ENVIRONMENTAL FACTORS AND THE FORMATION OF STUDENTS' ENTREPRENEURIAL INTENTIONS: PERSPECTIVES FROM ZAMBIA

By

Clement Mwaanga

(63392100)

Submitted in accordance with the requirements for the degree of

DOCTOR OF PHILOSOPHY IN MANAGEMENT STUDIES

In the subject of

(ENTREPRENEURSHIP)

At the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF R. SHAMBARE

CO-SUPERVISOR: PROF C. VAN ZYL

NOVEMBER 2022

DECLARATION

Name: Clement Mwaanga

Student number: 63392100

Degree: Doctor of Philosophy in Management Studies

Thesis Title: Environmental factors and the formation of students' entrepreneurial intentions: perspectives from Zambia

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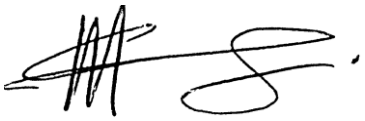

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DEDICATION

I dedicate this research to my wife Clotildah and my children Chumuka and Lubuto for being supportive during my study. Thank you for the support, understanding love and prayers rendered during my study. My the good Lord keep on blessing you and continue being an excellent and encouraging family.

ACKNOWLEDGEMENTS

Firstly, special thanks to God almight, for his special blessings granted to me and guidance from the start up to the completion of this study.

Secondly, I would like to extend my sincere appreciations to my supervisor Prof R. Shambare and co-supervisor Prof C. Van Zyl for the valuable academic and administrative guidance and support during the process. Thank you Dr M. Pohl for the statistical support rendered during the data analysis and presentation.

Thirdly, special thanks to my wife Clotildah for the love, patience, understanding and encouagements. To children, Chimuka and Lubuto thank you for allowing me time off from the family to undertake and complete this journey.

Fourthly, to my friends, Edwin Moyo and Nalukui Mubiana, I appreciate your support and encouragement during my research.

Fithly, special thanks to my employer Mulungushi University for allowing me to pursue this programme and also for the permission to use students as research participants

Sixthly, special thanks also extended to Khomoto Leshaba for the language editing of this thesis and the UNISA CEMS OGSR for providing financial support toward statistical analysis and language editing.

ABSTRACT

In Zambia, 33 percent of the population is not employed, and 16.3 percent are youths (15 to 35 years). Statistics suggest that the number of youths not in employment has increased every year by 1.1 percent on average. Additionally, the number of unemployed graduates is also increasing. To address this unemployment problem, the Zambian government has identified the promotion of entrepreneurial activities as a mitigating measure to create jobs for the youths and grow the economy. The research question asked is: "To what extent do entrepreneurial environmental factors in the form of perceived environmental support, perceived university support and entrepreneurship education affect the antecedents of EIs entrepreneurial intentions (risk-taking, innovativeness and proactivity) and entrepreneurial intentions?"

To resolve the limitations observed in the literature on entrepreneurial intentions, the study adopted and tested Ajzen's Theory of Planned Behaviour model using primary data. The primary data was collected from a sample of 380 MU students in Zambia using a closed-ended self-administered questionnaire from February to June 2020. For data analysis, SPSS v.21, STATA 14 and Hayes process were utilised to generate descriptive statistics: confirmatory and exploratory factor analysis, SEM . Although previous studies reported a direct relationship between entrepreneurial orientation (innovativeness, proactivity and risk-taking) and EIs, results could not reach statistical significance in some cases.

On the contrary, the antecedent variable of proactivity was observed not to predict entrepreneurial intention like innovativeness and the statements associated with risk-taking. Innovativeness was observed to mediate the relationship between PES and EI2. Similarly, RST3 was also directly related to EI2 and mediated the relationship between PES and EI2 and PUE associated with infrastructure and EI2. RST2 was observed to predict EIs and mediate the relationship between PUE associated with infrastructure and EIs. Lastly, gender was observed to moderate the relationship between innovativeness and EIs for male and female students. This study contributes to the existing body of literature by highlighting the difference between immediate and future EIs and also by conducting mediation and moderation tests using the Hayes process. Based on the above findings, recommendations have been made regarding the revision of EE, development national policy and infrastructure to promote EE in universities.

Key terms

Entrepreneurship, Entrepreneurial Environment, Entrepreneurial Orientation, Entrepreneurship Education, University Students, Zambia

SICAPHUNO

EZambia, bantfu labangemaphesenti langu-33 abasebenti, futsi labangamaphesenti langu-16,3 ngebantfu labasha (iminyaka lengu-15 kuya kulengu-35). Tibalo tiphakamisa kutsi sibalo sebantfu labasha labangasebenti senyuke njalo ngemnyaka ngemaphesenti langu-1.1 ngekwesilinganiso. Ngetulu kwaloko, sibalo sebantfu labaneticu labangasebenti siyandza. Kute kubukwane nalenkinga yekungabikhona kwemisebenti, hulumende waseZambia ubone kugcugcutelwa kwemisebenti yebhizinisi njengendlela yekunciphisalesimo ngekudala ematfuba emisebenti ebantfwini labasha nekukhulisa umnotfo. Umbuto welucwaningo lobutiwe utsi: “Ngabe timbangela tetemvelo kumabhizinisi ngendlela yekwesekelwa lokucatjangwako kwetemvelo, kwesekelwa lokucatjangwako kwenyuvesi kanye nemfundvo yetemabhizinisi tinemtselela longakanani kwandvulela tinhloso tebhizinisi tema-EI (kutsatsa bungoti, kusungula tintfo letisha kanye nekusebenta kamatima) kanye netinhloso tebhizinisi?”

Kute kucatululwe kulinganiselwa lokuphawulwe etincwadzini letiphatselene netinhloso tebhizinisi, lucwaningo lwemukele futsi lwahlola umbono wa-Ajzen wemodeli yekutiphatsa lehleliwe kusetjentiswa idatha lesisekelo. Idatha lesisekelo igcogcwe kusampula yebafundzi labangu-380 MU e-Zambia kusetjentiswa luhlu lwemibuto loluvalekile lolutiphetse kusuka ngaFebhuwari kuya kuJuni 2020. Kute kuhlatiywe idatha, kusetjentiswe i-SPSS v.21, i-STATA 14 kanye nenchubo yaHayes kute kukhicitwe tibalo letichazako: kuhlatiya imbangela lecinisekisako nalehlolako, i-SEM. Nanabe tfundvo tangaphambilini tibike budlelwano lobucondzile phakatsi kwekuma kwetemabhizinisi (kusungula tintfo letisha, kusebenta kahle kanye nekutsatsa ingoti) kanye nema-El, imiphumela ayikakhoni kufinyelela itwekubaluleka kwetibalo kuletinye timo.

Ngalokuphambene, kwehluka lokwendvulelako kwekusebenta kwabonwa kute kungabiketeli inhloso yebhizinisi njengelikhono lekucamba kanye netitatimende letihambisana nekutsatsa ingoti. Likhono lekucamba lwabonwa kute kulanyulwe budlelwano phakatsi kwe-PES ne-EI2. Ngalokufanako, i-RST3 nayo beyihlobene ngalokucondzile ne-EI2 futsi yalamula budlelwano phakatsi kwe-PES ne-EI2 kanye ne-PUE lehlobene nesakhiwoncanti kanye ne-EI2. I-RST2 yacashelwa kute ibiketele ema-Els futsi ilamule budlelwano phakatsi kwe-PUE lehlotjaniswa nesakhiwoncanti nema-EI. Kwekugcina, bulili bubukiwe kute kulinganiswe budlelwano phakatsi kwekusungula tintfo letinsha kanye nema-EI kubafundzi labadvuna nalabasikati. Lolucwaningo lunelugalelo endzikimbeni lekhona yetincwadzi ngekukhombisa umehluko phakatsi kwema-EI lasedvute nawesikhatsi lesitako kanye nekwenta tivivinyo tekulamula

nekulinganisa kusetjentiswa inchubo yaHayes. Ngekuya ngaloku lokutfolwe ngetulu, tincomo tentiwe mayelana nekubuyeketwa kwe-EE, kutfutfukiswa kwenchubomgomo yavelonkhe nesakhiwoncanti kute kutfutfukiswe i-EE emanyuvesi.

Emagama lamcoka

Bubhizinisi, imvelo yetemabhizinisi, kutijwayeta kwetemabhizinisi, imfundvo yetebubhizinisi, bafundzi basenyuvesi, eZambia

OKUCASHUNIWE

EZambia, amaphesenti angama-33 enani labantu elingaqashiwe, futhi amaphesenti angu-16,3 yintsha (iminyaka eyi-15 kuya kwengama-35). Izibalo ziphakamisa ukuthi isibalo sentsha engasebenzi sikhule njalo ngonyaka ngamaphesenti ayi-1.1 ngokwesilinganiso. Ukwengeza, isibalo sabafundi abaphothule iziqu abangasebenzi siyanda. Ukuze kubhekwane nale nkinga yokuntuleka kwemisebenzi, uhulumeni waseZambia uhlonze ukugqugquzelwa kwemisebenzi yezamabhizinisi njengendlela yokunciphisa ukudala amathuba emisebenzi entsheni nokukhulisa umnotho. Umbuzo wocwaningo obuziwe uthi: “Izinga elingakanani izici zezemvelo zezamabhizinisi ngendlela yokusekelwa okucatshangwayo kwezemvelo, ukusekelwa okucatshangwayo kwemfundo ephakeme kanye nemfundo yezamabhizinisi kuthinta okwandulela izinhloso zebhizinisi ze-EIs (ukuthatha ubungozi, ukusungula izinto ezintsha kanye nokusebenza kahle) kanye nezinhloso zezamabhizinisi?”

Ukuze kuxazululwe ukulinganiselwa okuphawulwe ezincwadini eziphathelene nezinhloso zezamabhizinisi, ucwaningo lwamukele futhi lwahlola umbono ka-Ajzen wesifanekiso sokuziphatha esihleliwe lusebenzisa imininingwane eyisisekelo. Imininingwane eyinhloko yaqoqwa kusampula yabafundi abangama-380 be-MU e-Zambia kusetshenziswa uhlu lwemibuzo oluvalekile oluzilawulayo kusukela ngoNhlolanja kuya kuNhlangulana 2020. Ukuze kuhlaziywe imininingwane, i-SPSS v.21, STATA 14 kanye nenqubo kaHayes kwasetshenziswa ukuze kukhishwe izibalo ezichazayo: ukuhlaziya isici esiqinisekisayo nesihlolayo, i-SEM. Nakuba izifundo zangaphambilini zibike ubudlelwano obuqondile phakathi kokuzijwayeza kwezamabhizinisi (ukusungula izinto ezintsha, ukusebenza kahle kanye nokuthatha ingozi) kanye nama-EI, imiphumela ayikwazanga ukufinyelela ukubaluleka kwezibalo kwezinye izimo.

Ngokuphambene, ukwahluka okwandulelayo kokusebenza kwaqashelwa ukuze kungabikezeli inhloso yezamabhizinisi njengokusungula izinto ezintsha kanye nezitatimende ezihambisana nokuthatha ingozi. Ukusungula okusha kwaqashelwa ukuze kuxazulule ubudlelwano phakathi kwe-PES ne-EI2. Ngokufanayo, i-RST3 nayo yayihlobene ngokuqondile ne-EI2 futhi yaxazulula ubudlelwano phakathi kwe-PES ne-EI2 kanye ne-PUE ehlobene nengqalasizinda kanye ne-EI2. I-RST2 yaqashelwa ukuze ibikezele ama-EI futhi ixazulule ubudlelwano phakathi kwe-PUE ehlotshaniswa nengqalasizinda nama-EI. Okokugcina, ubulili buqashelwe

ukuze kulinganiswe ubudlelwano phakathi kokusungula izinto ezintsha kanye nama-EI kubafundi besilisa nabesifazane. Lolu cwaningo lunomthelela endikimbeni ekhona yezincwadi ngokugqamisa umehluko phakathi kwama-EI aseduze nawesikhathi esizayo kanye nokwenza izivivinyo zokuxazulula nokulinganisa kusetshenziswa inqubo kaHayes. Ngokusekelwe kulokhu okutholwe ngenhla, iziphakamiso zenziwe mayelana nokubuyekezwa kwe-EE, ukuthuthukiswa kwenqubomgomo kazwelonke nengqalasizinda ukuze kuthuthukiswe i-EE ezimfundweni eziphakeme.

Amagama asemqoka

Ezamabhizinisi, Imvelo yezamabhizinisi, Ukuzijwayeza kwezamabhizinisi, Imfundo yezamabhizinisi, Abafundi bemfundo ephakeme, iZambia

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LIST OF ABBREVIATIONS

A	Attitude
AMOS	Analysis of a Moment Structures
AVE	Average Variance Extracted
BOZ	Bank of Zambia
CEEC	Citizen Economic Empowerment Commission
CEMS	College of Economics and Management Sceince
CFA	Comfirmatary Factor Analysis
CFI	Comparative Fit Index
COMESA	Common Market for Eastern and Southern Africa
CR	Composite Reliability
CSO	Central Statistical Office
EE	Entreprenurship Education
EEDU	Entrepreneurship Education
EEM	Entrepreneurial Event Model
EET	Entrepreneurial Events Theory
EFA	Exploratory Factor Analysis
EFC	Entrepreneurial Framework Conditions
EI	Entreprenuarila Intention
EIM	Entrepreneurial Intention Model
EO	Entreprenurial Orientention
GDP	Growth Domestic Products
GEDI	Global Entreprenuership and Development Institute
GEM	Global Entreprenusrhip Monitor
GFI	Goodness of Fit Index
IEO	Individual Entrepreneurial Orientation
IFI	Increamental Fit Index
INNO	Innovations
KMO	Kaiser-Meyer-Olkin
LDC	Least Developing Country
LLCI	Lower Level Confidence Interval
MCTI	Ministry of Commerce Trade and Industry
MFI	Micro Financing Institutions
ML	Maximum Likelihood
MSME	Micro Small and Medium Enterprises
MU	Mulungushi University
NIP	National Industrial Policy
PAF	Principal Axis Factoring
PBC	Perceived Behavioural Control
PES	Perceived Environmental Support
PRO	Proactivity
PUE	Perceived University Support
RCS	Regulatory Service Centres
R and D	Research and Development
RMSEA	Root Mean Square Error of Approximation
RST	Risk-Taking
SADC	Southern African Development Community
SDG	Sustainable Development Goals
SEM	Structural Equation Modelling

SME	Small and Medium Enterprise
SN	Subjective Norms
SPSS	Statistical Package for Social Sciences
TEA	Total Entrepreneurial Activities
TEVET	Technical Education, Vocation and Entrepreneurship Training
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behaviour
TPBEM	Theory of Planned Behaviour Entrepreneurial Model
ULCI	Upper-Level Confidence Interval
UNISA	University of South Africa
WTO	World Trade Organisation
ZDA	Zambia Development Agency

CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

This study entitled "Environmental factors and the formation of students' entrepreneurial intentions: Perspectives from Zambia" investigated the environmental factors in the context of Mulungushi University (MU) and how they influence student's entrepreneurial intention (EI). The research background and the aim and significance of the study are outlined. A brief review of the existing literature and the gap in research highlighted, the research problem formulated, research questions identified, and the hypotheses follow. After that, the methodology utilised to assess the conceptual research model and address the research question is discussed. The potential research contributions are presented. Lastly, the chapter presents the outline of the thesis, the scope and limitations..

1.2 RESEARCH BACKGROUND

1.2.1 Environmental Factors

Studies on entrepreneurial intentions have have indicated that environmental factors such as family, friends, university environment, entrepreneurship training and government support provide provides students with knowledge, skills and copentencies required to engage in entrepreneurial activities (Gieue, Benavides-Espinosa and Roig-Dobon, 2019; Vracheva, Abu-Rahma and Jacques, 2018). Different environmental facors have been studied to explain the formation entrepreneurial intentions among students. Tahir and Hussan (2016) have linked cultural dimensions such as masculinity, long terms orientention , power distance and unverstanity avoidance to entrepreneurship behaviour. Mustafa, Hernandez, Mahon and chee (2016), associated personality traits, university enivironment and business concept development to the act of entrepreneurship. They suggested that personality traits like proactivity and business development concept have significant influence on the formation of entrepreneurial inetntions of students. Other scholars have identified university environment that include the currucular promoting skills development to have direct effects on entrepreneurial behaviour among students (Gieue *et al*., 2019; Martinez-Climent, Zorio-Grima and Ribeiro-Soriano, 2018; Kabók,Radišić, Kuzmanović, 2017). It was observed that the university ecosystem factors in the name of incubators, accelerators, business development

plans and competitions enhances the formation of entrepreneurial intentnts (Mustafa, Mike and Siegel, 2018). Providing entrepreneurship support programmes that aims at facilitating students access to finance, business networks and experts, capacity building workshops and awareness influence students to create start-ups (Trivedi, 2016). Therefore, the combination of persanlity and contexture factors create an environment that may or may not influence the formation of students entrepreneurial intentions.

The section below discusses the economy and the role of entrepreneurship.

1.2.2 The economy and the role of entrepreneurship

Sub-Saharan African countries have recognised the value and the role entrepreneurship play in enhancing the country's economic growth (Kell, Xavier, Kew, Herrington, and Vorderwulbecke, 2012). Countries that have embraced entrepreneurship have achieved sustainable economic growth and improved the living standards of their people/citizens. Worldwide economic challenges and wealth creation are addressed by promoting and enhancing (Yildrum, Trout and Hartzell, 2019). It was observed that entrepreneurship activities account for 90 percent of the world trade (Small and Medium Enterprise Promotion and Policy, 2018). Additionally, entrepreneurship in developed nations account for 50 percent of the total gloss domestic product (GDP) and contributes between 65 to 70 percent of the total jobs (Office of Small and Medium Enterprise (SME) Promotion and Policy, 2018).

Realising the vital role SMEs play in economic development in different countries, entrepreneurship is regarded as an important area of focus for governments (Arief, Thoyb, Sudiro, and Rohman, 2013). It was observed worldwide that economic growth measured against changes in outputs, distribution, and national structures are the function of an increase in entrepreneurial activities (Nair, 2016). Increasing entrepreneurship activities in an economy translate into an increased contribution to the national GDP and job opportunities. Therefore the private sector is regarded as a vehicle for boosting employment activities to meet the demands of the growing population (Khan and Siddiqi, 2011). Also, governments in developing countries regard the SME sector as an area that should be encouraged and supported because it represents what is described as " tiny areas from which large oak trees can cause growth" (Gordon, Hamilton and Jack, 2012: 21). It's essential to encourage and promote start-

ups as they may grow and turn into significant cooperation's when fully supported, which can contribute significantly to economic growth.

The Bank of Zambia's statistics indicates that the country's GDP recorded a decrease from 4.0 percent in 2018 to 1.4 percent in 2019 and -3.0 percent at the end of 2020 (Bank of Zambia Statistics, 2021). The contraction in the country's GDP is a consequence of the measures to prevent and contain the spread of COVID-19, which affected the economy's critical sectors, resulting in substantial job losses. However, the Central Bank of Zambia has estimated a GDP growth rate of 1.0 percent to be achieved at the end of 2021 (Bank of Zambia Report, 2021). The African Development Bank (2021) has projected the Zambian economy to grow by 1.0 percent in 2021 and 2.0 percent in 2022, respectively. An expected increase will be influenced by the desired upward adjustments in economic activities in mining, tourism, and manufacturing sectors.

The unemployment rate among youths (aged 15 to 35 years) in Zambia decreased from 41.4 percent in 2019 to 37.2 percent in 2020 for the population group of 15 years and older (Labour force survey, 2020). The number of unemployed youths (15 to 35 years) who are not in education and training (NEET) stands at 52 percent in 2020. This confirms that most of the youths in Zambia are not economically active. The Labour force survey (2020) reports that the age group between 20 to 24 years are the majority of the NEET at 67.3 percent, next to the 25 to 29 years old at 61.3 percent, and the lowest share was reported for the age group between 15-19 years at 32 percent. From this statistics on youth unemployment, it can be seen that the economic situation in Zambia is not designed to stimulate formal employment creation, which in turn has increased the number of youths not in employment.

