulated for this study are the following:

- To what extent does entrepreneurship education stimulate entrepreneurial intentions among students?
- What is the effect of social norms, particularly as measured by the students' entrepreneurial background, on the students' entrepreneurial intentions?

1.5.1 Specific research questions

The following specific research questions have been formulated for this study:

- Is there a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions?

- Is there a positive linear relationship between entrepreneurship education and the students' attitudes towards entrepreneurship?
- Is there a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility?
- Is there a positive linear relationship between social norms and the students' entrepreneurial intentions?
- What effect does their parents' self-employment status have on the students' entrepreneurial intentions?
- What effects do the students' own previous or current entrepreneurial experiences have on their entrepreneurial intentions?

1.6 RESEARCH OBJECTIVE

The primary objective of this study was to determine whether entrepreneurship education does have an effect in stimulating entrepreneurial intentions among university students in an ODL context, as well as to investigate the effect of the entrepreneurship students' entrepreneurial background on their entrepreneurial intentions.

1.6.1 Secondary objectives

In order to achieve the primary objective of the study, the specific objectives pursued are to:

- determine if there is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions;
- establish whether there is a positive linear relationship between entrepreneurship education and the students' attitudes towards entrepreneurship;
- determine whether there is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility;
- establish whether there is a positive linear relationship between social norms and students' entrepreneurial intentions;
- determine the effect of their parents' self-employment status on the students' entrepreneurial intentions; and

- determine the effect of the students' own previous and current entrepreneurial experience on their entrepreneurial intentions.

1.6.2 Hypotheses

In trying to answer the research objectives and questions, the study tested the following hypotheses.

- H₁ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions.
- H₂ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial attitudes.
- H₃ There is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility.
- H₄ There is a positive linear relationship between social/subjective norms and the students' entrepreneurial intentions.
- H₅ Their parents' self-employed status has an effect on the students' entrepreneurial intentions.
- H₆ The students' own entrepreneurial experiences have an effect on their entrepreneurial intentions.

1.7 RESEARCH METHODOLOGY

This section discusses the research design, methodological approach, population and sampling, data collection, data analysis and ethical considerations.

1.7.1 Research design

Leedy and Ormond (2013) define a research design as the overall approach the researcher utilises to solve the research problem. The strategy entails a collection of procedures ranging from the population, the sample and how it is drawn, the instruments used to collect data, the validity and reliability of the data, and the techniques used to analyse the data. It can be described as a plan for answering the research problem.

This study adopted a survey design, since the intention was to collect quantitative data. The survey design makes use of online questionnaires, which allow for the collection of standardised data from a large population in a highly economical way (Saunders, Lewis & Thornhill, 2012). Furthermore, this type of design enables the researcher to collect quantitative data, which can be analysed quantitatively using descriptive and inferential statistics. The survey and construct being measured remain constant throughout the research process, making quantitative research very structured. Saunders *et al.*, (2012) explain that the survey design is ordinarily related to a deductive research approach, which requires that a set of premises be in place, and if they can all be proven to be true, then it can be deduced that the conclusion is also true (Saunders *et al.*, 2012).

The Theory of Planned Behaviour is particularly applicable to this study. This theory, according to Ajzen. (2006), states that if someone has a favourable attitude towards a behaviour, and thinks that the behaviour is feasible, and if family and friends approve of the behaviour, then that person is more likely to develop the intention. Applied to this study, if the students have a positive attitude towards entrepreneurship, they think that it is feasible, and they perceive their family and friends approving of them choosing entrepreneurship as a career, then it can be deduced that they have entrepreneurial intentions. If the positive attitude is formed and shaped by entrepreneurship education, and if entrepreneurship education gives them entrepreneurial skills to perceive that entrepreneurship is feasible, then it can also be concluded that entrepreneurship education leads to entrepreneurial intentions among the students.

1.7.2 Methodological approach

Research approaches are usually categorised into quantitative, qualitative and mixed-methods approaches (De Vos, Strydom, Fouché & Delpont, 2011). This study used a quantitative approach, which is deemed to be most appropriate because the study measures variables and the relationship between them. In addition, the instrument of measurement is structured and will remain constant throughout the study. Standardised quantitative data is collected from a fairly large population. The advantage of using this approach is its objectivity, as the researcher will remain detached from the respondents, with very little chance of undue influence on the responses that they give.

1.7.3 Target population

According to Creswell (2012), a target population refers to a group of individuals with common defining characteristics that the researcher can identify and study. Saunders *et al.*, (2012) simply define the population as the full set of cases from which a sample will be taken. In this study, the target population consisted of undergraduate students registered for entrepreneurship modules in the second semester of 2017. All the entrepreneurship modules presented at this open distance learning university are blended modules, which means that there are online lectures as well as face-to-face tutorials. The modules relevant to the study are:

- MNE2601 – Introduction to entrepreneurship and small business management (2nd year)
- MNE3701 – Entrepreneurship and small business management (3rd year)
- MNE3702 – Corporate entrepreneurship (3rd year)
- MNE3703 – Technology and innovation (3rd year)
- MNE3704 – Family business management (3rd year)

The population size of the students registered for the various entrepreneurship modules in the second semester of 2017 was 1 743 (Directorate: Information Analysis, 7 May 2019).

A census approach, in the form of an online survey, was selected for the study. With the assistance of the university's Information and Communication Technology (ICT) Department, a bulk email containing a link to the online survey was sent to all the undergraduate entrepreneurship students registered in 2017, in other words, the entire population. SurveyMonkey, a free online survey program, was used for the online survey.

The ICT Department was given a survey link to email to the students, they did not see the survey, and the students' responses were kept in a central depository, which only the creator of the survey could access and see. As only 37 responses were received, the ICT department assisted again by sending a reminder email after two weeks, which led to a total of 92 responses being received, 73 of which were complete. Another reminder email could not be send, as researchers are only allowed to send one

reminder email, in order not to wear the students out with repeated requests to participate in the various studies.

The census approach was chosen taking into account the fairly low population size, and the fact that online surveys have a low response rate. Therefore, all the aforementioned students were involved in order to maximise the chances of obtaining a higher number of responses (De Vos *et al.*, 2011).

As an online survey eliminates interaction between the researcher and the respondents, there is a reduced chance of unintended and unaware influence by the researcher on the respondents' answers, thereby increasing the reliability of the answers. An online survey also ensures that the respondents remain unknown to the researcher. This means that the researcher will not be able to link the responses to the individual respondents, thereby ensuring their anonymity. This study did not collect any personal information that would reveal the identity of the respondents.

1.7.4 Data collection

This study used a structured questionnaire to collect data from the respondents. The close-ended structured and quantitative survey employed the Theory of Planned Behaviour (TPB) (Ajzen, 2006) and measured the different variables of the construct. The questionnaire used for this study was adapted from questionnaire of Linàn *et al.*; (2011a) which had previously been used in a similar study in Spain. Permission was obtained from Professor Linàn to use and adapt the questionnaire for the purposes of this study (Appendix B). The rationale for using this questionnaire is that construct variables have been tested for validity, although relevant questions from the questionnaire were adapted. However, for the purposes of this study, the reliability of the construct measurements was tested by computing the Cronbach's alpha.

The questionnaire that was used to collect data comprised items measured on 7-point Likert scale, except for question 4E and question 6 that used a 5-point Likert scale. The Likert scale is a variation of the summated rating scale and consists of statements that indicate either a favourable or an unfavourable attitude to the research subject (Cooper & Schindler, 2001). Each response is given a numerical score reflecting its degree of attitudinal favourableness (1 = Totally disagree, 2 = Strongly disagree, 3 =

Disagree, 4 = Neutral, 5 = Agree, 6 = Strongly agree and 7 = Totally agree.). The scores of the respondents from a well-defined sample or population can be compared.

The questionnaire comprised questions on biography, entrepreneurial attitude, entrepreneurial intention, entrepreneurship education, perceived entrepreneurial feasibility, and social norms, as well as the respondents' entrepreneurial background.

A structured survey was the most appropriate because it allows for more consistency in the responses received from respondents and can reach many respondents more economically (Saunders *et al.*, 2012). The students were sent an invitation to participate in the study which included the information letter, as well as the link to the survey.

The respondents had to click on the link, which took them to the informed consent sheet (Appendix C). After reading the informed consent letter, if they agreed to participate voluntarily in the study, they had to click the 'agree' button, which then took them to the online survey. After completing the survey, they clicked on the "submit" button, which sent their responses back to the researcher, without any personal identifiers, thereby protecting the respondents' right to privacy and anonymity.

1.7.5 Data analysis

Prior to data analysis, the data was exported from SurveyMonkey to an Excel spreadsheet. The Excel spreadsheet containing the completely anonymous raw data, was given to a contracted statistician to assist with the analysis using the Stata statistical program, version 15.

The data was analysed using both descriptive and inferential statistics. In the analysis, frequencies, bar charts and cross-tabulations were generated. The purpose of these statistical analyses was to describe the frequencies of a particular variable occurrence, and to do the tests of significance to determine whether the characteristics of the responses do exist within the population.

1.7.6 Validity and reliability

In this section, the researcher shall discuss the two forms of validity; internal and external validity, as well as reliability.

1.7.6.1 Validity

There are several forms of validity. However, this study used internal and external validity. Internal validity relates to whether the research instrument measures what it is intended to measure. This study used the entrepreneurial intention questionnaire that was used by Prof Linàn *et al.* in their 2011a study in Spain. Each element under a construct variable in the questionnaire had been tested whether it related to the other elements using factor analysis.

The final survey questionnaire used in the current study only kept those elements that had a strong relation to the other elements. The benefit of using a tested instrument is that it eliminates the data-collection problems that may arise as the instrument has already been tested for validity. Each variable of the construct has been measured and there are no ambiguities between the questions measuring the various construct variables.

External validity refers to whether or not the study findings can be generalised to the population from which the sample was drawn. For this to happen, it is very important that the sample be drawn using non-probability methods. A sample was not drawn, instead, the survey was sent to the entire population.

1.7.6.2 Reliability

Leedy and Ormond (2013) define reliability as “the consistency with which a measuring instrument yields certain, consistent results when the entity being measured has not changed”. This means that a measure is reliable to the degree that it yields consistent results when repeated several times. Mazzocchi (2008) posits that a typical measure of reliability is the Cronbach’s alpha.

This study used a questionnaire that was used by Linàn *et al.* (2011a). The advantage of using a tested questionnaire is that it eliminates data-collection problems such as ambiguity and improves the validity and reliability of the collected data. Despite the fact that the study used a tested questionnaire, a Cronbach’s alpha coefficient was used to measure the reliability of the research instrument, and the coefficient ranged between 0 and 1. According to De Vos *et al.* (2011), figures that are closer to 1, that is, 0.8 - 0.9, ordinarily show a highly reliable scale.

1.8 ASSUMPTIONS, DEMARCATION AND DELIMITATIONS

1.8.1 Assumptions

Assumptions are basic statements that are generally regarded to be true. They make the research study relevant, although they are out of the researcher's control. An example would be that a researcher trusts that the respondents will be truthful in the answers that they give, for without them, the research would not be relevant at all (Simon, 2011). In addition to this basic assumption, is also the assumption that the study of entrepreneurship will continue to be relevant.

1.8.2 Demarcation

Demarcation relates to setting limits of the target population . This is within the control of the researcher (Anon. 2007). In this study, the researcher limited the target population to the students enrolled for entrepreneurship modules only, excluding other students registered for traditional business modules. The entrepreneur students were from one Open Distance Learning (ODL) institution.

1.8.3 Delimitations

Delimitations are the characteristics that the researcher chooses to set the boundaries of research. Unlike the assumptions, the delimitations are within the researcher's control. They begin with the problem statement choice, the research question and objectives and if applicable, the theory that will be applied to the study to try and answer the research question, as well as the population under study (Simon, 2011). The researcher's choice of the Theory of Planned Behaviour set out the construct variables and the items within each variable. The researcher also confined the study to entrepreneurship students at an ODL institution.

1.9 ETHICAL CONSIDERATIONS

In order to ensure adherence to the University's Policy on Research Ethics, the researcher applied for ethics clearance from the College of Economic and Management Sciences. (The Ethical Clearance Certificate that was issued for this study is attached as Appendix A.) After obtaining the ethics clearance certificate, the

researcher also applied for permission to involve the university students from the university's Research Permission Sub-committee.

The researcher further used informed consent to get permission from the respondents, which appeared on the first part of the online survey (Appendix C). Informed consent provided important information relating to the following, which enabled the respondents to make an informed decision regarding whether or not to participate in the study:

The purpose of the study

The purpose of the study was explained so that the respondents were able to understand what the study is all about.

The rights of the respondents

The researcher explained the rights of the respondents in the informed consent section (Appendix C). This included, among others, a right to withdraw from the study at any given point if they felt uncomfortable, without any penalty or victimisation on their part.

Voluntary participation

The respondents' participation in the study was voluntary. No one was coerced to participate, and no undue influence was used to get the prospective respondents to take part in the study.

Confidentiality

Individual responses were not seen by anyone other than the researcher, the supervisor and the statistician. The ICT Department sent the link to the survey, but they did not have any access to the responses. The researcher ensured that the electronic responses, as received from the respondents, were saved in a folder with a password to open it.

Anonymity

The survey was web-based. The students only needed to click on the survey link to access the online survey. After completing the survey, the respondents had to click on the "submit" button, which submitted their responses without capturing the identities or email addresses of the respondents.

1.10 DEFINITION OF CONCEPTS

The following table lists important concepts and their definitions in terms of their use in the current study.

Concept	Definition
Entrepreneurship:	<ul style="list-style-type: none"> a. A process that causes changes in the economic system through the innovations of individuals who respond to opportunities in the market (Radipere, 2015). b. The capacity and willingness to develop, organise and manage a business venture along with any of its risks in order to make a profit. (BusinessDictionary.com).
Entrepreneurship education:	<ul style="list-style-type: none"> a) The transference of entrepreneurial competencies and skills in order to enable the entrepreneurship learner to identify commercial opportunities, assess their viability and respond to them with innovative solutions, in a sustainable and ethical manner (Gill, M.K., combined with the definitions of Isaacs, Visser, Friedrich & Brijal 2007; Jones & English, 2004). b) Fejes, Nylund and Wallin (2019) give two definitions of entrepreneurship education; one narrow and the other broad. The narrow definition is narrowed down to a particular model that students learn in order to prepare them to start a new business. The broader definition pertains to skills that students need to learn to prepare them to manage their lives in general.
Entrepreneurial self-efficacy:	<ul style="list-style-type: none"> a) The individual's beliefs regarding their capabilities for attaining success and controlling cognitions for successfully tackling challenging goals during the business start-up process (Drnovsek, Wincent & Cardon, 2009). b) Entrepreneurial self-efficacy is the entrepreneurs' self-confidence to perform certain entrepreneurial tasks well (Peng C-Y, 2014).
Entrepreneurial attitude:	<ul style="list-style-type: none"> a) A favourable and positive attitude towards entrepreneurship as a career of choice (Linàn <i>et al.</i> 2011).

<p>Entrepreneurial intention:</p>	<ul style="list-style-type: none"> b) A state of mind that predicts how one will respond and react to entrepreneurial circumstances, change or uncertainty (Amah 2017). a) A conscious state of mind that directs attention, and therefore experience and action towards a specific goal (Do Paco, Ferreira, Raposo, Rodriguez & Dinis, 2013). b) The state of mind of an entrepreneur that directs and guides him/her to take actions to develop and implement a new business concept (Nathani and Dwivedi 2019)
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1.11 SUMMARY

This chapter presented the research problem and the research questions to be answered, as well as the objectives of the study and the hypotheses to be tested. The research design that would be employed to answer the research question, the unit of analysis, the instrument for data collection, and the data collection and analysis methods were also discussed.

The validity of the instrument, as well as the reliability of the construct variables measurements to be collected were also discussed. The relevance, importance and benefits of the study were presented, as well as the limitations, assumptions, demarcations and delimitations of the study. Lastly, important ethical matters to be considered when conducting the study were discussed.

The next chapter focuses on a more in-depth literature review on entrepreneurship education and its effect on entrepreneurial intentions. It includes the role of institutions of higher education in entrepreneurship education, the impact of entrepreneurship education on entrepreneurial intentions, venture start-ups and real-life businesses. The role of entrepreneurship education and how it should be taught, as well as the future of entrepreneurship education will be discussed. Below, the researcher gives an overview of the research chapters.

CHAPTER	SHORT DESCRIPTION OF THE CHAPTER
Chapter 1	The problem statement, research question and objectives, research design and methodology, assumptions, demarcation and delimitations of research as well as ethical considerations.
Chapter 2	In-depth literature review on the correlation between entrepreneurship education and entrepreneurial intentions. Intentions studied within the Theory of Planned Behaviour and measured by the antecedents of entrepreneurial attitudes, abilities and skills, and social norms.
Chapter 3	An in-depth explanation of research design and methods, and the specific design and methods applied in this study. They range from the choice of the population, data collection instrument and methods, data analysis design and data preparation and processing.
Chapter 4	The researcher analyses the data and presents the results. Data analysis uses statistics like frequencies and proportions, Chi-square p -values and Pearson Pairwise Correlation.
Chapter 5	The researcher discusses the findings and the hypotheses; which hypotheses are upheld and which ones have been found to be untrue. The researcher also discusses the contribution that the study has made to the science of entrepreneurship, the implications to theory and practice and the recommendations and areas of further research.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a discussion of Entrepreneurship education and its importance and the benefits of entrepreneurship education; entrepreneurship education globally, in Africa and in South Africa; entrepreneurship education and the TPB and other entrepreneurship models; methods of teaching entrepreneurship education; and the effect of entrepreneurship education and the students' entrepreneurial background on their entrepreneurial intentions. Lastly, the role of institutions of higher education in entrepreneurship education, as well as the future of entrepreneurship education according to a seminal entrepreneurship educator's expert ideas are discussed. The chapter concludes with a discussion on entrepreneurial intentions.

Policymakers and economists widely hold the belief that the level of a country's entrepreneurial activity correlates to its economic growth and innovation. Research has supported this belief with fairly consistent findings of a relationship between entrepreneurial activity and economic performance (Sanchez, 2013). Consequently, universities around the globe are placing more emphasis on entrepreneurship education. Research has shown that universities are offering entrepreneurship modules, and that the number of entrepreneurship modules being offered, have increased over the years. The number of modules offered have grown from just a handful in the 1970s to more than 1 500 in 2011 (Nieuwenhuizen *et al.*, 2016). The US and the European Union countries are the leaders in this field, closely followed by China (Sanchez, 2013).

South Africa's entrepreneurial activity has grown by 4.1% from 6.9% in 2016 to 11% in 2017, (Singer, Hettington and Menipaz (2019). Singer *et al.*, (2019) state that South Africans ascribe a high status value of 74.9% to entrepreneurs, and a valuation score of 69% to seeing entrepreneurship as a decent career choice. However, despite the high value score that South African society ascribes to entrepreneurship (74.9%) and the improvement in the country's entrepreneurial activity, the country's unemployment rate is still at alarming levels.

The unemployment rate remains high among the youth, including university graduates, for example, in 2018, 27.2% of the youth were unemployed. BusinessTech (2015) reported that youth entrepreneurial activity in South Africa is very low in comparison to other African states. For example, youth entrepreneurial activity ranged from 55.4% in Uganda to 21.6% in Botswana, while in South Africa it was at only 12.8%, the lowest in Africa.

A solution would be for more South Africans to start their own enterprises, but there are hindering factors; one of them being the entrepreneurship framework of the country (GEM 2017/2018). The GEM Report 2017/2018 found that 39% of the surveyed sample confessed a fear of failure, which in itself is an indication of the need for capacitation with entrepreneurial skills. However, the country entrepreneurial framework falls outside the scope of this study.

The scope of the study is to examine the effect of entrepreneurship education in an ODL context on the students' entrepreneurial intentions, as well as to investigate the effect of the students' entrepreneurial background on their entrepreneurial intentions. With the aforementioned problem of low entrepreneurial activity, high unemployment and low entrepreneurial skills, it becomes important to study the research-based effect on entrepreneurship education in an ODL context, to see if it works and if it can be extended to more students to combat the challenges that are facing the country. Also in the face of conflicting reports about the entrepreneurial views of the South African society, it becomes necessary to measure the effect of the students' entrepreneurial background on their entrepreneurial intentions.

2.2 ENTREPRENEURSHIP EDUCATION AND ITS DEFINITION

Entrepreneurship education as a field has grown rapidly since 1945 (Mwasalwiba, 2010). This growth is likely to continue, if not accelerate rapidly, as countries across the globe are experiencing rising youth unemployment, and entrepreneurship is generally viewed as a creator of employment (Kritikos, 2014). Although there has been rapid growth in the field, there is still lack of consensus regarding the terminology and definitions used. For instance, some scholars use the term 'entrepreneurial education', while others prefer 'entrepreneurship education' (Mwasalwiba, 2010).

There is also some disagreement about the definition of entrepreneurship, enterprise, and who an entrepreneur is. For example, Zhou and Xu (2012) noted that entrepreneurship means different things to different people in different regions of the world. They stated that in the US, entrepreneurship refers to growth-oriented ventures, while in Europe, entrepreneurship is synonymous with small and medium-sized enterprises. In China, it is equated with business start-ups.

Table 2.1 below presents the different definitions of entrepreneurship education provided by various researchers.

Table 2.1: Different definitions of entrepreneurship education

Author and Year	Definition	Information theories
Jones and English, 2004	The process of providing individuals with the ability to recognise commercial opportunities and the knowledge, attitudes and skills to act on them.	Opportunity recognition and entrepreneurial mind-set and skills.
Isaacs <i>et al.</i> 2007	The purposeful intervention by an instructor in the life of the learner to impart entrepreneurial qualities and skills, in order to enable the learner to survive in the business world.	Entrepreneurial skills and qualities, and the ability to deal with the uncertainties of the business environment.
Radipere, 2012	A collection of formalised teachings that train and educate anyone interested in participating in socioeconomic development through a project to promote entrepreneurship awareness, business creation or small business development	Entrepreneurship awareness, business creation and development, and socioeconomic development.
Fayolle, 2009	A broad definition. All activities aiming to foster entrepreneurial mind-sets, attitudes and skills, and covering a range of aspects such as idea generation, start-up, growth and innovation.	Entrepreneurial mind-set and attitudes, entrepreneurial skills, idea generation and innovation, growth orientation.

Source: Author's own compilation

Although there are different definitions of entrepreneurship education, there are certain commonalities among them. For the most part, the authors of the above definitions agree that entrepreneurial qualities and the ability to identify and recognise entrepreneurial opportunities can be developed, and that business skills that enable

the entrepreneur to compete successfully in the business world can be transferred and learned.

Using the different elements emphasised in different definitions, for the purpose of this study, entrepreneurship education will be defined as “the transference of entrepreneurial competencies and skills, in order to enable the entrepreneurship learner to identify commercial opportunities, assess their viability and respond to them with innovative solutions, in a sustainable and ethical manner” (Isaacs *et al.*, 2007; Jones & English, 2004)

2.2.1 The role of entrepreneurship education

This section discusses the role of entrepreneurship education and its influence on entrepreneurial activity and economic development, and its empowerment effect.

2.2.1.1 Entrepreneurship education and entrepreneurial activity

Entrepreneurial activity is the rate at which new business ventures are being started by the population within a particular country. Researchers, such as Raposo and Do Paço (2011), Dromereschi (2013), and Jones and Iredale (2014) suggest that there is a correlation between entrepreneurship education and entrepreneurial activity. If entrepreneurship education is more prevalent, entrepreneurial activity will be high too.

The above-mentioned researchers assert that entrepreneurship education may at times seem to have an insignificant impact on entrepreneurial activity, but this is owing to the lagged effect between entrepreneurship education and the students’ ability to realise and act on their entrepreneurial intention upon successfully completing the entrepreneurship module or programme. Students do not generally start or open their own business ventures immediately after completion of their studies, for various reasons, including wanting to gain practical experience before opening a business venture. Dromereschi (2013) accentuates that entrepreneurship education is a pre-requisite for the development of local entrepreneurs.

2.2.1.2 Entrepreneurship education and economic development

Entrepreneurship education provides the students with entrepreneurial knowledge, skills and capabilities, and it builds an entrepreneurial culture and entrepreneurial spirit (Ediagbonya 2013). Jones and Iredale (2014) concur that the primary objective of entrepreneurship education is to equip the students with the necessary skills and

competencies that will allow them to deal with the demands of the marketplace. It further provides students with insights on how to start businesses. Entrepreneurship education also develops entrepreneurial mind-sets in the students. It shapes their thinking and teaches them to think like entrepreneurs. The thought pattern always precedes and influences behaviour, therefore entrepreneurship education needs to develop entrepreneurial mind-sets, and then perhaps the entrepreneurial mind-sets will translate into practical entrepreneurs. When the students have developed entrepreneurial mind-sets which underpin behaviour, they are more likely to develop entrepreneurial intentions and act more in line with their entrepreneurial thought patterns (Ansari, Bell, Iyer & Schlesinger, 2014).

Ediagbonya (2013) also posits that entrepreneurship education has the potential to change the students' mentality from that of paid employment to being self-employed and creators of employment. He also stated that entrepreneurship education has the potential to reduce the level of poverty in a country because as people shift their mentality from being employees and start their own businesses, they create wealth and paid employment for themselves and others. Jones and Iredale (2014) also concur with the statement.

The research-backed statements of the authors above present entrepreneurship education as an agent of transformation; at a personal and national level. First, it transforms the mind by creating entrepreneurial mind-sets. Once a mind-set change has been achieved, it will automatically alter the behaviour, since behaviour emanates from a mind-set. This means that once entrepreneurial education has been presented in a way that transforms the student's mind into an entrepreneurial mind-set, they will begin to behave like entrepreneurs. This could be a major boost to enable students to act on their entrepreneurial intentions.

The second transformation effect of entrepreneurship education is that it can increase the country's entrepreneurial activity, as more people with changed mind-sets create new ventures. Increased entrepreneurial activity means an increase in the number of small and medium enterprises being started. This translates into more job opportunities being created, and more people being gainfully employed which leads to a reduction in poverty. In addition, more innovative solutions and products being produced lead to economic development and an increase in the country's gross

domestic product. More new innovative products being produced can change or transform the economy, as old businesses that will not change and adopt new innovative solutions will be weeded out and replaced by new ones, thus leading to the economy being transformed (Manimala, 1999). However, the possible threat of this is that many of the businesses that start might have a short lifespan, with a high failure rate.

If entrepreneurship education does indeed lead to increased entrepreneurial activity, as the above-cited authors all assert, it stands to reason that in the same way that entrepreneurship education leads to business start-ups, then it can also be reasoned that entrepreneurship education should sustain and grow businesses and prolong their lifespan, amongst the other forms of support that small and medium businesses need.

A well-designed entrepreneurship curriculum will teach the students about creativity and innovation (Jones & Iredale, 2014). These are among the important elements that build high-growth ventures. When there are enough high-growth ventures in the country, they contribute to economic development and give the country a competitive edge. All this suggest that entrepreneurship education needs to be designed in a way that consciously targets the minds of the students.

2.2.1.3 Entrepreneurship education and empowerment

Patzelt, Williams and Shepherd (2014) conducted a study on the role of entrepreneurship education among prison inmates. They found that the inmates who persisted with the programme gained increased entrepreneurial competencies. They were also optimistic about their post-prison life. This speaks of the hope and vision that entrepreneurship education gave them, which affirms that entrepreneurship education may have the transforming power through building the hope of a better life in the module recipient.

The study of Patzelt *et al.* present entrepreneurship education as an empowering tool. Similarly, Jones and Iredale (2014) report that entrepreneurship education increases the self-worth of the recipient; it fosters responsible citizenship and transfers the responsibility for one's welfare from the state to the individual. If the findings of Jones and Iredale are universal, entrepreneurship education and training could be of vital importance to South Africa, as the entrepreneurship education could relieve the government of the burden of being responsible for the welfare of able-bodied citizens.

In the light of a number of roles that entrepreneurship education plays, Jones and Iredale (2014) suggest that it should be recognised as a force for good.

2.2.2 The importance and benefits of entrepreneurship education

This section focuses firstly on the importance of entrepreneurship education and then discusses the benefits of entrepreneurship education, as in the literature.

2.2.2.1 Importance of entrepreneurship education

Entrepreneurship is regarded as one of the best strategies to develop the country's economy and economic growth, and enhance its ability to sustain its competitiveness in the current environment of increasing globalisation (Keat *et al.*, 2011). In this context, entrepreneurs will need to be well-skilled to be able to have a competitive edge over their competitors. Entrepreneurship education equips students with entrepreneurial abilities, skills and competencies (Nian *et al.*, 2014) and it is for this reason that entrepreneurship education has become critical.

Entrepreneurship education may increase the recipients' perceived entrepreneurial feasibility and entrepreneurial intention. Increased entrepreneurial intentions, when acted upon, may lead to higher entrepreneurial activity, which may stimulate economic growth and development. In support of this statement, Nian *et al.* (2014) assert that entrepreneurs fail because they lack entrepreneurial skills, and not because of a shortage of opportunities. The statement by Nian *et al.* (2014) affirms the need for entrepreneurship education, as it equips the students with entrepreneurial skills that will first create perceived entrepreneurial feasibility which feeds directly into their entrepreneurial intentions. This study would like to argue that in the same way that the students need entrepreneurship education to shape their entrepreneurial intentions and affect their likelihood of starting their own enterprises, they also need continued entrepreneurship education to continue equipping them with entrepreneurial skills to stay successful in their ventures.

In an environment where an entrepreneurial culture is lacking and most people do not regard entrepreneurship as a decent reliable career choice, entrepreneurship education may help to change the attitudes towards entrepreneurship (Liñán *et al.* 2011b). Entrepreneurs create new products and services, thus contributing to economic development and giving the country its competitive edge. In this context,

entrepreneurship education is greatly needed as potential entrepreneurs will be equipped with entrepreneurial skills which enable them to compete successfully and to read the market signs and trends, and to survive in the competitive business world. Education gives them the competencies they need to succeed.

2.2.2.2 Benefits of entrepreneurship education

The National Consortium for Entrepreneurship Education of the US (Anon. N.d. a.) stated that entrepreneurship education is beneficial for the following reasons:

- Students acquire economic, financial and workplace literacy.
- Students acquire opportunity recognition and problem-solving skills.
- It explores ethical issues and helps develop an increased sense of 'locus of control'.
- Students become aware of entrepreneurship as a career choice, and have a heightened awareness of the role and contribution of entrepreneurship.
- Students learn how to manage risks.
- There is a change in personal and career attitudes, including self-worth, ability to control one's life, self-awareness, self-management and personal responsibility, motivation, teamwork, interpersonal communication, and creativity and problem-solving.

2.2.3 Entrepreneurship education globally

The first entrepreneurship module was offered by Harvard University more than 55 years ago, and since then, there has been an explosive growth in entrepreneurship education. For example, in 2011, more than 1 500 universities and colleges in the US were offering entrepreneurship education, and collectively they offer more than 2 000 entrepreneurship modules (Streeter, Kher & Jaquette (2011); Charney & Libecap 2000). Although the figures pertain to 2011, Barnard, Pittz and Vanevenhoven (2019) also refer to similar figures, which may indicate a lack of updated figures.

European countries are also increasingly promoting entrepreneurship education (Sharma, 2015). Universities in the UK, in addition to the traditional focus areas of teaching and learning, research and community engagement, have added the third focus area of entrepreneurship (Rubens, Spigarelli, Cavicchi & Rinaldi, 2017). In other

words, universities have to engage in entrepreneurship as another stream that will bring them some income, as well as actively promoting entrepreneurship among their students by offering entrepreneurship education to a wide range of students across all disciplines, in order to promote economic development.

Sharma (2015) states that the shrinking job opportunities have made it necessary for universities to no longer limit business and entrepreneurship education to business postgraduate students, but to open it up to all disciplines at undergraduate level. In corroboration to this assertion, Sharma quotes a study of the Massachusetts Institute of Technology (MIT) into their alumni. The study found that most of the MIT alumni start their own businesses within 10 years of completing their studies. Sharma goes on to say that by the end of 2006, there were 25 600 businesses started by MIT alumni, employing over 3.3 million people, with a combined revenue of nearly USD 2 trillion.