Chiang and Yan (2011) indicated that the problem of unemployment could be addressed by increasing entrepreneurial activities or new business creation, which stimulates economic growth by creating employment and product and market expansion. According to Resurrection (2011), entrepreneurship is a significant ingredient to wealth and employment creation and a means of alleviating poverty in an economy. Therefore, it can be concluded that entrepreneurship can stimulate and enhance employment creation and economic development.

In the context of Zambia, there are many opportunities for new venture creation, especially among the youths of the country. For example, the agriculture and agro-processing sector is

one of the critical potential sectors which has not been fully exploited. The country has 752,200 square kilometres of landmass, and 58 percent of it is arable, and only 14 percent of arable land is under utilisation or cultivation (Investment Climate Statement, 2017). This suggests the potential for further development of the agri-sector, especially by the youths. Other sectors can also be further exploited by the youths, such as mining, manufacturing and trade.

In Zambia, there are several programmes put in place to enhance employment creation and wealth generation for the youths, such as the Building the Young Entrepreneurs Programme (BYEP) sponsored by the Barclays foundation, the government youth empowerment programmes, Citizens Economic Empowerment Commission (CEEC) and other programmes managed by Non-governmental Organisations (ZDA, 2017). Furthermore, to promote entrepreneurial activities, the Zambia government has reduced SME licensing fees from $520 to $260 and introduced the credit guarantee scheme to provide affordable financing for the sector (ZDA 2021).

The following section presents a discussion on entrepreneurial intentions (EIs) as background.

1.2.2 Entrepreneurial Intentions (EIs)

This study investigates the influence environmental factors have on the formation of Mulungushi university students' EIs. Peng, Lu and Kang (2012: 96) defined EIs as "a mental orientation such a desire, wish and hope to influence the choice of entrepreneurship". Nabi, Holden and Walmsley (2010:533) described EIs as "a conscious awareness and conviction by an individual that they intend to set a new business venture and plan to do so". Besides environmental factors and personality factors, EI has been found to significant factor influencing the decision to engage in entrepreneurial behaviour (Peng, Lu and Kang, 2012). The formation of EI is the first step in new venture creation and sustaining the enterprise (Van Gelderen, Kautonen, and Fink, 2015). Therefore, in this study, the definition of EI is adopted as follows" a final year student's intent to start a new venture immediately after graduating and years after graduation".

The GEM reports indicates that EIs are observed to be higher in factor-driven economies, which are characterised by a limited number of well paying jobs (GEM, 2013; GEM, 2019). Zambia being a factor-driven economy reported EIs averaging 44.5 percent. Zambia has 42

percent of the population engaged in business activities and out of which one third is involved in new business activities (GEM, 2019). Despite having a high rate of entrepreneurial activities in Zambia, a survey condicted by GEM (2019) reported SMEs failure rate of 20 percent. The high failure rate can be attributed to lack of access to affordable capital, limited business operations knowledge, weak capital market, lack of sufficient government support, lack of technology, and unsupportive cultural and social norms (Celec and Globocnik, 2017). The perception of entrepreneurship as a good career option was reported at 66.5 percent, while the average EI for Sub-Saharan African countries was 46.8 percent (GEM, 2013, 2019). A 2017 research study by Mwiya, Wang, Kaulungombe and Kayekesi (2017) of 306 public university students in Zambia revealed positive findings towards students EIs to start new ventures after graduating.

1.3 AIM AND SIGNIFICANCE OF THE STUDY

Unemployment among youth between 15 to 35 years old has become a significant source of concern worldwide, especially in developing countries (Zambia Statistics Agency, 2020). In Zambia, youths aged between 15 to 35 years old are considered the productive age that is not being utilised. Despite unemployment being a problem for some time, the global financial crises in recent years have exacerbated an already dire situation in Sub-Sahara African countries (Sivarajah and Achichuthan, 2013). One of the significant results of this global financial crisis is the massive unemployment rate amongst university and college graduates, which most developing countries face (Gelaidan and Abdullateef, 2017).

The latest information from the Zambia Statistics Agency (ZSA) labour force survey report 2020 shows that 37.3 percent of the Zambian population is unemployed. Of these, 19.9 percent of the people are not in employment (15 to 35 years old) (ZSA, 2020). Out of the 19.9 percent unemployed youths, 17.2 percent are university and college graduates below the age of 35 (ZSA, 2020). The statistics indicate that most university graduates will be unemployed after graduating due to an increase in the number of new private and public universities formed in Zambia, creating an oversupply of graduates in the country. Valliere (2015) noted that the lack of capacity by the government and the private entities to create meaningful employment for the youths are the primary driver of policy development. Each year the number of unemployed youths increases by 1.1 percent (CSO, 2017: CSO, 2014). To address this problem, various

researchers have identified entrepreneurship as a driver for creating employment and economic development (Marques, Santos, Galvão, Mascarenhas and Justino, 2018; Song and Winkler, 2014). In Zambia, for instance, entrepreneurship activities have been instrumental in promoting sustainable economic expansion through job creation and an increased tax base (Nuwagaba, 2015). GEM (2015) report affirms that entrepreneurship activities account for 97 percent of the business and contribute 89 percent of the employment in the country.

To encourage graduates to take up entrepreneurial activities as their way of life, Zambia, like many other countries, uses entrepreneurship education (EE) to enhance entrepreneurial activities (Ge and Li, 2015). The earlier study by Blanker, Elmholt, Frederikson, Kotsgaard and Wagner (2014) suggested that the relevance of EE has seen the programmes crossing the boundaries of the business faculties and being taught in other faculties like engineering and humanities. For instance, in Zambia, entrepreneurship programmes are offered in business and non-business schools such as agriculture, engineering and social sciences to stimulate EIs among learners.

Besides, some scholars have studied other factors that stimulate students' EIs other than EE (Gelaidan and Abdullateef, 2017). It was confirmed that EIs among students could be promoted by creating university environments supportive of entrepreneurship (Mustafa, Hernandez, Mahon and Chee, 2016). Other than the university environment, internal factors such as individual entrepreneurial orientation (IEO) are also instrumental in stimulating EI among students (Marques, Santos, Galvao, Mascarenha, and Justino, 2018). Understanding the personal development of entrepreneurial intentions is the best way of developing entrepreneurs in a country like Zambia.

EE is described as an education in entrepreneurship offered to students at universities. In most cases, EE is being provided in two forms, namely; teaching entrepreneurship which focuses on equipping students with entrepreneurship knowledge and skills and; promotion of entrepreneurship intentions, whose focus is on changing minds and hearts towards entrepreneurship (Nabi, Walmsley, Linan, Akhater and Neame, 2018). Although the Zambian government has introduced EE in primary, secondary school and tertiary institutions, the value of entrepreneurship education is not fully appreciated, especially in non-business schools. MU was selected because all the students in business and non-business schools are subjected to EE.

However, Zambia has reported a lower level of intention as compared to the Sub-Sahara Countries' average entrepreneurial intentions. The GEM (2019) report indicated the average

EI of Sub-Sahara African countries of 46.8 percent, slightly higher than Zambia, 44.5 percent. Entrepreneurial choice influences the decision to engage in entrepreneurship with a view to success in it.

This study investigated the effects of the entrepreneurial environment (perceived environmental support (PES), perceived university support (PUS) and EE) on EIs. Additionally, the study also investigated the mediating effects of entrepreneurial orientation (EO) (innovativeness, proactivity and risk-taking) on the interaction between entrepreneurial environment (PES, PUS and EE) and EI and how gender moderates the interaction between EO (innovativeness, proactivity and risk-taking) and EIs of MU final year students. The students were used because of the knowledge and skills acquired and the experience they gained during the study, which prepares them to recognise opportunities and decide to start or create new businesses during and after completing studies. These students are a perfect unit to assess the influence of entrepreneurial environment on the formation of EI, the mediating effects of EO on the association between entrepreneurial environment and EI and the moderating effects of gender on the interaction between EO and EIs.

1.4 THE IDENTIFIED RESEARCH GAP

Studies investigating the factors influencing the formation of EIs have gained popularity among scholars because of their significant role in influencing entrepreneurial behaviour and forming intentions (Fayolle and Gailly, 2015). In exploring the formation of EIs, several prior studies link entrepreneurial environment (PES, PUS and EE) to EIs (Salati Marcondes de Moraes, Lizuka and Pedro, 2018; Ebewo, 2017; Gelaidan and Bdullateef, 2017; Cieślik and Van Stel, 2017; Farah, Mamun, Binti, Nawi, Nazri and Zakaria, 2016; Tran and Von Korflesch, 2016; Mustafa *et al*., 2016). However, there are several concerns raised in the body of existing literature and summarised as follows:

First, the above factors (PES, PUS and EE) have been examined in isolation of each other (Salati Marcondes de Moraes *et al*., 2018; Sesen, 2013; Luthje and Franke, 2003). Hence, the need to study these factors together. According to Mustafa *et al*. (2016), antecedents of EIs should not be treated as different factors but should be included in one comprehensive model.

Second, a limited number of studies examine the mediating power of EO on the interaction between environmental factors and EI, particularly in a Zambian context. Over the past years, EO constructs were taken to be the firm-level constructs used to predict the firm's performance

(Gupta and Gupta, 2015; Grande, 2011). These constructs were being applied in studies assessing the factors influencing the performance in an established organisation. In the recent past, researchers have recommended using EO as a single construct, in studies that investigate the association between EO and EIs (Koe, 2016; Robinson and Stubberud, 2014). The dimensions of EO have been studied in isolation from each other. Bolton (2012) urged that the behaviour's describing EO as a construct should be studied together in several contexts. Also, limited studies have been done to test the mediating effects of EO, and it needs to be re-visited.

Third, studies on EIs among men and women have revealed inconclusive results (Yordanova and Tarrazon, 2010; Alok, Kocherlakota and Beernelly, 2017). Some studies have reported higher levels of EIs in men than women while others have reported vice versa. This is because gender is regarded as one of the most influencing factors of an individual's self-perception and, at the same time, affects decision making in men and women to get involved in entrepreneurship (Goktan and Gupta 2015). Previous studies have highlighted that gender moderates the interaction between EO and EIs (Goktan and Gupta, 2015; Zeffane, 2013; Cañizares and García, 2010).

Besides, how gender moderates the interaction between EO and EI has not been established to see if it affects assuming that entrepreneurship is not a gender-natural phenomenon (Westhead, 2016). In the future of research on EIs, Fayolle and Liñán (2014) proposed the need for studies to investigate the interaction (moderation and mediation effects) of various variables that influence the formation of EIs.

Fourth, it was observed that most of the studies on the formation of EIs had been conducted in innovation-driven or developed countries (Valliere, 2015; Matlay, 2014). Entrepreneurship is the basis for stimulating economic development in developing and emerging economies (Valliere, 2015). So there is a need for the theories of entrepreneurship and intent that have been tested, modified, and replicated in developing countries, Zambia in particular (Martens, Lacerda, Belfort and Rodrigues De Freitas, 2016; Valliere, 2015). The earlier study conducted by Bolton (2012) proposed the need for future research to validate the constructs of EO on university students in different countries with different age groups.

Therefore, this study focuses on developing economies, specifically Zambia, as the context of reference, characterized by insufficient data on the development of EIs among university students and a lack of relevant content of entrepreneurship programmes.

Besides, Zambia has low levels of technology use or development and education, a high unemployment rate among youths, a lack of start-up capital and excessive competition from imports (GEM, 2014, 2019). This study investigated the mediating effect of EO on both the entrepreneurial environment and EIs and the moderating effect of gender on entrepreneurial EO and EIs.

Lastly, the field of entrepreneurship has been characterised by the disagreements on the appropriate frameworks and theories to apply since the publication of "The Promise of Entrepreneurship as a field of research" by Shane and Venkataraman (2000), and these disagreements are still ongoing hindering the development of a coherent scheme (Gartner, 2001; Von Graevenitz, Harhoff, and Weber, 2010). The lack of frameworks poses a challenge to researchers who want to assess the process of entrepreneurship. This study attempts to address the gap identified in EI literature on the need to study together personality and environmental factors in one EI model (Mustafa *et al*., 2016). Apart from attempting to pursue theoretical contributions, this study will provide insights to scholars, educators and policymakers.

1.5 PROBLEM STATEMENT

This study attempts to address the challenge of the high unemployment rate among youths aged between 15 to 35 years and the low level of entrepreneurial activities in Zambia. GEM (2014, 2019) reports suggest that Zambia is one of the entrepreneurial countries in Africa with 41 percent of Total Entrepreneurial Activities (TEA). However, the number of established businesses is still very low at 4 percent and the failure rate of 20 percent (GEM, 2019). Graduating students as potential entrepreneurs have the capacity and capabilities to contribute to the economic wellbeing of the country and create employment for its citizens.Currently, entrepreneurship courses have been introduced in almost all curricula in business and non-business schools such as agriculture, mines, humanities, education and veterinary sciences in university programmes in Zambia (Chileshe, 2015). The fact that the programmes or courses are being offered to students university-wide, casts the doubt on its ability to promote innovative, creative skills required for them to create new enterprises (Konayuma, 2008; Nuwegabe, 2015).

Global Entrepreneurship Monitor (GEM) results on the entrepreneurship landscape in Zambia clearly show that 42 percent of the youths aged between 18 and 35 years old engage in

entrepreneurship activities and a proportion of about 32 percent aged between 18 and 24 despite difficulties in the formal labour market (GEM, 2019). However, the data obtained from the Zambia Statistics Agency Office on the employment status of graduates in Zambia suggest that the number of graduates engaged in entrepreneurship has reduced 16.3 percent in 2010 to 12.6 percent in 2018 (CSO, 2017; CSO, 2018). The statistics further indicate that 16 percent of the entrepreneurs are graduates from business schools and the reaming 84 percent of non-business schools.

The number of graduates engaged in entrepreneurial activities in Zambia remains low due to low levels of entrepreneurial intentions among graduates. Therefore, there is a need for policies that remove the barriers to entry into entrepreneurship so that graduates can view entrepreneurship as a potentially satisfying and profitable career and alternative employment in private and public sectors (GEM, 2019). Therefore, the research problem is stated as follows;

> ***Despite entrepreneurship education being offered as part of the curriculum at Mulungushi University in Zambia, graduating students seemingly do not take up entrepreneurial activities after graduating.***

1.6. RESEARCH OBJECTIVES

The following section presents the primary and secondary objectives of this study.

1.6.1 Primary Objective

The main objective of this research is to investigate the effects of environmental factors on the formation of student's entrepreneurial intentions in Zambia.

1.6.2 Secondary Objectives

The secondary objectives of the study were:

i. To critically review the literature on entrepreneurship environment in Zambia and theories on environmental factors, entrepreneurial orientation and entrepreneurial intentions.

ii. To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions in Zambia.

iii. To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions in Zambia.

iv. To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions in Zambia.

v. To provide a recommendation to policymakers for enhancing the formation of entrepreneurial intentions and to scholars for future research in Zambia.

1.6.3 Research Questions

Based on the above research objectives, the research question is formulated as follows:

To what extent do entrepreneurial environment factors in the form of perceived environmental support, perceived university support and entrepreneurship education affect the antecedents of entrepreneurial intentions (risk-taking, innovativeness and proactivity) and entrepreneurial intentions?

1.7 RESEARCH CONTRIBUTION

The current study makes a contribution to the existing body of literature on entrepreneurial intentions and the TPB, particularly on the Zambian entrepreneurial environment and entrepreneurship education being offered at universities. Therefore, the study aims to provide both theoretical and practical contributions as indicated below:

a) Theoretical contribution: The study makes an academic contribution by establishing the following;

I. The degree to which PES influences university students' ability to act boldly in risk situations, willingness to invest their money and time in high returns activities, ability to venture into the unknown, innovativeness, and proactivity as entrepreneurial competencies and EIs.

II. The degree to which PUS influences university students' ability to act boldly in risk situations, willingness to invest money and time in high return's activities, ability to venture into the unknown, innovativeness and proactivity as entrepreneurial competencies and EIs.

III. The degree to which EE influence students ability to act boldly in risk situations, willingness to invest money and time in high returns activities, ability to venture into the unknown, innovation and proactivity as entrepreneurial competencies and EIs.

IV. The extent to which gender moderates the interactions between the ability to act boldly in risk situations, willingness to invest money and time in high returns activities, ability to venture into the unknown, innovation and proactivity as entrepreneurial competencies and EIs.

V. Address the limitations identified in the literature regarding the mediation effect of EO on both the entrepreneurial environment and EIs and the moderating effect of gender on EO and EIs.

b) Practical contribution: Policymakers have come to accept that to increase entrepreneurial or innovative skills in an economy, there is a need to understand how the intentions of becoming an entrepreneur can be stimulated both internally and externally. Therefore the findings of this study provide a formation to policymakers and the general public on how the university environment and EE can be enhanced to stimulate the EIs of students in universities and colleges in Zambia.

This research will also help to establish how EIs are developed and the perceived environmental variables needed to stimulate the formation of EIs. It will also explain why students are reluctant to take up entrepreneurship as a means of survival and establish competencies and skills required to take up entrepreneurship as a career. Without this study, the problem of youth unemployment, especially among university graduates, will be challenging to address, and EE programmes will continue to be irrelevant to students in institutions of higher learning.

1.8 RESEARCH METHODOLOGY

This study employed quantitative methods to collect and analyse primary data. The study utilised a group of participants namely final year students from Mulungushi University in Zambia registered in 2019. The quantitative method is applicable where the study sample size is large, scientific verification can be conducted and the study can be replicated. Additionally, a quantitative approach was utilised during the study because the research variables investigated are recognised and have been tested and validated in previous research studies (Blumberg, Cooper and Schindler, 2011). Leedy andand Ormnd (2010) recommended the utilisation of quantitative methods in studies where the literature of the subject is adequate and the variables of interest can be measured

1.8.1 Study site

This research was undertaken in Zambia which is a landlocked country in Southern Africa, bordered by Zimbabwe, Tanzania, Malawi, Democratic Republic of Congo, Angola, Botswana, Mozambique and Namibia. Table 1.1 below presents the country's profile.

Table 1.1: Zambia Country Profile

Population	17.61 million
Annual growth rate	3.3 percent
Area	752,641 (290,586 Square miles)
Ethnic Groupings	73 ethnic groups
Languages	Seven major languages-English official language
Rural Population	60 percent of the total
Urban population	40 percent of the total
Provinces	10 (with 105 districts and Lusaka the capital city)
Populationage distribution	46.1 percent aged 15 years and below
	20.7 percent aged between 15-24 years
	34.5 percent aged between 15-35 years
Ranking	70th in the world

Sources: CSO (2016); CSO (2017)

Zambia gained independence from Britain in 1964 and since then, three significant changes in governance systems has taken place as shown in Table 1.2 below

Table 1.2: Zambia's Major Phases of Governance

Type of Governance	Year
Multiparty system	1964-1972
One-party system	1972-1991
Multiparty system	1991- to date

Source: Authors synthesis of the Literature

In 1996, Zambia was declared a Christian nation, although other people are free to practice their religions. The Global Religious Landscape report indicates that Zambia as a country has several religious groups (Table 1.3 below). Also indicated in Table 1.3 below is the percentage distribution of religious groups in Zambia.

Table 1.3: Religion in Zambia

Religion	Number of followers	% of the total population
Christianity	17,426,840	97.6
Islam	89,277	0.5
Hinduism	17,855	0.1
Religiously unaffiliated	89,277	0.5
Other	178,554	1.0

Source: (ZSA, 2017)

The research was undertaken in Kabwe, which is situated in the central province of Zambia. Kabwe, formerly called the Broken Hilltown was founded in 1902 after discovering Zinc and Lead deposits and is an administrative town for the central region. The town is regarded as the birthplace of Zambian politics as it hosted several political events which lead to political independence and has a total population of approximately 203 200 (ZSA, 2019). Kabwe town plays host two public universities, namely Kwame Nkrumah University and Mulungushi University.