This fore-cited example could be a very good and compelling example of what good entrepreneurship education is able to create, if taught correctly. It demonstrates the benefits of the development of entrepreneurship mind-sets in the students. A mind-set will always influence behaviour, therefore an entrepreneurial mind-set, which is formed and shaped by entrepreneurship education, will likely lead to the students starting businesses. An appropriate entrepreneurship framework in the country and the necessary support for aspiring entrepreneurs, which includes, among other things, the ease of access to start-up capital, are crucial to facilitate the process of the students acting on their entrepreneurial intentions.

Australian and Asian countries are also increasingly offering entrepreneurship modules. In Malaysia, according to Nian *et al.* (2014), the government aimed to change the economy from a primarily agrarian one to a knowledge-based one. As a result, entrepreneurship education has grown in Malaysia. This is another clear example of entrepreneurship education being used positively as a transformation tool.

A document to inform the incorporation of entrepreneurship education in the curriculum in South African schools was finalised in 1994 (North, 2002), but it seems that it was earmarked for implementation in 2005. According to Nicolaidis (2011), since 1998, entrepreneurship education in institutions of higher education in South Africa has gained momentum and there has been an increase in the number of entrepreneurship programmes being offered by South African institutions of higher

education. However, the picture painted by Ramchander (2019), although he was quoting 2016 figures, is less optimistic than Nicolaidis' (2011). Ramchander (2019) reports that none of the South African public universities offer entrepreneurship modules at first year of undergraduate degrees; 3 do not offer entrepreneurship modules at undergraduate level at all; 5 universities offer 1 module at undergraduate level and 3 offer entrepreneurship modules in the second and third year of study. Ramchander (2019) goes on to state that entrepreneurship modules are structured according to international 'best practice' and he questions if they are relevant and appropriate to the South African environment.

At a postgraduate level, one university offered entrepreneurship education as an elective at honours or a postgraduate diploma, 4 universities offered specialisation in entrepreneurship and the rest offered entrepreneurship at Master's level, either as an elective or specialisation.

Radipere (2015), laments that the teaching and assessment methods used to teach entrepreneurship modules were still very much traditional. The focus was more on the lecturer giving information, rather than the student interacting with the module and experiencing it, and the assessment methods being used were the traditional tests, examinations and assignments. Radipere (2015) laments the methods of entrepreneurship education in South Africa that are inadequate to create the desired entrepreneurial mind-sets.

From the above discussion of entrepreneurship education in South Africa, it appears that the country lags behind in the teaching of entrepreneurship modules when compared with the vibrant economy of the US. The fact that there is still a university that does not offer entrepreneurship modules at all, and that entrepreneurship modules are not introduced in the first year and that the curriculum is 'copy and paste' and most entrepreneurship modules are fused into other programs, rather than stand-alone modules, shows that there is still a lot of work to be done in the area of entrepreneurship education in the country.

Though entrepreneurial activity has increased in South Africa, unemployment remains high. The GEM (2014) reported that the country's entrepreneurial activity, when measured as a percentage of the country's gross domestic product (GDP), should have been 14%. This statement clearly highlights the need for more concerted and

increased action to increase entrepreneurship education that is targeted at transforming the mind-set of the learners in South Africa.

The numbers of students who enrol for entrepreneurship modules at high school and undergraduate level should perhaps be increased. Maybe one or more entrepreneurship modules need to be mandatory at the undergraduate level, as is the case at MIT in the US. This suggests the importance, effectiveness and effect of entrepreneurship education on employment and economic development and contribution.

However, it should always be kept in mind that increasing the numbers of students enrolling for entrepreneurship modules alone is not enough. Curriculum development and teaching methods are equally crucial, and they need to be developed with the conscious aim of developing entrepreneurial mind-sets, if the country is to realise a return on investment in entrepreneurship education.

2.2.3.1 The effect of entrepreneurship education in Africa

Babatunde and Durowaiye's (2014) study in Nigeria aimed to determine the effect of entrepreneurship education on undergraduate students. Their study found a positive correlation between entrepreneurship education and the students' entrepreneurial intentions. When asked about fears or obstacles in entrepreneurship, one of them being fear of failure, a number of students expressed fears, which may indicate a weak link between entrepreneurship education and the students' perceived entrepreneurial skills gained. The level of the students' entrepreneurship education would also have partly contributed to fear of failure, as it is known that entrepreneurial skills improve with the level of study.

In Nigeria, since 2006, the presidential directive was for each university student to take at least one module in entrepreneurship (Sharma, 2015). In 2008, just two years after the presidential directive, in a study conducted by the Nigerian National Centre for Technology Management, there was a significant inclination towards entrepreneurship among students (Sharma, 2015).

In Zimbabwe, Dabale and Masese (2014) studied the effect of entrepreneurship education on the entrepreneurial intentions of university alumni. They divided the alumni into two groups, namely, those who had studied entrepreneurship and those

who did not. They found that the entrepreneurial intentions of entrepreneurial alumni were higher than those of non-entrepreneurial alumni. This finding suggests a positive effect of entrepreneurship education on the students' entrepreneurial intentions. The entrepreneurial alumni also displayed greater entrepreneurial attraction than non-entrepreneurial alumni, indicating the effect of entrepreneurship education on the students' entrepreneurial attitudes.

In Kenya, in 1990, the Kenyan Government introduced compulsory entrepreneurship modules for all vocational and technical training students, and the result was an impressive 20% growth by 1993 in the Kenyan small business sector (Sharma, 2015).

A study conducted by Enombo, Hassan and Iwu (2015) in Gabon among high school students showed that the majority of the students believed that entrepreneurship education was important, as it would equip them to start their own businesses and compete successfully. The findings of their study were presented to the Ministry of Education and economic policymakers in Gabon in order for them to consider introducing entrepreneurship education in Gabonese high schools.

Research seems to clearly support the assertion of entrepreneurship education being able to bring about the desired transformation in various countries. The results of research on entrepreneurship education can even inform economic policy, as seen in the Gabonese study.

A study by Samuel, Ernest and Awuah (2013) among marketing students in Ghana revealed high entrepreneurial intentions among Ghanaian marketing students. Neneh (2014), similarly, conducted his study among university students from two universities in Cameroon and he found that the students who studied entrepreneurship had significantly higher entrepreneurial intentions than those who did not study entrepreneurship. Gerba's (2012) study of Ethiopian entrepreneurship and engineering undergraduate students corroborates the findings of Samuel *et al* (2013). The study found that entrepreneurship students had higher entrepreneurial intentions than engineering students. Furthermore, it established that male students had higher entrepreneurial intentions than their female counter-parts. However, in contrast to the findings of Chlosta *et al*; (2012), the study found that the students who had been exposed to entrepreneurship through their self-employed parents did not have higher entrepreneurial intentions than the students who had not been exposed to

entrepreneurship. Chlosta *et al*; (2012) states that children who come from a background of self-employed parents tend to display a higher likelihood of being self-employed, particularly if the father is self-employed.

2.2.3.2 The effect of entrepreneurship education in South Africa

Various entrepreneurship studies have been conducted in South Africa, for instance, Muofhe and Du Toit (2011) conducted a study among students at a higher education level in South Africa. They found that entrepreneurship education had a positive effect on the students' attitude towards entrepreneurship as a desirable career and also on their perceived feasibility and entrepreneurial intentions. Skosana (2014) also found that entrepreneurship education had a positive effect on the entrepreneurial intentions of final year students' from Technical Vocational Education and Training (TVET) Colleges. Interestingly, Skosana (2014) found that gender and the environment (urban versus rural) did not seem to have any effect on the students' entrepreneurial intentions.

Malebana and Swanepoel's (2015) study in the provinces of Limpopo and the Eastern Cape among the students registered for various business modules revealed that there was a significant relationship between the business modules and the students' entrepreneurial intentions, attitudes and perceived entrepreneurial feasibility.

In the study conducted by Tshikovhi and Shambare (2015) among South African students from the 27 university campuses who had undergone social entrepreneurship training, they found that entrepreneurship education had an influence on the students' entrepreneurial intention, and a positive entrepreneurial attitude was the biggest contributor to entrepreneurial intentions. They also found that the entrepreneurial knowledge gained was a positive contributor to the students' entrepreneurial attitudes.

A study by Fatoki (2014a) among final year undergraduate students at a South African university found a high level of entrepreneurial intentions among entrepreneurial students, confirming the effect of entrepreneurship education to create or increase entrepreneurial intentions. Fatoki's (2014b) study also found that the students who had self-employed parents, had a higher level of entrepreneurial intention than the students whose parents were not self-employed, yet the difference was not statistically significant.

2.2.4 Entrepreneurship education and the Theory of Planned Behaviour

Researchers, such as Liñán *et al.* (2011a), Karimi *et al.* (2012) and Hussain & Norashidah (2015) have applied entrepreneurship education to the variables of the TPB. They wanted to determine the effect of entrepreneurship education on students' attitude towards entrepreneurship, as well as their perceived entrepreneurial feasibility and entrepreneurial intention.

Liñán *et al.* (2011a) in their study among Spanish students, found that the students' perceived entrepreneurial attitude and entrepreneurial feasibility emanating from entrepreneurship education, contributed the most to the enhancement of their entrepreneurial intention. Social norms did not seem to contribute much to students' entrepreneurial intention. Liñán *et al.*'s (2011a) study revealed that the students who had a low level of entrepreneurial intention at the beginning of the entrepreneurship module, recorded the greatest increase in their entrepreneurial intention at the end of the module, therefore confirming the effect of entrepreneurship education on their entrepreneurial intentions.

Karimi *et al.* (2012:23), conducted their study among Iranian entrepreneurship students. In contrast to Liñán *et al.*'s (2011a) findings, they found that entrepreneurship education did not have much effect on the students' entrepreneurship attitude and intention. Their explanation for this is that the students' favourable view of entrepreneurship and entrepreneurial intentions were initially high when they enrolled for entrepreneurship modules. However, their perceived entrepreneurial feasibility had increased after taking an entrepreneurship module.

Karimi *et al.* (2012) found that entrepreneurship education had the greatest impact on students' perceived entrepreneurial skills. Since they started with a high level of entrepreneurial intention, they specifically enrolled for entrepreneurship education in order to improve their entrepreneurial skills. The fact that the students commenced their entrepreneurship education with high entrepreneurial intentions, speaks of a society that values entrepreneurship, and it would be expected that social norms would influence the students' choice of entrepreneurship.

Begam, Kadir, Salim, and Kamarudin (2013) conducted a study among MARA College students in Malaysia, which sought to determine the effect of entrepreneurship

education on entrepreneurial intentions. They used TPB and found that the students' entrepreneurial intention, perceived feasibility and entrepreneurial attitude were most influenced by entrepreneurship education.

A study by Küttim, Kallaste, Venesaar and Kiis (2014) in 17 European countries among university students revealed a likely positive effect of entrepreneurship education on the students' entrepreneurial attitudes and intentions, both immediately and five years after completing their entrepreneurial studies.

Grassl and Jones (2014) found that entrepreneurial intention is higher among business management students when compared to non-business management students. However, Bae, Qian, Miao, and Fiet (2014) found that business management students' entrepreneurial intention is normally lower than that of entrepreneurship students, and the difference is statistically significant.

Ahmed, Nawaz, Ahmad, Shaukat, Usman, Rehman, and Ahmed (2010) found that the students who scored high in creativity, innovation and opportunity recognition classes generally had an increased entrepreneurial intention. Similarly, Doğan (2015) found that the Turkish students' high examination scores in entrepreneurship modules correlates to their level of entrepreneurial intentions, confirming the effect of entrepreneurship on the students' entrepreneurial intentions.

In Denmark, Karlsson and Moberg (2012) conducted a similar study on the impact of an entrepreneurship programme on the students' entrepreneurial abilities. They had two samples, a test sample of students who were taking an entrepreneurship module, and a control sample of students who were studying innovation management. They employed a pre-test and post-test research design. Their findings showed that the students who were taking an entrepreneurship module showed an increase in their perceived entrepreneurial feasibility, entrepreneurial attitude and start-up behaviour, while there was no change in the control group.

Keat, Selvarajah and Meyer (2011) conducted a study among final year undergraduate university students in Malaysia, who although from different disciplines, had all taken an entrepreneurship module. They found that the entrepreneurship module had led to the students developing an inclination towards entrepreneurship.

Nowiński, Haddoud, Lančarič, Egerová & Czeglédi (2019) found a weak but statistically significant correlation between entrepreneurship education and Polish university students' entrepreneurial intentions. Their study was conducted among the four Visegrad countries (Czech Republic, Hungary, Poland and Slovakia) and they found that correlation existed only in Poland, which is the only country in the four studies that had introduced entrepreneurship education at high school level. This finding not only confirms the relationship between entrepreneurship education and the students' entrepreneurial intentions, but it also echoes the earlier statements of entrepreneurship education being used as a transformation tool, to bring transformation both at an individual mind-set level and at a national level. Therefore, the need to introduce entrepreneurship education earlier in the study life of the students.

Nabi, Walmsley, Liñán, Akhtar and Neame (2018) conducted a longitudinal study among first-year students in Britain. They found that the entrepreneurial intentions of the students who studied entrepreneurship were marginally higher when compared to the students who did not study entrepreneurship, with entrepreneurial learning and inspiration playing a key differentiating role. Their findings corroborate those of Karimi *et al.* (2012) and Liñán *et al.* (2011a) that found that the students who started with low entrepreneurial intention before the entrepreneurship module recorded the highest increase in entrepreneurial intention after the entrepreneurship module.

In the current environment of unemployment among the youth, it almost seems like it would be disadvantaging the youth by not introducing entrepreneurship education at schools and at undergraduate level. It would appear that it is desirable to extend the modules to a wide range of disciplines, and maybe to introduce some mandatory entrepreneurship modules, as was seen in the cases of Nigeria and Kenya, both of which led to improved entrepreneurial intention in Nigeria, and increased small business activity in Kenya.

2.2.4.1 Social norms and the students' entrepreneurial intentions

Social norms relate to the unwritten rules of behaviour among a particular group (Khalili *et al.*, 2015). The social norms can be related to entrepreneurship in terms of the way a particular society views entrepreneurship and the value or importance it places on entrepreneurship and entrepreneurs.

Studies that have investigated the effect of social norms on entrepreneurial intentions show differing results, depending on how society values entrepreneurship. Liñán *et al.* (2011b), whose study was conducted among students from two regions with different developmental stages in Spain, reported that descriptive social norms did not seem to have any significant impact on rural students' entrepreneurial intentions, whereas prescriptive social norms did have an influence on the students' entrepreneurial intentions.

Ridder (2008) was the first researcher to distinguish between descriptive and prescriptive social norms (to be explained in more detail later in this section), and how they influenced the students' intentions. Perhaps the contrasting reports by researchers on the effect of social norms on intentions could, in part, be due to the lack of distinguishing between the broader societal values of entrepreneurship, and the students' family and immediate environment's approval of entrepreneurship.

For example, Karimi *et al.* (2012) found that social norms had an impact on students' entrepreneurial intentions in Iran. Keat *et al.* (2011) found in their Malaysian study that students whose mothers were self-employed showed even greater entrepreneurial inclination, while Samuel *et al.* (2013) did not find any influence of social norm on the students' entrepreneurial intentions. Chlosta *et al.*; (2012) found that the students with self-employed mothers had greater entrepreneurial inclinations. Evidently, there are inconsistent research findings on the effect of social norms on entrepreneurial intentions, as well as the parents' self-employment status.

According to Ridder (2008), the reason that social norms show a low correlation with the students' intention is because studies often relate to only the influence of friends, family and colleagues, but miss the influence of role models. Ridder (2008) refers to these two groups as prescriptive and descriptive social norms, respectively and generally, descriptive perceived social norms contribute more to intentions than prescriptive social norms. This means that role models will have a greater influence on the students' choice of entrepreneurship than the approval of family, friends and colleagues.

Khalili *et al.* (2015) corroborates this assertion by stating that the students' intentions are high if society values and respects entrepreneurs and if they receive regular media coverage. Ridder (2008) also states that generally, descriptive perceived social norms

tend to have a higher influence on male students, while female students show tendencies of being influenced more by prescriptive norms. However, she cautions that this may be due to the higher media coverage generally given to successful male entrepreneurs than to female entrepreneurs. In her own study (Ridder 2008), Ridder did not find any significant differences in terms of the influences of descriptive social norms between male and female students. This finding may support Ridder's claim of the skewed media coverage of successful entrepreneurs.

In South Africa, Muofhe and Du Toit (2011) conducted a study among entrepreneurship and non-entrepreneurship students at an institution of higher education in Johannesburg, South Africa. Just over 60.2% of the students studied entrepreneurship, while 39.8% did not study entrepreneurship. They found a relationship between the knowledge of role models and the students' entrepreneurial intentions.

Malebana (2016) also conducted a study among final-year commerce students in Limpopo and the Eastern Cape provinces of South Africa, to determine the effect of the knowledge of entrepreneurial role models on the students' entrepreneurial intentions. He found that there was a positive relationship between the students' knowledge of an entrepreneurial role model and the students' entrepreneurial intention. Those students who knew a particular entrepreneur or entrepreneurs, had a positive attitude towards entrepreneurship as a career choice, had high perceived behavioural control, and high entrepreneurial intention. However, Malebana and Swanepoel (2015) did not find a link between the students' entrepreneurial intentions and social norms.

The impact of social norms on entrepreneurial intention seems to be inconclusive in South Africa as well. Perhaps these inconsistent findings in South Africa between the students' entrepreneurial intentions and social norms also reflect the contrary reports of Jenvey (2015) and Ed (2015) about the Singer et al, (2019) report. However, a key factor is that the South African population is not homogenous. There are still disparities in terms of education levels, socio-economic realities, and perhaps urban and rural outlooks. These differences in the population and the backgrounds of different population strata could be affecting the results, depending on the samples used in the different studies.

Shinnar, Hsu and Powell, (2014) state that MBA and postgraduate students have a higher entrepreneurial intention than undergraduate students. Farrington, Venter and Louw (2012) also had similar finding that the students in more senior levels of studies had higher levels of entrepreneurial intentions than the junior students. They found that final year students or post-graduate students who had studied entrepreneurship longer, will typically display higher entrepreneurial intentions than the students who are just beginning to study entrepreneurship.

Shinnar *et al.* (2014) conducted a longitudinal pre- and post-entrepreneurship education study among male and female students, using a *t*-test. The study wanted to determine the moderating effect of gender on the students' entrepreneurial intentions. The pre-test mean of entrepreneurial intentions were very similar between male and female students. However, the post-test means were different, with the males scoring higher, while the females' mean for entrepreneurial intentions had declined, yet the differences were not statistically significant.

This finding confirms the finding by other scholars, such as Nowiński *et al.* (2019), Amos and Alex (2014) who conducted their study among 326 students drawn from three universities in Kenya, and Neneh (2014) who conducted his study in Cameroon, have discovered regarding the moderating effect of gender on entrepreneurial students' entrepreneurial intentions, namely, that the male students have higher entrepreneurial intentions. There seems to be fairly consistent results that support the gender effect on the male students' entrepreneurial intentions.

2.2.5 Methods of teaching entrepreneurship education

Mwasalwiba (2010) believes that students need to be trained for entrepreneurship, as opposed to being trained about entrepreneurship. For this to happen, the traditional methods of entrepreneurship education need to be revisited. Researchers, such as Greene (2015) and Saif (2015), concur that students need to be given the opportunity to experience the real business world, hence the call for practical entrepreneurship education methods, for example, through business simulation.

Arasti, Falavarjani and Imanipour (2012) argue that the methods of teaching entrepreneurship need to be dictated by and aligned to the module taught and the objective of the module. They maintain that there are certain teaching methods that

are more suitable for teaching business planning and others that are more suitable for teaching 'problem solving' and other entrepreneurship modules. For instance, they propose that individual and group projects, case studies and problem solving are the methods suitable to teach the students to develop a business plan.

Balan and Metcalfe (2012), throughout their article, advocate for students' engagement and interaction with one another, the development of critical thinking skills to be attained from criticising each other's approaches, as well as learning from each other, as the students may come up with solutions to the same problems from completely different angles. From their research, Balan and Metcalfe (2012) found that 'poster reporting' was the one method that got the students most engaged. The students work in groups on a particular project and report on it in a poster form, as opposed to the traditional way of writing a report. The group presents the results together and the other groups will ask questions and criticise. Though this method is effectively engaging, it is most suited to contact lectures, though it could still have an application through technology, although technology will always have its limitations.

Balan and Metcalfe (2012) also found that team-based learning engages the students and they learn from one another in relation to their responses to the questions (Balan and Metcalfe (2012)). Learning about themselves helped them to put entrepreneurship concepts into context and how to apply them to themselves. Perhaps in this manner, they will be able to see their strengths and weaknesses, and will learn to leverage their strengths and work on their weak areas.

The third area of students' engagement identified by Balan and Metcalfe (2012) was 'small business awards', where a small group of students work with a real-life manager on a real-life project and learn all the various aspects of the project. In a real-life application, this would require the students to serve internships in small to mid-sized enterprises and work with managers on a particular project and gain first-hand experience of the realities of entrepreneurship. An amended version of this could be when the students help small incubator businesses, help them with their projects, help them solve a particular problem they are facing, or help them plan for growth and expansion under the supervision of the lecturers.

Sirelkhatim and Gangi (2015) concur with Mwasalwiba (2010) that the students need to be trained for entrepreneurship, as opposed to receive training about

entrepreneurship, but they go a step further and say that they need to be trained in entrepreneurship, agreeing also with Balan and Metcalfe (2012) and Arasti *et al.* (2012), and Greene (2015) that entrepreneurship education needs to be practical and the students need to experience entrepreneurship.

Greene (2015) from Babson College, states that at Babson, students are encouraged to start limited-duration businesses, either as individuals or as teams. This gives them an experience of the real world, and the opportunity to engage in entrepreneurial thinking and to apply different functions of business, as well as to learn about the importance and dynamics of teamwork and trust.

Entrepreneurship education is said to be an applied discipline. It makes perfect sense to let students start their small businesses, however, this has a built-in cost factor, as many students will need support in the form of start-up funds from their universities. Even if the start-up capital is as small as R500 or R1 000, it can easily be magnified by the multiplier effect, especially considering that some authors recommend the extension of entrepreneurship education to other students in traditionally non-business disciplines. However, this cost limitation can be overcome by the use of business games and business simulation programmes. Business gaming exposes students to the virtual realities of business, and gives them the opportunity and experience to apply the different theoretical aspects of entrepreneurship (Greene 2015).

From the above authors, it is evident that group learning and students interaction, critical thinking, engaging in real-life or simulated business scenarios, problem solving, generating alternative solutions, and learning about oneself, have been researched and are presented as effective entrepreneurship teaching methods.

2.2.5.1 Entrepreneurship education and how it is to be taught

As it has been stated several times in this research study, entrepreneurship has come to be viewed as a potent tool to help alleviate the global problem of youth unemployment. Entrepreneurs need to possess entrepreneurial mind-sets in order to succeed entrepreneurially, and Schlesinger (2012), the former president of Babson College, which is regarded as being at the forefront globally in teaching entrepreneurship, believes that entrepreneurial mind-sets can be taught, since entrepreneurship is a discipline like any other. Assudani and Kilbourne (2015) state that entrepreneurial mind-sets encompass creativeness and innovativeness, critical

thinking, risk propensity, problem-solving skills, and tolerance of ambiguity and uncertainty.

Haynie, Shepherd, Mosakowski and Earley (2010) define the entrepreneurial mind-set as the cognitive ability to sense an opportunity and act under uncertain, ambiguous conditions. Kriewall and Mekemson (2010) describe the entrepreneurial mind-set as an entrepreneur or entrepreneur-to-be who is attuned to social values, is aware of customer needs, and is driven to create and produce products that will add value to customers through the use of technology. That is, the products must be beneficial to the buyers and users, as opposed to the innovator concentrating more on the product features.

McGrath and MacMillan (2000) give more meaning and clarity to concept of the entrepreneurial mind-set by breaking the process down into 5 steps. The aim is to help the entrepreneur or entrepreneur-to-be to learn to manage uncertainty effectively, since in business, plans are made today, to be implemented in the future, which is uncertain. The five steps to the effective development of entrepreneurial mind-sets are:

- **Creating a climate of continuous search for opportunities:** This, of necessity, will require that it is not only managers who are tasked with the responsibility of opportunity spotting, but that it is a corporation-wide culture. It also requires employees who are attuned to customer needs and requests, as stated by Kriewall and Mekemson (2010). A practical example of this in South Africa would be what First National Bank is doing with its employees, encouraging its employees to actively engage in innovation in the banking industry (Anon. 2017).
- **Developing entrepreneurial framework:** Where the changes in products to meet customers' needs are not merely cosmetic, but are substantive and add real value to the users.
- **Keeping a well-stocked opportunity register:** The idea is to have several business opportunities that the entrepreneur can at any one point in time tap into to test the market.
- **Focus:** The entrepreneur will choose a few opportunities to test the market with, making small investments at a time and testing how the market reacts to the

product; to test whether the market is ready and if the technology is right to produce the product.

- **Adaptive execution by using discovery driven planning:** The entrepreneur will plan for the cautious execution or implementation or launch of the product, but the plan is done in incremental stages. It is not rigid, and as new information comes to light, the entrepreneur keeps adjusting the plan.

The entrepreneurial mind-set is a function of trained cognitive ability. It is an ongoing process, as the entrepreneur and his/her staff are constantly aware of the customers, their needs and requests, and seek to provide them with an innovative product that will add value to their lives.

Assudani and Kilbourne (2015) argue that the traditional way of teaching, including entrepreneurship education, is that the lecturer is the custodian of knowledge and the students are passive receptors of the knowledge. They contend that the shortfall of this method is the notion that there is only one correct answer given by the lecturer, and this throttles and discourages creativity and innovativeness. They posit that the students need to be active co-creators of knowledge, particularly as it relates to the development of their entrepreneurial mind-sets.

Assudani and Kilbourne (2015) posit that 'appreciative inquiry' is a pedagogical tool for the students to uncover their self-awareness. Appreciative inquiry does not start with the conventional way of trying to locate what is not working and trying to solve a problem. The conventional approach in itself is negative. On the other hand, appreciative inquiry (AI) begins by identifying what has been working, and by capitalising on the positive working elements and building up from there.

Appreciative inquiry has its foundation in conversations and interactions. It recognises that the environment shapes individual characteristics and common shared values that glue people together. That is why conversations are important in self-discovery. The students are encouraged to assess themselves to discover their current level of entrepreneurial mind-set. Appreciative inquiry has four D's, namely, discovery (what has been), dream (what could be); design (what should be); and lastly, delivery (what will be). Table 2.2 below lists and explains the practical application of the steps.

Table 2.2: The four Ds of appreciative enquiry

Step	Application
Step 1: Discovery	The process of using AI as a pedagogical tool begins with the students taking a self-assessment test to determine their entrepreneurial mind-sets. Then they discuss their results with the fellow students in the class. There should be ground rules of respect and the students are encouraged to be open-minded about the feedback from their classmates, to embrace the divergent views and feedback, and to accept that diverse views are just as good as convergent ones. This is important because creativity requires diversity.
Step 2: Dream	The next step is for students to dream of a perfect desirable state for them, building on the positive energy of the entrepreneurial mind-set characteristics that they have identified in the first step of the process. This pedagogical method is a journey of self-discovery.
Step 3: Design	In the third step, the students break up into smaller groups and discuss what changes should be made in order to make characteristics such as risk-taking, ambiguity tolerance, creativity and innovativeness become the norm in their mind-sets.
Step 4: Delivery	The last step is a move from the grand desire of the class to the will of the class; something to which they can commit themselves. They discuss how to sustain the dream design.

Source: Adapted from Assudani and Kilbourne (2015)

The student is actively involved throughout this process and changes are made from a place of positivity by accentuating their strengths. The student is not a passive receptor of knowledge, but rather an involved co-creator of knowledge, thus developing his creativity and innovative mind-set.

The AI method essentially requires that the module content should be designed in a deliberate open-ended structure in order to elicit active participation by the students. It also requires that the lecturer changes his role into that of a facilitator, rather than a giver of knowledge. Essentially, the lecturer will need to undergo training on facilitating and how to manage a possible wide range of divergent views on one topic.

The AI method could be employed in a contact university where the lecturer has contact with the students. Alternatively, it could also be employed in live online learning, though the cost of connection might be an impeding factor in a developing country, such as South Africa.

The report entitled, “Enterprise and entrepreneurship education: Guidance for UK higher education providers” (Anon. 2012) asserts that entrepreneurship education needs to develop the students’ entrepreneurial mind-sets and entrepreneurial capabilities through learning in the curriculum and learning outside the curriculum. The report clarifies that the term ‘entrepreneurial mind-sets’ refers to personal goals, confidence and resilience, understanding one’s own motivation, tolerance of ambiguity, uncertainty, risk, failure, and personal ethical values. Further, the term ‘entrepreneurial capabilities’ refers to creativity and innovation, ability to recognise a business opportunity and evaluate it, decision-making that is supported by critical analysis and judgement, reflection, interpersonal, and communication skills. The report explained learning in the curriculum as the process of giving the students opportunity-centred and problem-solving learning, giving them individual and group projects, encouraging venture-planning activities, innovation and design-based tasks and by work placements, thereby giving the students real business world experience. Learning outside the curriculum refers to encouraging the students to generate business ideas, competitions, career networks, and organising activities and events.

It is a well-known psychological fact that behaviour emanates from the thought pattern. It is little wonder then that entrepreneurship education targets the minds of the students in order to develop entrepreneurial mind-sets and entrepreneurial thought patterns that will result in entrepreneurial behaviours.

Ansari *et al.* (2014), who are all researchers involved at Babson College, believe that entrepreneurship students must learn to think and act like entrepreneurs. They believe entrepreneurship education must train the students to live like entrepreneurs. At Babson College they practise what they call entrepreneurial thought and action (ETA) ®. It is based on the three C’s of curriculum, co-curriculum and culture:

- In **curriculum**, the students do module work. In addition, the students work in small groups to conceive a business idea and actually run a small business together, with small venture funds provided by the college. The students get to experience a real-life business environment and develop teamwork and leadership capabilities, and they get feedback on their behaviour from their lecturers and fellow teammates.

- The **co-curriculum** supports students' businesses from the beginning until its launch by providing support, incubator workspace and peer and faculty mentoring. Entrepreneurship students are also allowed to organise their own project exhibitions where they invite faculty members and their peers, pitch their business ideas and get feedback from their peers and faculty members. Business idea refinement and knowledge are a co-creation effort where others are involved as mentors. The students also get to develop their organisational skills by organising their own exhibitions.
- Under **culture**, the students are encouraged to generate business ideas, test them to see if they will work. In this way, they learn by experience, and they are encouraged to take small action steps instead of elaborate planning.

The Babson method of entrepreneurship education is practical; each one of the three C's encourages practical action and that the students learn from experience.

There appears to be a general strong consensus among entrepreneurship educators and researchers that the best way to teach entrepreneurship education is through the utilisation of a practical method (Åsvol & Jacobsen, 2012). Åsvol and Jacobsen, (2012) also highlight that entrepreneurship education is a science and an art. The science of entrepreneurship relates to a normal business module, such as accounting, marketing or business management. The art of entrepreneurship relates to opportunity recognition, business idea generation, creativity and innovation, tolerance of ambiguity, uncertainty and risk, and problem-solving. Åsvol and Jacobsen (2012) postulate that CEO's of successful growth companies believe that entrepreneurship can be learned; it is neither something that is inborn in a person nor necessarily ingrained in a person at a younger age. Therefore, this finding emphasised the relevance and importance of entrepreneurship education and its impact on entrepreneurial skills, capabilities and feasibility.

Therefore, surely, both the science and art of entrepreneurship can be learned through education. The art of entrepreneurship is best learned through learning methods that expose the students to real-life situations, such as problem-solving, where they are given complex and ambiguous problems to solve. Åsvol and Jacobsen (2012) also maintain that it is critical for the students to receive constructive feedback from their lecturers and real-life mentors for them to learn and grow. Colakoglu and Sledge

(2013) concur that the seemingly effective way of teaching entrepreneurship education is action-based teaching.

In addition to teaching and learning, and conducting research, the other important objective of higher learning institutions is their community engagement. Åsvol and Jacobsen (2012) posit that the students need to become involved in their community, identify the needs of the community, come up with possible solutions, test the viability of the solutions, choose the most optimal set of solutions and apply them. In this way, the students learn problem-solving skills, creative and innovative solutions and develop their critical thinking skills, which are imperative in entrepreneurship. They also learn to make the most optimal decisions in the face of ambiguity and sometimes, incomplete information.