Figure 1.2: Study site

1.8.2 Population and Sampling

The study population was identified as all the 588 final year full-time students registered at MU in the year 2019, who were studying toward their degrees in different fields and met participation criteria. The Higher Education Authority (HEA) (2021) report of Zambia indicates the country has sixty-two (62) out of which nine (9) are public universities and fifty-three (53) private universities registered with HEA.

The choice of MU was influenced by the fact that since its creation in 2008, the university has been offering entrepreneurship education. It is the only University in Zambia offering entrepreneurship education to business and non-business students. The University used to offer a four year Bachelor's degree in Entrepreneurship which is now being offered as a Bachelor of Business Administration and Entrepreneurship. This study utilised the sample size of 380 MU final years' students. MU has six (6) schools, and the researcher selected 76 students from each school or stratum except the school of medicine

1.8.3 Data collection

The primary data used to address the research objectives and answer the research question was collected using the questionnaire. The primary quantitative data was collected from MU final

year students to meet the primary objective and secondary objectives 2, 3 and 4 (answer the research question) on the conceptual research model of entrepreneurial intentions. The primary data was collected from students through a self-administered questionnaire (Leedy and Ormrod, 2010). Primary data collection took place for four months (February to June 2020) at MU in Zambia. The employed research assistant delivered the questionnaires to students during lecture times and collected them back after lectures. The study adopted the research tool developed and confirmed by Liñán and Chen (2009), Asmara, Djatmika and/and Indrawati (2016) and Marques et al. (2018). The research was conducted to assess the influence s of the environment on the formation of the EI of MU students, the mediation effects of EO on the interaction between entrepreneurial environment and EI and the moderating effects of gender on the interaction between EO and EIs. All COVID-19 protocols were followed during the data collection period. Primary data was collected using a seven page questionnaire [Appendix A] developed from sub theories to answer the research questions. The instrument measured eight items, namely EI, PUE, PES, EDU, RST, INNO, PROA and Gender.

1.8.4. Validity and Reliability

Reliability describes the internal consistency of the questionnaire , whereas validity is associated with the meaningful, usefulness and accuracy of the study (Creswell, 2015). To enhance the quality of this study, significant criteria of validity and reliability were used and the following tests were performed: construct validity, content validity, face validity, internal validity, external validity and reliability. Content validity was achieved by using constructs already approved in the existing literature and seeking for approval of the questionnaire from UNISA ethical review committee.

The external validity of this study was addressed by utilising a replication technique. Since external validity is used to generalise the research results, replication was achieved by adapting previous questionnaires. Therefore, the findings from this research can be generalisable in contexts similar to this study

The reliability of this study was addressed by ensuring that all the items in the questionnaire were tested for internal consistency, which is confirmed by Cronbach's alpha coefficient of reliability. This indicates that the same results could be achieved if the researcher conducted the same study using the same procedures

1.8.5 Statistical Analysis

The primary data collected for this study measured the research variables contained in the research conceptual model. To test the research conceptual model and hypotheses, the study utilised structural equation modelling (SEM). The study used exploratory factors analysis (EFA) to reduce research variables into a smaller set of manageable size or latent variables (Hair, Black, Babin and Anderson, 2010). The process involved excluding some of the questionnaire items based on their respecting factor loadings. Additionally, the following tests were performed: a) adequate sample size, b) KMO criteria, and c) correlation tests.

Primary data collected from participants was captured and summarised on an excel spreadsheet, exported to Statistical Package for Social Sciences (SPSS) version 21 and STATA version 14 and AMOS version 27 for analysis. The analysis was conducted using descriptive statistics and structural equation modelling methods. The study utilised structural equation modelling (SEM). The study employed exploratory factors analysis to condense research variables into a smaller set of manageable size or latent variables (Hair, Black, Babin and Anderson, 2010).

1.8.6 Research Limitations

This study is confined to an exploration of MU final year students. Therefore, the study findings may not be generalizable to the influence of environmental, entrepreneurial orientation and gender on students' EI outside MU or the Zambian context. The study employed a cross-sectional day, and it's a brief reflection of the current students' opinions, which hinders the ability to ascertain the interactions between variables. Furthermore, the study focused on the formation of EI and the actual entrepreneurial behaviours or the creation of new enterprises. Finally, it was not the aim of this study to assess and evaluate EE taught in institutions of higher learning in Zambia. Therefore, the construction of entrepreneurship education courses, the content, objectives and the modes of delivery were beyond the scope of this study.

This study, was conducted following the ethical requirements prescribed by the Department of Applied Management Research Ethics Review Committee (DAM RERC). Detailed research methodology for this study is discussed in chapter four

1.9 DEFINITION OF KEY CONCEPTS

1.9.1 Entrepreneurship

The global entrepreneurship monitor (GEM) has given a simple definition of entrepreneurship as the formation of a new enterprise and it is being used to measure entrepreneurial activities across nations using the rate at which new ventures are being created and the ownership (Dedeon, 2010). The global entrepreneurship monitor (GEM) has given a simple definition of entrepreneurship as the formation of a new venture and it is being used to measure entrepreneurial activities across nations using the rate at which new ventures are being created and the ownership (Dedeon, 2010). The Australian School of Entrepreneurship defined entrepreneurship as the activities are undertaken that influences the dynamic market process (Kirzner, 1997). In this study, entrepreneurship is difined as the act of creating and managing a new business venture.

Thus, an entrepreneur is an individual who innovatively organises financial and material resources and is ready to take a risk inherent in managing and growing a new enterprise (Hisrich, Peters and Shepherd, 2012). It is believed that the act of entrepreneurship starts when an individual develops the intention (Jain and Arora, 2020).

1.9.2 Entrepreneurial environments

In addition to personality and psychological factors, contextual factors also influence the formation of entrepreneurial intentions (Karimi, Biemans, Mahdei, Lans, Chizari and Mulder, 2017). Studies on entrepreneurial intentions have indicated that personality and environmental context play a significant in the formation of intentions to create a new venture (Luthje and Franke, 2003; Nabi and Linan, 2013). Environmental factors such as social-economic factors and financial support when provided influence entrepreneurial intentions (Taomina and Lao, 2007). It is observed that environmental factors influence students' entrepreneurial intentions (Turker and Selcuk, 2009). Institutional economic theory has indicated that when environmental factors are provided, they tend to directly influence an individual's altitudes, economic behaviour and entrepreneurship (North, 2005). They can establish, develop, influence or hinder one's aspirations, intentions, opportunities and the venture creation rate

(Ruthje and Franke, 2003). Therefore,in this study environmental factors are refered to as institutional and contextual factors that influences the formation of entrepreneurial intentions

It is believed that within the theory of planned behaviour, environmental factors have a direct influence on behavioural intentions besides indirect influence through the TPB variables (Fishbein and Ajzen, 2010). Luthje and Franke (2003) state that perceived environmental factors can be categorised into two, namely perceived barriers to entrepreneurship such as restricted credit conditions and limited access to credit; perceived support for entrepreneurship such as consultancy services and university support.

1.9.3 Entrepreneurship education

Entrepreneurship education is defined as education that equips students with the knowledge, skills and attitudes required to create new business ventures (Fayolle and Klandi, 2006). In simple terms, EE can be described as an education in entrepreneurship offered to students. Entrepreneurship education has two main areas of concentration namely; entrepreneurial learning which focuses on knowledge and skills and entrepreneurial inspiration whose focus is on changing minds and hearts towards entrepreneurship (Nabi, Walmsley, Linan, Akhater and Neame, 2018). In this study, EE is defined as education offered to students aimed at enhancing their EIs, Most of the programmes on entrepreneurship will include the interaction of different categories of people (university lecturers, role models, mentors and entrepreneurs), events (the ideas being simulated during the events) and activities such as simulation of business activities, business plan development and presentation of business ideas (Souitaris, Zerbinati and Al-laham (2007). Furthermore, teaching methods employed in EE includes; developing business plans and presentation, lectures and analysis of business cases (Solomon, 2007). The literature has indicated that entrepreneurship education has also a direct influence on entrepreneurial intentions and behaviour (Kolvereid and Moen, 1997; Fayolle, 2002). According to Fayolle and Gailly (2015), entrepreneurship education is aimed at improving students' awareness and provide an insight into the entrepreneurship journey as a career option. Souitaris, Zerbinati and Al-laham (2007) states that that entrepreneurship education enhances students' entrepreneurial intentions and the ability to identify and exploit opportunities. Therefore, there is a direct relationship between participating in entrepreneurship programmes and the formation of entrepreneurial intentions.

1.9.4 Entrepreneurship intention

Peng, Lu and Kang (2012: 96) defined entrepreneurial intentions as "a mental orientation such a desire, wish and hope to influence the choice of entrepreneurship". Entrepreneurial intention influences individual decision to take up entrepreneurial activities and persist in that behaviour (Van Gelderen, Kautonen, and Fink, 2015). Similarly, a body of existing knowledge has described entrepreneurial intentions as a person's alertness and conviction that they are ready and able to create a new business venture (Bird, 1988; Thompson, 2009). For the purpose of this study, EI is defined as the persons intent to seek business opportunities and exploit them Entrepreneurial intention is considered to be an initial stage in the long-term process of creating a new venture. Individuals' entrepreneurial intentions are usually developed when one is receiving educational, relational and structural support (Turker and Selcuk, 2009). Entrepreneurial intention influences individual decision to engage in entrepreneurial activities or entrepreneurial behaviour (Kolvereid and Isakson, 2006; Van Gelderen, Kautonen, and Fink, 2015)

1.9.5 Entrepreneurial orientation

The concept of IEO has been gaining significant recognition among scholars since the seminal work of Miller (1983). He suggested that an entrepreneurially oriented entity is a firm that "engages in product market innovation, undertakes somewhat risky ventures and is the first to come up with proactive innovations, beating competitors to a punch" (1983: 771). Lumpkin and Dess's (1996) definition of IEO considers that plans or what one intends to do and the activities to be performed in a unique process of creating a new business venture. The definition proposed by Krueger and Brazeal (1994) consider IEO as an individual's capacity for and the willingness to engage in entrepreneurial activities. Langkamp, Bolton and Lane (2012) defined IEO as a variable that explains the idea behind one's behaviours to engage in entrepreneurial activities. Therefore, in this study, EO is defined as the competemcies that influences an individual to engage themselves into entrepreneurial activities. Recent studies have considered IEO as an individual construct that can be acquired by engaging in entrepreneurship educations (Ibrahim and Luck, 2014: Robinson and Stubberud, 2014: Koe, 2016) It is observed that when students entrepreneurial orientation is established, it becomes easier to increase their entrepreneurial intention which may result into increased entrepreneurial behaviour (Marques et al., 2018). IEO has been used mostly in EI studies involving business students of the undefined population (Martin, McNally and Kay, 2013; Bea

and Petterson, 2014). Literature has indicated that IEO is an important predictor of EI that differentiates students with or without intentions to start a new business venture based on their risk-taking, innovativeness and proactivity abilities (Okhomina, 2010; Rauch and Frese, 2007). IEO as a construct is measured using five dimensions namely, proactivity, innovativeness, risk-taking, autonomy, aggressiveness and competitiveness (Anitsal, 2014).

1.10 OUTLINE OF CHAPTERS

This research is presented in six Chapters. Accordingly, the review of secondary research is subdivided into two literature chapters/sections-Chapter 2 and 3. In the former, the research background on the Zambian context is presented. In the latter, a literature review on entrepreneurship and entrepreneurship intention has resulted in the construction of the research conceptual model. The quantitative method used to collect and analyse data is presented in Chapter 5. Chapter 6 presents the conclusion and recommendations for future research.

Chapter 1: Presents the research background and structure of the study

Chapter 2: Entrepreneurship Environment in Zambia presents the review of the importance of entrepreneurship and entrepreneurship landscape in Zambia is described with an emphasis on youth entrepreneurship, entrepreneurial environment and entrepreneurship education.

Chapter 3: Environmental Factors on Students Entrepreneurship Intentions presents the theoretical background of entrepreneurship, entrepreneurial environment, entrepreneurial intentions theories and models. Lastly, the research conceptual model and the hypotheses designed from the review of secondary research and the research question are presented.

Chapter 4: Research Methodology- Following the research conceptual model and hypotheses developed in Chapter 3, this Chapter outline the research methodology for this study to answer the research question. The components of methodology addressed include the research design, characteristics of the population, sampling frame, development of the research instrument used and the data collection method followed in this study. The process of data analysis is described as well the ethical issues, validity and reliability applicable to the study.

Chapter 5: Statistical Analysis presents the research results obtained from the primary collected from the final year students from MU. Statistical analyses are presented and references are made to the previous findings.

Chapter 6: Conclusions and Recommendations from the findings in chapter 5, the study concludes by addressing the recommendations and implication of entrepreneurial environment, perceived environmental support, perceived university support, entrepreneurship education on innovativeness, risk-taking, proactivity and entrepreneurship intentions. Furthermore, a discussion on the implication of gender on innovativeness, risk-taking and proactivity and entrepreneurial intentions is presented. Conclusions and recommendations linked to the research findings and areas for future research are highlighted.

1.11 CONCLUSION

In this chapter, the outline of the research entitled "environmental factors and the formation of student's entrepreneurial intentions: Perspectives from Zambia" is presented. The study investigated the effects of environmental factors on the formation of students' entrepreneurship intentions. Also, the mediation effects of EO and moderation effects of gender on EIs were investigated. This chapter has also highlighted the background and aim of this research; the research gap identified, the problem statement, research question and problem objectives. The following sections of the chapter highlighted the research conceptual model employed to answer the research question, the hypotheses tested, the research design and methodology utilised to collect and analyse the data. Lastly, the chapter discussed the significance and contribution of this research, ethical issues, and chapters' outline.

The study will proceed with a critical review of the secondary research associated with the entrepreneurship environment in Zambia, outlining the theories on entrepreneurship, entrepreneurial environmental factors and EE.

CHAPTER 2: ENTREPRENEURSHIP ENVIRONMENT IN ZAMBIA

2.1 INTRODUCTION

This Chapter outlines the entrepreneurship environment in Zambia. The first secondary objective of this study is to. "To critically review the literature on entrepreneurship environment in Zambia and theories on environmental factors, entrepreneurial orientation and entrepreneurial intentions." The chapter begins with a brief overview of the significance of entrepreneurial activities in Section 2.2 and their contribution to economic growth in Zambia. In section 2.3, the entrepreneurship landscape in Zambia with an emphasis on youth entrepreneurship is described. Entrepreneurial environmental factors are discussed in Section 2.4 followed by EE in Zambia (Section 2.5).

The following section highlights the importance of entrepreneurial activities in Zambia followed by the entrepreneurship landscape.

2.2 IMPORTANCE OF ENTREPRENEURSHIP IN ZAMBIA

Sub-Saharan African countries have recognised the value and the role small and medium enterprises (SMEs) play in enhancing economic expansion (Arief, Thoyb, Sudiro and Rohman, 2013). SME activities constitute a priority sector in many economies and their contribution to economic growth is significant. In Zambia SMEs activities are regarded to be one of the economic drivers by providing employment opportunities for low-income people, thereby enhancing financial inclusion (Liyanda, 2017).

According to the Zambia Ministry of Commerce Trade and Industry (MCTI), Micro Small and Medium Enterprises (MSME) policy 2010, 97 percent of jobs in Zambia are created in the informal sector while the Small and Medium enterprises in the formal sector account for 2 and 1 percent respectively. Increasing entrepreneurial activities increases the number of people being absorbed into employment especially the youths. SMEs activities are a backbone for increasing economic development, employment creation and poverty alleviation, especially in developing nations. According to Kelley,

Xavier, Kew, Herrington, and Vorderwulbecke (2012), Zambia has the highest adult population engaged in entrepreneurship which stands at 42 percent among entrepreneurship countries.Entrepreneurship countries are those whose majority of the adult population depends on entrepreneurship for their survival. Promoting entrepreneurship in Zambia create several jobs, improves the nation's GDP and help to alleviate poverty (Bosma and Kelly, 2019)

The SME sector in Zambia represents 97 percent of the business activities and mostly 9 out of 10 are operating in an informal sector (Liyanda, 2017). Inevitably both formal and informal SMEs in Zambia contribute 70% to the country's GDP and have created about 88% of employment (Zambia Invest Report, 2017). Despite an increase in entrepreneurial activities mostly in an informal sector in Zambia, the country's GDP growth rate continued to decline from 7.6 percent in 2012 to 4.1 in 2017 as shown in Table 2.4 below.

Table 2.4: Zambia Real GDP growth rate %

Year	2012	2013	2014	2015	2016	2017
Real GDP growth rate %	7.6	5.1	4.7	2.9	3.8	4.1

Source: Bank of Zambia (2018)

From the statistics in Table 2.4 above, it can be seen that enhancing entrepreneurial activities and capturing the informal sector in Zambia would help to increase the real GDP growth rate. According to Kelly *et al*. (2012), dominant sectors for entrepreneurial activities in Zambia are hospitality and retail 63 percent, agriculture 11 percent and government services 11%. However, the country has more opportunities for entrepreneurial activities in the manufacturing, mining and logistics sectors (Zambia Invest Report, 2017).

Although Zambia has scored highly in the area of entrepreneurship and has the potential for growth in other sectors, the country has recorded a high level of discontinuance (20 percent) which is the failure of businesses to survive beyond five years (Kelly *et al*, 2012). There is a need for serious consideration of measures to ensure that new business ventures created are promoted and survive beyond the period of five years and make a sustainable contribution to economic development.

2.3 THE ENTREPRENEURSHIP LANDSCAPE OF ZAMBIA

The GEM (2013) report indicates that Zambia is one of the entrepreneurial countries in the world and has the highest number of start-ups in Africa, which stands at 41 percent of Total Entrepreneurial Activities (TEA). This is an indication that the country is blessed with the natural resources and talent to create business ventures but what is lacking is sustaining these ventures so that they can become established businesses. The liberalisation of the economy in 1991 resulted in massive retrenchments which forced many people to take up entrepreneurship as a means of survival (Liyanda 2017). Since then a lot has been done to promote and sustain entrepreneurship in the country like the introduction of the industrialisation policy and the setting up of an entrepreneurial fund to support entrepreneurship in Zambia (GEM, 2014). Despite having high incidents of start-ups, the number of established businesses (businesses that have been in operation for three years and beyond) is still lesser at 4 percent with a failure rate of 20 percent as shown in Figure 2.1 below (GEM, 2014).

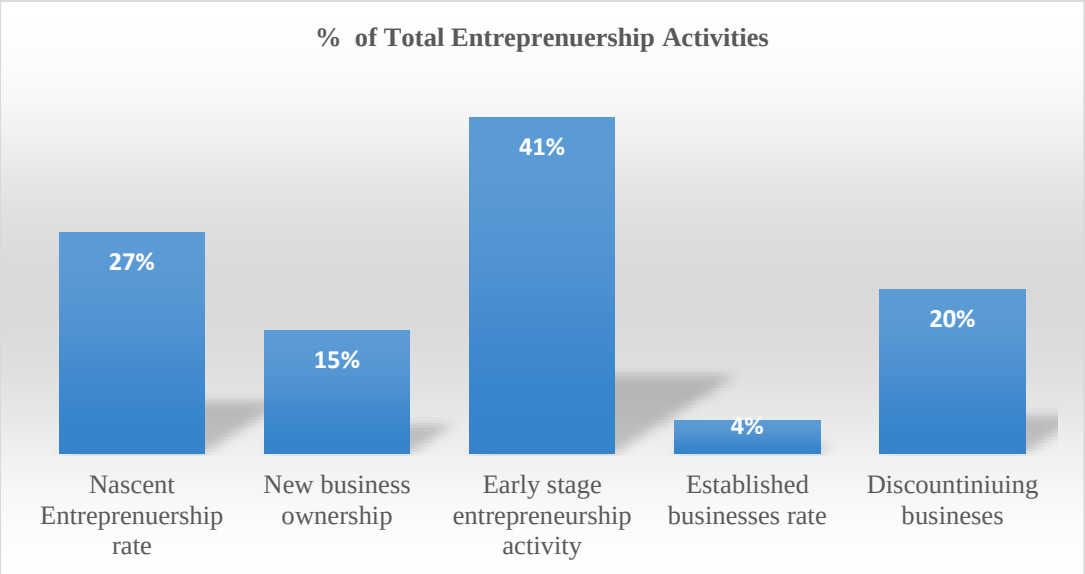

Figure 2.1: Entrepreneurship activities in Zambia

Source: GEM (2014)

The decline in the number of established businesses (4 percent) has necessitated the need for research to establish why entrepreneurs are facing challenges in sustaining their businesses. To sustain entrepreneurship activities, policies aimed at promoting start-ups and continuance need to be strengthened (GEM, 2014). The policies should

also take into consideration the support needed to promote established enterprises and reduce the failure rate or the number of discontinuing enterprises

In addition, the national statistics on entrepreneurship indicate that 52 percent of the entrepreneurs in Zambia are located in rural areas and 48 percent in urban areas (Bosma and Kelley, 2019). The majority of them (52 percent) are in trading and 41 percent are in manufacturing (Bosma and Kelly, 2019). It seems most of the entrepreneurs are in trading which does not require a huge investment in machinery or equipment or because of lack of access to appropriate technology. The growth has been difficult to achieve among entrepreneurs in Zambia because they have embraced a low level of technologies in their businesses and their focus is on the local market (Nuwagaba, 2015).

The other compounding factors include the following; limited access to finance, inadequate support from the government, limited understanding of the business environment among policymakers, inappropriate school curricula, lack of technology (RandB), limited business opportunities, ineffective capital markets and unsupported traditional norms and values which have proved to be a challenge among entrepreneurs in Zambia (Mwiya, 2014). Increased collaboration with the private sector and other cooperating partners could help to meet some of these challenges entrepreneurs are facing as the government alone cannot meet the competing needs in an economy

Despite entrepreneurship being recognised as a strategy for employment and wealth creation in Zambia, the business environment needs to be strengthened and made favourable for stimulating entrepreneurial intentions and behaviours. Hence the need for a detailed study to understand how entrepreneurial environment and personality factors can enhance the formation of intentions and increase entrepreneurial activities.

The next section discusses the youth entrepreneurship in Zambia.

2.3.1 Youth Entrepreneurship in Zambia

Youth entrepreneurship is regarded to be an important venture because youth is the significant period in one's life and it is the time when people start realising their aspirations (Kew, Namatovu, Aderinto, and Chigunta, 2014). It is also seen as an option for creating employment for the youths because young entrepreneurs are likely to employ their fellows. When youths who are unemployed or discouraged are engaged in

entrepreneurship, they have a chance to create sustainable livelihood and establish themselves in society (Kew *et al*, 2014).

The 2012 Global Entrepreneurship Monitor report indicates that most of the youths in Zambia waiting to venture into entrepreneurship face a lot of challenges that can be removed by creating policies to support business creation (GEM, 2013). According to GEM (2012), Some of the challenges youths are facing are lack of access to capital, inadequate training in business practices, difficulties in identification of products and markets and lack of confidence in the ability to run their businesses.

Global Entrepreneurship Monitor (GEM) results on the entrepreneurship landscape in Zambia clearly show that 42 percent of the youths (18 to 35 years old) engage in entrepreneurship activities and a proportion of about 32 percent aged between 18 and 24 despite difficulties in the formal labour market (GEM, 2014). The age between 18 to 24 years old is the age between which most of the students graduate from universities and colleges and they decide to venture into entrepreneurial behaviour due to limited job places. Some of the challenges youths involved in entrepreneurship are face are age stereotypes "can anything come out of this age", financial issues and social rejection (Kew *et al* 2014). This calls for the development and enforcement of policies that can remove the barriers preventing youths from engaging themselves in entrepreneurial activities.

The data collected in 2014 from 20,000 young people from countries across Sub-Sahara African countries including Zambia classify youth entrepreneurs as nascent, new or established businesses as indicated in figure 2.2 below.

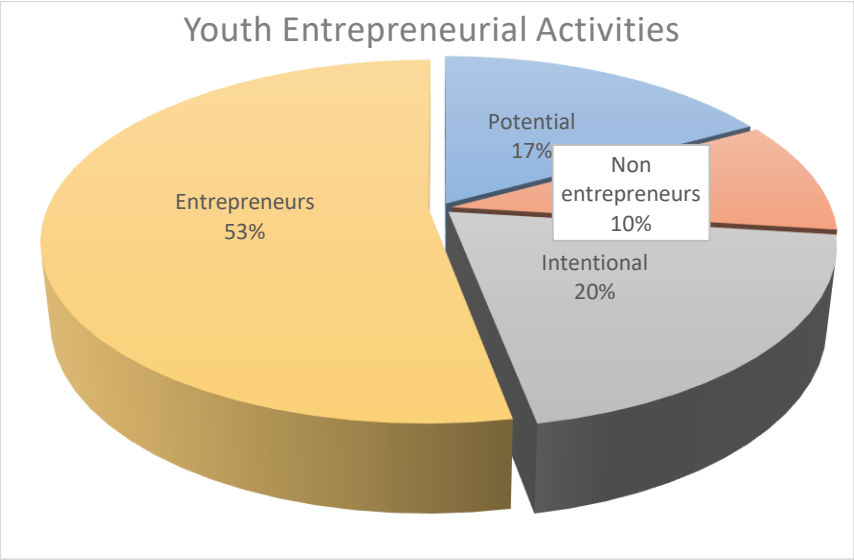

Figure 2.2: Distribution of youth entrepreneurship activities in Zambia

Source: Kew *et al* (2014)

The GEM (2014) report suggests that about 53 percent of the youths in Zambia are either creating or running a new or established enterprise, 20 percent have intentions of starting a business, 17 percent is potential entrepreneurs and the remaining 10 percent are non-entrepreneurs. The percentage of youths involved in entrepreneurial behaviours is still low (20 percent) there is a need for government to develop some strategies to stimulate the intentions. Furthermore, despite Zambia having more than half of the youths are engaged in entrepreneurship, only 29.9 percent of them have a positive impact on the livelihood of the owners. This calls for the creation of meaningful enterprises which can benefit not only the owners but the community and the nation at large.

To enhance youth entrepreneurship in the country, the Zambia Development Agency (ZDA) has put in place some programmes for young entrepreneurs such as:

a) Idea generation where the youths are trained on how to generate business ideas,
b) Product development is meant for those already in business and wants to improve on finishing and packaging,
c) Market linkages. Youths are linked to big corporations and other markets,
d) Recommendations to financial institutions. For them to access capital,
e) Exposure. Young entrepreneurs are exposed to forums such as trade fairs and other exhibitions for them to test their products and services (Mukonkela, 2017).

Kew at al (2014) suggest that that youths in Zambia should start seeing entrepreneurship as a satisfying and profitable career and a viable alternative to formal employment in private or state-owned organisations. Therefore, there is a need for the policy to recognise youth entrepreneurship as a source of sustainable economic growth and job creation.

In the next section, a discussion on entrepreneurial environmental factors in Zambia is presented.

2.4. ENTREPRENEURIAL ENVIRONMENTAL FACTORS IN ZAMBIA

Entrepreneurial environment is defined as the internal and external factors, including aspects of the environment that influences students' decision towards entrepreneurship (Jufri and Makassar, 2018). A body of knowledge has indicated a number of environmental factors that impact on entrepreneurial activities (Adámek et al., 2017; Blažková & Dvouletý, 2018). Based on the GEM model, entrepreneurial environment is perceived as those factors or conditions that affect economic development and activate promoting innovation in an economy (Bosma and Kelley, 2019). A survey conducted by Amorós and Bosma (2014) indicated that the entrepreneurial environment includes financial and material support from the government, drafted regulations for specific sectors, access to market, opportunities of research and development transfer, entrepreneurship education being offered and traditional norms and values associated with entrepreneurship. A Study condicted in Nigeria by Ibidunni *et al* (2018) reported capacity building exercises given to SMEs to enable them access finance and develop their entrepreneurial skills as one of the most significant environmental factors. Crick *et al* (2018) conducted a study on SMEs in Kenya and Senegal and identitfied the following as critical environmental factors for promotion of entrepreneurial activities; access to information and technology, ability to respond to climate risks and general government support. It is important to understanding and analyses the business environment and develop interventions to foster SMEs sustainable growth (Akayombokwa, 2019. Providing an entrepreneurial environment with all those factors will foster innovation and economic development.

2.4.1 Financial Support for Entrepreneurs

According to the Akayombokwa (2018) t, the entrepreneurial environment in Zambia is influenced by many factors including lack of access to capital. The Zambia government and its cooperating partners like the World Bank have come to an agreement that one of the obstacles to the growth and success of SMEs in lack of access to affordable capital (Luyanda, 2017).. About 49 percent of the SMEs perceived access to finance as the major limitation to their success (Luyanda, 2017). According to Nuwagab (2015), a legislation was passed by the Zambian government in 1989 to

enable SMEs have access to finance, infrastructure, access to markets, improved production services and others. The sources of finance such as debt and equity are available in Zambia but the conditions attached are difficult to meet by the SMEs. The most affected with this issue of accessing finance are women and young entrepreneurs in Zambia (GEM, 2019). In addition, the analysis of the Entrepreneurial Framework Conditions (EFCs) on Zambia by experts indicated a lower rate of 1.9 on access to finance as compared to other countries in Southern Africa (GEM, 2019). This is due to the high cost of borrowing and in most cases, the lending institutions are demanding collateral which most of the SMEs do not have especially in the case of women.

According to the Bank of Zambia (2017), there are 34 Micro Financing Institutions (MFIs) in Zambia currently registered with the Bank of Zambia and whose main objective is to provide micro-financing to the SMEs. These MFIs are set by the private and public sectors to meet the financing g needs to reach small investors throughout the country by sustaining rapid economic transformation (BOZ, 2014).

Despite having several banks and MFIs, these institutions are reluctant to lend money to SMEs because they are being regarded as risky initiatives which have left entrepreneurs to use their savings or source for funds from friends and relatives (GEM, 2012). Most of the SMEs in Zambia have e businesses that are not formalised, not registered with the local authority and have no fixed trading plots (Mukonkela, 2017).

2.4.2. General Government Support

The Zambian government's efforts to enhance the development of SMEs cannot be overemphasised due to the vital role they play in employment creation and national wealth generation (Zambia Development Agency report, 2019).

According to the 2014 GEM report, the entrepreneurial environment in Zambia is characterised by limited access to capital, inadequate education and limited capacity to conduct research and development activities. These are the main causes of the failure of enterprises in Zambia leaving the country with fewer established ones. According to Kew, Namatovu, Aderinto, and Chigunta (2014) identified factors hindering the development of entrepreneurship is as follows: limited access to finance; inadequate business development services; limited understanding of business activities among policymakers; inappropriate school curricula; lack of technology (especially RandD);

limited availability of business opportunities; ineffective capital markets; and unsupported traditional practices.

To mitigate these challenges, the Zambian government has created empowerment (citizen's economic empowerment fund) funds to create capital capacity to develop different types of enterprises (MCTI, 2010). Another strategy put in place is the introduction of the rural fiancé programme a private sector driven amid at assisting SMEs located in rural areas.

Furthermore, the Zambian government through the Zambia Development Agency (ZDA) have put in place policies to encourage joint venture partnerships between foreign investors and the local SMEs (ZDA, 2017). Other initiatives provided by the Zambia government to enhance entrepreneurial activities are training registered SMEs to build capacity (business development services, access to markets, access to appropriate finance), offering trade support required to exploit foreign markets and facilitating knowledge sharing among SMEs on ease of doing business through conferences and workshops (ZDA, 2016).

The implementation of these policies by the Zambian government has improved entrepreneurs' access to commercial infrastructure, internal markets and physical infrastructure. This is confirmed by the study carried out by the experts on Zambia EFCs whose resulted rated the country higher on the average of 2.1 (GEM, 2014). These are the basic requirements which if focused on increasing the level of entrepreneurial activities (Kew *et al*, 2014).

2.4.3 Market Openness

Zambia opened its market to the outside world in 1991 after the introduction of the multiparty system of governance which was followed by the liberations of the economy. The country is strategically located at the intersection of the Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SADC) and this has influenced Zambia's market openness (ITC Report, 2018). A survey conducted by experts of EFCs on Zambia shows that the country scored higher on market openness averaging the rate of 2.7 (GEM, 2014).

Zambia subscribes to several regional and international groupings such as COMESA, SADC and the East African Community and the country is spearheading the creation

of a tripartite free trade area with these bodies (ITC Report, 2018). On an international stage, Zambia is currently implementing some bilateral trade agreements with countries like China, Canada and Japan. According to ITC Report (2018), Zambia belongs to the World Trade Organisation (WTO) and at the same time chairing Least Developed Countries (LDC) group at WTO.

2.4.4 Specific Regulations

Zambia is an entrepreneurial country, has enacted several regulations to enhance entrepreneurial activities. The results of the survey conducted on the EFCs for Zambia by the experts on specific regulations rated the country higher at 2.3 percent.

The MCTI report of 2018 indicated that the Zambian Government has enacted the Business Regulatory Act No. 3 of 2014 which amongst other functions, provides for the establishment of Regulatory Service Centres (RCS) for facilitating access to business services such as e-registration, cooperatives registration, registration for taxation and Pension Schemes which are expeditiously provided. The regulation is there to assist SMEs to formalise their businesses and increase their chances of accessing support from the government and other cooperating partners. In addition, the Zambian government has enacted the ZDA Act No. 11 of 2006 established to promote investment and provide business development services to the SMEs and market information among other things (MCTI, 2018). All these regulations are meant to provide a conducive climate for entrepreneurial activities in Zambia.

2.4.5 Research and Development Transfer

Research and development (RandD) and innovation are critical in promoting entrepreneurial activities and product development (MCTI Report, 2018). In promoting RandD transfer, the Zambian government has invested in domestic technology development, industrial diversification and promoting scientific research among other activities. (MCTI, 2018). Despite all these efforts put in place by the government, the rate of technology transfer in Zambia is still low.

According to the GEM report 2014, Zambia has the lowest rate on RandD transfer of 1.7 based on analysis of the Entrepreneurial Framework Conditions (EFSs) judged by

the experts. This simply means that Zambia as a country has the lowest rate of RandD transfer in Sub-Sahara African countries. Therefore, there is a need to strengthen the linkages between research institutions and the industry and also increase the capacity of RandD science, technology and innovation (MCTI, 2018). This can be achieved by creating linkages or collaborations between the government, private sector, academia and cooperating agencies.

2.4.6 Gender and Entrepreneurship

Gender role stereotyping is one of the significant factors influencing the performance and growth of the SME sector. The MCTI report of 2010 suggested a decline of 22 percent in women-operated businesses in Zambia. The SME sector was characterised by 46 percent women entrepreneurs and 54 percent men entrepreneurs (MCTI, 2010). Having more men in entrepreneurship activities is an indication of the misconception that entrepreneurship is not for women but men. In addition to that, this inequality was attributed to limited access, ownership and control of resources and capital among women in Zambia (National Industrial Policy, 2018).

In this regard, the Zambian government has put in place measures to promote gender equality in accessing, owning and controlling resources and credit. (NIP, 2018). This has helped to improve the country's social norms and values standing which is the rate 2.6 (GEM, 2014). Some of the specific measures put in place to narrow the gap between female and male entrepreneurial activities include the allocation of 30 percent of the Citizen Economic Fund to female-owned enterprises and the provision of business development services by ZDA to female entrepreneurs (NIP, 2018). This measure will increase the capacity of women and enhance their participation in entrepreneurial activities in Zambia.

Other environmental factors may include access to information and technology and infrastructure, traditional norms and values, strategic partnerships, capacity building, access to green production services and entrepreneurship education (Nuwagaba, 2015). These factors are managed by the government using different support programmes provided to potention entrepreneurs and existing entrepreneurs.

2.5 ENTREPRENEURSHIP EDUCATION IN ZAMBIA

The Zambian government together with donors have realised the importance of developing the private sector, which is considered as one of the ways of reducing poverty and meeting the Sustainable Development Goals (SDGs). The World Bank has collaborated with the government to analyse the investment climate for promoting entrepreneurship in the country (; World Bank, 2016). In addition, some government agencies have policies that support entrepreneurship development. Over the past decade, entrepreneurship learnt in isolation togather with other programmes in technical education and vocation training institutions in Zambia (Chileshe, 2015).

In Zambia, EE is still a new programme and most citizens are for the opinion that it cannot be taught and that entrepreneurs are born as entrepreneurs (Chileshe,2015). A debate is catered around the fact that not all the entrepreneurs who have received EE are successful. At the moment, the most commonly used methods of teaching entrepreneurship courses or programmes are through lectures, case studies and research (Mwiya *et al* 2015) This method involves learners sitting in class learning theories, writing assignments, tests and examinations at the end of the period. However, it is observed that informal methods such as business talks, role-play games, simulation and interacting with successful entrepreneurs are less employed (Mubanga, 2019).

EE has been absent from primary, secondary, college and university curricula (GEM, 2019). Since independence, entrepreneurship as a course or programme was not being offered in primary and secondary schools, colleges and universities in Zambia apart from business studies. Currently, Entrepreneurship courses have been introduced in almost all curricula in business and non-business schools in Zambia (Bruce, 2014). According to Bruce (2014), the fact that the programmes or courses are being offered to business school learners, casts the doubt on its ability to promote innovative, creative skills required for them to create a new business venture. GEM (2019) report confirmed the offering of entrepreneurship courses in secondary schools, colleges and universities in Zambia. The report indicates that there other non-governmental organisations which are offering these courses for short durations. The programmes range from certificates to four-year degree programmes (Bruce, 2014).

According to Uthman (2016), designers of EE programmes should ensure that they are not generic, but incorporate the requirements and the needs of learners. Different courses are offered depending on the level at which the programme is being offered. In secondary schools, the material being offered include an introduction to entrepreneurship, principles of accounting and business ideas (Mwamba and Daka, 2021).

On the other hand, the common courses offered in tertiary education in entrepreneurship include the following; Principles of entrepreneurship, fundamentals of entrepreneurship, creativity, innovation and entrepreneurship, new venture creation, business management, business strategy and business plan writing. These are some of the common entrepreneurship courses offered in Sub-Sahara African countries based on the intended outcomes (Kabongo and Okpara, 2010)

However, conducting EE in Zambia possess many challenges such as inadequate teachers or trainers, lack of appropriate training modules and entrepreneurship training and entrepreneurship cultures (Mwamba and Daka, 2021). A study conducted in Zambia by Mubanga (2019) indicated that EE has not received much needed financial and material support as expected. Most of the training institutions in Zambia offering EE are not properly funded and they lack the infrastructure required to stimulate EI. There is a need for awareness campaigns on the importance of promoting EE and devising an appropriate method of funding.

It was observed that tertiary education in entrepreneurship education provides one with the knowledge and skills to undertake an entrepreneurial career in established organisations private and public organisations (Avnimelech and Feldman, 2010; Solesvik *et al*, 2014). In Zambia, whilst entrepreneurship education is being taught at the tertiary level in both private and public institutions to both business and non-business students, its impact on students has not been fully known hence the need for a study to provide empirical evidence about the influence of entrepreneurial environment on the formation of entrepreneurial intentions of MU students. Mwiya *et al*. (2014) carried out a study on university students in Zambia and reported a direct link between institutional, contexture factors and entrepreneurial intention. This study assured that the university environment in Zambia has the potential to stimulate the formation of students' entrepreneurship intentions. Hence, the need for more studies to be conductors

to ascertain the environmental variables that affect the process of entrepreneurship among students in Zambia.