Bliemel (2014) also concurs with action learning in entrepreneurship education, but adds an interesting twist to it. He calls it the “inside-out flip in entrepreneurship education”. He says that you flip the classroom. Instead of the students coming to class to listen to a lecture and do their homework at home, it is the other way round. The students read at home on their own, and do class assignments together, with the lecturer being more of a coach and a mentor rather than a disseminator of knowledge. This way of learning encourages the students to find out knowledge on their own, and think critically and ask questions as they proceed with their reading. This method may also be more relevant in the ODL environment where the students do most of the reading and knowledge finding on their own, and then ask questions during their face-to-face or online contact sessions with the lecturers or on their online discussion forums.

The other side of flipping is when industry experts are invited into the classroom and they interact with the students by helping them with their assignments through coaching and mentoring. This is important, as the industry experts bring in a wealth of experience that they share with the students. The students may also share their business ideas with the more experienced industry experts, and they coach and mentor the students to evaluate their ideas to see if they are viable.

The methods and the frameworks may differ slightly from test-to-test. But, the bottom line is that the aim of action-based entrepreneurship education is to develop critical thinking and analysis, to enhance creativity and innovativeness, and to sharpen and

foster the generation of entrepreneurship ideas. In addition, it develops the ability to identify opportunities, enables the students to deal with ambiguous and uncertain situations, learn problem-solving skills, and even to deal effectively with complex problems or situations where there is incomplete information. The aim is to develop entrepreneurial mind-sets; to get the students to begin thinking in a particular entrepreneurial way because thought patterns control behaviour. When the students think like entrepreneurs, they are more likely to control their behaviour to become entrepreneurs.

Though there is consensus on the need for action learning in entrepreneurship education, there is no consensus on its impact on the students' entrepreneurial intentions. For instance, Bell, Dearman and Wilbanks (2015) conducted a study on the effect of action-based entrepreneurship education on the students' perceived entrepreneurial feasibility and intentions. They found a positive correlation between action-based entrepreneurship education and the students' perceived entrepreneurial feasibility. However, they could not find a conclusive and significant correlation between action-based education and the students' entrepreneurial intentions. However, they do acknowledge that this is early data; they will continue with the longitudinal study and see how the data shapes up over time. The other limitation of their study is that only 18 students registered for the particular action-based module and only 13 responded. The sample size was too small for a quantitative study to give wholly credible results that can be generalised to a greater action-based entrepreneurship student corpus globally.

Nieuwenhuizen and Groenewald (2008) posit that for entrepreneurship education to be effective, the lecturers need to be more a type of facilitator, rather than the giver of information. They will need to develop the curriculum in a way in which the entrepreneurship students are active role players, as their research has found that this is primarily how the entrepreneur's mind functions. The active learning method would thus be most appropriate and beneficial to the entrepreneurship student.

2.2.5.2 Challenges in entrepreneurship education

In South Africa, as stated by Jenvey (2015), business module students have traditionally been trained for corporate jobs. This means that some lecturers are primarily trained to teach corporate modules, and not necessarily entrepreneurship

modules. For effective teaching of entrepreneurship education to happen, teachers and lecturers need to be thoroughly trained and skilled in entrepreneurship and how to teach it. Molefi Motsoeneng, Faculty Research Manager at the University of the Free State, as quoted by Jenvey, (2015), contends that the lecturers who teach entrepreneurship at higher learning institutions in South Africa do not have personal or practical entrepreneurship experience, and this inhibits their effectiveness in teaching entrepreneurship.

Very few universities in South Africa have a full stand-alone entrepreneurship faculty (Nicolaidis, 2011), and therefore, entrepreneurship education is generally seen as an add-on module and is unlikely to receive the attention and focus that it requires. This status quo undoubtedly stifles the growth of entrepreneurship education in terms of the number of entrepreneurship modules being offered, as well as the number of qualified staff employed to teach entrepreneurship. The methods of teaching are also unlikely to be upgraded to practical, interactive and experience-oriented methods that are increasingly being regarded as essential, since entrepreneurship is best learned through practical application. Institutional support towards entrepreneurship education will be too little, and in turn, affect the quality of the students' learning and the effect of entrepreneurship education on their perceived entrepreneurial abilities and feasibility and intentions.

2.2.6 The effect of entrepreneurship education

This section discusses the effect of entrepreneurship education on the students' entrepreneurial feasibility and entrepreneurial intentions, the effect of entrepreneurship education on entrepreneurial intentions, and the effect of entrepreneurship education on real-life ventures.

2.2.6.1 The students' entrepreneurial feasibility and entrepreneurial intentions

Sanchez (2013) conducted a study among students in Spain that had a pre-test, post-test quasi-experimental design where he had an experimental and a control group. The experimental group took elective entrepreneurial modules, while the control group did not. He wanted to measure the difference between the two groups regarding their entrepreneurial competencies and their entrepreneurial intentions. He found that there was no significant difference in the pre-test and post-test measurements of the control

group. However, the post-test measures showed significant differences between the two groups, proving that entrepreneurship education had a significant effect on the students' entrepreneurial competencies and their intentions to be self-employed in the future.

Rauch and Hulsink (2015) conducted a similar study in the Netherlands among Master of Science (M.Sc.) students in an entrepreneurship module that was designed to prepare students for a career in entrepreneurship and M.Sc. students in Supply Chain Management using TPB. They found that entrepreneurship education increases the antecedents of entrepreneurial attitudes, perceived behavioural control, and ultimately increases the students' entrepreneurial intentions.

Similarly, Al-Mahdi (2012) who conducted his study among students in five universities in Saudi Arabia, also found that entrepreneurship education had an impact on the students' attitudes towards entrepreneurship, their perceived entrepreneurial feasibility and their entrepreneurial intentions.

Hattab (2014) conducted a similar study, using two groups, namely, one experimental and the other a control group of engineering students in Egypt that did not take any entrepreneurship module. His study was motivated by the observation that studies on the effect of entrepreneurship education on the students' entrepreneurial attitudes, feasibility and intentions had been conducted in developed countries and wanted to find out what the results would be among students in a developing country such as Egypt. He found that entrepreneurship education did indeed have a positive effect on the Egyptian students' attitude towards entrepreneurship and entrepreneurial intentions. However, he found that it did not have any significant impact on their perceived entrepreneurial feasibility. He believes that the findings of the study highlight the need to structure entrepreneurship education in such a way that it also develops the students' creativity and innovativeness.

Oosterbeek, Van Praag and Ijsselstein (2010) employed a similar pre-test and post-test study among vocational college students in the Netherlands, also using the experimental and control groups. The study was conducted at two campuses (at different locations) of the same college. The one campus offered an entrepreneurship module and the other did not. The entrepreneurship module that was offered at the

one campus was the student mini-company (SMC), which is practice-oriented and the students work in groups of ten.

Oosterbeek *et al.* (2010) found that the programme did not have any significant effect on the entrepreneurial skills of the experimental group but the control group assessed themselves to have a greater level of entrepreneurial skills during the post-test measures. They also found that the entrepreneurship programme had a negative effect on the experimental group's entrepreneurial intention, both males and females, but the effect was even greater for the female respondents. This finding is in contrast to a number of studies cited above in this study that found that the males' entrepreneurial intentions were always higher than their female counterparts. The researchers report that in the interviews with the lecturers and coaches afterwards, they stated that the negative impact does not necessarily mean that the programme has failed, but rather that the experimental group students had a more realistic view of entrepreneurship after having gone through the real-life experience, as opposed to the control group.

Again, this stands in contrast to the Babson College method of teaching entrepreneurship, which advocates experiential action learning. However, the curriculum and contents of the entrepreneurship programme used in the Oosterbeek *et al.* (2010) study is not known. It is, however, well-known that the real entrepreneurship world operates in an environment of rapid changes, ambiguity and uncertainty, hence the need to include problem-solving, critical thinking, analysis, innovativeness and creativity, as well as calculated risk-taking, in entrepreneurship education.

The coaches and lecturers in the Oosterbeek *et al.* (2010) study further stated that the insignificant statistical figures on the experimental group that were assessed for entrepreneurial skills could be attributed to the large size of the group. They stated that usually in a large group, the students with a stronger personality tend to take the lead and do more talking, leaving the others with limited participation and eventually feeling that they have not learned more from the experience. The Oosterbeek *et al.*'s (2010) study highlights the need to design studies with the students' optimal participation in mind, and thus design smaller group sizes, in order to give all students an opportunity for optimal participation. Engaging in group work is important as it

teaches the students to work with others, develops teamwork and synergises their different strength areas.

Oosterbeek *et al.*'s (2010) study also highlights the need to prepare the students for real-life entrepreneurial situations, a crucial element of entrepreneurship education that Fayolle (2013) has identified as missing in entrepreneurship education. Setiawan (2013) highlighted this in her study when she found that the students scored themselves low on their perceived ability to deal with the ambiguity and uncertainty of the real entrepreneurial world. She further stressed the need for entrepreneurship education to prepare the students psychologically and emotionally for the uncertainties of the real entrepreneurial world.

Thus, entrepreneurship education is presented as a transformation tool; to transform the mind-set (psychological) of the student to think like an entrepreneurs. In addition, entrepreneurship education needs to affect the students at an emotional level, teaching them to deal with future uncertainties.

2.2.6.2 The effect of entrepreneurship education on entrepreneurial intentions

There appears to be evidence that suggests the effect of entrepreneurship education on entrepreneurial intentions. However, is education alone enough or is there the interference of gender? To answer this question, Do Paco *et al.* (2015) conducted a study among high school students in Portugal. They took female students from a business school and boys from a sports school, an experimental and control group, and measured their entrepreneurial intentions. Contrary to popular expectation, the boys from a sports school scored higher in terms of entrepreneurial intention than the girls from the business school. Their explanation of the unexpected outcome is that it could be that the boys perceive entrepreneurship to be a masculine topic.

Johansen (2013) conducted a somewhat similar study in eastern Norway. He collected data from over 1 000 students; 50% of whom had gone through a company programme in high school where they started, ran and ultimately closed down a mini-company as part of the programme. The other 50% of the students in the study did not undergo the programme. He found that the programme had more impact on the respondents' entrepreneurial intention, but he also found that the programme had more impact on the male respondents than on the female respondents. The study by the scholars,

Sanchez-Escobedo, Diaz-Casero, Hernandez-Mogollon and Postigo-Jimenez (2011) also found that “the lower the level of intention or predisposition of a person to start a business, the greater the likelihood that this person is a woman.”

Both studies indicate the males’ propensity for entrepreneurship, and Do Paco *et al.* (2015) believe that this could be attributed to the fact that boys perceive entrepreneurship to be a natural male career, and societal culture could also have played a role in shaping this perception. In addition, Do Paco *et al.* (2015) state that entrepreneurship requires tolerance for ambiguity as one of the entrepreneurial characteristics, and women generally are risk-averse, particularly averse to financial risk, but not necessarily averse to innovativeness. The females’ risk-averse nature could explain their cautious lower entrepreneurial intentions.

If indeed entrepreneurship education is a transformer as the previous studies have suggested, relevant entrepreneurship modules could help to transform the females’ financial risk-averse outlook somewhat, resulting in increased entrepreneurial intentions among female students.

Lorz, Mueller and Volery (2013) conducted a meta-analysis of a number of studies that investigated the effect of entrepreneurship education on a number of variables, including the respondents’ perceived entrepreneurial feasibility, attitudes and intentions. They found that seven out of ten studies (70%) reported a positive correlation between entrepreneurship education and entrepreneurial intentions, while two reported a negative correlation. Nineteen out of 31 studies (61%) reported a positive correlation between entrepreneurship education and entrepreneurial attitudes and perceived entrepreneurial feasibility, while 11 did not find a significant correlation. Twelve out of 16 (75%) studies found a correlation between entrepreneurship education and skills and knowledge, while two did not find any significant correlation and one even reported a negative correlation. The majority of studies reported the positive effect of entrepreneurship education on the recipients’ entrepreneurial attitudes, skills, knowledge, and intentions.

Lorz *et al.* (2013) attribute the differences in the findings to a number of factors. Among them were the module content and the scope, the module duration and the pedagogies of teaching. The module durations ranged from one day to 12 months, and the content and scope differed greatly. Most of the pedagogy relied mostly on classroom teaching.

This means that they lacked the experimental approach that is believed to be more effective in transferring knowledge and giving the students real-life experiences. The target audiences also differed, which also means that the objectives were different. Fifty-six percent of the studies were conducted among tertiary students, 13% at secondary level, 18% were intervention training modules for practicing entrepreneurs, and 13% were entrepreneurship education for adults.

The other contributing factor to the differing outcomes is the different research designs. The majority of the studies employed quantitative design, but 69% used ex-post data collection. Pre-test data is important, as it leads to a more convincing argument that the difference between the pre- and post-data is conclusively owing to entrepreneurship education. Nevertheless, 67% of the studies did not use a control group, another important measure of validity. In essence, the majority of the studies were cross-sectional, without a control group.

Most studies that investigate the effect of entrepreneurship education on the recipients' entrepreneurial attitudes, feasibility and intentions use TPB. The general consensus seems to point towards a positive correlation between entrepreneurship education and the measured variables. But, would the results confirm or disconfirm these general findings, if the approach and the theory employed differed?

To answer the above question, the current research assessed the study conducted by Vanevenhoven and Liguori (2013). It is a longitudinal study, spanning 70 countries from all continents and included students from 400 universities. Their study employed the Social Cognitive Career Theory (SCCT). The theory postulates that one's inputs shape one's perceived entrepreneurial feasibility and outcome expectations.

The inputs include general self-efficacy, cognitive style, risk propensity, academic work and demographics, together with the environmental influence of whether the parents have been involved in entrepreneurship before, one's entrepreneurship experience, and the barriers and support of the environment, in combination.

The outcome expectations are the anticipation that certain actions are followed by certain outcomes, including rewards such as approval and pride of achievement. The perceived feasibility and expected outcomes together will lead to the formation of interests and intentions. Interests and intentions will lead to the setting of goals and performance.

Vanevenhoven and Ligouri (2013) related the theory of SCCT to entrepreneurship education and found that there is an overall correlation between entrepreneurship education and the students' entrepreneurial intentions, feasibility, and expected outcome. Therefore, it appears that entrepreneurship education has an effect on entrepreneurial feasibility and intentions across more than one social behaviour theory. Vanevenhoven and Ligouri (2013) authenticate their findings by reporting that they had an adequate number and variety of variables, the sample size was sufficient and there was internal consistency and construct validity.

2.2.6.3 The effect of entrepreneurship education on real-life ventures

This literature review has chronicled the effect of entrepreneurship education on the students' entrepreneurial attitudes, perceived feasibility and intentions, and there seems to be a correlation with the mediating effect of gender. The literature has also shown that intention is the best predictor of behaviour.

The question can then be asked: If entrepreneurship education impacts on entrepreneurial intentions, what is its effect on the venture once the individual has taken control and acted on the intention? To answer this question, Charney and Libecap (n.d.) of the Kauffman Center for Entrepreneurial Leadership at the University of Arizona conducted research among the entrepreneurship graduates, and controlled the study with the non-entrepreneurship business graduates at the same university.

The study found that the graduates of the practical entrepreneurship programme were three times more likely to be involved in the creation of a new venture than their non-entrepreneurship business graduates. This suggests that entrepreneurship education creates a strong enough entrepreneurial attitude and intention for the individual to take action and control his behaviour to turn the intention into a reality. The findings of the MIT study corroborate this assertion. However, caution needs to be interjected here, as Oosterbeek *et al.*'s (2010) study among the vocational college students who participated in a practical entrepreneurship class proved otherwise. The first two studies took place in the US, and the latter in the Netherlands. Both countries are classified as first-world countries with a high prevalence of entrepreneurship in their economies. The modules were all practical and conducted among post-high school students. It is not clear why the results differ.

Charney and Libecap's (n. d.) study also found that emerging companies that were owned by or employed entrepreneurship graduates had sales and employment growth that was more than five times that of emerging companies that were owned by or employed non-entrepreneurship business graduates. However, there seems to be inconsistencies in the findings of the different studies regarding this point. Professor Scott Shane (2010) of Case Western Reserve University restated the findings of Karlan and Valdivia (2006) who randomly assigned entrepreneurship training to female micro-entrepreneurs in Peru. He found that after undergoing training, the micro-entrepreneurs' sales had grown, but neither the profit margins nor the number of employees.

In the same article, Shane (2010), citing from the study of Bjorvatn and Tungodden (2010), stated that the researchers randomly offered entrepreneurial training to the recipients of microcredit in Tanzania. They did not find any impact of the training on the recipients' sales, nor on the number of employees. However, the training had an impact on other entrepreneurial areas like record-keeping and the willingness to change the product mix.

Shane (2010), also states that micro-entrepreneurs in Pakistan, were randomly offered a six-hour entrepreneurial training, and it was found that the training did not have any impact on the female entrepreneurs. The training did not seem to have any effect on the sales and employment growth of the male micro-entrepreneurs either, but it had reduced the male entrepreneurs' business failure. If it reduced business failure, one might expect it to lead to profitability in the long run. It is not clear from Shane's article how long after the completion of the training the evaluation of the impact on business operations was conducted.

The inconsistencies and differences in the findings could be explained by the entrepreneurship module structure. The training offered to the micro-entrepreneurs appears to be basic, elementary and too short to effectively develop the crucial skills and capacitate the recipients adequately, as evidenced by the six-hour module in Pakistan.

The afore-mentioned Kauffman programme of the Kauffman Center for Entrepreneurial Leadership at the University of Arizona is offered over a prolonged period of time and is practical in nature, therefore allowing the recipients to gain the

necessary skills and be sufficiently trained and capacitated. This stresses the importance of how an entrepreneurial module is designed, the scope it covers and how long and how it is taught.

The Kauffman report also found that entrepreneurship education gave the entrepreneurship graduates the ability to create more wealth. The entrepreneurship graduates had accumulated 62% more personal assets than their business graduate counterparts.

Entrepreneurship graduates were more prone to being involved in the development of new innovative products than their counterparts. They spent more time involved in the activities that related to research and development than their business management counterparts.

Entrepreneurship graduates were more involved with high technology firms than their counterparts. About 23% of entrepreneurship graduates owned their high technology firms, compared to just 15% of business graduates.

2.2.7 The role of institutions of higher education in entrepreneurship education

Universities are generally regarded as producers of knowledge through research, and this knowledge is passed on to students through teaching and learning. It also needs to be shared with the communities through the interaction of the universities with their communities and local industry.

Global unemployment among the youth, including university graduates, has made entrepreneurship a very important and viable career choice. Many governments around the world are citing entrepreneurship as a possible solution to the youth unemployment plague they are facing. Therefore, it has become necessary to educate the youth in entrepreneurship. Many researchers, Nicolaides (2011) among them, believe that for entrepreneurship education to be effective, it should begin at primary education prior to being taught at university. Nafukho and Muyia (2010) believe entrepreneurship education should be a life-long quest.

Nicolaides (2011) states that entrepreneurship education greatly enhances the students' chance of succeeding in entrepreneurship endeavours. He states that one of the roles of higher education institutions is to instil an entrepreneurial character in

students. These institutions should differentiate between business skills and entrepreneurial skills, which require creativity and innovativeness, and accordingly teach the students to be innovative.

Othman, Othman and Ismail (2012) concur with this statement. They state that globalisation has made the workplace very competitive, requiring that graduates should be creative and innovative. Creativity and innovativeness cannot be overstressed in enterprises. It allows businesses to be competitive and sustainable, because as societies' needs and buying patterns change, innovative business are able to respond quickly by adjusting the existing products to meet the changing consumer needs and demands. Non-creative businesses soon become obsolete as they no longer meet the consumer's changing needs.

Higher education institutions should contribute to regional innovativeness and economic development. They should decipher their regional economic needs and train students who will be equipped and capacitated with the relevant knowledge to effectively contribute to solving their regional industry needs. In essence, this calls for interaction between higher education institutions and their local industries. By interacting with the local industries, the universities will not only produce students that possess the relevant entrepreneurial knowledge, but can also arrange internship programmes for their students, thereby giving them an opportunity to obtain practical experience, which will greatly enhance their theoretical knowledge (Nicolaidis, 2011).

Osiri, McCarty and Jessup (2013) add an interesting role to higher education institutions that is presently still a rare gem among many universities. They posit that the university itself ought to model the vibrant culture of entrepreneurship at various levels within the university. Ultimately, the entrepreneurial culture ought to be supported by the institution-wide policies because all things that the faculties, departments, academics, and administrative support staff do need to comply with the university policies. They posit that university staff and researchers need to actively patent their innovations, and exploit and commercialise them. This active institutional entrepreneurial culture will motivate the students and they will be taught by qualified academics who have practical entrepreneurial experience.

There are many elements of truth in Osiri *et al.*'s (2013) assertions, such as that of the lecturers patenting their innovations and the students being taught by lecturers who

have practical experience in entrepreneurship. The lecturer also becomes an inspiring role model and plays the same role as inviting successful entrepreneurs into the classroom to teach and interact with the students.

2.3 ENTREPRENEURIAL INTENTION

Various scholars from different countries have studied entrepreneurial intention. Entrepreneurial intention has been defined as a conscious state of mind that directs attention, and therefore, experience and action towards a specific goal (Do Paco *et al.*, 2013).

This section will reflect on the various studies that have been conducted in order to provide a perspective for this study. However, it is necessary to first gain some insight into the various theories that scholars often employ to study entrepreneurial intentions.

2.3.1 Factors influencing individual entrepreneurial intentions

Mukundan and Thomas (2016) conducted a study of the determinants of the students' entrepreneurial intentions among IT (information technology) students in the developing country of India. They found that a favourable attitude towards entrepreneurship was the main contributor towards the students' entrepreneurial intentions. Hussain and Norashidah (2015) conducted a study among Pakistani final-year business students, using the TPB framework, and found that entrepreneurship education had a significant influence on the students' entrepreneurial intentions.

Piperopoulos and Dimov (2015) who conducted their study among British students who were enrolled for various entrepreneurship modules, found that the pedagogy had an influence on the students' entrepreneurial intentions. They found that the modules that were taught in a more practical way tended to raise the students' entrepreneurial intentions better.

In South Africa, Fatoki (2010) conducted a study among the University of Fort Hare graduate students at their three campuses in the Eastern Cape. The students were derived from all the disciplines, including those that had taken business modules and those that had not. The aim of the study was to determine the entrepreneurial intentions of the graduate students. He found that the entrepreneurial intentions of the graduate students were very low. He identified the obstacles that explain the weak

intentions, such as insufficient knowledge of how to raise the needed capital. Low entrepreneurial skills, fear of failure and unwillingness to take risks, as well as the high crime rate in the country were also identified as obstacles.

The first three obstacles can be addressed through entrepreneurship education. Yet, it is to be noted that Fatoki's study was not confined to entrepreneurship or business graduates, but to all graduates from all disciplines. The graduates' low entrepreneurial intention highlights the need (2010) extend entrepreneurship modules to all the students across all disciplines. The reason for this being because the youth are unemployed, including university graduates who have acquired some knowledge in some other disciplines. If given entrepreneurship education, they could employ their discipline-specific knowledge to engage in providing some kind of service to society in return for a fee, thereby, in essence, starting their own businesses.

Malebana (2014) undertook his study, which employed the TPB, among the final year commerce students in a rural university in Limpopo Province. He found that there was a significant correlation among the entrepreneurial intentions of the students, their perceived planned behaviour, favourable attitude towards entrepreneurship and social norms. He found that particularly the perceived entrepreneurial capability and social norms had an impact on the students' entrepreneurial intentions. It is interesting to note that in this study conducted in a primarily rural province of Limpopo, the social norms were positive.

This is confirmed by Liñán, *et al*; (2011b) who conducted their study both in a more developed area of Spain (Catalonia), and another less developed part of Spain (Andalusia). They found that in Catalonia, the societal valuation of entrepreneurship (descriptive social norms) had a greater influence on the students' intentions, whereas in the less developed Andalusia, it was the more prescriptive social norms that had an effect on the students' intentions.

Malebana had similarly also measured the influence of family and close associates on the entrepreneurial intentions of final-year rural students in Limpopo Province in South Africa, and found a positive effect (Malebana, 2014).

Both Fatoki (2010) and Malebana's (2014) studies were conducted among final-year students in a rural setting within the same country, though in different provinces, yet with significantly different outcomes. The one study sampled specific business

students, while in the other study the students were mixed. The study among business students revealed higher entrepreneurial intentions than in the mixed students.

This attests to the fact that business students tend to exhibit higher entrepreneurial intentions than those that do not study business. However, research has shown that entrepreneurship students have a higher entrepreneurial intention than business students have (Bae *et al.*, 2014). This provides evidence that entrepreneurial intentions may be shaped through entrepreneurship education, once more attesting to the transformational effect of entrepreneurship education.

2.3.2 Demographical and personality factors and their relationship to entrepreneurial intentions

The factors that are considered in this section are personality traits, demographics, and entrepreneurial background.

According to Peng, Lu and Kang (2012), entrepreneurship researchers in the 1960s looked more into the effect of individual personality traits on the entrepreneurs' behaviour. The focus shifted in the 1980s and 1990s to the individual intentions on the entrepreneurs' behaviour (Peng *et al.* 2012). A few studies have been conducted in the 21st century incorporating personality traits in the determinants of entrepreneurial intentions.

To get a clearer picture of the effect of entrepreneurship education on the students' entrepreneurial intentions, it becomes important to look at the possible effects of personality traits and the demographical factors. It becomes even more important if a researcher is not taking pre-test and post-test measurements. Without the pre- and post- measurements, it becomes more difficult to prove that the measured entrepreneurial intention is indeed owing to entrepreneurship education. There are other possible determinants that could also influence the students' entrepreneurial intentions. This makes the discussion of this section important.

A study by Ismail, Khalid, Othman, Jusoff, Rahman, Kassim and Zain (2009) classified personality traits into what they call the Big Five personality factors. These are extraversion, agreeableness, conscientiousness, openness, and neuroticism.

- The trait of extraversion is included, as extroverted people are generally assertive, dominant, energetic, enthusiastic, and exude positive energy.

- Openness refers to one being open to new innovative ideas; a trait that is important in entrepreneurship.
- Conscientiousness refers to one's high work ethic with high performance standards; and
- Neuroticism refers to one's emotional stability and maturity.

In addition to the individual personality traits, personal demographic and psychological factors also sometimes are found to have an effect in explaining one's entrepreneurial intentions. These would include a family background where one of the parents or a close relative is involved in entrepreneurship, the student's personal entrepreneurial experience, one's tolerance of risk, and ability to work in an environment of uncertainty (Peng *et al.*, 2012; Do Paco *et al.*, 2013).

In their study, Do Paco *et al.* (2013) found that Portuguese students with a higher appetite for risk-taking displayed higher entrepreneurial intentions, with the males scoring higher in their entrepreneurial intentions than the females. Ismail *et al.* (2009) mention the Big Five personality traits of an entrepreneur, these being neuroticism, extraversion, openness, agreeableness and conscientiousness (as mentioned above), According to Ismail *et al.* (2009), neuroticism refers to the degree of emotional stability, extraversion relates to the degree of assertiveness, positive emotions and enthusiasm. Openness encompasses a creative, curious and adventurous nature, while agreeableness refers to being compassionate and cooperative. Lastly, conscientiousness is about being organised, persistent, hardworking and motivated. Ismail *et al.* (2009) found that students who are disposed to openness also scored higher in their entrepreneurial intentions. In fact, their study found that out of the Big Five personality traits, extraversion and openness predicted the students' entrepreneurial intentions better, while the other three traits did not.

A study conducted by Drennan and Saleh (2008) reports that previous research on students' entrepreneurial intentions has largely been conducted in developed countries. They conducted their study among MBA students in the developing country of Bangladesh and found that the students' entrepreneurial background had an impact on their feasibility of starting a business, therefore indirectly impacting their entrepreneurial intention. However, when the breadth of the business venture was

wider, and included more ventures and more new product lines, the students' entrepreneurial attraction was higher, therefore raising their entrepreneurial intentions.

Sasu and Sasu (2015) who conducted their study among 200 undergraduate students from two Romanian universities, concur with the finding that the students' entrepreneurial background has an impact on their entrepreneurial intentions. They also found the mediating effect of gender on entrepreneurial intentions. Male students with an entrepreneurial family background had higher entrepreneurial intentions than female students with a similar family background.

In contrast, Ismail *et al.* (2009) who conducted their study among undergraduate students in a Malaysian university, found that the students with an entrepreneurial background did not have significantly higher entrepreneurial intentions than the students without an entrepreneurial background. Peng *et al.* (2012) concur with this finding. They found that the students' backgrounds did not have any significant impact on their entrepreneurial attitude, subjective norm, perceived feasibility, thus it had no effect on their entrepreneurial intentions.

As study by Laspita, Breugst, Heblilch and Patzelt (2012) found a weak link between the parents' self-employed status and their children's entrepreneurial intentions. However, Chlostá, Patzelt, Klein and Dormann (2012) found that although the status of self-employed parents' does influence the child's entrepreneurial decision, this decision is also influenced by the child's openness; confirming Ismail *et al.*'s (2009) findings of the importance of this personality trait. Although Chlostá *et al.* (2012) brought in the element of the child's personality, there are again inconsistent findings regarding the effect of the students' entrepreneurial background.

Drennan and Saleh (2008) explain that if the business is big and successful, then it does affect the students' entrepreneurial intention in a positive way. This finding is amenable, as usually in society, people are inspired and influenced by the success of others. As seen in this literature review, where the students knew a successful entrepreneur role model they developed higher entrepreneurial intentions.

However, what is lacking in the studies, and that has shown conflicting results in terms of the effect of the students' entrepreneurial background, is the comparison of the different types and sizes of the parents' businesses. Perhaps this could explain the

variations in the findings, as well as the different locations where the studies have been conducted and their entrepreneurship valuation.

As regards to the effect of the students' previous entrepreneurial experience on their entrepreneurial intentions, Peng *et al.* (2012) found that experience had an indirect relationship with the Chinese students' subjective norms and perceived entrepreneurial feasibility, thus indirectly having an effect on their entrepreneurial intentions. However, Ismail *et al.* (2009) found that though the Malaysian students with previous entrepreneurial experience scored higher in their entrepreneurial intentions than those without the experience; the difference was not statistically significant.

2.4 THEORETICAL FRAMEWORK FOR ENTREPRENEURIAL INTENTIONS

Entrepreneurship scholars have tried to understand the variables that determine one's decision to become an entrepreneur. Some researchers have looked at individual characteristics and entrepreneurs' personality traits in trying to understand how one becomes an entrepreneur (Linàn *et al.*, 2011a, citing Rauch and Frese, 2007). The shortcoming of individual characteristics and personality traits, however, is that these qualities are inborn. If they are responsible for one becoming an entrepreneur, then it would mean that entrepreneurs are born and not made. Schlesinger (2012), the former president of Babson College (as previously mentioned, regarded to be the best in entrepreneurship education) in the US, believes that entrepreneurial mind-sets, attributes and behaviours can be taught and learned in order to increase students' chances of succeeding in entrepreneurial activities.

In light of the shortcomings of the personality approach in seeking to explain how one becomes an entrepreneur, Icek Ajzen (2006) developed the theory of planned behaviour (TPB) in 1988, and later refined it in 1991. The Planned Behaviour Theory states that there are three antecedents that lead to intentions, namely, a positive attitude towards a certain behaviour, perceived behavioural control, and social norms. Essentially, it means that the behavioural intention stems from a favourable attitude towards a behaviour, the perceived feasibility of the behaviour, and the influence of the expectations of family and friends. The theory quickly gained popularity due to its focus on the individual's cognitive reasoning powers, and the ability to take conscious

control of one's behaviour, as opposed to the personality approach. The researcher chose to engage the TPB, mainly for its cognitive reasoning powers and chose it above the Social Cognitive Career Theory (SCCT) because it reasons that attitude towards a behaviour is an antecedent, as opposed to the SCCT where interest is an outcome to certain inputs.

The TPB, as applied to this study, requires that the formation of entrepreneurial intention in an individual is followed by a favourable attitude towards entrepreneurship as a career of choice, the perceived feasibility of entrepreneurial competencies and skills, and the positive influence of family and friends. The TPB explains that if someone has a positive attitude towards entrepreneurship, such a person is more likely to control his or her behaviour and become an entrepreneur. The decision becomes strengthened when he or she perceives himself or herself to have the necessary entrepreneurial skills and abilities to be able to perform the required entrepreneurial activities successfully. The degree to which a person believes that his or her family and friends expect him or her to become an entrepreneur may also influence the ability to control his or her behaviour, in order to become an entrepreneur (Linán *et al.* 2011a).