2.6 CONCLUSION

In this chapter, the brief background of the entrepreneurial environment in Zambia was discussed. The importance of entrepreneurship in an economy was discussed and its percentage contribution to GDP for some time was presented. The entrepreneurship landscape of Zambia was discussed with special emphasis on youth entrepreneurship. Stages of entrepreneurship activities were presented and the distribution of youth activities as well as an overview was also presented of the entrepreneurial environmental factors that stimulate/hinders entrepreneurship. The chapter is concluded by summarising EE in Zambia focusing on the courses being taught and the levels at which EE is being offered. However, there are limited studies in Zambia to assess the effects of EE on the formation of students' EIs.

The next Chapter discusses environmental factors on entrepreneurship intentions

CHAPTER 3: ENVIRONMENTAL FACTORS ON STUDENT ENTREPRENEURSHIP INTENTIONS

3.1 INTRODUCTION

n this chapter, a discussion of theories and secondary research linked to environmental factors on students EIs are outlined. The chapter discusses the relevant literature on entrepreneurship in section 3.2 and entrepreneurial environment in section 3.3. This is followd by the discussion on the relationship between gender and EIs in section 3.5.

This research focuses on the entrepreneurship intention of MU final year students who have acquired academic theories and developed the skills and experience to undertake entrepreneurship-related activities. The study measured the EIs of MU students. MU includes EE in all curricula to enhance student's capacity to identify business opportunities and create new ventures.

Furthermore, this chapter outlines the various kinds of entrepreneurship theories and models and the choice for adopting the Theory of Planned Behaviour in this study as the benchmark for explaining the formation of EIs in section 3.7 . Finally, in section 3.8 the research conceptual model employed to establish EIs among MU students is discussed.

In the next section, a discussion on entrepreneurship as a field of study is presented.

3.2 ENTREPRENEURSHIP AS A FIELD OF STUDY

There are several classifications and definitions of entrepreneurship used by different scholars to establish the features, development the interactions and the subfields within the general frame work of entrepreneurship (Osiri *at al*., 2015).. It is important to identify and analyse entrepreneurial activities small entrepreneurs are involved in when deciding on the definition of entrepreneurship (Aldrich and Ruef, 2018). Osman *et al* (2017) defined entreprneurship as a process of integrating different types of knowledge and recognising new insights from entrepreneurship failures. It is believed that SMEs owner managers commence entrepreneurial activities when they are not in employment, perceived business opportunities are there or when career progression in employment is not clear or limited (Rider *et al*., 2019). The process of entrepreneurship

is driven by three elements, the entrepreneur himself, identified opportunities and the configuration of resources required to exploit these opportunities (;O'Connor, 2013). Therefore, a person is perceived to be an entrepreneur if he or she can produce new products and services, innovative technologies, create employment and influence and contribute to the country's economic development. Amrita (2016) described an entrepreneur as an individual who seeks business opportunities and exploits them to contribute to economic growth. However, it has been observed that the establishment of new enterprises to exploit opportunities identified is not a holistic measure of entrepreneurship. Doran, McCarthy and O'Connor (2018), suggested the following to be included in the measure of entrepreneurship; a) entrepreneurship can take place in an existing firm and should not be restricted to start-ups; b) several factors influence the intention to start a business rather than the concern to actualise the new idea and; c) the use of the "term new venture" is linked to the difficulty of measuring entrepreneurship at the national level. Therefore, entrepreneurship should be regarded as new business activities created within and outside the firm aimed at contributing to the national GDP, wealth or productivity. To ascertain the real impact of entrepreneurship on economic development, Acs and Szerb (2010) proposed the utilisation of a comprehensive view of entrepreneurship which focuses on the three major components namely; the attitude towards entrepreneurship, entrepreneurial aspirations which impact economic growth and the formation of new ventures.

For this study, the definition proposed by Acs and Szerb (2010) will be adopted as the unique association of individual attitude, activities and aspirations. The decision to adopt this definition was based on the premise that entrepreneurship as a career option is also a way of life and students venturing into entrepreneurship are well equipped with the business information and possess the ability to analyse the environment, identify opportunities, and overcome the challenges and venture into new businesses. Establishing the impact of entrepreneurship on economic developments calls for a multi-faceted approach (Doran, McCarthy, and O'Connor, 2018). This simply means that the impact of entrepreneurship does not just depends on the formation of new business ventures but also on other factors that can support the formation of an entreprise and be able to sustain it.

It is critical to recognise the importance entrepreneurship play in the development of the nation and the entire world at large. The contribution of entrepreneurship activities

to the country's well being is not similar in different countries as each country may be at a different phased of development. In general, entrepreneurship is regarded as the source of value addition and wealth creation, employment, innovation, forward and backward linkages, export trade and improved standards of living (Amrita, 2016). For example in South Africa, entrepreneurship activates accounts for 50 to 60 percent of employment and contributes 34 percent to the national GDP (International Financing Corporation Report, 2018). In Zambia the situation is different and the contribution to GDP and employment is higher. The latest statistics published by the Zambia Invest (2021) report indicated that entrepreneurship activities account for 70 percent of employment and contributes 88 percent to the country's GDP.

To advance scholarship in the field of entrepreneurship, several seminal theories have been applied to gain more information on entrepreneurship actions and how these actions can be enhanced and sustained. Literature on entrepreneurship has shown that intentions have been regarded as one of the predictors of one's action to become an entrepreneur (Bird, 1988; Krueger, Reilly and Carsrud, 2000). In trying to appreciate the determinants of an individual's EIs, several theoretical approaches have been applied by different scholars ((Mustafa *et al.*, 2016). These are validated theories that explain the development of entrepreneurship intentions among students. Table 3.1 below displays the important theories of entrepreneurship intentions developed and applied in different research studies over time.

Table 3.1: Models of Entrepreneurship Intentions

Author(s)	Contribution
Shapero and Sokol (1982)	Introduced the entrepreneurial events model (EE), which view the formation of entrepreneurship intention as a function of perceived desirability, feasibility and the propensity to take action
Ajzen (1991, 2011)	Introduced and validated the theory of planned behaviour (Theory of Planned Behaviour), which view attitude towards entrepreneurship, perceived behavioural control and subjective norms as an influencer of entrepreneurship intentions
Krueger and Carsrud (1993)	Extended the application of the Theory of Planned Behaviour in entrepreneurship by including variables that exist outside the boundary of the theory planned behaviour model

Krueger *et al*. (2000)	Evaluated the Theory of Planned Behaviour and SEE models and used the results to develop the entrepreneurial intention model
Peterman and Kennedy (2003)	Applied the SEE model to establish the relationship between entrepreneurship education and entrepreneurship perceptions
Krueger (2004)	Assessed the perceived barriers and drivers triggers to actualising entrepreneurial intentions on spractising entrepreneurs.
Zhao *et al*. (2005)	Introduced and validated the model of the role of self-efficacy on the formation of entrepreneurial intentions using Bandura's social cognitive theory.
Fayolle *et al*. (2006)	Applied the Theory of Planned Behaviour to develop an entrepreneurship education assessment model
Liñán *et al*. (2005)	Built an entrepreneurial intention model that Used the combination of Shapero and Sokol's (1982) and Ajzen's (1991) theories to develop an entrepreneurial intention model where antecedents of entrepreneurial intentions are individual attraction towards entrepreneurship, perceived social norms and perceived feasibility (self-efficacy)
Segal *et al*. (2005)	Developed and tested an entrepreneurial intentions model based on the Shapero-Krueger model that indicates that self-employment intentions are a function of perceived net desirability and perceived feasibility of self-employment and tolerance of risk
Chowdhury and Endres (2005)	Investigated the influence of gender on the formation of self-efficacy.
Liñán and Chen (2006, 2009)	Developed the questionnaire on entrepreneurial intention based on the Theory of Planned Behaviour
Souitaris *et al.* (2007)	Conducted an assessment of the impact of entrepreneurship education courses on the formation of entrepreneurial attitudes and intentions of students applying the Theory of Planned Behaviour

Source: Ebewo (2017)

From the th models in Table 3.1 above, it can be seen that human perception and cognitions are significant factors in the formation of EIs. When a person perceive and judge entrepreneurship to be a rewarding career, their ententions to engage in it are enhanced or stimulated.

The following subsections discuss the entrepreneurial environmental factors and their interactions with EIs.

3.3 ENTREPRENEURIAL ENVIRONMENT AND EI

Prior studies on the formation of EIs have acknowledged the significant role environmental factors play in the development of intention and behaviour (Mustafa *et al*., 2016). Environmental factors such as personality traits, demographics, subjective perception and environment have been widely used currently in the literature to study the development of students' EIs (Ji and Bai, 2018). These factors have been confirmed to influence the process of entrepreneurship development

It is noted that the entrepreneurial environment consists of internal and external factors, including aspects of the environment that influences students' decision towards entrepreneurship (Jufri and Makassar, 2018). Entrepreneurial environment or atmosphere is viewed as the degree to which an individual perceives contextual variables such as family members, friends and fellows concerning entrepreneurial activities (Ji and Bai, 2018). Having family members engaged in entrepreneurial activities or friends and fellow triggers an individual's intention to establish an enterprise. Additionally, how human beings perceive something may influence behaviour and intentions (Bandura, 1986). Environmental factors can influence one's belief of how simple and complicated it is to venture into entrepreneurial activities and promote their EIs (Al *et al.,* 2017). Therefore, the entrepreneurial environment considered in this study includes PES.PUS and EE are discussed below.

3.3.1 Perceived Environmental Support and EI

Literature has identified the critical role environmental variables play in the development of EIs such as culture, social, policy and economic factors (Vracheva *et al*., 2018). These factors when present can stimulate EIs and the formation of new ventures. The earlier study by Franke and Luthje (2004) noted that environmental variables can enhance or hinder entrepreneurial activities eroding the benefits of venturing into entrepreneurial activities and sometimes stimulating the formation of

student's intention. Therefore, a supportive environment is created when there is goodwill from the government to support entrepreneurship activities and an enabling business environment that support the creation and sustenance of enterprises (Farhah, Mamun, Binti, Binti, Nawi, Nazri and Zakaria, 2016). There need for the government to create policies that encourage and support the naturing of start-ups and protect established enterprises from competition with multinational enterprises. According to Jalali (2012), improved access to enterprise support services can enhance the performance of entrepreneurs. It is believed that perceived environmental support in the form of favourable country legal systems, access to capital for individuals and firms, supported business environment and supportive global economy are the key determinants of entrepreneurship intentions (Ji and Bai, 2018). Two forms of service support have been provided to entrepreneurs namely: financial support and business development services (Suhaimi, Momun, Zainol, Nawi and Saufi, 2018). These services are usually offered by government and non-governmental organisations through agencies, universities and colleges (Teck, 2012). When the two types of support are available, they influence people's ideas to undertake or continue with entrepreneurship activities

Outside the university environment, the interactions in the form of family, community and church meetings also influence one's desirability and viability to undertake entrepreneurship as means of livelihood (Renata, Barral, Rebeiro and Canever, 2018). The other variable constituting the entrepreneurial environment considered in this research is the perceived university support presented below.

3.3.2 Perceived University Support and EI

PUS as one of the environmental variables has been linked to the development of entrepreneurship intentions among students in institutions of higher learning (Renata *et al*., 2018). There are also other factors besides personal factors that are critical to the formation of EIs (Renata *et al*., 2018). According to Dornelas (2005), the time and place where one is found emphasise the creation of entrepreneurs. This is where individuals acquire the knowledge and skills and develop the competencies to create new businesses. Higher Learning Institutions such as universities and colleges are considered to be the central point in stimulating EIs and disposition towards

entrepreneurship as a career option for graduating students (Fayolle, and Liñán,2014; Saeed, Yousafzai and Muffatto, 2015).

Furthermore, the decision to undertake entrepreneurship activities is greatly informed by the interactions within a particular environment (Renata *et al*., 2018). Educators and learners are required to interact through theories and practice (Syam, Akib, Yunus and Hasbiah, 2018). Apart from providing EE, additional support services systems have been created by universities such as incubators, start-up units and advice centres (Nabi, Holden and Walmsley, 2010). These are facilities which help students to experiment and nature their business ideas and eventually actualise them.

While an university environment is associated with the formation of entrepreneurship intentions (Farhah, Mamun, Binti, Binti, Nawi, Nazri, and Zakaria (2016) some sections of the literature have revealed contradictory results that university environment, whether private or public does not support student's entrepreneurial intention development (Renata *et al*., 2018; Joensuu-Salo, Varamaki and Viljamaa, 2015). A similar study conducted by Syam, Akib, Yunus and Hasbiah (2018) did not report any positive interaction between the university environment and the formation of EIs. According to Nabi, Holden and Welmsley (2010), universities environments worldwide are critical to the formation or development of entrepreneurship intentions among students. The majority of the students lifetime is spent on university campuses where they receive the support instrumental for new business idea generation and subsequent entrepreneurship activities.

Recent studies conducted in Malaysia on university students indicated a direct association between the environmental support and entrepreneurship intentions of students (Sensen, 2013; Mustafa *et al*, 2016; Farhah *et al*, 2017). In addition to the perceived university support, the research considered entrepreneurship education as the third variable constituting an entrepreneurial environment. The following section presents a discussion on entrepreneurship education and its interaction with students' entrepreneurship intentions.

3.3.3 Entrepreneurship Education and EI

From the time entrepreneurship courses were developed at Harvard Business School in 1947, EE has received much attention in most parts of the world (Nabi, Liñan, Krueger and Walmsely, 2017). A study conducted by Westhead and Solesvik (2016) emphasises the importance of EE in enhancing students enterprise knowledge and skills required to collect and anlyse information necessary for new business venture creation. The recognition is reflected in the adoption of EE by the number of universities worldwide to promote and stimulate entrepreneurial activities and behaviour.

These programmes are aimed at increasing learner entrepreneurial competencies, knowledge and attitude towards entrepreneurship to create jobs and contribute to economic growth (Rideout and Gray, 2013). Entrepreneurship education should provide the learners with the theories and practical skills required for them to recognise and take up business opportunities (Marques *et al.,* 2018). University entrepreneurship education is meant to prepare members of the community to take up entrepreneurial activities by providing them with the requisite knowledge and practical skills required to exhibit entrepreneurial behaviour. In this case, university lecturers and researchers are key stakeholders in the promotion of university entrepreneurship education though the changes in social classes in society and the effects of globalisation have changed this view (Stauvermann and Kumar, 2017).

To make the EE programmes and courses relevant to society and other stakeholders, appropriate target learners should be identified and meet their needs (Fayolle and Liñán, 2014). This enhances the learner's abilities to develop EIs and take up entrepreneurship activities as a way of living (Marques *et al*., 2018). Also, students undertaking entrepreneurship education when they perceived the environment to be positive, tend to develop entrepreneurial intention (Franke and Lüthje, 2004). This simply means that the interaction between EE and positive perception of the environment stimulates the formation of students' EI.

Therefore, experiential cognitive and social dimensions of entrepreneurial learning require modern teaching methods that can provide a platform where entrepreneurs can learn from both critical reflection and support from their peers. As a result of this scholars have come out in the open to support the use of the competence model for

entrepreneurship education which can provide the platform where entrepreneurs learn through the interaction between the internal and external environmental factors (Bechard and Gregoire, 2005; Bird, 2002).

However, studies on the association between EE and EIs have revealed mixed results suggesting positive and negative findings (Volery, Muller, Oser, Naepflin and Del Rey, 2013; Bae and Patterson, 2014; Rauch and Hulsink, 2015; Karimi, 2016). The inconclusive results are a result of different methodologies employed, the nature and context of the programmes and lack of control groups (Nabi *et al*., 2017) and also various types and objectives of entrepreneurship education (Fayolle and Gailly, 2015). In addition, the duration of the programme also matters, for example, the study Fayolle and Gailly (2015) found a negative link between entrepreneurship education and entrepreneurship intention in the short term and a positive relationship in the medium term. While some studies (O' Connor, 2013; Martin, McNally and Kay, 2013; Jones, 2014: Jones 2014; Bae, Qian and Fiet, 2014) have revealed mixed results on the formation of entrepreneurship intentions, limited studies have been done to investigate the mediating role of individual entrepreneurial orientation.

The discussion of individual entrepreneurial orientation and its constructs is presented below.

3.4 INDIVIDUAL ENTREPRENEURIAL ORIENTATION AND EI

For more than 30 years, researchers have acknowledged IEO as a major factor influencing corporations to engage in entrepreneurial activities (Nabi, Holden and Walmsley, 2010). However, the IEO which regards risk-taking, proactivity and innovatiness as construct has not been fully explored in studies on entrepreneurial intentions (Keo, 2016). The IEO as a construct has gained conceptual and empirical attention among researchers and scholars and it is a segment of entrepreneurship thathas received a lot of attention among scholars in the recent past (Ferreira *et al*., 2012; Gupta and Gupta, 2015).. Although initially its application has been limited to establishing the organisation's orientation towards entrepreneurship, an extension has been made to focus also on the individual competencies and the formation of EIs (Lumpkin and Dess, 1996). According to Jalali, (2012), studies on EO have focused on two levels of analysis; first, an organisational level and second, at an individual level. The analysis

at the individual level is because, whether an organisation is a private or public entity it is regarded as an outcome of individual actions (Reijonen *et al*., 2015). A person can conceptualise a business idea that can be actualised and transformed into bigger cooperation.

A meta-analysis study conducted by Jalali (2012) defined EO at an organisational level as "the strategy-making process that provides an organisation with a basis for entrepreneurial decisions and actions". The earlier study by Covin and Slevin (1988) defined EO as the manager's ability to take up something new, use innovative ideas to and overcome competitors. According to Othman et al (2015) EO is described as an individual's intentions and activities carried out to create new enterprises. Therefore, the EO factors can also be tested or measured for individuals especially students.

The three dimensions from this definition coined by Miller (1983) - risk-taking, innovation and proactiveness have been used in the existing body of literature to determine the EO of business organisations (Taatila and Down, 2012). Apart from these three dimensions, there are other two salient dimensions included to describe EO as a construct such as competitive aggressiveness and autonomy (Lumpkin and Dess, 1996).

Rauch, Wiklund, Lumpkin and frese (2009) identified of the five sub-constructs of entrepreneurial orientation, competitive aggressiveness and autonomy are the two behaviours less studied in the existing literature of entrepreneurship. Bolton (2012) agrees that EO is one of the constructs that was being used widely in research on entrepreneurial intentions. Several studies on entrepreneurial orientation were done in developed and developing nations. Sub-Sahara African countries lack studies in this regard (Othman et al (2015)). Table 3.2 below shows how the sub-constructs of entrepreneurial orientation have been defined as proposed by (Rauch, Wiklund, Lumpkin, and Frese, 2009).

Table 3.2: Definitions of EO dimensions

Dimension	**Definition**
Autonomy	"Independent actions undertaken by entrepreneurial leaders or teams directed at bringing about a new venture and seeing it to fruition".
Competitive aggressive	"Intensity of the firm to outperform its rivals"

Innovativeness	"Predisposition to creativity and experimentation through the introduction of new products and services as well as technical leadership through Rand D in new processes"
Proactiveness	"An opportunity seeking, forward-looking perspective characterised by new products and services ahead of the competition and acting in anticipation of future demand".
Risk-Taking	"Talking bold action by venturing into unknown borrowing heavily and/or committing significant resources to ventures in an uncertain environment"

Source: Rauch *et. al* (2009:3)

The body of existing literature has shown that recent research studies have examined entrepreneurial orientation and its interaction with university students entrepreneurship intentions (Marques *et al*., 2018; Abou- Warda, 2016; Ibrahim and Lucky, 2014; Taatila and Down, 2012; Bolton, 2012). All these studies have used the previously developed factors of EO (risk-taking, innovativeness and proactivity) on different samples. The three factors, namely, risk-taking, innovativeness and proactivity are considered to be significant influencers of entrepreneurship intentions of final year students about to enter the labour market (Marques *et al.,* 2018).