According to the above explanation, the construct of entrepreneurial intention requires the variables of a positive attitude towards entrepreneurship, desirability, a 'can-do' attitude, feasibility, and the expectations of family and friends, and social norms. Social norms include one's perceived pressure to become an entrepreneur from friends and family, culture and the knowledge and presence of successful entrepreneurial role models. Some researchers have found that desirability and the perceived feasibility of behaviour have more influence on behavioural control than social norms (Linán *et al.*, 2011a). However, Karimi, Biemans, Lans, Mulder and Chizari (2012) have found that among Iranian university entrepreneurship students, social norms played a role in their choice of entrepreneurship as a career. It should be kept in mind that Linán *et al.*'s 2011a study was conducted among students in Spain, while Karimi *et al.* (2012) conducted their study in Iran.

This study will determine to what extent entrepreneurship education in an ODL context has an effect on the entrepreneurship intentions of students, using the above-mentioned variables. The influence of social norms on the students' entrepreneurial

intentions will be explored further, particularly using the students' parents' self-employment status and their own entrepreneurial experiences.

Figure 2.1 is a diagrammatical illustration of the proposed theoretical framework based on the Theory of Planned Behaviour.

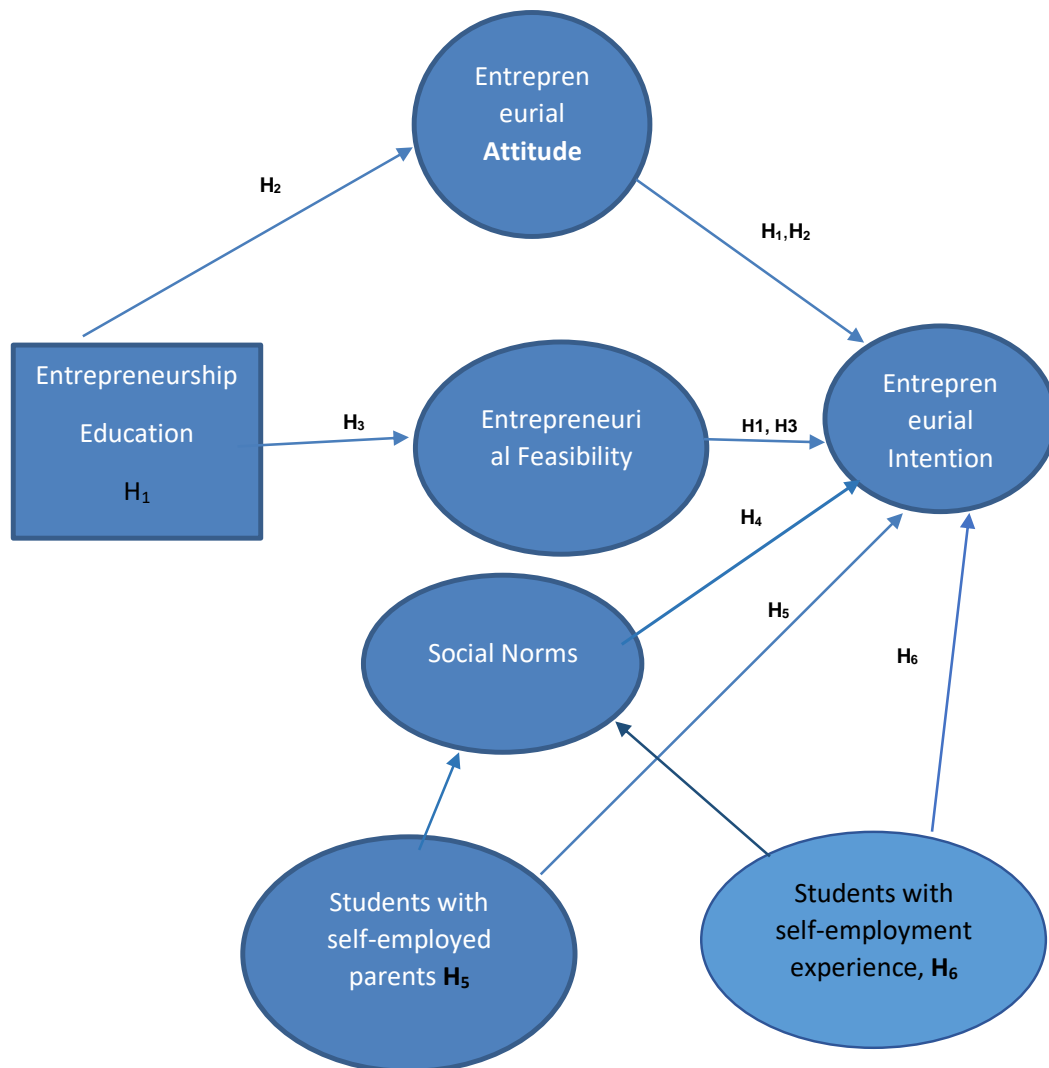


Figure 2.1: Theoretical framework based on the Theory of Planned Behaviour

Source: Author's own compilation

2.4.1 Models or theories that explain entrepreneurial intentions

This section presents a discussion of the evolvement of the models of entrepreneurial intentions as described by Marire (2015).

The first model to attempt to predict entrepreneurial intentions was developed by Shapero and Sokol in 1982 and he called it the Entrepreneurial Event Model. This

model focuses on the links between one's capabilities, governance, relative self-sufficiency and the risk to explain the event of a new business creation.

The other theory is Theory of Planned Behaviour by Ajzen in 1991. This theory states that intention is a good predictor of behaviour and the antecedents of intention are a positive attitude towards entrepreneurship, perceived feasibility and the influence of social norms.

In the same year, 1991, Robinson, Stimpson, Huefner and Hunt came up with the Entrepreneurial Attitude Orientation theory. This theory tried to explore the entrepreneur's attitude, using reactions described as 'affective, cognitive and conative', while relating them to 'achievement, self-esteem, personal control and innovation'. A positive entrepreneurial attitude seemed to feature predominantly in the formation or explanation of intentions. It is therefore not unexpected that Robinson *et al;* (1991) seemed to explore it further and relate it to the psychological attributes of man.

In 1993, yet another model called the Basic Intention Model was coined by Krueger and Carsrud. This one too includes attitudes and it states that behaviour and attitudes influence intentions.

In 1994, Krueger and Brazeal came up with the Entrepreneurial Potential Model, which was rooted in the work of Shapero and Sokol (1982) and Ajzen (1991).

Yet another model was developed in 1995 by Davidsson, the eponymous, Davidsson's Model. This model states that intention is a result of present circumstances and attitudes in particular. The fact that intention is controlled and motivated by the current situation suggests the changing nature of intentions, since intentions are not independent, but are dictated by the current favourable situation and general attitudes, which also speaks of the role of social norms in the formation on one's entrepreneurial intentions. Attitudes seem to be important in the formation of entrepreneurial intentions. Without a positive, favourable attitude, there cannot be a positive intention.

2.5 SUMMARY

This chapter discussed entrepreneurship education and presented definitions from a number of authors. The role of entrepreneurship in relation to entrepreneurial activity,

economic development and entrepreneurship education as an empowering tool was also discussed. The importance of entrepreneurship education was discussed, as well as entrepreneurship education globally, in Africa and in South Africa.

Entrepreneurship education was related to The Planned Behaviour Theory, as well as earlier entrepreneurship education models. Any discussion of entrepreneurship education would not be complete without discussing the methods of teaching entrepreneurship and the role of institutions of higher education in teaching entrepreneurship. Lastly, entrepreneurial intentions and the effect of entrepreneurship education on intentions were discussed.

The next chapter will focus on the research design and methodology. It will explain and justify the research approach, the population to be studied, the data collection method, and the instrument to be used to collect data. It will also discuss the validity and reliability of the measuring instrument, as well as the data analysis method that will be employed in the study.

CHAPTER 3: RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

In this chapter, the researcher will present the research methodology applied to this research study, provide the problem statement, research objectives and the hypotheses to be tested. These aspects are discussed to ascertain which methods and procedures were appropriate to investigate the identified research problem.

This chapter also presents the research design and research method used in the study, as well as the population of the study, and the sampling strategy used in recruiting the respondents to take part in the study.

3.2 THE RESEARCH PROBLEM

Entrepreneurial activity among South African youth is low in comparison to other African states. In light of the foregoing fact, this study aimed to determine the effect of entrepreneurship education on the students' entrepreneurial intentions, attitudes and perceived feasibility in an ODL context. If entrepreneurship education can stimulate intentions, if acted upon, entrepreneurial activity, particularly among the youth who are mostly unemployed, can be improved.

There seems to be differing views of how the South African public views entrepreneurship. Singer et al, (2019) state that South Africans scored 'high status to entrepreneurs' at 74.9%, and 'entrepreneurship a good career choice' at 69%, which are fairly high scores. However, Jenvey (2015) and Ed (2015) agree that South Africans regard corporate jobs as being more decent than entrepreneurship.

In light of the conflicting reports on the importance that the South African society places on entrepreneurship, this study would like to investigate the effect of social norms on the students' entrepreneurial intentions. In addition, this study also aimed to particularly measure the effect of the students' entrepreneurial background on their intentions. The students' entrepreneurial background was measured by their parents' self-employment status and the students' own entrepreneurship experience, to

determine whether their entrepreneurial background has an effect on their entrepreneurial intentions.

3.3 RESEARCH OBJECTIVES

The primary objective of this study was to determine whether entrepreneurship education does have an effect in stimulating entrepreneurial intentions among university students in an ODL context, as well as to investigate the effect of entrepreneurship students' entrepreneurial background on their entrepreneurial intentions.

3.3.1 Secondary objectives

In order to achieve the primary objective of the study, the specific objectives pursued are to:

- determine if there is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions;
- establish whether there is a positive linear relationship between entrepreneurship education and the students' attitudes towards entrepreneurship;
- determine whether there is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility;
- establish whether there is a positive linear relationship between social norms and students' entrepreneurial intentions;
- determine the effect of their parents' self-employment status on the students' entrepreneurial intentions; and
- determine the effect of the students' own previous and current entrepreneurial experience on their entrepreneurial intentions.

3.4 HYPOTHESES STATEMENTS

In trying to answer the research objectives and questions, the following hypotheses were tested:

H₁ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions.

- H₂ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial attitudes.
- H₃ There is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility.
- H₄ There is a positive linear relationship between social/subjective norms and the students' entrepreneurial intentions.
- H₅ Their parents' self-employed status has an effect on the students' entrepreneurial intentions.
- H₆ The students' own entrepreneurial experiences have an effect on their entrepreneurial intentions.

3.4.1 Hypotheses testing

A hypothesis is a mere assumption or a guess that is assumed as a premise in an argument (dictionary.com). Hypothesis testing involves the use of statistics to determine whether a hypothesis is true or not. The process of testing a hypothesis entails 4 steps; which are:

1. The formulation of the null hypothesis by the researcher: H_0 – which would imply that the occurrence of the observation under study is due to a pure chance. After the null hypothesis, the researcher also needs to set an alternative hypothesis, denoted by H_a – which will imply that the observation has a real effect and its occurrence is not due to chance, and it can be generalised back to the population from which the sample was drawn.
2. The researcher needs to identify the test statistic to be used to assess the truth of H_0 . This study used the Chi-square p -value.
3. Compute the p -value. The smaller the p -value, the stronger the evidence against H_0 .
4. Lastly, the researcher compares the computed p -value to the acceptable significance value α (also called an alpha value). If $p \leq \alpha$, then the observation is statistically significant, and its occurrence is unlikely to be due to chance. This study used the α value of 0.05, meaning that if the p value is equal to or less than 0.05, there is at most and less than 5 chances out of a 100 that the observation will be due to chance (Anon. N.d. b).

3.5 RESEARCH DESIGN

Research design is the plan of how the study will go about collecting and analysing data aimed at answering the research question (Saunders *et al.*, 2012). The activities entailed in research design are many and varied. They include the choice of the population, the sample and the sampling techniques that will be used to select it. At the same time, it includes guarding against sampling bias, the data collection instrument and its validity and reliability of the measurements, data collection processes, data analysis methods, interpretation of analysed data and inferential conclusions drawn, and the accuracy and generalisability of the findings to the population or general public (De Vos *et al.*, 2011).

Research methods are broadly categorised into two groups, namely, the qualitative and quantitative, with mixed methods in between. For the purposes of this study, the quantitative method was used. According to De Vos *et al.* (2011), a quantitative study is an inquiry into a social or human problem, based on testing a theory that is composed of variables. Moreover, these variables are measured in quantitative numbers and analysed using statistical procedures in order to confirm or disprove the theory.

Based on this definition of De Vos *et al.* (2011), this study used the TPB and measured its variables of entrepreneurial attitude and feasibility and entrepreneurial intention, and how they respond to or how they are affected by the independent variable of entrepreneurship education.

3.5.1 Degree of research question crystallisation

A research study may be qualitative or it may be quantitative and structured. Qualitative studies tend to be loose-ended in nature, leading to a question being followed up with more in-depth questions, to obtain more clarity on the matter being explored. Quantitative studies are more structured, use close-ended questions, and they state a hypothesis and ask a research question that is to be measured and answered through quantitative data (De Vos *et al.*, 2011).

This study used a quantitative method to crystallise the research question, thereafter a number of hypotheses were stated, and a research question was formulated that the study aimed to answer.

3.5.2 Method of data collection

This section discusses how the data was collected and the technique used in the data-collection process. A survey is usually associated with descriptive studies and is perhaps the most common research method (Saunders *et al.*, 2012). A survey is a pre-determined, structured set of questions numerically measuring certain variables of a theory, and generally they remain constant throughout the research study.

A survey may be administered personally in face-to-face interviews, or may be conducted telephonically, or may even be mailed to the prospective respondents. With the advances in technology, it is possible to administer an online survey. The absence or lack of interaction with the prospective respondents, whether by mail or in the form of an online survey, eliminates undue or unaware influence on the respondents (De Vos *et al.*, 2011).

This study used an online survey. A structured survey was sent electronically to the target population. The research instrument used in this study was a structured questionnaire shortened from that of Professor Liñán *et al.*; (2011a) with their permission (Appendix B). The questionnaire is based on the TPB, and it measured the different variables of the construct. Through the use of factor analysis each element under a construct variable was tested to determine whether it related to the other elements. The final survey questionnaire only kept those elements that had a strong relation to the other elements. The reliability of the measurements has been tested and the instrument has been refined, as the original developer has used it several times, increasing its reliability. Notwithstanding its previous reliability testing, the Cronbach's alpha was computed to test the reliability of the measurements.

Data can be collected through the use of indices or scales. They include nominal, ordinal or interval scales (De Vos *et al.*, 2011). This research study used scales. As such, the scales data-collection theory will be briefly discussed below.

3.5.2.1 The use of Likert scales in surveys

Likert scales are the most widely used scale in surveys. In its use respondents are asked to indicate whether they agree with a statement or not. The other common modification is whether they approve or disapprove of a statement. Researchers are

encouraged not to have more than eight distinctions because they are not necessary and would confuse the respondents and affect the data integrity (De Vos *et al.*, 2011).

This research study used a structured survey with a seven-point Likert scale. Likert scales are the most widely used in quantitative studies and they have been refined and standardised. As a result, they are a more reliable method of obtaining measurements and their refinement and standardisation offer greater validity to the instrument. De Vos *et al.* (2011) advised that the scales should not exceed eight points, as they begin to confuse the respondents and interfere with the integrity of the data. Therefore, this study used only seven points.

3.5.2.2 Distribution of the survey

The survey was sent to the targeted undergraduate population electronically. The prospective respondents were sent a Uniform Resource Locator (URL) link via their Unisa MyLife email addresses, and when they clicked on it, it opened the information page that explained the purpose and benefits of the study and invited the students to take part in the study. If they agreed to participate in the study, they had to click on the second link that took them directly to the survey. After completing the survey, the respondents had to click on the 'submit' button which sent the completed survey to a central depository that only the researcher had access to, not even the ICT Department that sent out the email letters with the survey link could access it.

3.5.3 Control of variables

Devlin (2006) states that while the researcher is looking at variables that could have an effect on the dependent variable, the researcher also needs to take care that other external variables that could also have an effect on the dependent variable do not do so. In other words, the researcher needs to control the external variables, because if he/she does not do so, it would be difficult to prove that the change in the dependent variable is solely due to the effect of the independent variables being measured. This will weaken the internal validity of the study design.

In this study, one of the external factors that could influence the effect of entrepreneurship education on the students' entrepreneurial intention, could be how the modules are being taught; whether there is contact face-to-face tutoring versus

online teaching. The researcher verified with the Department of Entrepreneurship's Chair of Department (CoD) that all entrepreneurship modules are blended modules.

The study also measured the students' entrepreneurial background, as the students who have self-employed parents may have higher entrepreneurial intentions. The length of time that the student has studied entrepreneurship may also have an effect on the students' entrepreneurial intentions. To control for this also, this study measured the entrepreneurial intentions of the students at different levels of study.

3.5.4 Purpose of the study

This research study aimed to assess the effect of entrepreneurship education on the students' entrepreneurial intentions at an ODL institution. The study also aimed to measure the effect of entrepreneurship education on the students' intentions, attitude and perceived feasibility.

The view of the South African society on entrepreneurship is elusive, for example, some reports state that the South African society places a high value on entrepreneurship, while others state that the South African society places more value on corporate jobs. In addition, this study aimed to investigate the effect of social norms on entrepreneurship students' entrepreneurial intentions. This study specifically measured social norms in terms of the students' entrepreneurial background, as measured by their parents' self-employed status and the students' own entrepreneurial experiences.

3.5.5 Time dimension

A study may be cross-sectional or it may be conducted over a period of time, and/or longitudinal. In a cross-sectional study, the measurements are taken only once from the respondents, which is the opposite of a longitudinal study. The benefits of a longitudinal study is that the researcher is able to see the developments and changes in the variables measured over time, and is thus able to state definitively that the observations in the dependent variable are due to the effect of independent variables (Anon., n. d. c).

This study collected data from the respondents only once, making it a cross-sectional study. A reminder email was sent once to the respondents after two weeks of sending out the initial participation request.

3.5.6 Topical scope

The scope of the study may be to study the breadth or the depth of the variables or phenomena under study. Quantitative studies tend to study the breadth and not the depth, unlike qualitative studies (Anon., n.d. d.).

In this study, the topical scope is the breadth, as the researcher is trying to study the population characteristics by studying the sample characteristics, precisely studying the students' entrepreneurial intentions and inferring it back to the population.

This study also defined the research scope by identifying the limitations and delimitations of the study. The limitations are inherent design parameters that have the ability to restrict the research findings and usually lie outside the control of the researcher. An example of this would be the limitation of being unable to reach an optimal sample size (Anon. n.d. e.).

This study experienced the limitation of being unable to reach an optimal sample size, as permission was obtained to send an online survey to the students once only, and to send only one reminder email, as more reminder emails would wear the students out. This restriction was adhered to and the study operated within the permission boundaries. This study tried to optimise the sample size by sending the online survey to the entire population of the students registered for undergraduate entrepreneurship modules.

The delimitations are under the control of the researcher and they affect the careful generalisations that can be made to the population from which the sample was drawn.

3.6 THE RESEARCH ENVIRONMENT

The study was conducted among the students who are registered for entrepreneurship modules in an ODL environment at a public university in South Africa. All the modules are blended modules, meaning that all the students are taught online, as well as receiving face-to-face tutoring.

3.6.1 Respondents' perceptual awareness

Respondents' perceptual awareness may influence the outcome of the study, or even weaken the design of the study. There are three levels of respondents' perceptual

awareness, with differing degrees of awareness and its accompanying potential influence on the outcomes of research. When people are aware that they are being observed, they normally tend to behave differently. The levels of perceptual awareness are:

- Respondents perceive no deviation from their everyday routine, and are thus not affected and their responses reflect the true everyday responses.
- Respondents perceive deviations, but they are unrelated to the study and are therefore unaffected. The unaffected state is desirable, as it is unlikely to influence or skew the responses. In this study, though the respondents were aware that they were participating in a research study, something which they do not do in their normal daily routine, the researcher was unknown to them. Also, the fact that the researcher was removed and did not have any contact with the respondents, as the study was online and truly anonymous, the level of perceptual awareness was very low and was unlikely to have affected the respondents' answers.
- Respondents perceive deviations as researcher-induced, for example, being observed (Anon. N.d. f).

3.6.2 Sample design

This section discusses the population of the study and the sampling method employed in the current study.

3.6.2.1 Population

Creswell (2012) defines a target population as a group of individuals with common defining characteristics that the researcher can identify and study. Saunders *et al.* (2012) refer to the population as the full set of cases from which a sample will be taken.

The population for this study were the second and third-year undergraduate students enrolled for entrepreneurship modules at UNISA.

3.6.2.2 Sample selection

A sample is a small section of respondents chosen from the target population. It is drawn from the population for the purpose of measuring certain characteristics or variables and studying them and being able to generalise the findings of the sample to the greater population from which it was drawn (De Vos *et al.*, 2011). In order to be

able to generalise the sample findings to the population, the inherent assumption is that the sample characteristics resemble those of the population. A sample is drawn and studied because it is easier and more cost-effective to measure and study a sample than the entire population.

There are certain procedures to be followed in selecting a sample in order to ensure that the sample is representative of the population from which it is drawn. The selection procedures are broadly characterised into probability and non-probability selection methods (Leedy & Ormond, 2013).

Under probability sample design, Leedy and Ormond (2013) classify the sampling methods into five different strategies, namely, simple random sampling, stratified random sampling, proportional stratified random sampling, cluster sampling, and systematic sampling designs.

The target population that was studied comprised the students registered for entrepreneurship modules at a public university in South Africa. This study did not draw a sample, but rather took measurements from the entire population, as the number of students studying entrepreneurship is fairly small. The population size that was studied in this research study comprised 1 743 students. About 1 186 (68%) of them are in the second year of study, while 557 (32%) are in the third year of their study (Directorate of Information Analysis, 2019).

This study used an online survey method which is known to have a low response rate. To combat the low response rate of the online survey, this study used the entire population. In essence, the entire population has been fairly and equally included in the research study and there were no exclusion criteria.

3.6.2.3 Sample size

The sample size refers to the size of the drawn sample in relation to the size of the entire known target population.

In this particular study, because of the fairly small population size, the researcher opted not to draw out a sample, but rather to send the online survey link to the entire population of 1 743 entrepreneurship students. Using this method, the sample size will be the students who respond to the online survey. The other reason that contributed

to the decision not to compute and draw out a sample is the general low response rate of online surveys.

3.6.2.4 Sample error

According to Stopher (2012), a sample error occurs because a sample is unable to fully be a correct representation of the population from which it is drawn, and the degree by which a sample fails to represent the population is known as sample error.

Stopher states that there are two types of error: firstly, systemic or bias error, which is undesirable as it is humanly avoidable; and secondly, random error, which will always be present due to sampling. He also states that random error can be reduced by increasing the sample size, and it is generally unaffected by the population size. The limitations of reducing sample error by increasing the sample size may be accompanied increases in cost when the sample size is increased.

In this study, an online survey was emailed to the entire population, and then a reminder email was sent out. Eventually, 92 survey responses were received, with 73 of them being complete, as some respondents terminated their participation before completing all the questions. The low response rate means that the data is subject to non-response bias, and is not representative of the population.

3.6.2.5 Response rate

The sample rate is computed as the number of legitimate respondents who responded to the questionnaire or survey as a percentage of the entire known legitimate target population (Stopher, 2012). A legitimate population is the people who were meant to be in the study.

The legitimate target population of this study was the undergraduate students registered for entrepreneurship modules. The online survey was sent only to the legitimate population. Online surveys are known to yield low response rates. It used to be that an acceptable response rate was 10%. However, due to research respondents' fatigue, it came down to 5%, and now a response rate of 3% is deemed acceptable.

In this study, with a known legitimate target population of 1 743, 92 students responded to the survey, constituting a response rate of 5.3% $((92/1743)*100)$. However, of these 92 completed surveys, 19 were not complete, as the students had stopped completing

the survey which could have taken them at most 15 minutes, and did not respond to all the questions. This left 73 complete questionnaires, constituting a completed response rate of 4.2%. Due to the fairly low response rate, this study used all the responses: the 73 fully completed questionnaires, and the 19 incomplete surveys up to the questions that the respondents had given answers to. As a result of this, not all the questions will have the same number of respondents; some will have a little bit more than others. The latter questions towards the end of the survey will have fewer respondents, as some respondents chose to terminate the participation prematurely.

3.7 THE DATA COLLECTION INSTRUMENT

This section discusses the data collection instrument employed in the study in terms of questionnaire design, the pilot study and the administration of the questionnaires.

3.7.1 Questionnaire design

A questionnaire is an instrument that is intended to collect data from willing respondents. When designing the questionnaire, the researcher needs to keep in mind the purpose and objectives of the study and ask questions that will help him/her answer the research question, secondary questions and the study objectives.

The design of a questionnaire for a quantitative research design will differ from the questionnaire intended to gather data for a qualitative research design. The questionnaire for a quantitative study will be structured and close-ended. The respondent's answers are confined to the given options and the questionnaire stays the same throughout the research process for all the respondents.

However, in a qualitative study, where data is usually collected through interviews, the researcher will ask open-ended questions, which will allow the researcher to ask further probing questions, in order to obtain information-rich data. The questions of a qualitative study are intended to guide the researcher regarding which relevant questions to ask, hence the questionnaire is called an interview guide.

The researcher may design his/her own questionnaire, in line with the questions of the study that the researcher is trying to answer and the study objectives. Alternatively, the researcher may use a questionnaire that is already in the public domain; he/she may use it as is or adapt and shorten and add his own specific questions that will better

help him/her to answer the research questions. If the instrument was used by another study similar to the current one, but is the intellectual property of that study, permission may be requested from the original study to use it as is, or to adapt and/or shorten the questionnaire, and usually this permission will need to be disclosed in the study and evidence of the permission needs to be produced.

This study used an existing questionnaire and shortened it by selecting a few pertinent questions, and then the researcher added some other questions of her own, particularly with regards to biographical information. As stated above, written permission was obtained from the original owners of the questionnaire. The parts that have been borrowed from the owners of the instrument are highlighted in the survey appended at the end of the dissertation. (Appendix D)

3.7.2 Pilot study and final questionnaire

After designing the questionnaire, whether for a quantitative or qualitative study, the researcher should usually test the study among a small group of respondents to test whether the various respondents understand the questions in a similar manner and as intended, and to ensure that the questionnaire measures what it is intended to measure. This step is called piloting of the questionnaire. If the piloting phase proves the questionnaire to be understood in a similar consistent manner by the respondents, the researcher may use the questionnaire. However, if there are inconsistencies in the way the respondents understand the questions, the questions might need to be amended to ensure a common understanding, and in this way, the final questionnaire will be an amended version and different from the original questionnaire (Stopher, 2012).

This study did not pilot the instrument, since this instrument has been used before, and has been refined over time to keep only the elements that related strongly to one another.

3.7.3 Administration of questionnaires

The administration of questionnaires refers to how the study will disseminate the questionnaire to the target sample; the method of distribution to ensure that the targeted samples receives the questionnaire. There are various methods that may be used use to disseminate the questionnaire. The questionnaire may be hand-delivered

to the respondents, but the disadvantage of this method may be that it could be impractical if the target sample is dispersed over a large geographical area. In addition assistants may be employed to do the delivery of the questionnaires.

In today's highly technical society, researchers normally harness the power and efficiency of technology and send the questionnaire by email and request the respondents to email the completed questionnaire back. However, this method is not entirely anonymous, as the respondents may be identified by their email addresses. An online system like SurveyMonkey or Qualtrics, or any other online survey platform is a better form of questionnaire administration as they are truly anonymous. The researcher may design an online survey and send the target sample the link to the survey.

In a qualitative study where personal face-to-face interviews are the primary mode of collecting data, the researcher will sit down with the respondents and ask them questions. However, in non-sensitive, non-complicated questionnaires, the researcher may also use an online platform to request the respondents to respond to semi-structured questions. This method may be more relevant in situations where a researcher may be conducting research among his/her peers or colleagues. To protect the integrity of data collected and to maintain anonymity, the researcher may opt for this online platform in a qualitative study.

In this particular study, the researcher used the SurveyMonkey online system to send the survey link to the selected target population. The researcher sent bulk emails through the assistance of the university ICT department and sent a reminder email after two weeks.

3.8 DATA ANALYSIS DESIGN

The data analysis design of the current study, is presented in this section. The measurement design, level of measurement, validity and reliability, and factor analysis are discussed.

3.8.1 Measurement design

Singleton and Straits and Straits (2005) define measurement as "the process of assigning numbers or labels to units of analysis in order to represent conceptual

properties". They state that some concepts are easy to measure as they can be measured by the operations that define them, for example, measuring the students' success by their year-end marks. In contrast, there are some concepts are not easy to measure; like intelligence or intentions (Devlin, 2012). These concepts are best measured in constructs.

For the purposes of this study, the constructs were broken down into individual variables. Specific questions were asked under each variable and the respondents were asked to assign a number or value to each question. Respondents are usually given a number range to choose from and may only assign one number. There are several levels of measurement and they are explained below.

3.8.2 Level of measurement

Singleton and straits (2005) states that there are several measurement levels and each is designed to measure different things. In the order of ranking, as described by Singleton and straits, they are:

- I. Nominal – this is the lowest order and they classify things into categories, for example, gender (male or female), urban or rural. For example; 1 may denote 'male', while 2 may denote 'female', but a researcher cannot compute statistical manipulations using these numbers, The numbers are just meant to categorise the respondents.
- II. Ordinal – meant to indicate the rank order of cases, for example, a participant denoting one activity to be more difficult than the other. However, the rankings do not necessarily indicate the intervals between the numbers. Going back to the example of ranking the order of difficulty of carrying out tasks, order 2 does not mean that the task is twice as difficult as the activity that is assigned 1 by the respondents. Ordinal scales just tell us the ranks of cases, but not the intervals.
- III. Interval measurement – they have the qualities of the previous two, plus the requirement that equal intervals between the numbers represent an equal distance in the variable that is being measured, making it possible only to add and subtract, but not to divide and multiply, as the point of zero is arbitrary. The Likert scales fall within this category. For example, if the researcher is asked to choose between the numbers -2 to +2, with zero being ambivalent, that point of zero is arbitrary

and not real. The frequencies and proportions can be calculated, but no ratios can be computed.

- IV. Ratio measurements – they include the features of the previous three measurements, plus an absolute 0 point, which makes it possible to multiply and divide the numbers, and thus be able to compute the ratios.

3.8.3 Sound measurement - validity and reliability

This section discusses the validity and reliability, as well as the factor/item analysis in terms of sound measurement as applicable to the current study.

3.8.3.1 Validity

The research design that has been selected for a study needs to be evaluated in terms of how well it met the objectives of the study or how well it validated the hypotheses. There are two types of validity, namely, internal and external (Leedy & Ormond, 2013).

Internal validity refers to how well the other variables that could potentially affect the dependent variables of interest are being controlled in order to ensure that the measured changes in the dependent variables of interest can truly be attributed to the independent variable, thus inferring causal relationship between the variables (Leedy & Ormond, 2013).

In terms of the current study, the students' family background, personal entrepreneurial experience, the mode of entrepreneurship delivery and the level of the students' study could potentially influence their entrepreneurial attitudes, perceived feasibility and intentions, thus making it hard to conclude that the entrepreneurial intentions are solely shaped by entrepreneurship education. All the entrepreneurship modules are taught in the same way; they are all blended modules, ruling out the effect of the delivery. The researcher measured the students' entrepreneurial intentions according to their study level, to see what effect this could have on their intentions, thus leading to increased internal validity of the study. The students from families where at least one of the parents is self-employed are generally entrepreneurially inclined (Sasu & Sasu, 2015). To ensure the internal validity, the researcher included questions that measure the students' background and their personal entrepreneurial experience.

External validity refers to how well the findings of the sample can be generalised to the population from which the sample was drawn and to a 'real-life' situation. A representative sample, randomly selected and randomly assigned to groups, together with the researcher minimising his undue influence on the respondents, theoretically and greatly enhance validity. The external validity was preserved, as the survey was sent to the entire population, without drawing any sample.

Validity of measuring instruments

Validity of an instrument broadly refers to the degree to which the instrument measures what it is intended to measure, and the accuracy of the measurement (De Vos *et al.*, 2011:173). However, validity is not a single measure, but rather a series of measures, encompassing content, face, construct, and criterion validities (De Vos *et al.*, 2011) which will be discussed below.

a. Content validity

Content validity is concerned with whether the measure covers all the different aspects of the concept or phenomenon. In determining content validity, two questions are usually of importance: 1) does the instrument really measure what it is supposed to measure? 2) Does the instrument cover sufficient items that represent the concept that is being measured? (De Vos *et al.*, 2011).

De Vos *et al.* (2011) assert that content validity may be established by the judgement of experts in the specific discipline. It is sometimes called 'jury opinion'. Relating to this study, the researcher requested permission to use the survey questionnaire that has been developed and used by Professor Liñán *et al.*; (2011a) (Appendix B). The questionnaire has been refined, as it has been used several times and the different aspects of the concept are adequately incorporated and measured, therefore leading to a satisfactory level of content validity.

b. Face validity

This is the simplest and less scientific of the validities, as it is concerned with the appearance of a measurement. The key question here is: 'does the measurement technique look as if it measures the variable that it claims to measure?' (De Vos *et al.*, 2011).

One would wonder why face validity is even important because it is concerned with the appearance only, and it is less scientific. However, De Vos *et al.* (2011) argue that face validity is important to overcome potential resistance from the prospective respondents, because if the measurement techniques do not seem valid, it may affect the respondents' willingness to participate in the study.

c. Criterion validity

This type of validity testing tries to give a more objective evidence of validity by comparing the scores of an attribute being measured with one or more external or independent criteria. The external criteria that are brought in for comparison need to be valid and reliable because without these qualities, it would not be possible to establish the validity of the measures (De Vos *et al.*, 2011).

d. Construct validity

This involves the degree to which the instrument successfully covers and measures all the different aspects of a construct. It is concerned with what the instrument measures and how it measures it and why it operates the way it does. It is thus concerned with the validation of both the instrument and the theory. This calls for a deep understanding of the theory and other constructs that relate to it. In addition, De Vos *et al.* (2011) say "construct validity is thus based on the logical relationship among variables".

One method of establishing construct validity is to compare a measure with variables it is generally believed not to correlate with, or those that are believed to correlate with, and to compare the measures. The results of such comparisons will either yield convergent or divergent validities. Convergent validity refers to strong correlation, while divergent validity refers to weak correlation.

The construct of TPB has been employed in research and refined over the years. Statistical t-tests and factor analyses have been employed to test the relationships and relevance of the variables to the constructs. Based on this factor analysis, it could be confidently asserted that construct validity was assured in this study.

e. Factorial validity

Factorial validity is another way of measuring construct validity. This is used or measured when the researcher wants to confirm whether the theoretical dimensions are in fact being measured. The procedure will cluster together certain items that best measure a particular construct, and will therefore also identify those that relate less to the construct being measured.

The original developers of the survey did this test and eliminated those variables that related less to the construct being measured, therefore ensuring factorial validity.

3.8.3.2 Reliability

If the same or a very similar measuring instrument was to measure the same thing on different samples all drawn from the same population, under similar circumstances, and consistently yield similar results, that would be reliability. Reliability is the consistency of a measuring instrument in yielding similar results every time. Reliability has to do with the accuracy of the instrument. However, an instrument may be reliable, but not measure what it is intended to measure, and therefore not valid. If an instrument is valid, it also needs to be reliable, but if it is reliable without being valid, the reliability does not really matter, since it does not measure what it is intended to measure (De Vos *et al.*, 2011).

De Vos *et al.* (2011) suggest the following procedures in order to increase reliability, namely, increase the number of items or observations; get rid of unclear and ambiguous items; increase the level of measurement; keep constant the conditions under which the test or measurements are taken; do not make the test too difficult or too easy; minimise the effects of external factors; and lastly, use pre-tests, pilot studies and replications.

To assess the reliability of the measurements, the researcher computed the Cronbach's alpha for the different variables of the construct as shown in Table 3.1.

Table 3.1: Reliability Cronbach's alpha

Variable measured	Cronbach's alpha
Entrepreneurial intention	0.8371
Entrepreneurial attitude	0.8833

Social norms	0.7549
Entrepreneurial skills/feasibility	0.4016
Entrepreneurship education (Environmental awareness)	0.7832
How entrepreneurship is taught	0.8237

All but one of the Cronbach's alpha figures were above the threshold of 0.7, confirming the reliability of the measurements. The variable of "Entrepreneurial skills/feasibility" had a Cronbach's alpha of 0.4016, which is below the threshold of 0.7, thus indicating that the students seem to have had a different understanding of the entrepreneurial skills questions.

3.8.3.3 Factor/Item analysis

Factor analysis is an important tool that is used to measure the relationship between variables. Factor analysis allows researchers to measure concepts that are not easy to measure directly by combining a large number of variables into a few underlying factors. The main idea of factor analysis is that a number of similar measured variables may tend to have similar responses to another latent variable that is not directly measured. Another important fact to remember about factor analysis is that the number of factors needs to be similar to the number of variables.

Each factor will indicate an amount of the overall variance in relation to the variables under observation, and the number assigned to each factor is called the Eigenvalue. An Eigenvalue measures how much each factor explains the variance of the observed variable. The factors will be listed in the order of their descending value, and the higher values indicate that those factors explain most of the variance in the variables.

In this study, the statistician indicated that the construct variables were taken from validated scales, and therefore it was not necessary to recalculate the factor analysis. The constructs were taken from *Factors affecting entrepreneurial intention levels: a role for education* by Liñán *et al*; (2011a).

3.9 DATA PREPARATION / PROCESSING AND ANALYSIS

According to De Vos *et al.* (2011), quantitative data analysis is "the technique by which the researcher converts data into a numerical form and subjects it to statistical analysis." The purpose of analysis is to turn data into a meaningful form that can be

related to the research problem and allow the researcher to draw some conclusions. De Vos *et al.* (2011) categorise quantitative data analysis into four main groups, namely, descriptive, association, causation, and inference.

In this study, the researcher sent an online survey link to the respondents. When they responded, the responses were captured onto the designated central repository. After the data collection period, the researcher downloaded the responses from the central repository, and then exported the raw data onto an Excel spreadsheet. Everything was done electronically, thus minimising human error in data entering. Data quality was also preserved by the use of the online survey.

The respondents were given options of answers to choose from and they could only choose one answer at a time that best described their perceptions. This made it difficult or impossible for the respondents to give an answer that falls outside the range of answers. In the questions where they were asked to choose either 'Yes' or 'No' answer and a 'Yes' answer had a follow-up question, only the participant who chose 'Yes' was allowed to see the follow-up question, again making it impossible to give an inappropriate answer that is not consistent with the previous answers, thus protecting the quality of data.

The data that was exported to the spreadsheet was then entered into the Stata 15 statistical program for further data manipulation and analysis.

3.9.1 Descriptive statistics

As one of the quantitative data analysis techniques, descriptive statistics describe the distribution of the sample, for example, frequencies, central tendency and dispersion and the *t*-test.

Descriptive statistics also measure the association or correlation of various variables. Descriptive statistics may be used to determine whether the position of one variable is consistently associated with the position of another variable. They use statistical tests such as correlation analysis, regression analysis and variance analysis. Sometimes, they may attempt to determine a network of relationships among variables. As can be expected, there are a number of variables being studied simultaneously. Therefore, they use multi-variate statistical analyses such as factor analysis and regression analysis.

This study used frequencies and proportions, and for tests of significance computed the Chi-square p -values. The Pearson Pairwise correlation was computed to determine the correlations between entrepreneurship education and the antecedent variables and entrepreneurial intentions.

3.9.1.1 Data analysis of inferential statistics

The aim is to determine whether the characteristics that exist within a sample also exist in the population from which it was drawn. This is done through tests of significance. This study used the Pearson Chi-square p -values to compute significance. The researcher worked at a confidence level of 95% or an error level of 5%. That is the cut-off for the p -value was 0.05. If a p -value is 0.05 and less, then the relationship between the values is significant, with a 5% chance of error. If the test is significant, then the logical statistical conclusion is that the occurrence of a relationship between variable is not due to chance, therefore if it exists within a drawn sample, then it also will exist within the population from which the sample was drawn.

Prior to data analysis, the researcher exported the data onto an Excel spreadsheet from SurveyMonkey. The collected data was managed and analysed using the Stata 15 statistical program. In the analyses, frequencies, bar charts and cross-tabulations were generated. Tests of significance were computed to verify whether the relationships, if any, among the variables were significant.

3.9.1.2 Data cleaning and treatment of missing values

Singleton and straits (2005) refers to data cleaning as the act of “detecting and resolving errors in transmitting the data to the computer as data cleaning”. He presents cleaning methods as: 1) wild-code checking, 2) consistency checking, and 3) examining the questionnaire schedule by listening to taped responses or contacting respondents.

- The term ‘wild-code’ refers to answers that fall outside the proved scales or codes. This was largely removed by the use of the online survey, as the respondents were allowed to choose only one scale within the prescribed range.
- Consistency checking refers to reasonable answers to questions, again this was taken care of by the use of an online survey and restricting the respondents to seeing and responding only relevant to how they had answered the preceding

questions. For example, if a respondent chose a 'No' answer to one question, then the survey automatically skipped any follow-up question that required an explanation. Automatic exporting of data onto an Excel spreadsheet also ensured that inconsistent errors and human errors were eliminated.

- The third measure of data cleaning would in most cases apply to face-to-face interviews, including focus group discussions, where the researcher will audio or video tape the interviews with the respondents' consent. Stopher (2012) urges that irrespective of the data entry that the researcher is using, it is always advisable to check the data after entry, and the most frequently used method of checking is to run the frequencies and check for the answers that fall way outside the scale. As previously explained, the design and use of the online survey allowed the respondents to choose one answer only from the range given, thus preventing the answers to fall outside the scale range, in the process preserving the data quality.

Missing values could be due to the refusal to respond to a question, or genuinely missing a question, or the respondents terminating their participation prematurely (Stopher 2012).

A formula for computing missing values is available, and the computed answer will range between 0 and 1, with 0 meaning that there are no values missing, which is desirable, and 1 on the other end meaning that all values are missing. A value of 0.02 would mean that 2% of the values are missing. Missing value statistic (MVS) should be calculated on raw data before data cleaning, and then repeated after data cleaning, to indicate the extent of improvement in data quality and will give the researcher a clue of how complete the data set is.

3.10 ETHICAL CONSIDERATIONS

In order to ensure adherence to the University's Policy on Research Ethics, the researcher applied for ethics clearance from the College of Economic and Management Sciences Ethics Review Committee (ERC) and for permission to involve the university students from the Research Permission Sub-committee (RPSC). (The Ethical Clearance Certificate that was issued for this study is attached as Appendix A.)

The researcher further used informed consent to get permission from the respondents, which appeared on the first part of the online survey (Appendix C). Informed consent provided important information relating to the following, which enabled the respondents to make an informed decision regarding whether or not to participate in the study:

- **The purpose of the study**

The purpose of the study was explained so that the respondents were able to understand what the study was all about.

The rights of the respondents

The researcher explained the rights of the respondents in the informed consent section (Appendix C). This included, among others, the right to withdraw from the study at any given point if they felt uncomfortable, without any negative consequences to them.

- **Voluntary participation**

The respondents' participation in the study was voluntary. No one was coerced to participate, and no undue influence was used to get the prospective respondents to take part in the study.

- **Confidentiality**

Individual responses were not to be seen by anyone other than the researcher, the supervisor and the statistician. ICT was requested to send the survey link to the students but they did not have any access to the responses. The printed versions are kept in a locked cupboard and the electronic responses, as received from the respondents, are saved in a password-protected folder.

- **Anonymity**

The survey was web-based. The students clicked on a survey link to access the online survey. After completing the survey, the respondents clicked on the "submit" button, which then submitted their responses without capturing the identities or email addresses of the respondents.

3.11 SUMMARY

This chapter presented the research design and methodology used in the study, followed by a discussion of the population of the study and how respondents were invited to take part. Thereafter the process to collect the data from the respondents, using a survey shortened from that of Liñán *et al.* (2011a), was discussed. Finally, the data analysis using Stata v15 to generate both descriptive and inferential statistics was discussed.

The next chapter presents the results of the study and reports on the descriptive and inferential statistics and findings.

CHAPTER 4:

PRESENTATION OF RESULTS

4.1 INTRODUCTION

The previous chapter presented the research methodology and data analysis. This chapter, presents both the descriptive and inferential statistics and presents the findings. The research results are discussed and they are presented in relation to the research question and the secondary questions.

In the presentation of the results, the demographic profile of the respondents as well as the sample characteristics are first discussed. Then the results pertaining to the main research questions are presented:

- To what extent does entrepreneurship education stimulate entrepreneurial intentions among students in an ODL context?
- What is the effect of social norms, particularly as measured by the students' entrepreneurial background, on the students' entrepreneurial intentions?

The results are also presented in accordance with the specific objectives, being:

- determine if there is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions;
- establish whether there is a positive linear relationship between entrepreneurship education and the students' attitudes towards entrepreneurship;
- determine whether there is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility;
- establish whether there is a positive linear relationship between social norms and students' entrepreneurial intentions;
- determine the effect of their parents' self-employment status on the students' entrepreneurial intentions; and
- determine the effect of the students' own previous and current entrepreneurial experience on their entrepreneurial intentions.

The researcher will also test the hypotheses, which are:

- H₁ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions.
- H₂ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial attitudes.
- H₃ There is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility.
- H₄ There is a positive linear relationship between social/subjective norms and the students' entrepreneurial intentions.
- H₅ Their parents' self-employed status has an effect on the students' entrepreneurial intentions.
- H₆ The students' own entrepreneurial experiences have an effect on their entrepreneurial intentions.

4.2 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

The total population for the study was 1 743 students. In carrying out the research, an online survey was sent to 1 743 students who specifically registered for entrepreneurship modules in their second and third-year levels of study.

Of the 1 743 students who received the survey, only 92 responses were received after the one allowed reminder was sent. However, some respondents did not respond to all the questions of the survey. Of the 92 responses received, only 73 were complete. The complete response rate constitutes 4.19% of the population. The respondents' demographic profile is presented in a tabular form in the Table 4.1 below.

Table 4.1: Demographic characteristics of respondents

Characteristics	Description	Frequency	%	Total %
Gender	Male	45	48.91	
	Female	47	51.09	100
Level of study	2 nd year	27	29.35	
	3 rd year	65	70.65	100
Racial group	African	61	68.54	
	Indian	8	8.99	
	Coloured	10	11.24	
	White	10	11.24	100

In terms of gender, males and females are almost equally represented, with 45 males (48.91% of the respondents) and 47 females (51.09%). It needs to be highlighted that if more responses had been received, the gender composition of the study might have been completely different.

It emerged from the study that a greater proportion of the respondents, 65 of the 92 respondents (70.65%) are in their third year of study. This implies that they have studied at least two entrepreneurship modules. The students start registering for entrepreneurship modules in their second year of study. There were 27 second-year students that completed the survey, constituting 29.35% of the respondents. Therefore, there were at least twice as many third-year students that have studied entrepreneurship for longer than the second-year students who were in their first year of entrepreneurship study.

With regards to the racial composition of the respondents, the majority were Africans, 61 out of 92 (68.54%), followed by 10 (11.24%) coloured students, 10 white students (11.24%), and lastly 8 (8.99%) Indian students. The racial composition reflects the essence of the South African racial composition where the Africans are in the majority. However, 3 students preferred not to disclose their race.

4.2.1 Sample characteristics

In addition to the demographics presented above, some characteristics of the sample, like the respondents' entrepreneurial background, will be presented. The frequencies

of the students who have self-employed parents and those who do not will also be presented. In addition, the respondents' own entrepreneurial experiences will be presented: those respondents who were self-employed in the past against those who were not, how long they were self-employed, and how long it has been since they stopped their entrepreneurial activities.

It was important for the study to present these characteristics, as literature states that these background traits do have the potential to influence the students' entrepreneurial intentions (Carr & Sequeira, 2007:1090).

Figure 4.1 below shows the number of student respondents with a self-employment background, as opposed to those who do not have this background.

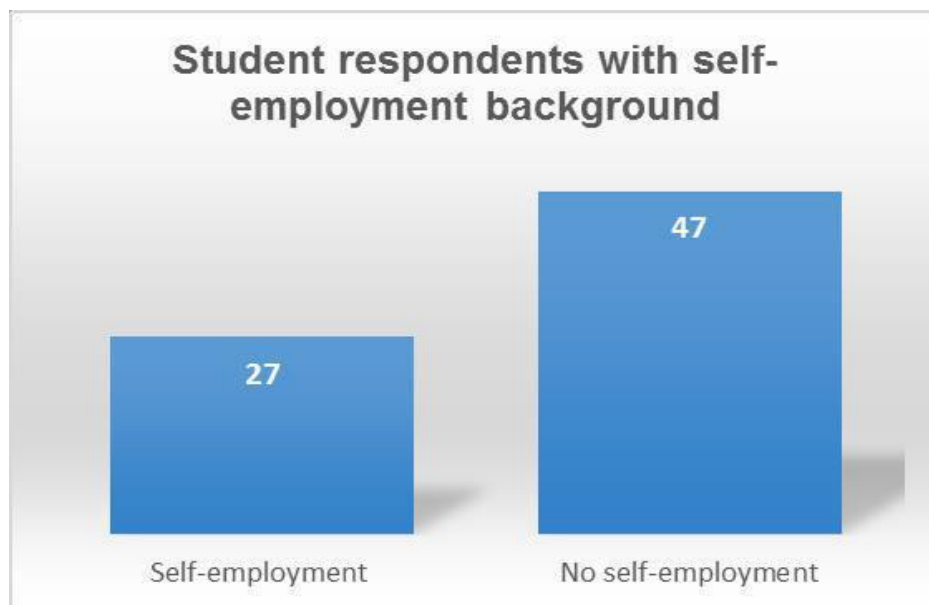


Figure 4.1: Students with previous or present self-employment experience

The summary statistics reveal that 27 out of 74 (36.49%) respondents have been self-employed before, with an average self-employment experience of 4.07 years. However, the question did not ask about the form or the size of the business in which the students were previously or currently engaged. This means that 47 respondents (63.51%) do not have any self-employment background. On average, it has been 4.57 years since the students with a self-employment history closed down their businesses.

The other background trait that has an effect on the students' entrepreneurial intentions is the self-employment status of the parents. The students were asked if any of their parents are self-employed. To accommodate the African family structure

where sometimes the grandparents or some other family relative raises the children, the option of a guardian was added to the question. These sample characteristics will be presented and discussed when reporting on the effect of social norms on the students' entrepreneurial intentions.

4.3 RESULTS PERTAINING TO THE RESEARCH QUESTION

This section presents the results pertaining to the effect of entrepreneurship education on the students' entrepreneurial intentions.

In this section, the survey measured three variables of a construct (entrepreneurial intentions, attitudes towards entrepreneurship and the perceived entrepreneurial feasibility) and the effect of social norms on the students' entrepreneurial intentions. Each variable had a number of items. The students had to choose the answer they most agree with, using a seven-point Likert scale.

4.3.1 Relationship among the variables

Table 4.2 on the next page was calculated to determine the relationship among the variables and also to determine the significance of the relationship between entrepreneurship education and the various variables.

Table 4.2 shows that there is a weak, but statistically significant positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions. This is evidenced by a weak relationship of $r = 0.3238$, but having a significant p value of 0.0052, which is less than 0.05. Therefore, judging at a confidence level of 95%, it can be stated with 95% degree of confidence that there is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial intentions, and that this relationship is not due to chance.

This leads to the study accepting hypothesis H_1 .

Table 4.2: Pearson's Pairwise correlations

115; Variable	By variable	No correlation	Weak correlation	Medium correlation	Strong correlation	Signif Prob
Entrepreneurship education	Social norms	0.0498				0.6758
Entrepreneurship education	Intention		0.3238			0.0052*
Entrepreneurship education	Attitude		0.3558			0.0020*
Entrepreneurship education	Entrepreneurial skill		0.4844			<.0001*
Social norms	Intention			0.5509		<.0001*
Social norms	Attitude				0.6313	<.0001*
Attitude	Intention				0.8434	<.0001*

4.3.2 Entrepreneurial intentions

Figure 4.2 below presents the proportion results according to the students' responses to the question regarding their entrepreneurial intentions.

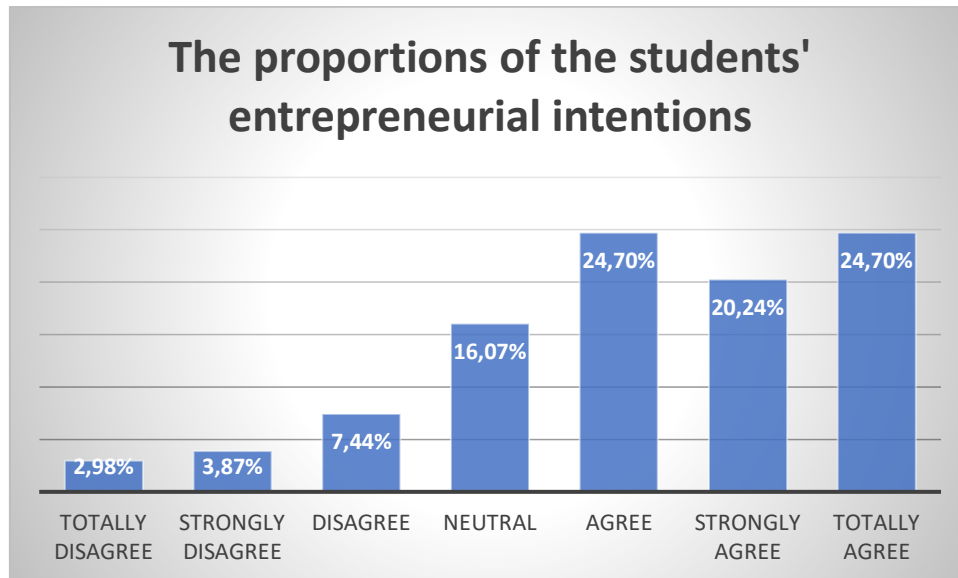


Figure 4.2: A measure of the students' entrepreneurial intentions

From Figure 4.2 above, it is apparent that 24.7% (21 out of 84) of the respondents totally agree with the statement that they have entrepreneurial intentions, and 20.24% (17 out of 84) of the respondents strongly agree, while 24.7% (21) of the students are agreeable that they have entrepreneurial intentions.

Collectively, quite a high percentage of the respondents studying entrepreneurship, 69.64% (59 out of 84) have positive intentions to become entrepreneurs. A low proportion, only 14.29% (12) of the respondents do not have intentions to become entrepreneurs, and a further 16.07% (13) are undecided.

The following section presents the students' entrepreneurial intentions by gender, level of study, race, the students' self-employment experience, and the students' parents' self-employment status. This is to determine whether there is any significance in the students' entrepreneurial intentions by level of study, gender, race, and their own or parents' entrepreneurial experiences.

The data is presented in Tables 4.3, 4.4 and 4.5.

Table 4.3: Students' entrepreneurial intentions by level of study

Variable sub-question	Agree		Neutral		Disagree		P-value
	2 nd year	3 rd year	2 nd year	3 rd year	2 nd year	3 rd year	
A1. I am ready to do anything to be an entrepreneur.	17 (20%)	33 (39%)	6 (7%)	11 (13%)	3 (4%)	14 (17%)	0.412
A2. I will make every effort to start and run my own business.	20 (24%)	39 (46%)	6 (7%)	7 (8%)	0	12 (14%)	0.03
A3. I am determined to create a business venture in the future.	24 (29%)	45 (54%)	2 (3%)	6 (7%)	0	7 (8%)	0.154
A4. My professional goal is to be an entrepreneur.	20 (24%)	36 (43%)	6 (7%)	10 (12%)	0	12 (14%)	0.043

In Table 4.3, the researcher collapsed the affirmative responses into one category of 'Agree' and did the same with the negative responses and categorised them as 'Disagree'.

Table 4.3 presents the measurements of the students' entrepreneurial intentions by level of study. The aim was to determine whether there are any significant differences in the students' entrepreneurial intentions by level of study.

Significant differences were observed on statements A2 ($p = 0.03$) and A4 ($p=0.043$), respectively. In other words, the students from the two levels had differing views in terms of the two statements.

For the remaining two statements A1 ($p = 0.412$) and A3 ($p = 0.154$) no significant differences were observed from the respondents of the two levels of study. In other words, the respondents had similar perceptions that they will do anything to be entrepreneurs and they are determined to create business ventures.

It is inconclusive whether third-year students have higher entrepreneurial intentions than second-year students, as they scored significantly higher in two out of four items measured. It would appear that there is a weak but statistically significant difference in entrepreneurial intentions by level of study, favouring the third-year students over second-year students.

Table 4.4 on the next page presents the differences in the students' entrepreneurial intentions by gender.

As can be seen from Table 4.4, there is no gender-based difference in the students' entrepreneurial intentions and this is evident from the insignificant differences observed. In other words, both male and female students hold similar perceptions in relation to entrepreneurial intentions.

Table 4.5 presents the differences in the students' entrepreneurial intentions by race.

Table 4.4: Students' entrepreneurial intentions by gender

Variable sub-question	Agree		Neutral		Disagree		P-value
	Females	Males	Females	Males	Females	Males	
A1. I am ready to do anything to be an entrepreneur.	22 (26%)	28 (33%)	12 (14%)	5 (6%)	9 (11%)	8 (10%)	0.164
A2. I will make every effort to start and run my own business.	28 (33%)	31 (37%)	9 (11%)	4 (5%)	6 (7%)	6 (7%)	0.363
A3. I am determined to create a business venture in the future.	33 (39%)	36 (43%)	5 (6%)	2 (2%)	5 (6%)	3 (4%)	0.393
A4. My professional goal is to be an entrepreneur.	27 (32%)	29 (35%)	9 (11%)	7 (8%)	7 (8%)	5 (6%)	0.738

Table 4.5: Students' entrepreneurial intentions by race

Variable sub-question	Agree				Neutral				Disagree				P-value
	A	C	I	W	A	C	I	W	A	C	I	W	
A1. I am ready to do anything to be an entrepreneur	36	7	4	2	13	0	1	3	7	3	2	4	0.098
	43%	8%	5%	2%	16%		1%	4%	8%	4%	2%	5%	
A2. I will make every effort to start and run my own business	45	7	4	3	7	1	3	1	4	2	0	5	0.001
	54%	8%	5%	4%	8%	1%	4%	1%	5%	2%		6%	
A3. I am determined to create a business venture in the future	51	9	4	4	3	0	3	2	2	1	0	3	0.001
	61%	11%	5%	5%	4%		4%	2%	2%	1%		4%	
A4. My professional goal is to be an entrepreneur	40	8	4	4	9	2	3	1	7	0	0	4	0.049
	48%	10%	5%	5%	11%	2%	4%	1%	8%			5%	

A = African, C = Coloured, I = Indian and W = White

From Table 4.5, there are significant differences in the students' entrepreneurial intentions by race as evidenced by three variables A2 ($p=0.001$), A3 ($p = 0.001$) and A4 ($p =0.049$) that have a p -value of less than 0.05.

It emerged that African students in the entrepreneurship modules (54%, 61% and 48%) are more positive that it will influence their entrepreneurial intentions. This means that the respondents had differing perceptions of the statements as depicted in the above table.

The fact that the p -values prove significant for a small sample size such as this one, reinforces that African students have gained the most entrepreneurial intentions from studying entrepreneurship. As entrepreneurship modules are elective, there is the possibility that the students may register for them due to an existing entrepreneurial attraction and intention, or due to them considering entrepreneurship as a possible future career. If this were the case, then there should be no significant differences in their entrepreneurial intentions by race, again proving that entrepreneurship education does have a positive relationship to the students' entrepreneurial intentions.

Based on the p -values in the Table 4.5, this reinforces the researcher's decision to accept H_1 .

4.3.2.1 Summary of students' entrepreneurial intentions by level of study, gender and race

Working at a 95% degree of confidence, there is no significant difference between the second-year and third-year students' responses regarding items A1 and A3 as the p -value is above 0.05. However, regarding items A2 and A4, there is a significant difference between the second-year and third-year students' intentions, evidenced by the p -values of 0.03 and 0.04, respectively. The third-year students scored more than the second-year students in both items. This means that in some instances, the third-year students' entrepreneurial intentions are higher than that of the second-year students.

This is consistent with Piperopoulos and Dimov (2015) who state that the students who have studied entrepreneurship longer have higher entrepreneurial intentions.

The tables above also reveal that there are no significant differences in the students' entrepreneurial intentions by gender. Both male and female students have similar entrepreneurial aspirations and intentions. This is evidenced by p -values greater than 0.05.

Table 4.4 does not show any significant differences in the entrepreneurial intentions of the students by race regarding sub-question A1. However, in the other items, the p -value is below 0.05, suggesting that there is a statistically significant difference in the students' entrepreneurial intentions by race, the difference favouring African students.

The fact that African students' entrepreneurial intentions are shaped more by entrepreneurship education may support Ed (2015) who underscores that entrepreneurship culture among African people is low owing to a lack of entrepreneurial role models. This finding strongly suggests the positive effect of entrepreneurship education on the students' entrepreneurial intentions where entrepreneurial role models are scarce.

To summarise, Table 4.2 (Question 4A) shows that there is a weak linear relationship between entrepreneurship education and the students' entrepreneurial intentions. This weak relationship is recognised by $r = 0.3238$. However, this weak relationship is statistically significant, as denoted by $p = 0.0052$. This means that the linear relationship between entrepreneurship education and the students' entrepreneurial intentions are not due to chance. Based on the statistics cited above, it can be stated with 95% degree of confidence that there does exist a weak, but statistically significant linear relationship between entrepreneurship education and the students' entrepreneurial intentions.

4.3.3 Entrepreneurship education and the students' attitudes

This section discusses the result of the study with regards to the effect of entrepreneurship education on the students' attitudes towards entrepreneurship in terms of level of study, gender and race, and thereafter in terms of their parents' self-employment status.

Figure 4.3 below presents the proportion results according to the students' responses regarding the effect of education on their attitudes towards entrepreneurship.

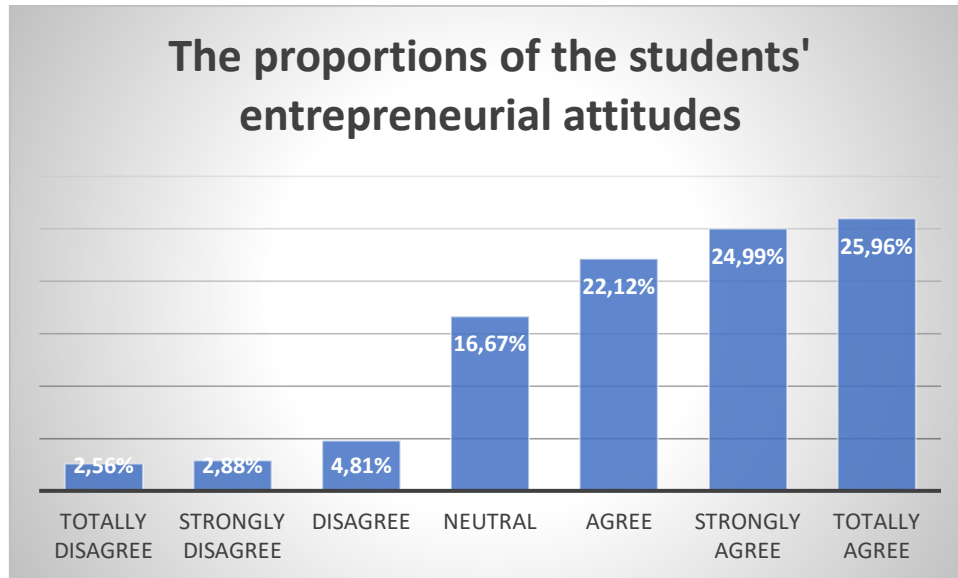


Figure 4.3: The students' entrepreneurial attitudes

Figure 4.3 above reveals that 25.96% (20 out of 78) of the students who responded to the question totally agree that studying the entrepreneurship modules has produced in them an entrepreneurial attitude. A further 24.99% (19) strongly agree to their entrepreneurial attitude and 22.12% (17) agreed with the statements that measured their entrepreneurial attitudes. Collectively, 73.07% (46) of the 78 students who responded to the question have a positive attitude towards entrepreneurship.