Each of these factors are disccsued in the following sections.

a) **Factor 1:Innovativeness**: Innovativeness is described as the willingness to create and introduce unique products/services and processes through trials and experiments (Lumkin and Dess, 1996). Innovativeness is connected to entrepreneurship due to the ability of the construct to predict the formation of EIs (Melati, Arief and Batswara, 2018). The conceptualisation of the business ideas and their actualisation requires a lot of creativity through trials and experiments. In this research, innovativeness is defined as the student's ability to ability to generate new business ideas or improve on the existing ones and create new business ventures. Innovativeness as an attribute enables entrepreneurs to identify the problems, develop solutions to the problems and create new products and services (Dimov, 2007; Melati *et al*., 2018). It is a powerful predictor of students' EIs and enables them to persist in entrepreneurial behaviour. A recent study by Syed, Buttler, Smith and Cao (2020), found innovativeness to be a director predictor of students'

entrepreneurship intentions and subsequent behaviour. Based on the above discussion, the hypotheses are developed as follows:

H_4: Student's innovation ability as an entrepreneurial competency mediates the relationship between:

H_{4a}: *Perceived environmental support and entrepreneurial intentions*

H_{4b}: *Perceived university support and entrepreneurial intentions*

H_{4C}: *Entrepreneurship education and entrepreneurial intentions*

b) **Factor 2: Proactivity**: Proactivity is defined as "a dispositional construct that identifies differences among people in the extent to which they take action to influence their environment (Bateman and Crant, 1983: 103). It's about taking a unique approach towards work, being in control of your actions, being creative and taking initiative required to pursue the course of action (Zhou and George, 2001). In this study, proactivity is defined as a student's ability to seek business opportunities or look forward and create new ventures ahead of the competition. According to Bateman and Crant (1983), proactive students are likely to take time and analyse the business environment, identify a business opportunity, exploit them and persist in that behaviour until success is achieved. They can meet environmental challenges ahead of them and increase the chances of entrepreneurial knowledge (Prabhu, McGuire, Drost and Kwong, 2012). These are the attributes needed for students in developing countries like Zambia characterised by inadequate resources and limited government support. Therefore students with proactive behaviour have the natural ability and power to overcome challenges and take up entrepreneurship as a career option (Gupta and Bhawe, 2007; Prabhu *et al.,* 2012). Several previous studies have associated students' proactivity behaviour with EIs (Prabhu, McGuire, Drost and Kwong, 2012; Mahon and Chee, 2016; Mustafa, 2016; Israr and Hashim, 2017; Kumar and Shukla, 2019; Munir, Jianfeng and Ramzan, 2019). These studies have demonstrated that the propensity to act influence students EI which results in new venture creation. This supports the inclusion of proactivity in this study. The hypotheses are developed as follows:

H_5: Student's proactivity ability as an entrepreneurial competency mediates the relationship between:

H_{5a}: *Perceived environmental support and entrepreneurial intentions*

H_{5b}: *Perceived university support and entrepreneurial intentions*

H_{5C}: *Entrepreneurship education and entrepreneurial intentions*

c) **Factor 3: Risk-taking**: Herdjiono, Puspa and Maulany (2018) described risk-taking as an individual's courage to venture into the unknown after a systematic analysis of the environment. It is inertial to take a risk after identifying and evaluating opportunities and making a decision to exploit these opportunities. People venture into entrepreneurial behaviours because they are willing and can persist and achieve success. In this study, risk-taking is considered as students' ability to mobilise resources and engage themselves in entrepreneurship behaviour in anticipation of success. According to Bezzina (2010), entrepreneurs usually analyze the alternative course of action and develop the optimal strategy to reduce the risk inherent in the best option chosen. Therefore, an individual's intensity to take a risk is one of the fundamental steps in the development of the entrepreneurship process. Risk-taking as a competency is directly linked to entrepreneurship intention. Prior studies investigated the association between risk-taking and EIs and found a significant relationship (Herdjiono *et al*., 2018; Koe, 2016; Robinson and Stubberud, 2014; Bolton, 2012). All these studies have confirmed that risk-taking as competence is positively associated with the formation of students' EIs. Thus, the hypotheses are developed as follows:

***H_1*: Student's tendency to act "boldly" in situations where risk is involved as an entrepreneurial competency mediates the relationship between:**

H_{1a}: *Perceived environmental support and entrepreneurial intentions*

H_{1b}: *Perceived university support and entrepreneurial intentions*

H_{1C}: *Entrepreneurship education and entrepreneurial intentions*

H_2: Student's willingness to invest time/money on things that yield high

returns as an entrepreneurial competency mediates the relationship between:

H_{2a}: *Perceived environmental support and entrepreneurial intentions*

H_{2b}: *Perceived university support and entrepreneurial intentions*

H_{2C}: *Entrepreneurship education and entrepreneurial intentions*

$\boldsymbol{H_3}$: **Student's likeness to take bold actions by venturing into the unknown as an entrepreneurial competency mediates the relationship between:**

H_{3a}: *Perceived environmental support and entrepreneurial intentions*

H_{3b}: *Perceived university support and entrepreneurial intentions*

H_{3C}: *Entrepreneurship education and entrepreneurial intentions*

It is believed that some differences in the EO of students from different academic programmes exist. Therefore, understanding the IEO of students helps to determine their inner force to take up entrepreneurship as a career and the competencies required for them to succeed (Taatila and Down, 2012). They further suggested that students from different academic programmes may have different desires for entrepreneurship, but their EO is the same. Therefore, understanding students' IEO is key to the creation of strong project teams among students, which can enhance their entrepreneurial intention formation and also provide valuable information to business incubators and investors (Bolton, 2012).

The limitations in studies on EO are that, apart from establishing the direct effects of these concets on entrepreneurial intentions, these concepts (risk-taking, innovativeness and practivties) have not been use to test the meditation effects they have on the interaction between entrepreneurial environmental factors and entrepreneurial intentions, especially in the Zambian context. In most instances these constructs have been used in isolation in understanding the formation of entrepreneurial intentions among students.

Therefore, the research on which this study is based has adopted the three entrepreneurial orientation factors risk-taking, innovativeness and proactivity which

have been as mediating variables on the interaction between entrepreneurial environment and entrepreneurship intentions.

In the next section, gender and its relationship with entrepreneurial intentions are discussed.

3.5 GENDER AND EI

The question of entrepreneurial intentions among male and female students has remained unanswered (Alok, Kocherlakota and Beernelly, 2017). The failure to answer this question has created a limitation in the body of existing literature and raised interest among scholars for some time now as research on the formation of EIs in women remains in its adolescent stage (Hughes, Jannings, Brush, Carter, and Welter 2012). The earlier study by Wilson, Marlino and Kickul (2004) found that males and females have similar rates of interest in entrepreneurship and the formation of intentions is the same for both (Santos, Roomi and Liñán, 2016).

However, recent studies have indicated that entrepreneurship is for men (Alok, Kocherlakota and Beernelly, 2017; Santos, Roomiand Liñán , 2016) while others have shown that it is for women (Pawlak, 2016; Muhammed, Omer, Naheed and Marian , 2016). Primary research done by Alok *et al*. (2017) showed that female students have low intentions of undertaking entrepreneurship activities as a means of survival. The Global Entrepreneurship and Development Institute (GEDI) report (2015) report suggests that about 22-30 per cent of the private enterprises worldwide are operated by women. The proportion of women engaged in entrepreneurship in most countries is lower than that of men. Therefore, to understand why there are more men than women involved in entrepreneurial activities, evaluating entrepreneurial behaviour at the gender level is of paramount importance (Alok *et al*., 2017). Table 3.3 below shows some of the previous studies in chronological year order on gender and its interaction with EIs.

Table 3.3: Gender and Entrepreneurial Intentions Studies

Author(s)	Unit of Analysis	Findings
Bhat and Singh (2018)	University students in Pakistan	Subjective norms (family and social environment) were directly linked to the formation of entrepreneurship intentions in women than in men.
Alok, Kocherlakota and Beernelly, (2017)	University students in India	Male students reported a higher interest in entrepreneurship while female students reported low interest
Santos, Roomi, and Liñán (2016)	University students in the United Kingdom and Spain	Both male and female students reported similar levels of entrepreneurship intentions in both countries.
Caro-Gonzalez, Romero Benabent, and Sánchez Torné (2017)	University students in Spain	Social norms and social assessment influenced the development of entrepreneurship intention in women than men.
Muhammed, Omer, Naheed and Marian , 2016).	University students in Pakistan	Social norms were instrumental in the development of entrepreneurship intention in women than in men
Maes, Leroy and Sels (2015)	University students in America	Reported a positive interaction between self-efficacy and entrepreneurial intentions in women than in men.
Robledo,Arán, Sanchez, and Molina (2015)	University students in Spain	Gender moderated the relationship between subjective norms, perceived behavioural

		control and entrepreneurial intentions.
Meas, Leroy and Sels (2014)	University students in America	Female students were more interested in entrepreneurship as a means of survival than male students as a way of getting organized.

Source: Researcher's synthesis of the literature

From the research studies presented in Table 3.3 above, it can bee seen that the anticedents of EI such as subjective norms, social assesssemnt, social norms, perceived behavioural control and self efficacy are instrumental in the formation of EIs among women. Thus, the hypotheses are developed as follows:

H_6: Gender as an influencing factor of an individual's self-perception will influence the relationship between:

H_{6a}: *Student's tendency to act "boldly" in situations where risk is involved as an entrepreneurial competency and entrepreneurial intentions*

H_{6b}: *Student's willingness to invest time/money on things that yield high returns as an entrepreneurial competency and entrepreneurial intentions*

H_{6c}: *Student's likeness to take bold actions by venturing into the unknown as an entrepreneurial competency and entrepreneurial intentions*

H_{6d}: *Student's innovation ability as an entrepreneurial competency and entrepreneurial intentions.*

H_{6e}: *Student's proactivity ability as an entrepreneurial competency and entrepreneurial intentions.*

In the following section, the entrepreneurial intention is defined and discussed followed by a discussion on EI models such as the TPB, TPBEM, EEM and the EIM.

3.6 ENTREPRENEURIAL INTENTION

EI is one's interest in taking up entrepreneurship as a career and the plan of setting up an enterprise in the future (Alok, Kocherlakota and Beernelly, 2017). In the recent past, studies focusing on the concepts of EI and its antecedents have gained popularity among

scholars for their ability to predict entrepreneurial behaviour and to demonstrate how EIs are formed (Fayolle and Gailly, 2015). It is noted that when an individual is willing to up activities related to entrepreneurship, that person is considered to have developed EIs (Ji and Bai, 2018). The formation of EI is the foundation in the process of creating an enterprise. EIs play a vital role in the entire process of entrepreneurship development (Linan and Fayolle, 2015). One has to develop the intention before engaging him/herself in entrepreneurial behaviour activities.

According to Do and Dadvari (2017, p. 2), EI is defined as an "attentive state of mind that directs personal attention and experience towards planned entrepreneurial behaviour". An Intention is a signal that an individual is prepared and willing to do something and the number of efforts required to exhibit a certain behaviour (Islamic, 2018). According to him, the intention is one's willingness to perform a task and engage in certain behaviour. It serves as the drive for an individual to perform a certain action. On the other hand, EI is also described as how far an individual is willing to engage in something and the level of energy required to exhibit the desired behaviour (Mwiya, Wang, Kaulungombe and Kayekesi, 2018). EI is about one's attitude about engaging in entrepreneurial activities shortly (Kuehn, 2008). Based on the TPB (Ajzen, 1991), EIs describe the theory's intention constructs such as perceived behavioural control, subjective norms and attitude towards entrepreneurship. Therefore, when a person believes that entrepreneurship to be desirable and manageable, his or her EIs are developed (Ajzen, 1991; Shapero and Sokol, 1982). In a quest to achieve a clear explanation of the development of EIs, scholars have focused on understanding the antecedents of entrepreneurial intentions. Therefore, the EI is defined in this context of the study as a student's intent or wiliness to take up entrepreneurship activities as a way of living.

Some scholars have looked at the concept of EIs for the last three decades (Wajeeh and Al-yacoub, 2016). However, there is a disagreement on the approach as each one of them focuses on a different aspect and characteristics (Sadhu, Sidique and Riaz, 2011).

The body of studies has shown that EI is the function of different factors amongst those of personality (Fayolle and Gailly, 2015) entrepreneurial education (Karimi, Biemans, Mahdel, Lens, Chizari and Mulder, 2017) and environmental support (Luthje and Frank, 2003).

Most of the early studies explained the formation of EIs using individual factors such as the need for achievement, decision making, risk-taking, innovation, communication skills and autonomy (McClelland, 1987; Cox and Jennings, 1995). Others focused on demographic factors like gender, experience, role model, age, religious background (Robnison, Stimpson, Huefner and Hunt, 1991). The use of personality traits and demographic factors in the studies on EIs received criticism due to lack of clear or defined methodology, limitations in the conceptual frameworks and low explanatory capacity (Ajzen, 1991; Shapero and Sokol's, 1982)

Therefore, the application of the TPB in the study of formation EIs is a most comprehensive framework which can be used to understand and predict one's entrepreneurial intentions by focusing on personal, social and environmental variables (Krueger *et al*, 2000). The explanation here is that personality traits, social and environmental constructs have an impact on the formation of entrepreneurship intentions and the ability to undertake entrepreneurship activities or behaviour. Recent empirical research studies have investigated the development of EIs of students in institutions of higher learning using the combination of individual, demographic, contextual and environmental factors (Ozaralli and Rivenburgh, 2016; Mustafa *et al*., 2016; Marques *et al.,* 2018). In line with this argument, the study considers personal and perceived environmental factors in the conceptual research model to investigate how these factors influence the formation of one's EIs and behaviour.

The discussion on different types of EI models, their limitations and the justification for adopting the Theory of Planned behaviour is presented next.

3.7 ENTREPRENEURIAL INTENTION MODELS

EIs models have been included in this study because they explain how entrepreneurial intentions influence the creation of new ventures the primary theories are the Theory of Planned Behaviour (TPB), Theory of Planned Behaviour Entrepreneurial Model (TPBEM), Entrepreneurial Events Model (EEM), and Entrepreneurial Intention Model (EIM) (Ajzen, 1991, 2011; Krueger and Casrud, 1993) Shapero and Sokol's, 1982; Krueger et al, 2000; Boyd and Vozikis, 1994). Recent studies on EIs have described these theories as dominant models of EIs (Tran and Von Korflesch, 2016). The

following sections present the discussions on entrepreneurial intentions models and their limitations

3.7.1 Entrepreneurial Events Model (EEM)

Shapero and Sokol's (1982) entrepreneurial event model is the earliest model applied in entrepreneurship in EI studies (Tran andVon Korflesch, 2016). This theory is similar to the TPB (Wajeeh and Badriah, 2016). Some studies on EIs have found a strong relationship between EEM and TPB (Wajeeh and Badriah, 2016; Krueger *et al*, 2000). Like the TPB, the EEM uses three factors to determine the formation of entrepreneurial intents, which are:

a) **Perceived desirability**: Describes the attractiveness of the act to become an entrepreneur or how easy an individual believes in the act of becoming an entrepreneur (Solesvik, Westhead and Matlay, 2014). When an individual perceived the business idea to be attractive they are likely to pursue the course of action and create the new venture. It is a feeling of one wanting to take entrepreneurship activities or own and operate an enterprise (Liñán, 2004:4). Becoming an entrepreneur requires one to have an idea or a belief and identify the need for exploiting this idea.

b) **Perceived feasibility**: Describes the extent to which a person feels he/she can confidently exploit business opportunities when the resources and the skills required to pursue this course of action are available. Perceived feasibility is also considered to be a person's belief that he/she can identify and exploit an opportunity (Krueger *et al* 2000; Liñán, 2004). Individuals with the knowledge and skills when provided with resources they can engage themselves in entrepreneurial behaviour. Therefore students who have acquired entrepreneurship education and have all the necessary resources available tend to create new businesses.

c) **The propensity to exploit opportunities**: The third factor which is the propensity to act focus on one's willingness to make and act on the decision to engage in entrepreneurial activities (Wajeeh and Badrial, 2016;Solesvik, Westhead and Matlay, 2014).

This model suggests that it's not one's inertia or habit which influences an individual to engage in entrepreneurial behaviour but the entrepreneurial events (Tran and Von

Korflesch, 2016). Intrinsic factors have no impact on one wiliness to create new ventures but the events or activities surrounding a person. This model was developed and tested by Krueger (1993) and suggests that planned behaviour and one becoming an entrepreneur are a function of entrepreneurial intentions.

To clarify why EIs, especially among students did not directly result in entrepreneurial behaviour, Shapero and Sokol (1982) extended the further TPB by developing the Entrepreneurial Events Model (EEM). The same authors proposed that EI are moderated by triggering events that may be positive or negative. The EEM has received criticism for linking directly the actions resulting from the intention to start a new enterprise. However, there are other ways people can use to engage themselves into entrepreneurship and also for taking a general stand and not being focused (Cieślik and Van Stel, 2017). The model recognises the individual ability to gain knowledge on entrepreneurship acquisition which results from f entrepreneurship knowledge, experience and availability of available resources as means for individuals to engage in entrepreneurship behaviour. However, one of the critical elements ignored by this model is making individuals aware of what they have which they can use to engage in entrepreneurship behaviours. Tomy and Pardede (2019) argued that when students are made aware of what they have in them, they become aware of activities under their control and those beyond their control. The above limitations make the EEM not to be suitable for this study.

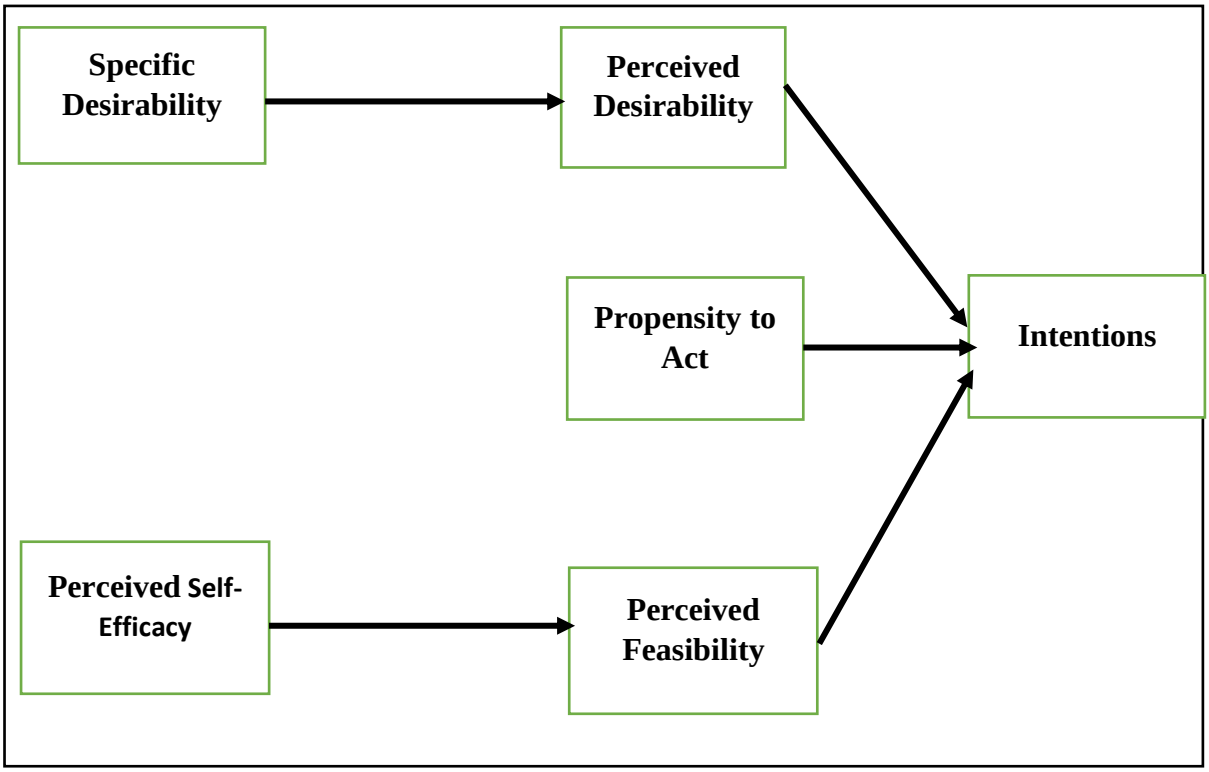

Figure 3.1: Shapero and Sokol's (1982) Model of Entrepreneurial Events

Source: Radipere (2012: 69)

3.7.2 Entrepreneurial Intentions Model (EIM)

The EIM introduced by Boyd and Vozikis (1994) is an extension of Bird's (1988) model of explaining the formation of intentions. According to Bird (1988) model, entrepreneurial intentions are a function of an individual rational and intuitive thinking which are also affected by personal and environmental variables. The EIM suggest that an individual thought about venture creation which later develops into an entrepreneurial intention is influenced by the economic conditions, personal abilities and factors (Tran and Von Korflesch, 2016). The limitation of this theory is that it regards self-efficacy as the most important construct in explaining the formation and EIs and it is considered as the direct link between the thought about entrepreneurial behaviour and EI (Tran and Von Korflesch, 2016). Human beings operate in an environment where different variables hinder or promote the formation of entrepreneurship intentions apart from personality factors.