As can be seen in Table 4.2 (p. 93), there is a weak linear relationship between entrepreneurship education and the students' perceived entrepreneurial attitudes. The weak relationship is recognised by $r = 0.3558$. However, the weak relationship is statistically significant, denoted by $p = 0.0020$. This means that the linear relationship between entrepreneurship education and the students' perceived entrepreneurial attitudes is not due to chance. This led the researcher to accept H_1 .

Therefore, based on the statistics cited above, it can be stated with 95% degree of confidence that there does exist a weak, but statistically significant linear relationship between entrepreneurship education and the students' perceived entrepreneurial attitude. Alternatively, it can be stated with only 5% degree of error that there does exist a positive linear relationship between entrepreneurship education and the students' entrepreneurial attitudes. This means that entrepreneurship education

affects the students' entrepreneurial attitudes positively, or raises their entrepreneurial attitudes.

This conclusion leads the study to accept hypothesis H₂.

The study next tested if there are any significant differences in the students' attitudes affected by entrepreneurship education in terms of level of study, gender and race. The Pearson Chi-square p -values were used to test the significant differences in the above-mentioned variables, if any.

Tables 4.6 (on the next page) presents the differences in entrepreneurial attitudes by level of study, and Table 4.7 which follows below it, presents the differences in entrepreneurial attitudes by gender.

Table 4.6: Differences in entrepreneurial attitudes by level of study

Variable sub-question	Agree		Neutral		Disagree		P value
	2 nd year	3 rd year	2 nd year	3 rd year	2 nd year	3 rd year	
B1 A career as an entrepreneur is totally attractive to me	22 (28%)	37 (47%)	3 (4)	11 (14%)	0	5 (6%)	0.148
B2 Amongst various options, I would rather be an entrepreneur	19 (24%)	36 (46%)	4 (5%)	9 (12%)	2 (3%)	8 (10%)	0.659
B3 Being an entrepreneur would give me great satisfaction	24 (31%)	39 (50%)	1 (1%)	8 (10%)	0	7 (9%)	0.041
B4 Being an entrepreneur implies more advantages than disadvantages to me	18 (23%)	34 (44%)	7 (9%)	9 (12%)	0	10 (13%)	0.053

Table 4.7: Testing the differences in entrepreneurial attitudes by gender

Variable sub-question	Agree		Neutral		Disagree		P value
	Females	Males	Females	Males	Females	Males	
B1 A career as an entrepreneur is totally attractive to me.	28 (36%)	31 (40%)	10 (13%)	4 (16%)	2 (3%)	3 (4%)	0.238
B2 Amongst various options, I would rather be an entrepreneur.	28 (36%)	27 (35%)	7 (9%)	6 (8%)	5 (6%)	5 (6%)	0.978
B3 Being an entrepreneur would give me great satisfaction.	32 (41%)	30 (38%)	4 (5%)	5 (6%)	4 (5%)	3 (4%)	0.875
B4 Being an entrepreneur implies more advantages than disadvantages to me.	27 (35%)	25 (32%)	10 (13%)	6 (8%)	3 (4%)	7 (7%)	0.269

It emerged from Table 4.6 that there are no significant differences in the students' attitudes towards entrepreneurship in terms of their level of studies. Both second-year and third-year students had similar attitudes towards entrepreneurship. This suggests that students of the two levels hold similar perceptions with regards to the statements relating to the entrepreneurial attitudes. There is significant difference ($p = 0.041$) in B3 that 'being an entrepreneur would give great satisfaction'. More third-year students, 39 out of 79 (50%), would get the most satisfaction out of being entrepreneurs, compared to 24 second-year students (31%), out of 79 students.

Table 4.7 above, presents the results of the students' entrepreneurial attitudes by gender, and it is apparent that gender does not play a significant role in determining the students' entrepreneurial attitudes. This is evidenced by all the p -values that are greater than 0.05. Therefore, it can be stated with 95% degree of confidence that in this particular research, the students' entrepreneurial attitudes are not gender-based. Female students have similar entrepreneurial attitudes as their male counterparts and the effect of entrepreneurship education on the students' attitudes towards entrepreneurship produced the same effect in male and female students.

Table 4.8 on the next page presents the students' differences in entrepreneurial attitudes by race.

Table 4.8: Differences in entrepreneurial attitudes by race

Variable sub-question	Agree				Neutral				Disagree				P-value
	A	C	I	W	A	C	I	W	A	C	I	W	
B1 A career as an entrepreneur is totally attractive to me	41 53%	9 12%	4 5%	5 7%	9 12%	1 1%	3 4%	1 1%	3 4%	0	0	1 1%	0.489
B2 Amongst various options, I would rather be an entrepreneur	37 48%	9 12%	5 7%	4 5%	8 10%	1 1%	2 3%	2 3%	8 10%	0	0	1 1%	0.574
B3 Being an entrepreneur would give me great satisfaction	41 53%	9 12%	7 9%	5 7%	7 9%	1 1%	0	1 1%	5 7%	0	0	1 1%	0.75
B4 Being an entrepreneur implies more advantages than disadvantages to me	36 47%	6 8%	6 8%	4 5%	10 13%	3 4%	1 1%	2 3%	7 9%	1 1%	0	1 1%	0.882

A = African, C = Coloured, I = Indian and W = White

For the purposes of Table 4.8, the study measured the students' entrepreneurial attitudes by race to determine whether there are any significance differences. All the p -values in Table 4.8 are greater than 0.05, indicating that there are no significant differences by race in the students' attitudes towards entrepreneurship.

Therefore, it can be stated that both racial groups had similar views and that there are no differences in the way entrepreneurship education influences the students' entrepreneurial attitudes. In other words, entrepreneurship education produces similar entrepreneurial attitudes among the students of all races.

4.3.3.1 Summary of differences in entrepreneurial attitudes by level of study, gender and race

From Table 4.6 above, the p -values for the level of study are all above 0.05 except for B3. This indicates virtually no significant difference in the entrepreneurial attitudes of the students by their level of study, except for the third-year students who think that being an entrepreneur would give them great satisfaction. This means that second-year students, who are studying entrepreneurship modules for the first time, have the same positive entrepreneurial attitudes as the third-year students. Data was collected towards the end of the second semester, meaning that second-year students had been studying entrepreneurship for nearly two semesters by then.

The gender and race variables equally have p -values that are all above 0.05, indicating that there is no significant difference in the entrepreneurial attitudes of the students by gender or race (Tables 4.7 and 4.8). Female students have developed a positive attitude towards entrepreneurship, just like the male students. All students of all races have developed a positive attitude towards entrepreneurship. These findings attest to the positive effect of entrepreneurship education in an ODL environment on the students' entrepreneurial attitudes.

This finding is a good indication of the effect of entrepreneurship education on the students' entrepreneurial attitudes. This observation is also heartening as entrepreneurship education is intended to affect the students' entrepreneurial attitudes positively so that they may consider being self-employed and creators of employment for others rather than seekers of employment.

4.3.4 Previous experience and parents' self-employed status

The study aimed to measure whether the students' previous self-employment experience had any influence on their entrepreneurial attitudes. Table 4.9 below, presents the differences in the student's entrepreneurial attitudes due to their previous entrepreneurial experience.

Table 4.9: Students' entrepreneurial attitudes by entrepreneurial experience

Variable sub-question	Agree	Neutral	Disagree	P-value
B1 A career as an entrepreneur is totally attractive to me.	58 (78%)	12 (16%)	4 (5%)	0.166
B2 Amongst various options, I would rather be an entrepreneur	54 (73%)	10 (14%)	10 (14%)	0.428
B3 Being an entrepreneur would give me great satisfaction.	60 (81%)	8 (11%)	6 (8%)	0.672
B4 Being an entrepreneur implies more advantages than disadvantages to me.	50 (68%)	15 (20%)	9 (12%)	0.802

Table 4.9 shows that an insignificant association is observed in all the items, B1 ($p = 0.166$), B2 ($p = 0.428$), B3 ($p = 0.672$) and B4 ($p = 0.802$) respectively. This is insignificant since all the p-values are greater than 0.05, therefore, the students' previous self-employment had no significant difference in the students' entrepreneurial attitudes. Therefore, it can be stated that the students who had previous self-employment experience and those that do not, do not differ significantly in their attitudes towards entrepreneurship.

This finding reinforces the effect of entrepreneurship education on the students' entrepreneurial attitudes, irrespective of their own entrepreneurial experiences. Entrepreneurship education produces similar entrepreneurial attitudes amongst the students of various entrepreneurial backgrounds, even among those who have never been self-employed before.

The study also related the students' entrepreneurial attitudes to their parents' self-employment status. Table 4.10 below shows the Pearson chi-square p -values.

Table 4.10: Students' entrepreneurial attitudes by parents' business operations

	Agree	Neutral	Disagree	P-value
B1 A career as an entrepreneur is totally attractive to me.	18 (86%) KFB	2 (10%)	1 (5%)	0.306
	17 (89%) FGB	2 (11%)	0	0.385
	20 (87%) KMB	3 (13%)	0	0.100
	18 (86%) MGB	3 (14%)	0	0.200
B2 Amongst various options, I would rather be an entrepreneur.	15 (71%) KFB	4 (19%)	2 (10%)	0.012
	14 (74%) FGB	4 (21%)	1 (5%)	0.061
	19 (83%) KMB	3 (13%)	1 (4%)	0.200
	17 (81%) MGB	3 (14%)	1 (5%)	0.634
B3 Being an entrepreneur would give me great satisfaction.	19 (90%)KFB	1 (5%)	1 (5%)	0.926
	18 (95%) FGB	1 (5%)	0	0.766
	20 (87%) KMB	3 (13%)	0	0.140
	18 (86%) MGB	3 (14%)	0	0.389
B4 Being an entrepreneur implies more advantages than disadvantages to me.	14 (67%) KFB	5 (24%)	2 (10%)	0.855
	13 (68%) FGB	5 (26%)	1 (5%)	0.358
	17 (74%) KMB	3 (13%)	3 (13%)	0.408
	15 (71%) MGB	3 (14%)	3 (14%)	0.240
KFB = Know father's business, FGB = Father good at business, KMB = Know mother's business, MGB = Mother good at business				

In Table 4.10, the researcher measured the students' entrepreneurial attitudes against their knowledge of each of their parents' business operations and the extent to which they regarded each one of their self-employed parents to be good at business.

From the p -values in Table 4.10 above, it appears that the students' background of having self-employed parents does not really make any significant contribution towards their attitudes towards entrepreneurship. Only in one sub-question did the students' knowledge of their fathers' business operations lead to significant higher

entrepreneurial attitudes. However, this appears to be very mild because only one sub-question out of four produced significantly higher entrepreneurial attitudes.

4.3.5 Results pertaining to the effect of social norms on the students' entrepreneurial intentions

This section presents the results of the effect of social norms on the students' entrepreneurial intentions. First the effect of social norms (the influence of parents, friends and colleagues) on the students' entrepreneurial intentions is presented. Then the effect of the students' entrepreneurial background – both the effect of self-employed parents and the students' own self-employment experience – on their entrepreneurial intentions is presented in this section. The corresponding survey question is Q4C.

From Table 4.2, it is evident that there is a mild, but statistically significant relationship $r = 0.5509$ between social norms and the students' entrepreneurial intentions. The statistical significance is denoted by $p < .0001$. The p -value is less than 0.05, which means that it can be stated with 5% degree of error that there exists a positive linear relationship between social norms and the students' entrepreneurial intentions and that this relationship is not due to chance, but it is significant.

This conclusion leads the researcher to accept hypothesis H₄.

4.3.5.1 Influence of the students' family, friends and colleagues

Figure 4.4 below gives a graphical representation of the influence of the approval of the students' family, friends and colleagues, and their perceived expectations on the students' entrepreneurial intentions.

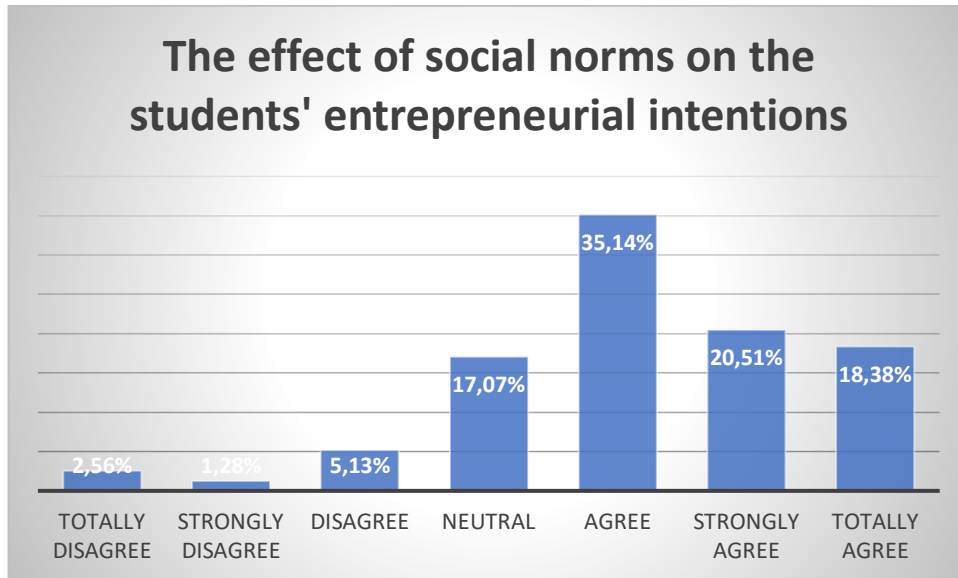


Figure 4.4: The effect of social norms on the students' entrepreneurial intentions

Figure 4.4 above depicts that 18.38% (14) of the 78 students who responded to the question totally agree that the expectations of their family, friends and colleagues would influence their choice of entrepreneurship as a career. A further 20.51% (16) and 35.04% (27), respectively, strongly agree and agree that their family, friends and colleagues would support their choice of entrepreneurship as a career. Collectively, 74% (58 out of 78) of the respondents agree that their family, friends and colleagues' expectations, and approval would influence their decision to choose entrepreneurship as a career. Nevertheless, only 8.9% (7) (sum of 'disagree', 'strongly and totally disagree' scores) of the respondents believe that their family, friends and colleagues' would not approve of their decision to become entrepreneurs. A further 17% (13) of the respondents were unsure what effect their family and friends' expectations and approval would have on their entrepreneurial career choice. A high percentage of 74% (58) of the students agree that their family and friends' approval will influence their entrepreneurship career choice. This indicates that social norms have an effect on the students' entrepreneurial intentions.

The next section presents the influence of social norms on the students' entrepreneurial intentions by gender, race and level of study to determine whether the expectations for a child to become an entrepreneur differ with their gender and race. The aim is also to determine whether there are significant differences among the different races for someone to become an entrepreneur.

Table 4.11 presents the effect of social norms on the students' entrepreneurial intentions by gender.

Table 4.11: Social norms and the students' entrepreneurial intentions by gender

Variable sub-question	Agree		Neutral		Disagree		P-Value
	F	M	F	M	F	M	
C1 My friends would approve of my decision to start a business	34 44%	28 36%	4 5%	6 8%	2 3%	4 5%	0.45
C2 My immediate family would approve of my decision to start a business	33 42%	32 41%	3 4%	4 5%	4 5%	2 3%	0.679
C3 My colleagues would approve of my decision to start a business	26 33%	20 26%	11 14%	12 15%	3 4%	6 8%	0.411

In Table 4.11, it emerged that most of the female respondents (44%) are more positive in terms of the perceptions of social norms on the students' entrepreneurial intentions than male respondents (36%) (C1). However, these gender differences are not significant, as the p -value is 0.450, which is above 0.05.

From Table 4.11 above, it also appears that the expectations of family members, friends and colleagues for one to become an entrepreneur, are not influenced by gender. This is evidenced by the p -values that are greater than 0.05, no significant differences were observed among the respondents in all the statements relating to the social norms on the students' entrepreneurial intentions.

Therefore, it can be stated with a 95% of confidence that family members, friends and colleagues equally have expectations and equally approve of female students becoming entrepreneurs, just as much as they do with male students. Their expectations and approval are not based on gender.

Table 4.12 on the next page presents the effect of social norms on the students' entrepreneurial intentions by race.

Table 4.12: Social norms and the students' entrepreneurial intentions by race

Aspects of knowledge gained	Agree				Neutral				Disagree				P-Value
	A	C	I	W	A	C	I	W	A	C	I	W	
C1 My friends would approve of my decision to start a business	43 56%	9 12%	4 5%	6 8%	5 7%	0	3 4%	1 1%	5 7%	1 1%	0	0	0.162
C2 My immediate family would approve of my decision to start a business	46 60%	8 10%	5 7%	6 8%	4 5%	0	1 1%	1 1%	3 4%	2 3%	1 1%	0	0.558
C3 My colleagues would approve of my decision to start a business.	33 43%	3 4%	4 5%	6 8%	13 17%	6 8%	3 4%	0	7 9%	1 1%	0	1 1%	0.143

From Table 4.12 above, it emerges that the expectations and approval of family members, friends and colleagues for someone to become an entrepreneur do not differ significantly by race. This is evidenced by all the p -values that are greater than 0.05. Therefore, it can be stated with 95% degree of confidence that all races equally approve of a family member or friend choosing entrepreneurship as a career path, and this is not due to chance.

Therefore, no significant differences were observed between students of various racial groups. In other words, the students had similar perceptions on the statements that relates to the effect of social norms on students' entrepreneurial intentions.

This finding seems contrary to the earlier finding where African students gained more entrepreneurial intentions from studying entrepreneurship modules than other races, indicating an initial low entrepreneurial intention. Yet on the other hand, they agree that their friends and family would approve of their choice of entrepreneurship as a career. This seems to indicate that African views of entrepreneurship are changing in the positive direction, though it would seem that it is still in the early stages of change.

4.3.5.2 The influence of self-employed parents or guardians

Figure 4.5 below gives a graphical representation of the influence of the students' background in terms of having self-employed parents.

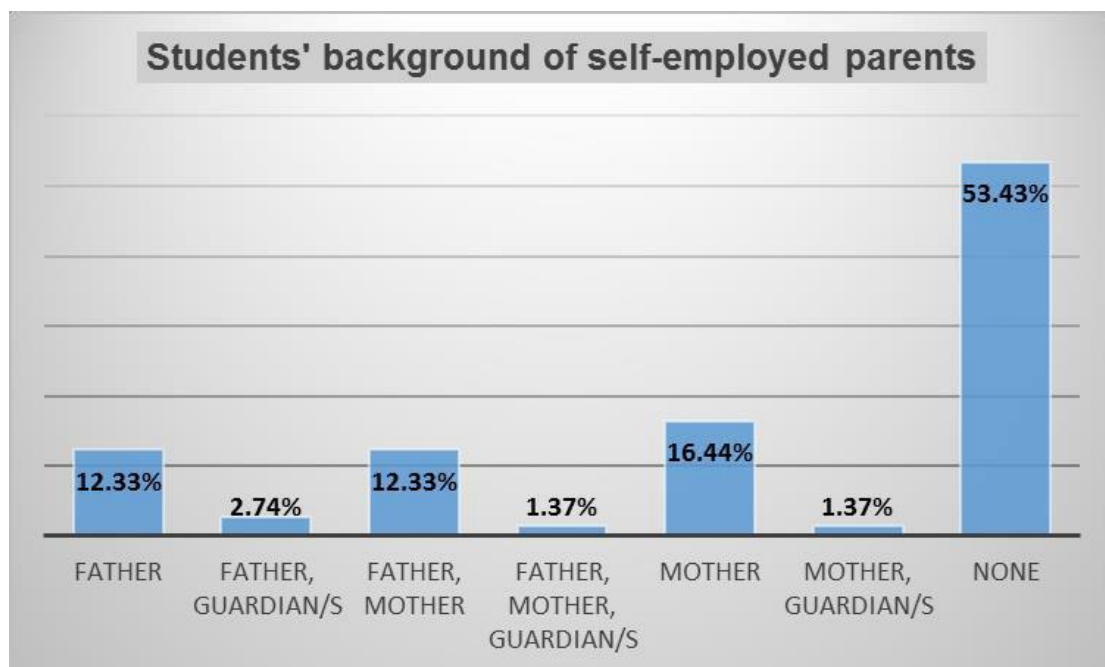


Figure 4.5: The students' background of self-employed parents

The corresponding survey question is Q6. Of the 73 students who responded to the question, 53% (39 out of 73) of them did not have any self-employed parents that could influence their entrepreneurial attitudes and/or intentions in some way. The self-employed mothers constituted 16% (12 out of 73) of the respondents, while there were 12% (9) self-employed fathers. The student respondents with both parents who are self-employed made up 12% (9 of the 73) of the respondents. None of the students had exclusively self-employed guardians, it was in combination with one or two parents, and the numbers of the respondents with self-employed guardians were very low. The students who had a self-employed father and a guardian were 2.74% (2); those with father, mother and a guardian who are self-employed were 1.37% (1) and those with a mother and a guardian who are self-employed were 1.37% (1). Due to the extreme small numbers of the students with self-employed guardians, the negligible numbers would not give any meaningful statistical computations, and as a result they were left out in the analysis.

Collectively, 46.57% (34 out of 73) of the students have a background of at least one parent/guardian being self-employed. It may seem like quite a high percentage and the effect of this background on the respondents' entrepreneurial intentions will be explored further and presented in this chapter. Although it may seem as if a considerable number of student respondents had an entrepreneurial background, the instrument did not measure the size of the parents' business, as bigger business and greater levels of perceived success tend to have a greater influence on their offspring's entrepreneurial attitudes and intentions.

Figure 4.6 below compares the degree to which the respondents with self-employed fathers and mothers know their parents' businesses and to what extent they regard each of their parents as good entrepreneurs. It was important to measure this because Chlosta *et al*; (2012) state that children who are more familiar with their mothers' businesses tend to exhibit greater levels of entrepreneurial tendencies.

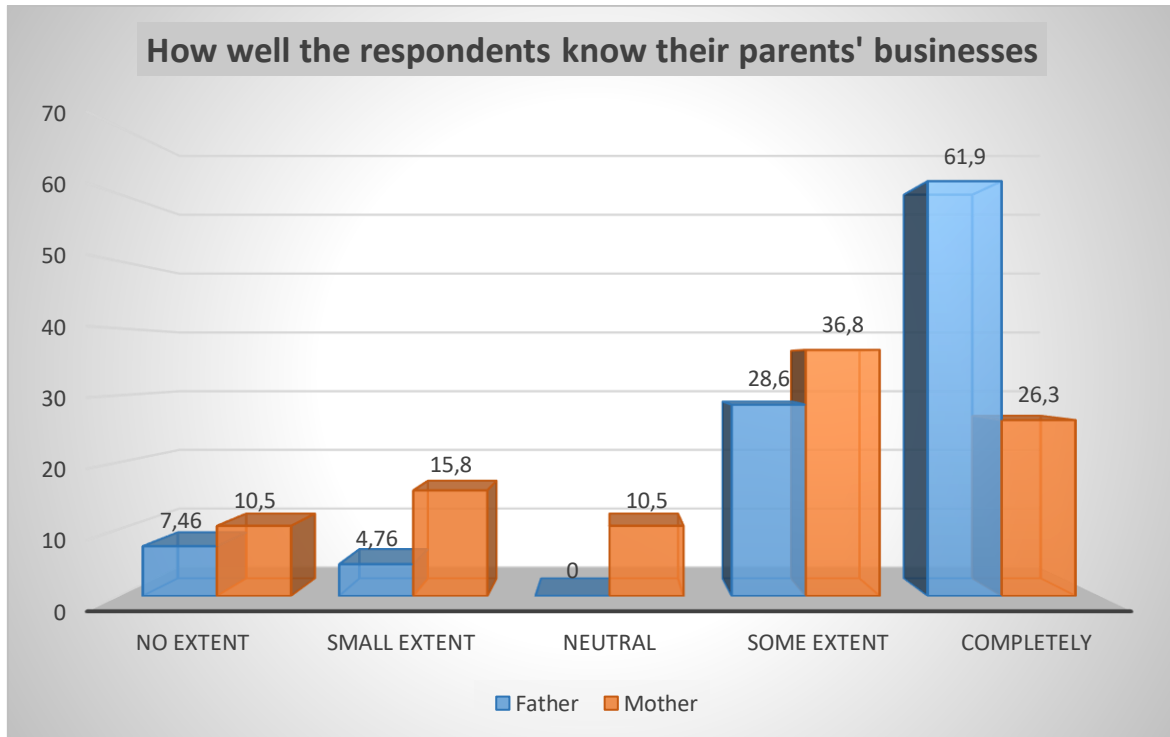


Figure 4.6: How well the students with self-employed parents know their parents' businesses

This section relates to question 6; it was a five-point Likert scale, ranging from, from 1 = Do not know at all, 2 = Know to a small extent, 3 = Neutral, 4 = Know t some extent, 5 = Know completely. In response to the question of how well the students knew their fathers' and mothers' businesses, 21 and 23 students, respectively, responded to this question. Out of the 21 students that responded to how well they knew their fathers' businesses, 13 (61.9%) said they knew their fathers' businesses completely, and 6 (28.6%) knew them to some extent, collectively representing 90.5% of the students who knew their fathers' businesses. A further 2 students (9.5%) said they knew very little or nothing at all about their fathers' business operations and none were neutral regarding these questions.

Of the 19 students who responded to the question of how well they know their mothers' businesses, 5 (26.3%) confessed that they had a complete knowledge of their mothers' businesses, while 7 (36.8%) knew their mothers' businesses to some extent. Collectively 63.1% of the respondents had some knowledge of their mothers' businesses. It appears that more students (90.5%) knew more about their father's businesses than their mothers' (63.1%).

Figure 4.7 below presents the results of the extent to which the respondents regard their fathers and mothers to be good entrepreneurs (Question 6 a and b). It was important to take this measurement, as Chlosta *et al.* (2012) state that the children who regard their mothers to be successful at business tend to be greatly influenced by their mothers' business success, and it has a higher influence regarding their entrepreneurial inclinations.

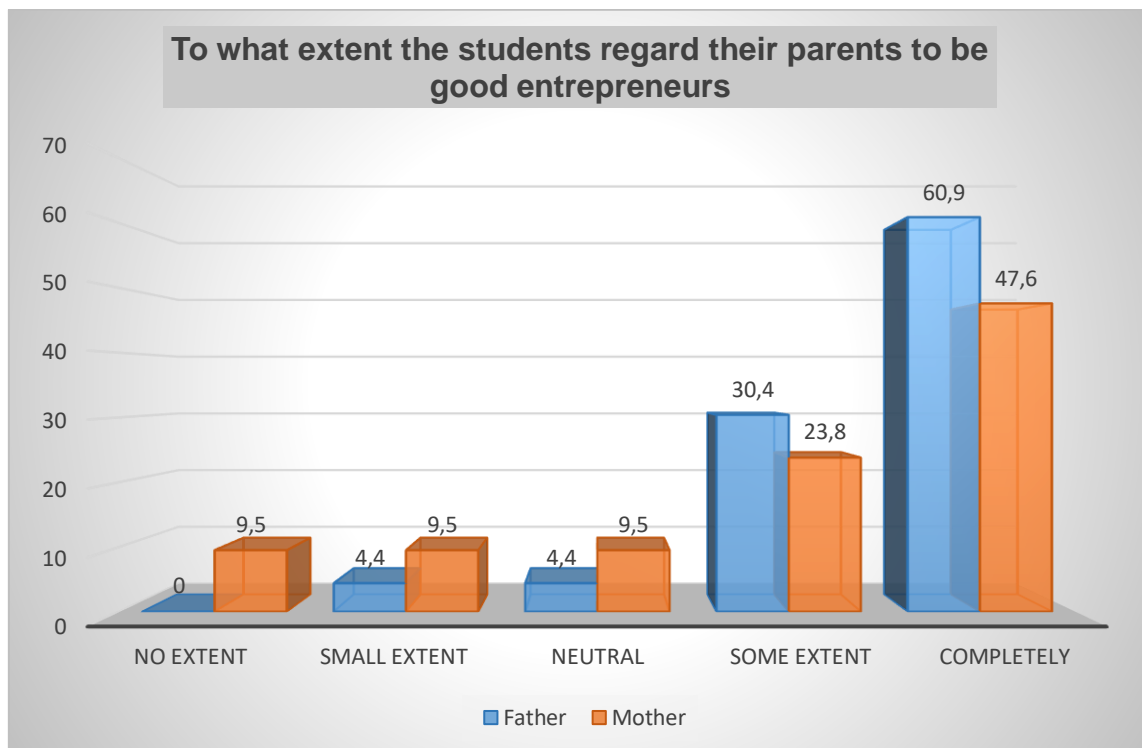


Figure 4.7: To what extent the respondents regarded their fathers and mothers to be good entrepreneurs

Of the total students participating in the study, 23 and 21, respectively, responded to the question of the extent to which they regarded their fathers and mothers to be good entrepreneurs. A slightly higher percentage (60.9%) (14 out of 23) of the students regarded their fathers to be completely good at business, while a further 30.4% (7 out of 23) regarded their fathers to be good entrepreneurs to some extent; collectively representing 91.3% of the respondents who thought well of their fathers' business acumen.

In contrast, 47.6% (10 out of 21) respondents completely regarded their mothers to be good entrepreneurs, while a further 23.8% (5 out of 21) thought that their mothers were to some extent good at business; collectively representing 71.4% of the respondents who regarded their mothers' as having business acumen.

Again, it appears that more students (91.3%) regard their fathers to be good at business, if compared to 71.4% who think that their mothers are good at business.

Chlosta *et al.* (2012) state that the influence of the self-employed fathers on their children’s entrepreneurial intentions is dependent on the perceived level of the father’s success in business and the children’s openness, but this does not apply in the case of the mothers. This leads to the conclusion that self-employed mothers have a higher or stronger influence on the children’s entrepreneurial career choices.

In this study, with regard to how well the respondents know their parents’ business and what they think of their business acumen, their fathers were rated favourably in both variables measured.

4.3.5.3 Students’ entrepreneurial experience

This section presents the results of the questions regarding the students’ previous experience and background of entrepreneurial activity. This section relates to Q4A and Q5 of the survey.

Table 4.13: Students’ entrepreneurial intentions and their entrepreneurial experience

Variable sub-question	Agree	Neutral	Disagree	P-value of own experience
A1. I am ready to do anything to be an entrepreneur.	45 (61%)	15 (20%)	14 (19%)	0.592
A2. I will make every effort to start and run my own business.	54 (73%)	10 (14%)	10 (14%)	0.491
A3. I am determined to create a business venture in the future.	63 (85%)	5 (7%)	6 (8%)	0.365
A4. My professional goal is to be an entrepreneur.	51 (69%)	13	10 (14%)	0.330

There were 74 students who responded to the question about their previous self-employment, and 27 (36%) of them either had been or were still self-employed, while 47 (64%) had never been self-employed before.

Table 4.13 above indicates no significant differences in the entrepreneurial intentions of the students who have self-employment experience and those who do not have any self-employment experience. This is evidenced by all the p -values of the variables measured being greater than 0.05. Therefore, it can be stated with 95% degree of confidence that in the case of the students measured, self-employment experience does not contribute to their entrepreneurial intentions. This means that there is no significant difference ($A1 = 0.592$; $A2 = 0.491$; $A3 = 0.365$ and $A4 = 0.330$) in the intentions of the students with entrepreneurship experience and those without any personal entrepreneurial experience.

Common sense would dictate that the students who have self-employment experience would have high entrepreneurial intentions and specifically registered for entrepreneurship modules to gain or improve their entrepreneurial skills. However, the p -values in the above table do not support this. There is virtually no difference in the entrepreneurial intentions of the students with self-employment experience and those with none. This would suggest that the students hold entrepreneurship in high esteem, irrespective of their entrepreneurial experiences. This finding rejects H_6 .

The fact that students of various entrepreneurial experiences all have similar entrepreneurial intentions would suggest a society that places a high importance on entrepreneurship. If society did not place such high importance on entrepreneurship, the students with previous entrepreneurial experience would more likely have higher entrepreneurial intentions than the ones who did not have personal entrepreneurship experience.

4.3.5.4 Knowledge of parents' business

The study aimed to measure whether the students' entrepreneurial intentions were influenced by their knowledge of their fathers and mothers' business operations (Q6 a and b of the survey).

The researcher further wanted to measure if the students regarded their fathers and mothers to be good entrepreneurs, whether this knowledge would have an influence on the students' entrepreneurial intentions.

Table 4.14 presents the results of the differences in the students' entrepreneurial intentions in terms of the knowledge of their parents' business operations.

Table 4.14: Entrepreneurial intentions and knowledge of the parents' business operations

Variable sub-question	Agree	Neutral	Disagree	P-value
A1. I am ready to do anything to be an entrepreneur.	14 (67%) KFB	3 (14%)	4 (19%)	0.141
	13 (68%) FGB	3 (16%)	3 (16%)	0.430
	15 (78%) KMB	3 (13%)	2 (9%)	0.615
	16 (76%) MGB	3 (14%)	2 (10%)	0.644
A2. I will make every effort to start and run my own business.	15 (71%) KFB	2 (10%)	4 (19%)	0.115
	14 (74%) FGB	2 (11%)	3 (16%)	0.388
	19 (83%) KMB	2 (9%)	2 (9%)	0.764
	17 (81%) MGB	2 (10%)	2 (10%)	0.704
A3. I am determined to create a business venture in the future.	16 (76%) KFB	3 (14%)	2 (10%)	0.388
	15 (79%) FGB	3 (14%)	1 (5%)	0.779
	23 (100%) KMB	0	0	0.484
	21 (100) MGB	0	0	0.514
A4. My professional goal is to be an entrepreneur.	14 (67%) KFB	4 (19%)	3 (14%)	0.227
	13 (68%) FGB	4 (19%)	2 (11%)	0.503
	21 (91%) KMB	2 (9%)	0	0.749
	19 (90%) MGB	2 (10%)	0	0.667

KFB = Know father's business, FGB = Father good at business, KMB = Know mother's business, MGB = Mother good at business

From Table 4.14 above, it does not appear that the students' knowledge of any of the parents' business operations has any effect on their entrepreneurial intentions. Even if they regard their fathers and mothers to be good entrepreneurs, this knowledge does not seem to have an influence on the students' entrepreneurial intentions as evidenced by all the *p*-values that are greater than 0.05.

Therefore, it can be stated with 95% degree of confidence that the students' knowledge of either of their parents' business operations does not have any significant influence on their entrepreneurial intentions.

This finding leads the study to reject hypothesis H₅.

The literature (Chlosta *et al.*,2012:121; Drennan & Saleh, 2008) states that children who come from entrepreneurial homes tend to have high entrepreneurial intentions, and the intentions are even higher if they are familiar with the parents' business operations, and if they regard their parents to be good entrepreneurs and successful at what they are doing.

However, in this study, the students with entrepreneurial background do not exhibit significantly higher entrepreneurial intentions than the ones who do not have self-employed parents. This finding indicates that not only the students who come from entrepreneurial homes exhibit entrepreneurial intentions, but also the ones without an entrepreneurial background. This suggests that students of various occupational backgrounds place a high value on entrepreneurship as a career.

This finding rejects hypothesis H₅.

This finding also suggests that the South African society places greater importance on entrepreneurship, otherwise the students who come from entrepreneurial backgrounds would exhibit greater entrepreneurial intentions than the students who do not have an entrepreneurial background in the form of self-employed parents. However, it would seem that the shift towards embracing entrepreneurship is in its infancy among the African population in South Africa.

4.3.6 The effect of entrepreneurship education on the students' perceived entrepreneurial skills

In this section (the corresponding survey question is 4D), the researcher will present the findings pertaining to the effect of entrepreneurship education on the students' perceived entrepreneurial skills gained because of studying entrepreneurship modules.

Table 4.2 shows that there is a weak but statistically significant positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial skills gained. The relationship $r = 0.4844$ is weak because it is less than 0.5, however, it is statistically significant because $p < .0001$ and p is less than 0.05.

It can be stated with 5% degree of error that there is a positive linear relationship between entrepreneurship education and the students' perceived gained

entrepreneurial skills; or that entrepreneurship education affects the students' perceived gaining of entrepreneurial skills positively, and this is not due to chance.

This leads the study to accept hypothesis H₃.

The students' positive responses were added together and the same was done with the negative responses, and they are presented as proportions in the graph below.

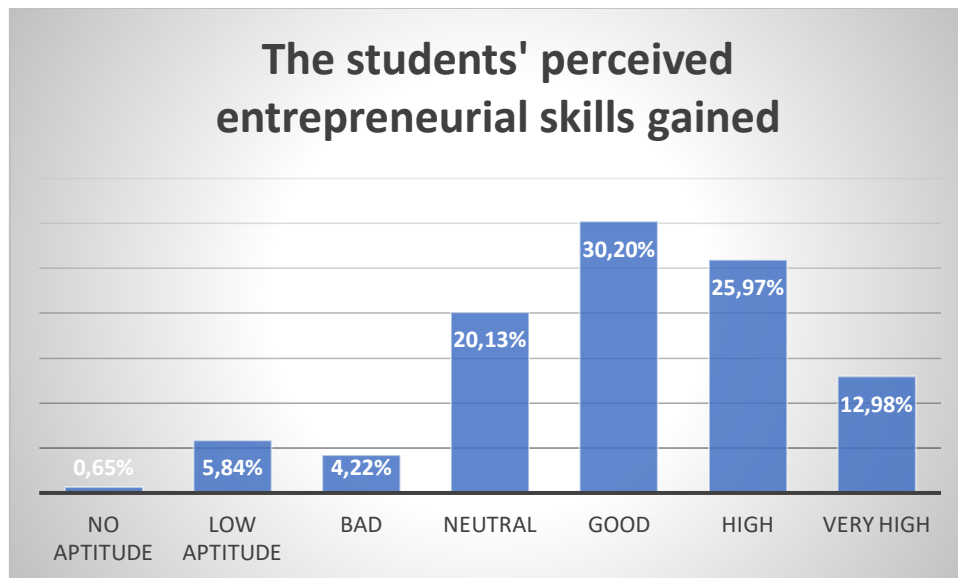


Figure 4.8: The effect of entrepreneurship education on the students' perceived entrepreneurial skills gained

From Figure 4.8 above, it can be seen that 12.98% (10 out of 77) of the students rate their perceived skills gained from studying entrepreneurship to be very high. A further 25.97% (20) of the 77 students indicated that they rate their entrepreneurial skills to be high, while 30.2% (23) believe that they possess good entrepreneurial skills to enable them to believe that they can run feasible business ventures. Collectively, the majority of the respondents, 69.15% (53) of the 77 respondents regard themselves to have gained good entrepreneurial skills. However, only 10.72% (8) of the respondents rate their entrepreneurial knowledge to be far too inadequate, while a further 20.13% (16) of the respondents are not too sure of the knowledge they have gained.

Knowledge gained is a function of the curriculum, method of teaching and the students' own contribution in terms of hard work. The fact that just over 30% (23) of the students doubt their entrepreneurial skills gained cannot solely be attributed to inefficiencies in the content and method of teaching entrepreneurship education. Quite a high number of the students, that is, 69.15% (53), do perceive that they have gained enough

entrepreneurial knowledge to give them enough confidence to believe that they could start and sustain viable ventures.

This means that entrepreneurship education does have a positive effect on the students' perceived entrepreneurial feasibility. This is another heartening observation, as one of the primary goals of teaching entrepreneurship education is to impart knowledge that will instil enough confidence in the students to believe that they do have the necessary knowledge to make their entrepreneurial intentions viable.

4.3.6.1 Perceived gained entrepreneurial abilities and skills related to level of study, gender, race

This study also relates the students' perceived gained entrepreneurial skills to the students' level of study, gender and race. (The students' previous, or current entrepreneurial experience, as well as the students' parents' self-employment status will be presented in the next sub-section).

The aim is to determine whether the students' level of study, gender and race have any significant influence on their perceived entrepreneurial skills.

Tables 4.15 to 4.17 follow on the next few pages.

Table 4.15 presents the students' perceived entrepreneurial skills by level of study. Table 4.16 presents the students' perceived entrepreneurial skills by gender, and Table 4.17 presents the students' perceived entrepreneurial skills by race.

Table 4.15: Students' perceived entrepreneurial abilities and skills by level of study

Variable sub-question	Agree		Neutral		Disagree		P-value
	2 nd year	3 rd year	2 nd year	3 rd year	2 nd year	3 rd year	
D1 Starting a firm and keeping it viable would be easy for me.	17 (22%)	28 (36%)	5 (7%)	16 (21%)	3 (4%)	8 (10%)	0.43
D2 I am able to control the creation process of a new business.	18 (23%)	32 (42%)	7 (9%)	10 (13%)	0	10 (13%)	0.397
D3 If I tried to start a business, I would have a high chance of being successful.	21 (27%)	38 (49%)	4 (5%)	10 (13%)	0	4 (5%)	0.741
D4 I know all about the practical details needed to start a business.	21 (27%)	38 (49%)	3 (4%)	7 (9%)	1 (2%)	7 (9%)	0.82

Table 4.16: The students' perceived entrepreneurial abilities and skills by gender

Variable sub-question	Agree		Neutral		Disagree		P-value
	Females	Males	Females	Males	Females	Males	
D1 Starting a firm and keeping it viable would be easy for me.	24 (31%)	21 (27%)	12 (16%)	9 (12%)	4 (5%)	7 (9%)	0.403
D2 I am able to control the creation process of a new business.	28 (36%)	23 (30%)	10 (13%)	7 (9%)	3 (4%)	7 (9%)	0.741
D3 If I tried to start a business, I would have a high chance of being successful.	32 (42%)	27 (35%)	8 (10%)	6 (8%)	0	4 (5%)	0.198
D4 I know all about the practical details needed to start a business.	32 (42%)	27 (35%)	7 (9%)	3 (4%)	1 (1%)	7 (9%)	0.169

Table 4.17: The students' perceived gained entrepreneurial abilities and skills by race

Variable sub-question	Agree				Neutral				Disagree				P value
	A	C	I	W	A	C	I	W	A	C	I	W	
D1 Starting a firm and keeping it viable would be easy for me	35 46%	5 7%	2 3%	3 4%	11 15%	3 4%	5 7%	2 3%	6 8%	2 3%	0	2 3%	0.072
D2 I am able to control the creation process of a new business.	35 46%	7 9%	3 4%	5 7%	11 15%	1 1%	4 6%	1 1%	6 8%	2 3%	0	1 1%	0.315
D3 If I tried to start a new business, I would have a high chance of being successful.	42 55%	8 12%	5 7%	4 6%	8 12%	2 3%	2 3%	2 3%	2 3%	0	0	1 1%	0.907
D4 I know all about the practical details needed to start a business	44 58%	7 9%	4 6%	4 6%	5 7%	1 1%	2 3%	2 3%	3 4%	2 3%	1 1%	1 1%	0.113

A = African, C = Coloured, I = Indian and W = White

Table 4.15 shows that all the p -values are greater than 0.05. This indicates no significant differences in the students' perceived entrepreneurial skills gained by their level of study. It can be stated with 95% degree of confidence that the second-year and third-year students have comparable perceived gained entrepreneurial skills.

From Table 4.16, it is apparent that there is no significant gender-based difference in the perceived entrepreneurial skills gained by the students. This is evidenced by all the p -values being greater than 0.05. Therefore, there is no significance difference between students of different genders in relation to perceived entrepreneurial skills.

This finding contrasts with the finding of Do Paço *et al.* (2013) where the researchers found that male sports students had higher entrepreneurial intentions than female business students, but also found that female students gained their entrepreneurial intentions through perceived gained entrepreneurial skills.

Table 4.17 shows that there is no significant difference in the perceived gained entrepreneurial skills by respondents of all races, as indicated by the p -values that are above 0.05. This means that the students of all races perceive themselves to have gained entrepreneurial skills, with no real differences in the skills learned by race.

4.3.6.2 Perceived gained entrepreneurial abilities and skills related to previous entrepreneurial experience

This study also relates the students' perceived gained entrepreneurial skills to the students' previous, or current entrepreneurial experience, as well as the students' parents' self-employment status.

The aim is to determine whether the students' entrepreneurial background have any significant influence on their perceived entrepreneurial skills.

Table 4.18 on the next page presents the students' perceived gained entrepreneurial skills and their previous entrepreneurial experience.

Table 4.18: Perceived gained entrepreneurial abilities and skills and previous entrepreneurial experience

Variable sub-question	Agree	Neutral	Disagree	P-value
D1 Starting a firm and keeping it viable would be easy for me	44 60%	19 26%	11 15%	0.376
D2 I am able to control the creation process of a new business	49 66%	15 20%	10 14%	0.572
D3 If I tried to start a business, I would have a high chance of being successful	58 78%	12 16%	4 6%	0.721
D4 I know all about the practical details needed to start a business	58 78%	8 11%	8 11%	0.571

From Table 4.18 above (the corresponding survey questions are Q4D and Q5), it is apparent that the students who have been involved in entrepreneurship before do not necessarily have significantly higher perceived entrepreneurial skills than those who have not been self-employed before. This is evidence by the *p*-values all being greater than 0.05. The difference in the abilities and skills of the two groups of students is not significant.

At this stage, it is important to note that the instrument did not measure the size or level of success of the students' entrepreneurial activities, but just asked whether they have had any self-employment experience. This finding may attest to the effectiveness of entrepreneurship education in instilling good perceived entrepreneurial knowledge to the students, and it is indeed heartening.

Table 4.19 presents the students' perceived gained entrepreneurial skills and the knowledge of their parents' business operations.

Table 4.19: Perceived gained entrepreneurial skills and knowledge of their parents' business operations

Variable sub-question	Agree	Neutral	Disagree	P values
D1 Starting a firm and keeping it viable would be easy for me.	13 (62%) KFB	6 (29%)	2 (10%)	0.721
	11 (58%) FGB	6 (29%)	2 (10%)	0.373
	14 (61%) KMB	4 (17%)	5 (22%)	0.185
	12 (57%) MGB	4 (19%)	5 (24%)	0.189
D2 I am able to control the creation process of a new business.	13 (57%) KFB	8 (35%)	2 (9%)	0.144
	9 (47%) FGB	8 (42%)	2 (11%)	0.17
	14 (61%) KMB	6 (26%)	3 (13%)	0.357
	12 (57%) MGB	6 (29%)	3 (14%)	0.575
D3 If I tried to start a business, I would have a high chance of being successful.	15 (71%) KFB	5 (24%)	1 (5%)	0.709
	13 (68%) FGB	5 (26%)	1 (5%)	0.608
	17 (74%) KMB	5 (22%)	1 (4%)	0.01
	15 (71%) MGB	5 (26%)	1 (5%)	0.235
D4 I know all about the practical details needed to start a business.	17 (81%) KFB	2 (10%)	2 (10%)	0.05
	15 (78%) FGB	2 (11%)	2 (11%)	0.147
	20 (87%) KMB	0	3	0.825
	18 (86%) MGB	0	3 (14%)	0.278

KFB = Know father's business, FGB = Father good at business, KMB = Know mother's business, MGB = Mother good at business

In Table 4.19 above (the corresponding survey questions are Q4D and Q6), most of the *p*-values are greater than 0.05, except in two items of D3 and D4 regarding the students' knowledge of their mothers' business and of the students' knowledge of their fathers' businesses. The statistical significance was observed in two out of four items.

The contribution of the students' knowledge of their fathers and mothers' business seems inconclusive, as it appears in two out of four items; it seems weak but

statistically significant. Therefore, it can be stated with a 95% degree of confidence that the students' knowledge of their parents' businesses has a limited effect on their perceived entrepreneurial skills gained.

This finding leads to the conclusion that most of the students' perceived gained entrepreneurial skills come from entrepreneurship education, which is enhanced by their knowledge of their parents' business operations.

This is another pleasing finding because one of the goals of entrepreneurship education is to capacitate the students to enable them to start business ventures that have a high chance of success owing to their gained entrepreneurial skills. This finding points to the effectiveness of entrepreneurship education in transferring entrepreneurial skills to the students.

4.3.7 Further aspects of entrepreneurship developed from entrepreneurship education

As a way of triangulation, a further question (Q4E of the survey) was asked on how studying entrepreneurship education has helped them to become more aware of the entrepreneurship environment. The responses are presented in Table 4.20 below.

Table 4.20: Aspects of entrepreneurship developed from studying entrepreneurship

Aspect of knowledge gained	Good extent	Neutral	Low extent
Knowledge about the entrepreneurial environment	66 (86.84%)	5 (6.58%)	5 (6.58%)
Greater recognition of the entrepreneurs' role models	60 (78.95%)	11 (14.47%)	5 (6.58%)
The preference to be an entrepreneur	56 (73.68%)	13 (17.11%)	7 (9.21%)
The necessary abilities to be an entrepreneur	62 (81.58%)	7 (9.21%)	7 (9.21%)
The intention to be an entrepreneur	60 (78.95%)	11 (14.47%)	5 (6.58%)
The ability to recognise an entrepreneurial opportunity	56 (73.69%)	14 (18.42%)	6 (7.89%)
Innovativeness and creativity	63 (82.89%)	8 (10.53%)	5 (6.58%)
Problem solving	69 (90.79%)	7 (9.21%)	(0%)

Average	61 (80.67%)	10 (12.5%)	5 (6.58%)
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Table 4.20 above shows that 80.67% (61) of the 77 students who responded to the question state that to a good extent, studying entrepreneurship modules has made them aware of the entrepreneurial environment. A small percentage of the students, 6.58% (5) were not aware of the entrepreneurial environment, while a further 12.5% (10) were ambivalent.

From the statistics in Table 4.20 above, it is apparent that the students have gained other aspects relating to entrepreneurship from entrepreneurship education.

Table 4.21 on the next page will attempt to determine the significant difference in the students' further entrepreneurial aspects gained from studying entrepreneurship by level of study.

Thereafter follow Tables 4.22 and 4.23.

Table 4.22 presents the significant difference in the students' further aspects of entrepreneurship gained from studying entrepreneurship by gender, and Table 4.23 presents the significant difference in the students' further entrepreneurial aspects gained from studying entrepreneurship by race.

Table 4.21: Entrepreneurial aspects gained from studying entrepreneurship by level of study

Aspects of knowledge gained	Agree		Neutral		Disagree		P value
	2 nd year	3 rd year	2 nd year	3 rd year	2 nd year	3 rd year	
E1 Knowledge about the entrepreneurial environment	22 (29%)	44 (58%)	2 (3%)	3 (4%)	1 (1%)	4 (5%)	0.812
E2 Greater recognition of the entrepreneurs role models	20 (26%)	40 (52%)	4 (5%)	7 (9%)	1 (1%)	4 (5%)	0.104
E3 The preference to be an entrepreneur	22 (29%)	34 (45%)	2 (3%)	11 (15%)	1 (1%)	6 (8%)	0.323
E4 The necessary abilities to be an entrepreneur	21 (28%)	41 (54%)	4 (5%)	3 (4%)	0	7 (9%)	0.126
E5 The intention to be an entrepreneur	23 (30%)	37 (49%)	2 (3%)	9 (12%)	0	5 (7%)	0.216
E6 The ability to recognise an entrepreneurial opportunity	20 (26%)	36 (47%)	4 (5%)	10 (13%)	1 (1%)	5 (7%)	0.178
E7 Innovativeness and creativity	22 (29%)	41 (54%)	3 (4%)	5 (7%)	0	5 (7%)	0.358
E8 Problem solving	24 (32%)	45 (59%)	1 (1%)	6 (8%)	0	0	0.394

Table 4.22: Entrepreneurial aspects gained from studying entrepreneurship by gender

Aspects of knowledge gained	Agree		Neutral		Disagree		P-value
	F	M	F	M	F	M	
E1 Knowledge about the entrepreneurial environment	33 (43%)	33 (43%)	3 (4%)	2 (3%)	3 (4%)	2 (3%)	0.887
E2 Greater recognition of the entrepreneurs role models	29 (38%)	31 (41%)	8 (11%)	3 (4%)	2 (3%)	3 (4%)	0.507
E3 The preference to be an entrepreneur	32 (42%)	24 (32%)	3 (4%)	10 (13%)	4 (5%)	3 (4%)	0.205
E4 The necessary abilities to be an entrepreneur	32 (42%)	30 (40%)	4 (5%)	3 (4%)	3 (4%)	4 (5%)	0.604
E5 The intention to be an entrepreneur	31 (41%)	29 (38%)	6 (8%)	5 (7%)	2 (3%)	3 (4%)	0.722
E6 The ability to recognise an entrepreneurial opportunity	29 (38%)	26 (34%)	8 (11%)	6 (8%)	1 (1%)	5 (7%)	0.363
E7 Innovativeness and creativity	35 (46%)	28 (37%)	2 (3%)	6 (8%)	2 (3%)	3 (4%)	0.333
E8 Problem solving	36 (47%)	33 (43%)	3 (4%)	4 (5%)	0	0	0.852

Table 4.23: Entrepreneurial aspects gained from studying entrepreneurship by race

Aspects of knowledge gained	Agree				Neutral				Disagree				P-value
	A	C	I	W	A	C	I	W	A	C	I	W	
E1 Knowledge about the entrepreneurial environment	45 60%	8 11%	5 7%	7 9%	2 3%	1 1%	2 3%	0	4 5%	2 3%	2 3%	0	0.122
E2 Greater recognition of the entrepreneurs' role models	38 51%	8 11%	6 8%	7 9%	8 11%	2 3%	1 1%	0	5 7%	0	0	0	0.584
E3 The preference to be an entrepreneur	38 51%	7 9%	6 8%	4 5%	8 11%	3 4%	1 1%	1 1%	5 7%	0	0	2 3%	0.196
E4 The necessary abilities to be an entrepreneur	43 57%	7 9%	6 8%	5 7%	3 4%	3 4%	1 1%	0	5 7%	0	0	2 3%	0.284
E5 The intention to be an entrepreneur	41 55%	7 9%	7 9%	4 5%	8 11%	3 4%	0	0	2 3%	0	0	3 4%	0.009
E6 The ability to recognise an entrepreneurial opportunity	36 48%	7 9%	5 7%	7 9%	9 12%	3 4%	2 3%	0	6 8%	0	0	0	0.074
E7 Innovativeness and creativity	40 53%	8 11%	7 9%	7 9%	7 9%	1 1%	0	0	4 5%	1 1%	0	0	0.698
E8 Problem solving	46 61%	8 11%	7 9%	7 9%	5 7%	2 3%	0	0	0	0	0	0	0.687

From Table 4.21, it appears that the students' further awareness of the entrepreneurship environment and further entrepreneurial aspects gained as a result of studying entrepreneurship do not differ significantly according to the students' level of study. This is evidenced by the p -values that are all greater than 0.05. This means that entrepreneurship education has produced similar awareness of the entrepreneurship environment among second-year and third-year students.

In Table 4.22, all the p -values are greater than 0.05. This indicates that the students' awareness of the entrepreneurship environment and some entrepreneurial competencies gained are not gender specific. This means that both female and male students have comparable levels of the entrepreneurship environment awareness.

Table 4.23 shows that all of the p -values, except for one, are greater than 0.05. This indicates that the students of all races have gained comparable further entrepreneurial aspects from studying entrepreneurship. However, African students gained more in terms of entrepreneurial intentions from studying entrepreneurship modules, than the other students.

Table 4.24: Summary of entrepreneurial aspects gained from studying entrepreneurship by level of study, gender and race

Aspect of knowledge gained	P-value of study level	P-value of gender	P-value of race
Knowledge about the entrepreneurial environment	0.812	0.887	0.122
Greater recognition of the entrepreneur's role models	0.104	0.507	0.584
The preference to be an entrepreneur	0.323	0.205	0.196
The necessary abilities to be an entrepreneur	0.126	0.604	0.284
The intention to be an entrepreneur	0.216	0.722	0.009
The ability to recognise an entrepreneurial opportunity	0.178	0.363	0.074
Innovativeness and creativity	0.358	0.333	0.698
Problem solving	0.394	0.852	0.687

All the Pearson chi-square p -values in Table 4.24 above are greater than 0.05, except for one: 'the intention to be an entrepreneur'. This indicates that operating at a 95%

degree of confidence, the students comparably gained a greater awareness of the entrepreneurship environment and gained some entrepreneurship competencies such as problem-solving and innovativeness and creativity.

Their level of study, gender or races did not have much influence on the entrepreneurship environment awareness and competencies gained. The only significant difference showed in the intention to become entrepreneurs where the African students benefited more from studying entrepreneurship.

4.4 THE METHODS OF TEACHING ENTREPRENEURSHIP

Trying to determine the effect of entrepreneurship education on entrepreneurial intentions, attitudes and perceived entrepreneurial skills and knowledge gained without looking at how entrepreneurship education is taught would be incomplete. Figure 4.9 below shows how the students responded to the question on how entrepreneurship modules are taught at this particular university.

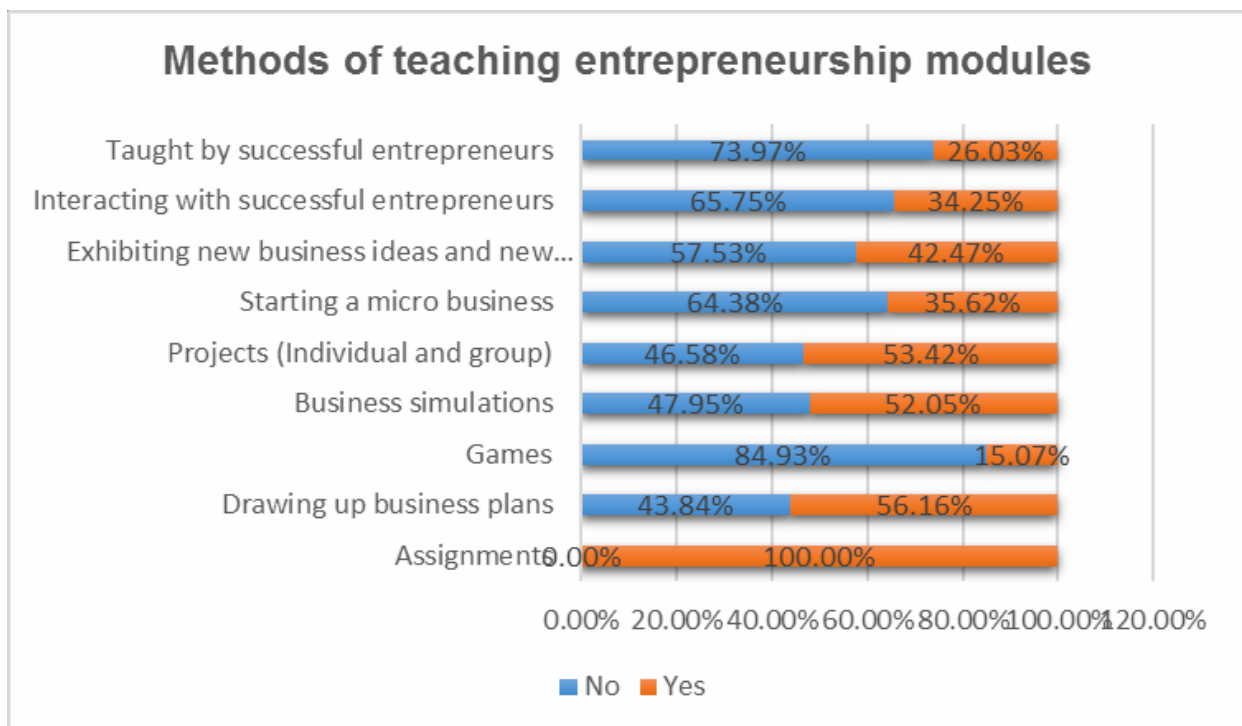


Figure 4.9: How entrepreneurship modules are taught

The students were given a statement and requested to respond by ticking either ‘Yes’ or ‘No’ to indicate the method of teaching that their particular instructors use. The methods of teaching will be presented in the order of the methods that received the highest number of “Yes” ticks to the lowest. From Figure 4.9 above figure, it is notable

that the respondents indicate that the common way of teaching is through assignments (100% of the respondents affirmed), followed by drawing up business plans (56.16%), projects (53.42%) and business simulations (52.05%).

It would further appear that more practical ways of teaching entrepreneurship are not always practised, and this is a typical methodology for ODL institution(s). This is evidenced by 84.93% of entrepreneurship respondents indicating a lack of entrepreneurial games, while 64.38% of the student respondents indicated that they did not start a micro business, and a further 65.75% of the respondents indicated that there is insufficient interaction with successful entrepreneurs. A further 73.97% of the respondents stated that successful entrepreneurs are not invited to teach them.

Student assignments (100%) and the drawing up of business plans (56.16%) seem to be a widely-practiced mode of education delivery at the university under study, as evidenced by Figure 4.9 above. However, some forms of practical education are used, though not extensively, as computer business simulations and projects are used (+/- 52 and 53%), respectively. A further 42% of the students indicated that they were given an opportunity to exhibit their new innovative products before the academic staff. The university has week-long annual 'Entrepreneurship Week' around September, where the students can exhibit their business ideas.

Of the students that responded in the affirmative, the researcher compared their affirmative responses to the level of study to determine whether there is any significant difference by level of study in the way that entrepreneurship education is taught. The intuitive expectation of the researcher was that education would probably be more theoretical among the second-year students who are studying entrepreneurship for the first time.

The Table 4.25 below gives a presentation of the methods used to teach entrepreneurship modules by level of study among the students that had responded in the affirmative. Therefore, it is important to know the methods used to teach the modules, as more practical methods of teaching are more likely to produce higher levels of entrepreneurial intentions among the students.

Table 4.25: Ways of teaching entrepreneurship by level of study

Method of teaching	Frequencies (Proportions)	Frequencies (Proportions)	P-value
Drawing up business plans	8 (33%)	25 (50%)	1.823
Projects	11 (46%)	24 (48%)	0.031
Business simulations	10 (42%)	26 (52%)	0.693
Exhibiting new business ideas	12 (50%)	31 (62%)	0.959
Starting a micro business	14 (58%)	34 (68%)	0.665
Interacting with successful entrepreneurs	14 (58%)	35 (70%)	0.987
Being taught by successful entrepreneurs	17 (71%)	37 (74%)	0.082
Games	18 (75%)	45 (90%)	2.883
Assignments	24 (100%)	50 (100%)	0

Of the 74 students who completed this question, 24 were second-year students and 50 were third-year students. There were no significant similarities of opinions among the second-year and third-year students regarding the methods of teaching entrepreneurship. The more practical methods of teaching entrepreneurship seem to be employed mostly among third-year students. The traditional method of teaching and assessment of assignments is equally employed among both the second-year and third-year students. A significant similarity of teaching method among the two levels of students also occurred in the category of projects, as evidenced by a *p*-value of less than 0.05.

Therefore, it can be stated with a 95% degree of confidence that assignments and projects are the most popular methods of teaching entrepreneurship modules among both the second-year and third-year students at this university.

It would be desirable to increase the practical methods of teaching entrepreneurship, such as more engagement in simulations, games and students being taught by successful entrepreneurs. Charney and Libecap (n.d.) of the Kauffman Center for Entrepreneurial Leadership at the University of Arizona, and Piperopoulos and Dimov (2015) underscore that when entrepreneurship is taught in a more practical manner, it has a more positive effect on the students' entrepreneurial intentions. By practical

teaching methods, the students are not just trained in entrepreneurship but for entrepreneurship.

The research investigated the effect of entrepreneurship education on the students' entrepreneurial intentions. Therefore, it was fitting to look at the way entrepreneurship education is taught at this particular university.

4.5 SUMMARY

The chapter presented the main findings of the study. The findings show that entrepreneurship education has a weak but statistically significant positive linear relationship with the students' entrepreneurial intentions, particularly among African students who gained more entrepreneurial intentions from studying entrepreneurship modules, than other students of other races in South Africa. This means that entrepreneurship education has a positive influence on the students' entrepreneurial intentions. There is no difference in the entrepreneurial intentions of the males and female students. There is a very slight significant difference in the students' intentions by level of study because only in one of the four items did the third-year students score higher than second-year students.

The students who have self-employment experience do not have significantly higher entrepreneurial intentions than those who were never self-employed. The students who have self-employed parents also do not have significantly higher entrepreneurial intentions than those whose parents are not self-employed.

Entrepreneurship education has a weak but significant positive linear relationship with the students' entrepreneurial attitudes. This means that entrepreneurship education has a weak, but significant influence on the students' entrepreneurial attitudes. There was no difference in the students' attitudes towards entrepreneurship by gender and race. There was a marginal difference in the students' entrepreneurial attitudes by level of study, where third-year students scored higher than second-year students in the area of the level of satisfaction that the students would derive from being entrepreneurs.