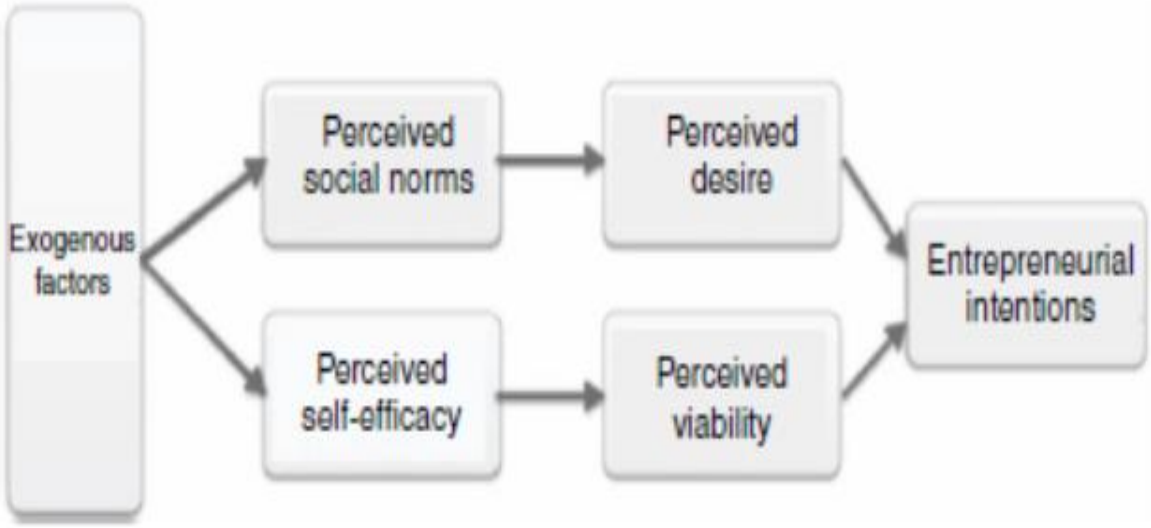

Figure 3.2: Entrepreneurial Intention Model

Source: Adapted from Krueger *et al* (2000)

Figure 3.2 above suggest that the environmental factors one comes into contact with influences the belief in individual capacities and shared values which in turn impact on desired to engage into entrepreneurial activities considered to be viable. The combination of environmental and personal factors play a critical role in the formation of EIs.

In the next section, a discussion on the TPBEM is presented

3.7.3 The Theory of Planned Behaviour Entrepreneurial Model (TPBEM)

The TPBEM is based on the modification TPB (Ajzen, 1991) by Krueger and Casrud (1993). At first, the TPB has developed on the premise that planning is the key factor that influences any behaviour (Tran and Von Korflesch, 2016). Hence intentions are influenced by the following constructs namely; the attitude towards venture creation; subjective norms and perceived behaviour control. Figure 3.3 below presents the TPBEM.

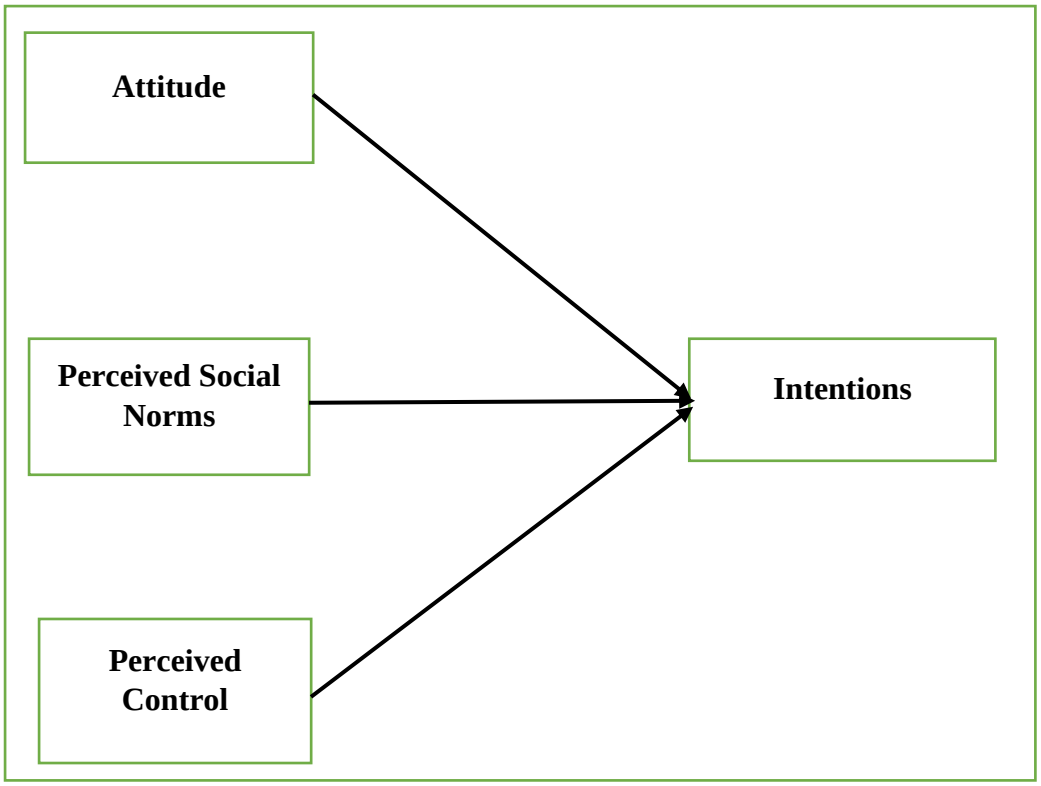

Figure 3.3: The Theory of Planned Behaviour Entrepreneurial Model

Source: Researcher's Synthesis of the literature

From figure 3.3, it can be seen that the only difference between TPBEM and TPB is that TPBEM is based on the assumption that creating a venture is an intentional process that is preceded by three major antecedents. The first one is one's attitude towards entrepreneurship activities, derived from perceived desirability and the second is the perceived social norm for taking entrepreneurial activities. The last antecedent is the perceived control of the planned behaviour (Tran and Von Korflesch, 2016). The argument here is that the intention to exploit business opportunities and engage in entrepreneurship activities are affected by one's misperceptions of how friends and family think and act which in itself is a limitation.

The following section presents a discussion of the theory of planned behaviour

3.7.4 The Theory of Planned Behaviour

This theory when applied to entrepreneurs, helps to understand the effects and antecedents of entrepreneurial intent (Valliere, 2015). TPB is founded on the principle that a person's behaviour is a planned activity and is influenced by the intentions towards that behaviour (Fishbein and Ajzen, 1975). The TPB predicts the interactions of activities from the personal belief concerning the environment, to attitudes towards the desired future state, to intention to act or not to and the behaviour being exhibited (Valliere, Gedeon and Wise, 2014).

Heuer and Kolvereid (2013) concluded that entrepreneurship behaviour is caused by entrepreneurial intentions which are also affected by three antecedents, namely; attitude (A), subjective norms (SN) and perceived behavioural control (PBC). They further suggested that other factors, whether individual or environmental affects the intentions indirectly by influencing the three antecedents. Figure 3.4 below showns the framework of the TPB.

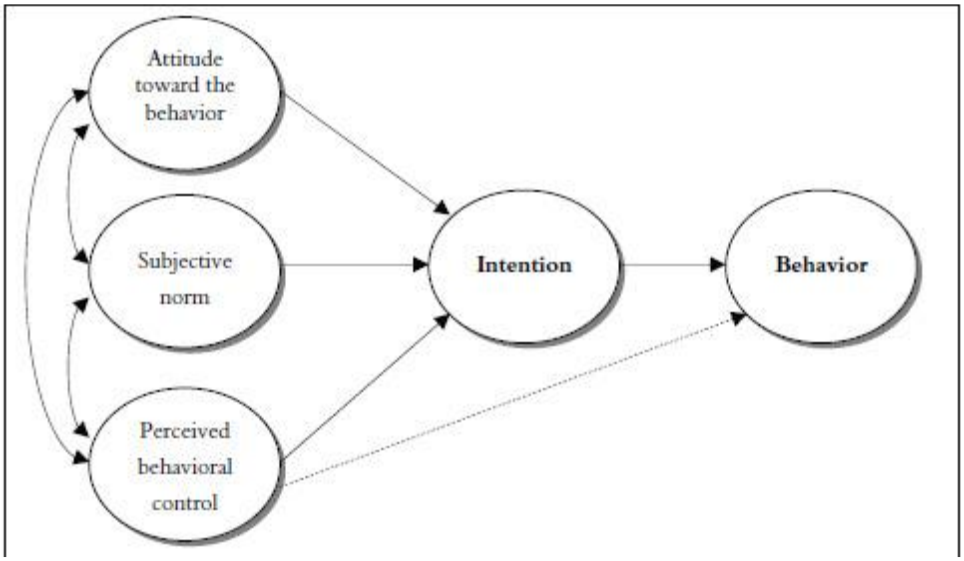

Figure 3.4.: The framework of Theory of Planned Behaviour

Source: Yıldırım, Çakır and Aşkun (2016)

From Figure 3.4 the following three constructs are displayed, attitude towards behaviour, subjective norms and perceived behavioural control.

a) Attitude towards behaviour: This is the degree to which a person an individual has a negative or positive assessment of the behaviour being considered (Alok, Kocherlakota and

Beernelly, 2017). It is a personal evaluation of either favourable or unfavourable of engagement in certain behaviour. Elali and Al-Yacoub (2016) describe the attitude towards the behaviour as the degree to which an individual assesses the intention to become an entrepreneur positive or negative. When the idea of becoming an entrepreneur is perceived positively, the chances of one engaging in entrepreneurial behaviour increase.

b)Subjective Norms: Alok *et al.* (2017) defined subjective norms as to how one's social network's perception of exhibiting behaviour and whether they agree or disagree by performing that behaviour. This is the second predictor of intentions or the perceived social pressure to act in a certain way (Elali and Al-Yacoub, 2016). It is about the expectations family, friends and colleagues have about one's desire to venture into entrepreneurship. This gives a lot of encouragement to potential entrepreneurs especially students.

c)Perceived behavioural control: This is one's conviction about the ability to perform the planned behaviour and the belief that the behaviour is under his or her control (Alok *et al*., 2017). Perceived behavioural control refers to personal conviction on that entrepreneurial activities can be achieved with or without greater effort (Elali and Al-Yacoub, 2016). When an individual has a favourable attitude and subjective norms towards a certain behaviour and has superior self-trust and control capabilities, he or she is likely to venture into entrepreneurial activities (Elali and Al-Yacoub, 2016).

The TPB suggests that EIs are influenced by the altitude and that subjective norms and perceived behavioural control together predict intentions while the intentions result in the desired behaviour (Al, Nawi, Mahiuddin, Shamusudin and Fazai, 2017).

Although TPB has received criticisms about limited validity, it is still regarded as a validated model to use in the research on the formation of entrepreneurial intent (Yıldırım, Çakır and Aşkun, 2016). The theory is regarded as the best primary theories-driven model that explains the formation of entrepreneurial intentions especially in students (Al *et al*., 2017) . A refined framework is used to understand and predict EIs of people not focusing on personal, demographic, environmental and social factors as antecedents of entrepreneurial behaviour (Krueger, Reilly and Carsrud, 2000; Ozaralli and Rivenburgh, 2016).

Out of the four theories discussed above, the TPB is the most commonly used theory to explain the formation of EIs (Ajzen, 1991). Although in some studies, the formation of EI has been explained using the TPB (Ajzen, 1991) and the Entrepreneurial Event Theory (EET (Shapero

and Sokol, 1982) theories. It is believed that the TPB is one of the reliable and validated models employed in studies on the formation of EI, especially among university students (Elali and Al-Yacoub, 2016: Fayolle and Gailly, 2015). The TPB has been refined and strengthened by the combination of the EET and TPB strands. It is a model that several studies have robustly tested and proved and recognised the power of intention to influence behaviour (Wajeeh and Badriah, 2016).

The TPB is regarded as an appropriate framework for predicting human behaviour and enables one to understand and explain the formation of EI (Henley, Contreras and Espinosa, 2017). Farhah *et al* (2017) suggested that the TPB is suitable for studies that focus on analysing human action as is in the case of this study.

Therefore, the TPB remains the choice for this study and it was employed to facilitate the comprehension of the mediating effects of EO on the interaction between entrepreneurial environment and EI and how gender moderate ing affects the association between EO and EIs of Zambian students. In this study, contribution to the TPB applied is made by extenteding the it through the additional of the EO constructs as mediators and gender as a moderators to better understand and appreciate the formation of entrepreneurial intentions of students in Zambian universities.This enables the theory to explain how the EO constructs mediates the relationship between environmental factors and EI and the moderating effects of gender on the relationship between EO and EIs of students in Zambia, Research done by Mwiya, Wang, Kaulungombe, and Kayekesi (2018) on students in Zambian universities employing the TPB confirms the formation of EIs. Therefore, this research employed the TPB and the questionnaire by Marques et. al. (2018); Ajzen, (2011); Liñán and Chen (2009); Lüthje and Franke (2003) and adapted it for Mulungushi University students and Zambian context.

The following section discusses the conceptual research model utilised to test the research hypotheses of the study on which the research is based

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3.8 CONCEPTUAL RESEARCH MODEL

The primary objective of this research is to investigate the effects of environmental factors on the formation of university students entrepreneurial intentions in Zambia. The study establishes two effects, the mediating effects of EO (risk-taking, innovation and proactivity) on the

interaction between entrepreneurial environment (PES, PUS and EE) and EIs, and the moderating effects of gender on the association between EO and EIs of MU students.

This research also addresses the limitation in the body of the existing literature on how EO mediates the interaction between entrepreneurial environment and EIs and how gender moderates the association between EO and EIs. The research on which this study is based enables valuable information to the Higher Education Authority in Zambia, educators and researchers in that a framework on the development of entrepreneurship intention among students in higher education institutions of learning is presented.

This research is anchored on the constructs (PUS, PES, EE, risk-taking, proactivity, innovativeness, gender and entrepreneurial intention) presented in the conceptual research model in figure 3.1 below which explains the relationships between these variables. The TPB (Ajzen, 2011) provides the insight to take the entrepreneurial environment, EO and gender as variables influencing the decision-making process (Jufri and Makassoar, 2018; Bai and Li, 2018). The way a person or individual perceives something may affect his or her behaviour and intentions (Bandura, 1986).
The conceptual model consists of the following variables in the context of MU students:

a) Independent Variables

I. PES is included in the model to assess its role and effects on the formation of entrepreneurial intentions. In this research, perceived environmental support include government policies and procedures, education programmes, incubator facilities to promote entrepreneurship and sources of finance. Environmental support services in the form of financial and business development services are significant factors that affect the development of students entrepreneurship intentions (Suhaimi *et al*., 2018).

II. PUS is added to the model because it enables students not only to interact with educators but also to equip them with the theories and practices needed for them to engage in entrepreneurship behaviour. According to Nabi *et al.* (2010), the university environment has proved to be a critical factor in the entrepreneurship development process, especially among students.

III. EE is included in the TPB model because it stimulates students entrepreneurial competencies, knowledge and attitude towards entrepreneurship (Rideout and

Gray, 2013). For example, where students have undergone training in entrepreneurship their chances of identifying business opportunities and creating new enterprises are enhanced.

b) **Mediating Variables**

I. Innovativeness is added to the model as it enables the students to generate novel business ideas or improve on the existing ones and engage in entrepreneurship behaviour. Innovation as competence is regarded as a construct directly linked to students' EIs (Bolton, 2012).

II. Proactivity is also added to the TPB model as competence as it enables students to seek business opportunities. For example, students who are exposed to entrepreneurship education and other environmental factors can identify quality and valuable business opportunities (Robinson and Stubberud, 2014).

III. Risk-Taking is included in the TPB model because taking up entrepreneurial activities requires one to take a high risk. Therefore students with high risk-averse when provided with resources are likely to undertake entrepreneurship activities as a means of survival after graduating (Yortkoru, 2014)

c) **Moderating Variable**

I. Gender as a moderating variable was added to the TPB as it enables to establish the entrepreneurship intention levels among male and female students. Studies on EIs have reported mixed results on the level of participation of men and women in entrepreneurship (Alok *et al*., 2017).

d) **Dependent Variable**

I. As a dependent variable, the EI is the outcome of the interactions among the variables discussed above. It is considered in this study as a students willingness or intent to venture into entrepreneurship.

Figure 3.5 shows the conceptual research model for the research which indicates the proposed interactions between entrepreneurial environment, entrepreneurial orientation, gender and entrepreneurial intentions.

Independent Variable **Mediation Variable** **Moderator**

Dependent Variable

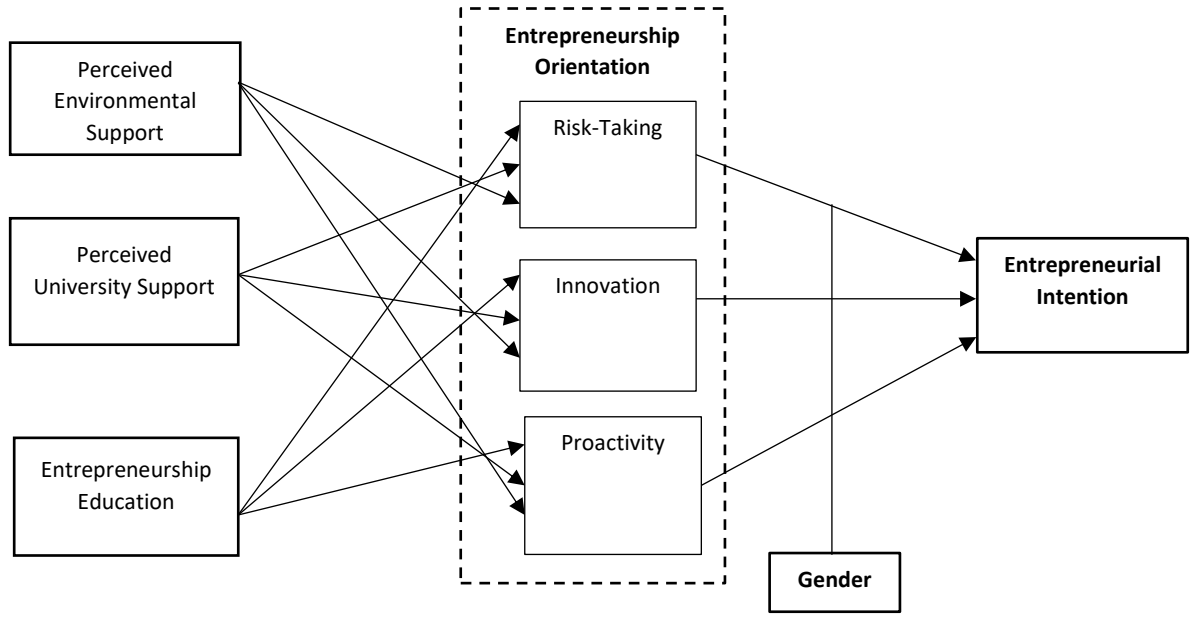

Figure 3.5: Conceptual Research Model

Source: Marques *et. al*. (2018); Ajzen, (2011); Liñán and Chen (2009); Lüthje and Franke (2003).