Social norms do have a positive influence on the students' choice of entrepreneurship as a career. The students who were previously, or are currently, self-employed do not necessarily have higher entrepreneurial intentions than the students with a different

entrepreneurial background. Neither do the students who have self-employed parents have higher entrepreneurial intentions than the students who do not have self-employed parents.

The students' perceived entrepreneurial skills and perceived greater awareness of the entrepreneurship environment gained immensely from the study of entrepreneurship modules. Gender, race, level of study, the students' own entrepreneurial experience and their parents' entrepreneurial background do not have any significant influence on the students' entrepreneurial perceived skills gained as a result of studying entrepreneurship modules. Social norms do have an influence on the students' entrepreneurial intentions. The students who know their parents' businesses have a weak but statistically significant higher levels of perceived entrepreneurial skills. There is no distinction in the effect of social norms on the students' perceived entrepreneurial skills by race or gender.

The students who have personal entrepreneurial background or have parents who are self-employed do not necessarily seem to have higher entrepreneurial intentions and better entrepreneurial attitudes than the students with different backgrounds.

The most common methods of teaching the entrepreneurship modules are mainly through assignments and projects, both individual and group projects. Some of the students attest to other forms of teaching entrepreneurship modules including, among others, business simulations, drawing up business plans and exhibiting new business ideas to their lecturers. It would appear that the more practical methods of teaching are employed among the third-year students.

The next chapter presents and discusses the findings of the study, and compares them to the findings of other similar studies. A brief summary of the discussion and recommendations, based on the findings of the study, is presented, and areas where further research still needs to be done are pointed out.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter provides an overview of what has been covered in the previous chapters. This specifically includes an overview of the literature consulted during this research, the objectives of the study; primary and secondary objectives, as well as the hypothesis. This includes a discussion of the hypotheses that were upheld and those that were rejected, based on statistical evidence.

The findings of the study and how they contribute to the science of entrepreneurship are also discussed, as well as the limitations encountered in the study. Recommendations for further research will be outlined, and lastly a summary of the whole research study will be presented.

5.2 OVERVIEW OF THE LITERATURE STUDY

This research aimed to study the effect of entrepreneurship education on the students' entrepreneurial intentions. In the study of intentions, the Theory of Planned Behaviour (TPB) was used. The TPB states that intentions are a function of a favourable attitude towards a particular behaviour, the perceived feasibility of a behaviour, and the influence of social norms. It was important for this research to study the intentions because intentions are the best predictors of behaviour.

This study also aimed to investigate whether entrepreneurship education in an ODL context would affect the students' attitudes towards entrepreneurship, and whether entrepreneurship education would give them the perception that they had the ability to start and run successful enterprises. The effect of the influence of the expectations of friends, family and colleagues was also investigated.

Linàn *et al.* (2011) state that entrepreneurship education affects the students' attitudes towards entrepreneurship in a positive way. In some studies, a favourable attitude towards entrepreneurship is cited as the biggest contributor to entrepreneurship intentions. Do Paco *et al.* (2015) also indicated that male students tend to have higher entrepreneurial attitudes, as they tend to regard entrepreneurship as a natural male

career. Entrepreneurship education has been found to affect the students' entrepreneurial attitudes positively, both in developed and developing countries.

Entrepreneurship education has also been found to affect the students' perceived entrepreneurial feasibility, with Do Paco *et al.*; (2015) indicating that female entrepreneurship students' perceived gained entrepreneurial skills contribute more to their entrepreneurial intentions. Again, there is no difference in the perceived gained entrepreneurial feasibility among the students in developed and developing countries.

With regards to social norms, which are the influence of the expectations of family, friends and colleagues on the students' choice of entrepreneurship as a career, there are inconclusive findings. In some countries, social norms have been found to contribute to entrepreneurial intentions, while in others it did not have much bearing, or none, on the students' entrepreneurial intentions.

Most studies have concluded that entrepreneurship education produces entrepreneurial intentions among the students who are studying the entrepreneurship modules. One of the few studies is that of Oosterbeek *et al.* (2010) that was conducted among vocational college students in the Netherlands, that found a negative effect of entrepreneurship education on the students' entrepreneurial intentions. There are not many studies with this similar finding.

For entrepreneurship education to be even more effective, the experts recommend that the methods of teaching entrepreneurship need to be more practical, including allowing entrepreneurship students to start and run their small business during their period of study, to gain practical experience.

5.3 RESEARCH OBJECTIVES REVISITED

The primary objective of this study was to determine whether entrepreneurship education has an effect in stimulating entrepreneurial intentions among university students in an ODL context, as well as to investigate the effect of the students' entrepreneurial background on their entrepreneurial intentions.

5.3.1 Primary objective revisited

The primary objectives of the study were:

- to determine the effect of entrepreneurship education on the students' entrepreneurial intentions in an ODL context; and
- to investigate the effect of entrepreneurship students' entrepreneurial background on their entrepreneurial intentions.

5.3.2 Secondary objectives revisited

In order to achieve the primary objective of the study, the specific objectives pursued are to:

- determine if there is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions;
- establish whether there is a positive linear relationship between entrepreneurship education and the students' attitudes towards entrepreneurship;
- determine whether there is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility;
- establish whether there is a positive linear relationship between social norms and students' entrepreneurial intentions;
- determine the effect of their parents' self-employment status on the students' entrepreneurial intentions; and
- determine the effect of the students' own previous and current entrepreneurial experience on their entrepreneurial intentions.

5.4 HYPOTHESES REVISITED

In order to achieve the above objectives, the following hypotheses were formulated and were tested in Chapter 4. This section revisits the hypotheses and discusses which ones were rejected and which ones were upheld, based on the statistical analysis.

H₁ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial intentions.

The hypothesis was proved to be **true** and was accepted. The students had gained entrepreneurial intentions, and equally so among male and female students. African students had gained more entrepreneurial intentions than students of other races.

H₂ There is a positive linear relationship between entrepreneurship education and the students' entrepreneurial attitudes.

This hypothesis was found to be **true** and was thus accepted. The students had gained a positive attitude towards entrepreneurship, as a result of them studying entrepreneurship modules in an ODL context. There were no differences in the attitudes gained by gender or race, however, third-year students had somewhat better entrepreneurial attitudes than the second year students.

H₃ There is a positive linear relationship between entrepreneurship education and the students' perceived entrepreneurial feasibility.

This hypothesis was accepted as **true**. The students perceived that they had gained the knowledge and entrepreneurial skills that gave them the confidence that they could start and run successful enterprises. There were no differences in perceived gained entrepreneurial skills by level of study, gender or race.

H₄ There is a positive linear relationship between social/subjective norms and the students' entrepreneurial intentions.

This hypothesis was accepted as **true**. All the students indicated that the expectations of their family, friends and colleagues would influence their decisions to choose entrepreneurship as a career. There were no differences along racial lines, gender or level of study.

H₅ Their parents' self-employed status has an effect on the students' entrepreneurial intentions.

This hypothesis was rejected as **untrue**. There was no statistically significant difference between the entrepreneurial intentions of the students with self-employed parents and those who did not have self-employed parents. Chlosta *et al.* (2012:121) state that children from backgrounds that have self-employed parents will have higher entrepreneurial intentions than the ones who come from a different background. It would appear that in a society that accepts and embraces entrepreneurship as a worthy career, the effect of personal background of entrepreneurial parents diminishes as all children are becoming exposed to entrepreneurial role models.

H₆ The students' own entrepreneurial experiences have an effect on their entrepreneurial intentions.

This hypothesis was rejected as **untrue**. Both the students who were self-employed at one stage in the past, or currently during the conduct of the study, and those who were not or never self-employed, had similar entrepreneurial intentions. There was no statistically significant difference between their entrepreneurial intentions. The explanation between the similar entrepreneurial intentions could also be explained by a society that embraces entrepreneurship as a respectable career.

Table 4.2 in Chapter 4 shows that attitude has a positive linear relationship of $r = 0.8434$ to intentions, with a statistical p value of $<.0001$. This means that attitude is the biggest contributor to intentions. This finding corroborates the findings of Linàn *et al.* (2011a) whose survey has been shortened and used in this study. The relationship between social norms and attitudes is $r = 0.6313$, which is strong since it is above 0.5. The accompanying statistical p value is $<.0001$, which makes the relationship between social norms and attitudes significantly strong. This means that entrepreneurship education has a weak but significant influence on attitudes, and social norms contribute quite significantly to the students' entrepreneurial attitudes, and attitudes are the biggest contributor to the students' entrepreneurial intentions.

There is no linear relationship between entrepreneurial education and social norms.

5.5 CONTRIBUTION TO THE SCIENCE OF ENTREPRENEURSHIP

This study has found the following facts that could contribute to the science of entrepreneurship:

- Entrepreneurship modules can raise the students' entrepreneurial intentions through raising or positively affecting their entrepreneurial attitudes and their perceived gained entrepreneurial skills that give them the confidence to believe that it is feasible for them to start and run successful enterprises.
- Students from a background of less entrepreneurial activity gain more entrepreneurial intentions from entrepreneurship education, as witnessed by African students gaining more entrepreneurial intentions.

- Students who have studied entrepreneurship for a longer period do seem to have better entrepreneurial intentions and significant entrepreneurial attitudes.
- When society views entrepreneurship as a respectable career, the effect of the students' entrepreneurial background on their entrepreneurial intentions diminishes, or they do not exhibit higher entrepreneurial intentions than the students who come from non-entrepreneurial backgrounds.

5.6 IMPLICATIONS TO THEORY AND PRACTICE

Some studies (Chlosta *et al.*, 2012; Fatoki, 2014b) stated that children who come from backgrounds with self-employed parents tend to have higher entrepreneurial intentions. These studies have also found that the children are more affected when they have better knowledge and understanding of their parents' businesses, and are affected the most by their mothers' businesses. These studies also found that the broader the parents' business operations, and the more the children perceive the businesses to be successful, the more that the children will be affected and have more entrepreneurial intentions.

The following applies to the current research study being reported on:

- From this study, it appears that the students' exposure to successful entrepreneurial role models in society raises their entrepreneurial intentions, thus eliminating the distinction between whether the student is from an enterprising background or not. It would thus appear that the influence of the students' entrepreneurial background on their entrepreneurial intentions is more prevalent, or more pronounced, in a society that has less visible successful entrepreneurs.
- In practice, it would be more beneficial to the students if lecturers invite successful entrepreneurs for guest lecturing, to enable them to share their real-life entrepreneurship experiences with the students. This would improve the students' entrepreneurial attitudes, skills and intentions, and the students would also learn about real-life entrepreneurship challenges and strategies on how to overcome them. It would give them a reality perspective of what to expect in real life, which could potentially help them to transition from entrepreneurial intentions to actually acting on their intentions. In a non-contact environment, the power of technology can be used to benefit the students; e.g. pre-record video cast of lectures by

successful entrepreneurs. The down side of this method is that there is no interaction with the successful entrepreneurs. Also, there could be live lectures on Zoom or Teams, or any other available technology, and allow for live interaction. However, the cost of data should be taken into consideration.

- In practice, this would require that students should start their small businesses; possibly with future growth potential, under the mentorship and guidance of successful entrepreneurs. This mentorship should not end when the students graduate, but should continue to see them grow the businesses they started as students into meaningful growing enterprises.
- In practice, this would also mean that the lecturers who are teaching entrepreneurship modules should themselves be involved in enterprises of some sort, so that they teach entrepreneurship modules from a personal practical perspective, since entrepreneurship is a practical course.

5.7 LIMITATIONS OF THE STUDY

The main limitation of the study is the relatively small sample size. Out of a population size of 1 743 students (both second-year and third-year), the researcher received 92 (5.23%) responses. The low response rate was to be expected, as this is typical of online surveys which are known for low response rate compared to the paper surveys. Of the 92 responses received, 73 (4.19%) were complete. All the responses were from eligible respondents, as the survey link was sent only to the eligible population. The study was allowed to send the survey once and to send one reminder only. As a result of the low response rate, no claim of generalisability of the results can be made and therefore the results are only applicable to the university where the study was conducted.

There was no control group used in the study, to prove that the students' entrepreneurial intentions are solely formed by entrepreneurship modules, and only the students' perceptions were measured. However, the fact that the study found that African students, who traditionally come from a background or little or restricted entrepreneurial activity, have gained more entrepreneurial intentions from studying entrepreneurship modules, tends to affirm the effect of education on the students' entrepreneurial intentions, thus offsetting this limitation.

The study was cross-sectional, and not longitudinal, and did not measure the students' entrepreneurial intentions before registering for the entrepreneurship modules. Though pre- and post-test measurements are desirable, in practice, it would be impossible in terms of how the study was developed, for example, the students who intended to register for entrepreneurship modules would have to be identified before they register, their entrepreneurial intentions would have to be measured and then measured again in their second-year and third-year studies. Although this is desirable, it would prove improbable for a three-year qualification research. Also, the sample sizes would vary every year, as some students would not register for the entrepreneurship modules again, or get weary and drop out of a longitudinal study.

5.8 RECOMMENDATIONS AND FURTHER RESEARCH

The recommendations that emanate from the findings of the study are presented below.

- Entrepreneurship modules, though effective, particularly where entrepreneurial intentions seem to be initially low, need to be taught in more practical ways.
- Entrepreneurship lecturers need to think of ways of bringing successful entrepreneurs as guest lecturers to share their real-life entrepreneurship experiences with the students. The power of technology could be leveraged, particularly in a non-contact institution. The lecturers could use pre-recorded podcasts or video casts, where successful entrepreneurs are teaching. Alternatively, short interactive live sessions on Teams could be used.
- The lecturers themselves need to be involved in enterprising activities, so as to teach entrepreneurship modules from practical experience.
- The students need to start small businesses while studying, preferably under the mentorship of successful entrepreneurs, so as to give them the practical feel of entrepreneurship. This could potentially close the gap between entrepreneurial intentions and start-up, and the students could actually start or grow the small businesses that they started while studying. This could lead to the desired improved entrepreneurial activity in the country. This could be another area of research to determine whether this would help the students to act on their intentions or not.

- Have an Internship Programme of placing the students in businesses, to gain practical entrepreneurship knowledge could be beneficial. The programme should also aim at placing the students in manufacturing businesses, in order not to clutter the already saturated retail space in South Africa. Operations/Project/Manufacturing/Materials and Purchasing Management students could also be part of such a placement programme.
- The study has found a positive effect of successful role models on entrepreneurial intentions. However, every successful entrepreneur has had obstacles and challenges on the way that they had to learn to overcome. To avoid creating an expectation of seamless success in the students, which could be detrimental to their tenacity, it could be beneficial to the students if the university or relevant department could organise regular visits to Incubation Centres. In this way, the students will learn from entrant entrepreneurs the challenges that they face and how to prepare for similar challenges and how to overcome them. This will give the students a balanced sense of reality and they will not be caught unaware, unprepared and tempted to quit on their entrepreneurial goals when facing challenges. This is part of learning and growing.
- The study has found a positive relationship between entrepreneurship education and the students' entrepreneurial intentions. Based on this finding, the university could make it mandatory for every undergraduate student to enrol for at least one entrepreneurship module during their study tenure. This could create entrepreneurial intentions in more students, especially in a country that is facing challenges of high unemployment rate. If the students could start their own businesses, that could create employment, which in turn could reduce the social ills and reduce the widening gap between those who have and those who have not.
- This study suggests that in a society where entrepreneurship is accepted and respected as a worthy career, the influence of the students' own entrepreneurial background diminishes. This would need to be studied further, using larger sample sizes.
- The combined effect of entrepreneurship education and knowledge of and exposure to role models, possibly using a stepwise regression analysis would be

desirable to investigate the effect of each on the students' entrepreneurial intentions.

- A further study needs to be conducted involving a larger sample to allow generalisation of the results, preferably including students from a number of universities, and not only students from a single university.

5.9 SUMMARY AND CONCLUSION

The study found that entrepreneurship students gained entrepreneurial intentions, attitudes and feasibility. This finding is consistent with the finding of Liñán *et al.* (2011a). The findings of this study were compared to that of the afore-cited authors, as the instrument used in this study was adapted from their instrument, with their permission (Appendix B). Liñán *et al.* (2011a) found that positive entrepreneurial attitude and perceived gained entrepreneurial feasibility were the strongest contributors to their students' entrepreneurial intentions, and that the students with low initial intentions tended to gain the attributes of attitudes and feasibility more. All students in this study had confessed that social norms would have an effect on their entrepreneurial intentions.

On closer scrutiny, African students gained more entrepreneurial intentions from studying entrepreneurship modules, in comparison to students of other races. Liñán *et al.* (2011a) found that the students with initial low levels of intentions tended to gain more intentions from entrepreneurship education. This confirms the effect of entrepreneurship modules on the students' entrepreneurial intentions, and this study confirms the findings of Liñán *et al.* (2011a). There was no difference in the students' intentions along gender lines. The study also confirmed that third-year students had statistical significant higher intentions than second-year students; proving the effect of the longer period of study on intentions.

In terms of entrepreneurial attitudes gained, there were no differences by gender or race. However, an analysis by the level of study yielded an inconclusive or weak but statistically significant difference, favouring the third-year students. There were four items that measured attitudes by level of study, as presented in Table 4.6, and in only one out of four was there a statistically significant difference.

Regarding the gained perceived feasibility, the students had gained equally from studying entrepreneurship modules, with no significant differences by race, gender or level of study. However, the students who knew their fathers and mothers' business operations seemed to portray weak but significant perceived gained entrepreneurial skills and feasibility.

Chlosta *et al.* (2012) and Keat *et al.* (2011) found that students with an entrepreneurial background tend to display higher entrepreneurial intentions, particularly if the mother is self-employed and the children are more familiar with the mother's business operations. Liñán *et al.* (2011b) show their agreement with this by stating that environment entrepreneurship valuation has an effect on the behaviour of an individual. They differentiate between the immediate and wider environment, with the links and influence of the immediate, or local environment, having a bigger effect on the individual's behaviour. Contrary to their studies, in this study the students who had previous personal entrepreneurial experience and those whose parents were self-employed, did not have greater entrepreneurial intentions than those with a different background. Not even the students whose parents were both self-employed had greater intentions. However, a smaller sample could have contributed to this contrary finding, as differences tend to be significant in bigger samples.

5.9.1 CONCLUSION

The Theory of Planned Behaviour, which the researcher used to measure the students' entrepreneurial intentions, states that intentions are formed when there are favourable attitudes, perceived feasibility and the influence of social norms.

This study found that entrepreneurship education does have an effect on the students' entrepreneurial intentions, attitudes and perceived feasibility. This finding is consistent with the findings of Liñán *et al.*; (2011a) who found that attitude and perceived feasibility contribute more towards intentions. These researchers also state that the students with low initial intentions tend to gain more from education. This current study has found that African students; who in the South African context come from an environment of less prevalent entrepreneurship, have gained more entrepreneurial intentions than the students of other races studying the same modules in a similar manner, since all entrepreneurship module are blended modules. This finding answers and confirms the primary objective of this study that there is a positive linear

relationship between entrepreneurship education and the students' entrepreneurial intentions.

Studies by Chlosta *et al.* (2012) and Keat *et al.* (2011) advocate that students who come from a background of self-employed parent(s) tend to have higher entrepreneurial intentions. Liñán *et al.*; (2011b) state that the environmental valuation of entrepreneurship tends to have an influence on the individual, and they breakdown the environment into the local and wider circles, with the local or more immediate environment having closer ties with the individual and therefore exerting more influence on their behaviour and choices. This is in agreement with Chlosta *et al.*'s (2012) and Keat *et al.*'s (2011) findings and means that the students with self-employed parents will have higher entrepreneurial intentions. However, in this study, the findings were contrary to that of the afore-mentioned researchers. There was no statistically significant difference between the entrepreneurial intentions of the students who come from an entrepreneurial background and those who do not. Not even when both parents were self-employed, and not even when they were familiar with the mother's business, nor when they considered their fathers to be astute entrepreneurs. The lack of differences in the intentions of students with different backgrounds could point to the students being exposed to successful entrepreneurs, in return indicating a society where entrepreneurs are celebrated. However, a point of caution here is that the sample size was small, and the number of students who come from an entrepreneurial background was even smaller. Perhaps the results could have been different if the study had a higher number of respondents.

The students participating in the study indicated that social norms would have an influence on their entrepreneurial intentions, even African students who largely come from a background of less prevalent entrepreneurship. This could indicate a shift in the South African society in its valuation of entrepreneurship. The finding of no difference in the entrepreneurial intentions of students with various entrepreneurial backgrounds also wants to lend weight to the tentative assertion of a shift in the South African society's valuation of entrepreneurship. According to literature, the students from an enterprising background should have more intentions than the others, but this study found that they do not. The fact that they do not, could signal the influence of the visibility of successful entrepreneurs in society, thus changing the society's valuation of entrepreneurship.

The other possible explanation for virtually no different intentions among students of various background, could be the way that entrepreneurship modules are taught. About 26% and 34% of second and third-year students respectively, indicated that successful entrepreneurs are brought into the classroom, to teach them and interact with them. According to Liñán *et al.* (2011b), close ties with people who value entrepreneurship would influence the intention and behaviour.

The students had also gained a greater awareness of the entrepreneurship environment and some entrepreneurial aspects, from studying entrepreneurship modules. However, if there is indeed a shift in the South African society's valuation of entrepreneurship, it would seem to be in its infancy in some quarters, and may not have permeated some sections of society adequately, as African students still gained the most entrepreneurial intentions from studying entrepreneurial modules, indicating the low initial intentions. This finding asserts the effect of entrepreneurship education on entrepreneurial intentions.

Entrepreneurship education affects entrepreneurial intentions through shaping positive entrepreneurial attitudes and fostering entrepreneurial abilities and skills. Social norms also have a positive effect on entrepreneurial intentions. The prevalent visibility of successful entrepreneurship role models has a positive relationship to entrepreneurial intentions.

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**APPENDIX A:
ETHICAL CLEARANCE CERTIFICATE**



08 February 2017

Ref #: 2017_CEMS_ESTTL_001

**DEPARTMENT OF ENTREPRENEURSHIP, SUPPLY CHAIN, TRANSPORT, TOURISM AND
LOGISTICS MANAGEMENT RESEARCH ETHICS REVIEW COMMITTEE**

This is to certify that the application for ethics clearance submitted by
Ms Muriel Kgomotso Gill (student number 57653615, gillmk@unisa.ac.za)
The effect of entrepreneurship education on students' entrepreneurial intention at the University
of South Africa
received Ethics Approval

The application for ethics clearance for the above mentioned research was reviewed in an expedited review by the Department of Entrepreneurship, Supply Chain, Transport, Tourism and Logistics Management Research Ethics Review Committee in January 2017 in compliance with the Unisa Policy on Research Ethics. Ethical Clearance for the project is granted. You may proceed with the research project.

The research ethics principles outlined by the Unisa Policy on Research Ethics must be adhered to throughout the project. Please be advised that the committee needs to be informed should any part of the research methodology as outlined in the Ethics application (Ref #2017_CEMS_ESTTL_001) change in any way or in case of adverse events. This certificate is valid for the duration of the project. The ESTTL Research Ethics Review Committee wishes you all the best with this research undertaking.

Kind regards,

**Mrs C Poole
Chairperson**

Executive Dean: CEMS



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APPENDIX B:

PERMISSION TO USE SURVEY INSTRUMENT

From: Francisco Liñán <flinan@us.es>
Sent: 11 May 2016 9:37 AM
To: Gill, Muriel <gillmk@unisa.ac.za>
Subject: Re: Entrepreneurial Intention Questionnaire

Dear Muriel,
Thank you for your interest in our work.
Please find attached 3 versions of the EIQ and the papers in which they were used.
The first versions (EIQ2 and EIQ3) are designed as aggregated scales. The papers in which they were used are Liñán & Chen (2009) and Liñán, Urbano & Guerrero (2011), respectively.
More recently, within the VIE Project (<http://institucional.us.es/vie>), we have developed a newer and more refined questionnaire. In it, Personal Attitude and Subjective Norm has been measured by pondering personal beliefs with the relevance attached to each belief. I attached this newer version of the questionnaire (Original in Spanish, the translation made by ourselves), and one of the papers in which it was used (Liñán, Moriano & Jaén, 2016).
You can use them as you feel is best, but do please acknowledge your source.
Best regards,

--
Prof. Francisco Liñán
Universidad de Sevilla // University of Seville
Av. Ramon y Cajal, 1. E41018 - Sevilla (Spain)
T: +34.954554487. F: +34.954551636. M: +34.654982383. Skype: franciscolinanalcalde
Web: <http://personal.us.es/flinan> ; <http://www.masteremprededoresus.com/>

Fayolle, Kyrö & Liñán (Eds.) (2015): *Developing, Shaping And Growing Entrepreneurship*. Edward Elgar.
http://www.e-elgar.com/bookentry_main.lasso?currency=US&id=16255

APPENDIX C: INFORMED CONSENT LETTER



Ethical clearance #:¶

Research permission #:¶

¶
COVER LETTER TO AN ONLINE ANONOMOUS WEB-BASED SURVEY¶

¶
Dear Prospective participant,¶

¶
You are invited to participate in a survey conducted by Ms. Muriel Kgomotso Gill under the supervision of Professor Edward Rankhumise, an Acting Executive Dean at the Faculty of Commerce at Tshwane University of Technology, in the Department of Entrepreneurship, Supply Chain, Transport, Tourism and Logistics Management, towards a M. Comm at the University of South Africa.¶

¶
The survey you have received has been designed to study the effects of entrepreneurship education on the students' entrepreneurial intentions. You were selected to participate in this survey because you are an entrepreneurship student and you are older than 18 years old. By completing this survey, you agree that the information you provide may be used for research purposes, including dissemination through peer-reviewed publications and conference proceedings.¶

¶
It is anticipated that the information we gain from this survey will help us to gain more understanding about the effects of entrepreneurship education on the students' entrepreneurial intentions. You are, however, under no obligation to complete the survey and you can withdraw from the study prior to submitting the survey. The survey is developed to be anonymous, meaning that we will have no way of connecting the information that you provide to you personally. Consequently, you will not be able to withdraw from the study once you have clicked the send button based on the anonymous nature of the survey. If you choose to participate in this survey it will take up no more than twenty (20) minutes of your time. You will not benefit from your participation as an individual, however, it is envisioned that the findings of this study will provide the university with an understanding of the impact of entrepreneurship education and how to teach it, and may act as an input into the institution's and economic development policies. We do not foresee that you will experience any negative consequences by completing the survey. The researcher undertakes to keep any information provided herein confidential, not



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to let it out of our possession and to report on the findings from the perspective of the participating group and not from the perspective of an individual.¶

¶

The records will be kept for five years for audit purposes where after it will be permanently destroyed; hard copies will be shredded and electronic versions will be permanently deleted from the hard drive of the computer. You will not be reimbursed or receive any incentives for your participation in the survey.¶

¶

The research was reviewed and approved by the UNISA Department of Entrepreneurship, Supply Chain, Transport, Tourism & Logistics Management (DESTTL) Research Ethics Review Committee. The primary researcher, Ms. Muriel Kgomotso Gill, can be contacted at murielkqill@yahoo.com. The study leader, Professor Edward Rankhumise, can be contacted during office hours at Edward Rankhumise RankhumiseEM@tut.ac.za. Should you have any questions regarding the ethical aspects of the study, you can contact the Chairperson of the (DESTTL) Research Ethics Review Committee; Ms. Carmen Poole, at loedoc@unisa.ac.za. Alternatively, you can report any serious unethical behaviour at the University's Toll-Free Hotline 0800-86-96-93.¶

¶

You are making a decision whether or not to participate by continuing to the next page. You are free to withdraw from the study at any time prior to clicking the send button.¶



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APPENDIX D: SURVEY INSTRUMENT

A SURVEY: MEASURING THE STUDENTS' ENTREPRENEURIAL INTENTIONS AND THEIR ANTECEDENTS.

Q1.

Year/level of study	2 nd Year	3 rd Year

Q2.

Gender	Male	Female

Q3.

Race group	African	Indian	Coloured	White	Other

Question 4

Measures your attitude towards entrepreneurship, your perceived entrepreneurial abilities/skills and entrepreneurial intentions.

A. ENTREPRENEURIAL INTENTION

Now that I am studying entrepreneurship my INTENTION towards entrepreneurship is as follows: Please tick the box that you most agree with **1 = Totally disagree, 2 = Strongly disagree, 3 = Disagree, 4 = Neutral, 5 = Agree, 6 = Strongly agree and 7 = Totally agree.**

My intention towards entrepreneurship

Entrepreneurial intention	1	2	3	4	5	6	7
1. I am ready to do anything to be an entrepreneur							
2. I will make every effort to start and run my own business							
3. I am determined to create a business venture in the future							
4. My professional goal is to be an entrepreneur							

B. Now that I am studying entrepreneurship, my **ATTITUDE TO BECOMING AN ENTREPRENEUR** is as follows: Please tick next to a box that you most agree with **1 = Totally disagree, 2 = Strongly disagree, 3 = Disagree, 4 = Neutral, 5 = Agree, 6 = Strongly agree and 7 = Totally agree.**

Entrepreneurial attitude	1	2	3	4	5	6	7
1. A career as an entrepreneur is totally attractive to me							
2. Amongst various options, I would rather be an entrepreneur							
3. Being an entrepreneur would give me great satisfaction							
4. Being an entrepreneur implies more advantages than disadvantages to me							

C. SOCIAL NORMS

Please tick next to a box that you most agree with **1 = Totally disagree, 2 = Strongly disagree, 3 = Disagree, 4 = Neutral, 5 = Agree, 6 = Strongly agree and 7 = Totally agree.**

Social norms	1	2	3	4	5	6	7
1. My friends would approve of my decision to start a business							
2. My immediate family would approve of my decision to start a business							
3. My colleagues would approve of my decision to start a business							

D. ENTREPRENEURIAL ABILITIES/SKILLS

Now that I am studying entrepreneurship, my perceived **ENTREPRENEURIAL ABILITIES/SKILLS** are as follows: Please tick next to a box that you most agree with **7 = Very high aptitude, 6 = High aptitude, 5 = Good 4 = Neutral 3 = Bad 2 = Low aptitude 1 = No aptitude at all.**

My Perceived entrepreneurial abilities/skills

Perceived entrepreneurial feasibility	1	2	3	4	5	6	7
1. Starting a firm and keeping it viable would be easy for me							
2. I am able to control the creation process of a new business							
3. If I tried to start a business, I would have a high chance of being successful							
4. I know all about the practical details needed to start a business							

E. ENTREPRENEURSHIP EDUCATION

To what extent has the **ENTREPRENEURSHIP MODULES** you have taken helped you develop any of the following aspects? Indicate from **1 = To no extent at all, 2 = To a small extent 3 = Neutral, 4 = To some extent, 5 = Completely.**

Entrepreneurship Education	1	2	3	4	5
1. Knowledge about the entrepreneurial environment					
2. Greater recognition of the entrepreneurs role models					
3. The preference to be an entrepreneur					
4. The necessary abilities to be an entrepreneur					
5. The intention to be an entrepreneur					
6. The ability to recognise an entrepreneurial opportunity					
7. Innovativeness and creativity					
8. Problem solving					

F. Please indicate how entrepreneurship education is taught (TEACHING METHODS). Please tick the appropriate box; 'Yes' if the method is used or 'No' if the method is not used.

Entrepreneurship Education	Yes	No
1. Assignments		
2. Drawing up business plans		
3. Games		
4. Business simulations		
5. Projects (Individual and group)		
6. Starting a micro business		
7. Exhibiting new business ideas and new innovative products		
8. Interacting with successful entrepreneurs		
9. Being taught by successful entrepreneurs		

Q5. Have you ever been self-employed (Independent worker of business owner)? Please tick the relevant option.

Yes _____ No _____

If Yes,

- a. How long? (Number of years) _____
- b. How long is it since you left it? (Number of years, if still self-employed, write 0) _____

Q6. Are any of your parents or guardians self-employed? Please tick the relevant option.

Father: _____ Mother: _____ Guardian: _____

Indicate from **1 = Do not know at all**, **2 = Know to a small extent**, **3 = Neutral**, **4 = Know t some extent**, **5 = Know completely**

	1	2	3	4	5
a. Father:					
To what extent do you know his activity as an entrepreneur					
To what extent do you consider him to be a good entrepreneur					
b. Mother					
To what extent do you know her activity as an entrepreneur					
To what extent do you consider her to be a good entrepreneur					
c. Guardian					
To what extent do you know him/her activity as an entrepreneur					
To what extent do you consider him/her to be a good entrepreneur					