The following section present the research problem, question and hypotheses for this study

3.9 RESEARCH PROBLEM, QUESTION AND HYPOTHESES

3.9.1 Research Problem

Global Entrepreneurship Monitor (2014) results on the entrepreneurship landscape in Zambia clearly show that 42 percent of the youths (18 to 35 years old) engage in entrepreneurship activities and a proportion of about 32 percent aged between 18 and 24 despite difficulties in accessing formal employment (GEM, 2014). However, the data obtained from the Zambia Statistics Agency Office on the employment status of graduates in Zambia suggest that the number of graduates engaged in entrepreneurship has declined from 16.3 percent in 2010 to 12.6 percent in 2015 (CSO, 2015; CSO, 2010). The statistics further indicate that 16 percent of the entrepreneurs are graduates from business schools and the reaming 84 percent of non-business schools.

The number of graduates engaged in entrepreneurial activities in Zambia is too low and there is a need for policies that remove the barriers to entry into entrepreneurship so that graduates can view entrepreneurship as a potentially satisfying and profitable career and alternative employment in private and public sectors (GEM, 2014). For this study, the research problem is stated as follows;

> *Despite entrepreneurship education being offered as part of the curriculum at Mulungushi University in Zambia, graduating students seemingly do not take up entrepreneurial activities after graduating*

The following sections present the research question and hypotheses followed by the conclusion

3.9.2 Research Questions

To resolve the research problem identified above, the research question for this study was formulated as shown below:

> "What are the effects of entrepreneurial oriententions constructs in the form of risk-taking, innovativeness and proactivity on the relationship between entrepreneurial environmental factors (perecievd university support, perceived environmental support and entrepreneurship education) and entrepreneurial intentions of university students in Zambia"

3.9.3 Research Hypotheses

To answer the research question for this study stated above based on the assumptions stated in the conceptual research model, the following research hypotheses are presented:

H1: Student's risk-taking ability as an entrepreneurial competency mediates the interaction between:

H_{1a}: *Perceived environmental support and entrepreneurial intentions*

H_{1b}: *Perceived university support and entrepreneurial intentions*

H_{1c}: *Entrepreneurship education and entrepreneurial intentions*

H2: Student's innovation ability as an entrepreneurial competency mediates the relationship between:

H_{2a}: *Perceived environmental support and entrepreneurial intentions.*

H_{2b}: *Perceived university support and entrepreneurial intentions.*

H_{2c}: *Entrepreneurship education and entrepreneurial intentions.*

H3: Student's proactivity ability as an entrepreneurial competency mediates the interaction between:

H_{3a}: *Perceived environmental support and entrepreneurial intentions.*

H_{3b}: *Perceived university support and entrepreneurial intentions.*

H_{3c}: *Entrepreneurship education and entrepreneurial intentions.*

H4: Gender as an influencing factor of an individual's self-perception will influence the association between:

H_{4a}: *Student's risk-taking ability as an entrepreneurial competency and entrepreneurial intentions.*

H_{4b}: *Student's innovation ability as an entrepreneurial competency and entrepreneurial intentions.*

H_{4c}: *Student's proactivity ability as an entrepreneurial competency and entrepreneurial intentions.*

3.10 CONCLUSION

In this chapter literature on entrepreneurship, environmental factors, EO, gender, EIs, EIs models and research conceptual framework were discussed in line with the following secondary objectives 2, 3 and 4: Secondary objective 2: To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions; Secondary objective 3: To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions and Secondary objective 4: To confirm the moderating effects of gender on the relationship between

entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.

The review of secondary research emphasised the importance of environmental factors in the development process of entrepreneurship intention and the effects of entrepreneurial orientation and gender. Final years students were chosen because they are well-positioned to engage themselves in entrepreneurial behaviour and create new businesses. Therefore, always important to know the entrepreneurial intentions of students and how to enhance them.

Innovativeness, proactivity and risk-taking as competencies are key elements in the development of EIs. This research described how the three constructs (innovativeness, proactivity and risk-taking) relates to students EIs. The research conceptual framework, research question and hypotheses are also described.

The methodological steps taken to meet the research objectives, address a research question and test the hypotheses are presented in Chapter 4.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 INTRODCUTION

The previous Chapters (Chapter 2 and 3) outlined the secondary research on the entrepreneurship environment in Zambia and environmental factors on student EIs. This Chapter discusses the research methodology used to undertake this study. The study objectives and question, research model, research hypotheses, research philosophy, strategy and research approach are also discussed.In Section 4.5 a discussion on the population and sampling is presented and primary data collection and analysis methods in Section 4.7. MU final year students registered in 2019 as a unit of analysis will be discussed. The validity and reliability of the measuring instrument is dicussed in Section 4.8 while the limitation of the methodology in Section 4.9. Thereafter, this chapter will also outline the ethical consideration and the conclusion

To meet the research objectives, a quantitative methodological approach was utilised. The primary objective of this research was to investigate the effects of environmental factors on the formation of students' EI at Mulungushi University in Zambia. Quantitative research methodology was used to address the following secondary objectives of this study;

Secondary objective 2: To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions.

Secondary objective 3:To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions.

Secondary objective 4: To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.

Furthermore, the conceptual research model of EI is tested using the quantitative method. The primary data of the research was collected from MU students registered in 2019 using the closed-ended self-administered questionnaire. MU final years students were selected because of the experience gained during the study period of four years, EE knowledge and skills acquired and readiness to graduate and establish enterprises. This research investigated the effects of environmental factors on the formation of students EIs. Additionally, the research

investigated the mediating effects of EO (risk-taking, proactivity and innovativeness) on the interaction between entrepreneurial environment (PES, PUS and EE) and EIs. The study also investigated how gender moderates interaction between EO and EIs.

The following are the study objectives and the research question this methodology attempts to address using primary data collected and analysed.

Research Objectives:

a) **The primary objective**

The main objective of this research was to investigate the effects of environmental factors and on the formation of student's entrepreneurial intentions in Zambia

b) **The secondary objectives of this study were:**

I. To critically review the literature on entrepreneurship environment in Zambia and theories on environmental factors, entrepreneurial orientation and entrepreneurial intentions.
II. To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions.
III. To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions.
IV. To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.
V. To provide a recommendation to policymakers for enhancing the formation of entrepreneurial intentions and to scholars for future research.

Research question

The research question for this study is formulated as follows;

> To what extent do entrepreneurial environment factors in the form of perceived environmental support, perceived university support and entrepreneurship education affect the antecedents of entrepreneurial intentions (risk-taking, innovativeness and proactivity) and entrepreneurial intentions?

The next section presents a discussion on the conceptual research model and the research hypotheses

4.2 RESEARCH MODEL AND HYPOTHESES

It should be noted that the hypotheses formulated must be empirically tested to bring in precision, transparency and emphasis on the problem under study (Kapur, 2018) in a study He , Babbie and Mounton (2006) They can developed using scientific theory, findings of previous studies, cultures, analogies, personal experience, pilot study, hunch, creative thinking and imagination of the researcher (Kapur, 2018: 63). . In this study, the hypotheses used to measure EIs of Mulungushi University students were confirmed in previous research studies (Fashami, Nili, Farahani, and Shaikh, 2021; Jain and Arora, 2020; Arora and Jain, 2019; Herdjiono, Puspa, Maulany and Aldy, 2018; Salati Marcondes de Moraes, Sadao Iizuka, and Pedro, 2018; Marques *et. al,* 2018; Karimi *et al.,* 2017; Ibrahim and Mas'ud, 2016; Martens *et al*., 2016; Koe, 2016; Farhah *et al*., 2016; Moruku, 2013; Anitsal, 2014; Ajzen, 2011; Rauch *et al*., 2009; Liñán and Chen, 2009; Luthje and Frank, 2003; Kolvered, 1996; Covin and Slevin, 1991; Miller and Friesen, 1978).

The conceptual research model served as the foundation for formulating the research hypotheses, utilized to meet the primary and secondary objectives and address the research question in the study. Figure 4.1 shows the conceptual research model for EIs employed in this study.

Independent Variable **Mediation Variable** **Moderator**

Dependent Variable

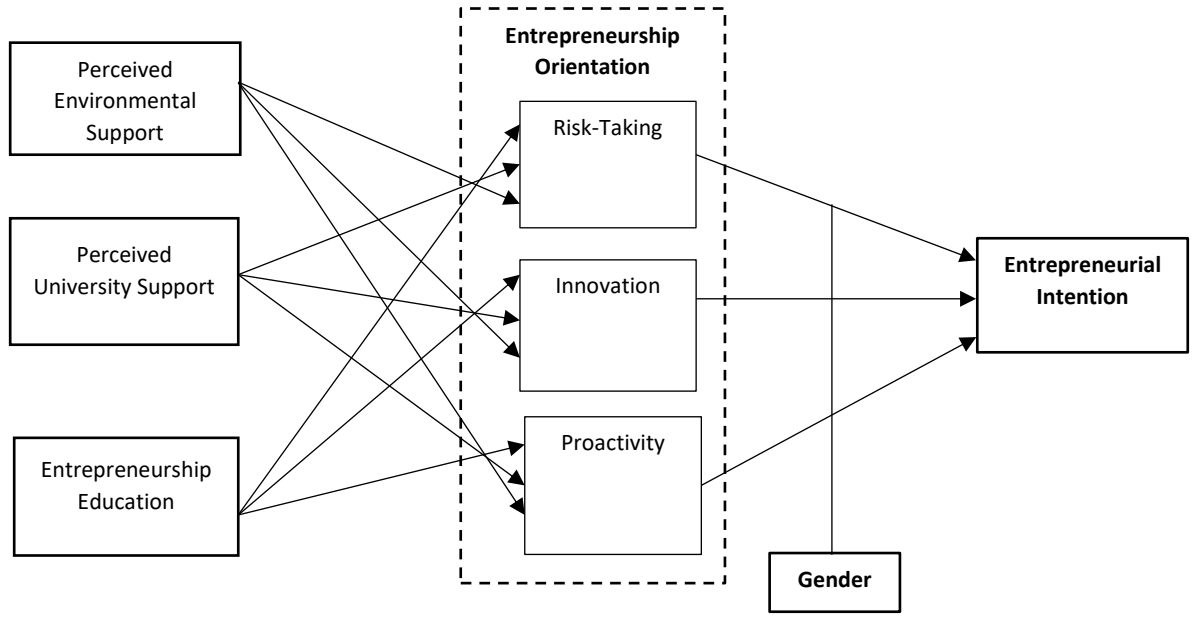

Figure 4.1: Research Conceptual Model

Source: Marques *et. al*. (2018); Ajzen, (2011); Liñán and Chen (2009); Lüthje and Franke (2003).

The following research hypotheses were formulated based on the research conceptual model for entrepreneurial intentions above.

Research Hypotheses

H1: Student's risk-taking ability as an entrepreneurial competency mediates the relationship between:

H_{1a}: *Perceived environmental support and entrepreneurial intentions*

H_{1b}: *Perceived university support and entrepreneurial intentions*

H_{1c}: *Entrepreneurship education and entrepreneurial intentions*

H2: Student's innovation ability as an entrepreneurial competency mediates the relationship between:

H_{2a}: *Perceived environmental support and entrepreneurial intentions.*

H_{2b}: *Perceived university support and entrepreneurial intentions.*

H_{2c}: *Entrepreneurship education and entrepreneurial intentions.*

H3: Student's proactivity ability as an entrepreneurial competency mediates the relationship between:

H_{3a}: *Perceived environmental support and entrepreneurial intentions.*

H_{3b}: *Perceived university support and entrepreneurial intentions.*

H_{3c}: *Entrepreneurship education and entrepreneurial intentions.*

H4: Gender as an influencing factor of an individual's self-perception will influence the relationship between:

H_{4a}: *Student's risk-taking ability as an entrepreneurial competency and entrepreneurial intentions.*

H_{4b}: *Student's innovation ability as an entrepreneurial competency and entrepreneurial intentions.*

H_{4c}: *Student's proactivity ability as an entrepreneurial competency and entrepreneurial intentions.*

4.3 RESEARCH PARADIGM

A research paradigm describes different assumptions and beliefs that act as a frame of reference and guide the research process (Saunders et al, 201609; Creswell, 2015). A research paradigm can also be viewed as "a basic set of beliefs that guides action" or the way researchers understand reality of the world and study it (Rehman and Alharthi, 2016). (Guba, 1990:17). The paradigm is also regarded as a framework that shapes what we see and how we understand it (Saunders et al, 201609). According to Saunders et al (2015), there are four Thompson and Perry (2004), emphasized the need to apply a commonly shared paradigm in research to increase conceptualisation of phenomenon and interpretation of the findings. The four research paradigms widely used in most of the studies are shown in table 4.1 below.

Table 4.1: Four Research Paradigms

Postpositivism/positivism	Constructivism
• Determination • Reductionism • Empirical observation and measurement • Theory verification	• Understand • Multiple participants • Social and historical construction • Theory generation
Transformative	**Pragmatism**
• Political • Power and justice-oriented • Collaborative • Change-oriented	• Consequences of actions • Problem centred • Pluralistic • Real-world practice-oriented

Source: adapted from Creswell (2015)

This study adopted and applied positivism as the research paradigm. Positivism (ontological) means that our observations are not connected to the objective world and that the sciences can help us to appreciate the nature of this world which does not have social, political and cultural differences (Creswell, 2015).

Although constructivism also called interpretivism provides us with more information about the world where we find employment and a place to live (Kivunja and Kuyini, 2017; Creswell, 2013, p. 24), the paradigm was not considered appropriate for this study due to the following reason:

Firstly, constructivism is suitable for qualitative studies where a researcher is a participant and is expected to describe his or her experiences (Saunders et al., 2015). In this research, the researcher does not belong to the unit of analysis or is not a participant and the description of his experiences are not needed to interpret the research findings. Secondly, constructivism is suitable for building theory studies mostly in the grounded theory perspective or case study (Saunders, 2016), while this study is not about theory building. The other disadvantages is that the primary data collected and analysed can not be generalized due to personal values and beliefs attached to it (Dudovskiy, 2022). The positivism paradigm is considered appropriate for this study for two reasons: Firstly, the positivism paradigm assumes that the primary data collection and analysis conducted are "value-free" and that cannot be changed even by observations (Creswell, 2013). Meaning that in a study, the researcher views that world through a single mirror (Suanders, *et al*., 2015). Secondly, in positivism studies, researchers detach themselves from the world being studied and while in other paradigms researchers participate in the world life being researched. Positivism perspective is more applicable in quantitative studies like in this study. Therefore, employing the positivism paradigm facilitated the determination of the mediating effects of EO on the interaction between entrepreneurial

environment and EIs and the moderating effects of gender on the association between EO and EIs of students in Zambia.

Dudovskiy (2022) identified three major thinking process concerning research philosophy namely, axiology, ontology and epistemology. The term axiology comes from a Greek word which means ‘ value’ or ;worth’ (Li, 2016). The process focusess on what the research values which in turn may affect the research process. Axiology is about examining the influence of the researchers values on each stage of the research process (Li, 2016). The second thinking process is the ontology. According to Dudovskiy (2022), ontology is the science or the study of being and focuses on the nature of reality. It is about what researchers considers to be reality and addresses the significant questions of whether social beings should be regarded as objective or subjective (Bryman, 2012). The last thinking process id epistemology which is anchored on understanding the possibilities, nature, sources and limitations of knowledge in the field of study (Dudovskiy, 2022). It is about the researcher determining what constitutes and what does not constitute knowledge (Scherbaum and Shockley, 2015). In this study, a combination of epistemology as a thinking process and positivism as a research philosophy to obtain credible data and facts concerning this study. This helps also to establish the causal relationship between research variables and law-like generalisation and reduce phenomenon to simplest variables (Dudovskiy, 2022).

Table 4.2 below present the three major processes of thinking relating ontology, axiology and epistemology.

Table 4.2: Research Phylosophies

	Postivism	**Realism**	**Interpretivism**	**Pragmatic**
Ontology: The researcher's value of the nature of reality being	External, objective and independent of social factors	Is objective. Exists independently of human thoughts and beliefs of knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple	External, multiple, view chosen to best enable answering of research question
Epistemology: Researcher's view regarding what constitutes acceptable knowledge.	Only observable phenomena can provide credible data and facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Observable phenomena provide credible data and facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings and motivating actions	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data
Axiology: The researcher's view of the role of values in research	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by world views, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and will be subjective	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view
Data collection techniques	Highly structured, large samples, measurement, quantitative, but can also use a qualitative method	Methods chosen must fit the subject matter, quantitative or qualitative method	Small samples, in-depth investigations and qualitative method	Mixed or multiple method designs, quantitative and qualitative methods

4.4 RESEARCH DESIGN

In this research, a descriptive and cross-sectional methodology is utilized because the primary data was gathered at a single collection point (Kapur, 2018; Setia, 2016; Suanders et al., 2015). This methodology is adopted to understand the interaction between entrepreneurial environment, EO, gender and EI. It is also a methodology used in previous studies especially on understanding the formation of entrepreneurial intentions. Saunders, Lewis, and Thornhill, (2009) argued that in most cross-sectional research studies, the research variables being investigated and are assessed once and the relationship among them is established. Therefore, the constructs for this study were adopted from the review of secondary research presented in Chapter 3 and have been tested in the prior research studies on entrepreneurship intentions (Fashami, Farahami and Shaikh, 2021; Jain and Arora, 2020; Arora and Jain, 2019; Herdjiono, Puspa, Maulany and Aldy, 2018; Salati Marcondes de Moraes, Sadao Iizuka, and Pedro, 2018; Marques *et. al*, 2018; Antoncic, Antoncic, Ganter, Hisrich, Marks, Bachkirov, Li, Polzin, Borges, Coelho, and Kkkonen, 2018: Law and Breznik, 2017; Karimi *et al.*, 2017; Ibrahim and Mas'ud, 2016; Martens *et al.*, 2016; Koe, 2016; Farhah *et al.*, 2016; Moruku, 2013; Anitsal, 2014; Ajzen, 2011; Rauch *et al.*, 2009; Liñán and Chen, 2009; Luthje and Frank, 2003; Kolvered, 1996; Covin and Slevin, 1991; Miller and Friesen, 1978). In all those studies, the formation of EI has been examined using the quantitative approach.

Table 4.3 below present the consistency matrix for this study

Table 4.3: Consistency Matrix

Research Objective	Data collection items	Reference
1. The primary objective was to investigate the effects of environmental factors on the formation of students' EI at Mulungushi University in Zambia.	Environmental factors: QF-QI Entreprenuerial Intentions: QE.	Ajzen (2011); Lüthje and Franke (2003).
2. To determine the effects of entrepreneurial environmental factors (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions.	PES: F1-F5 PUS: G1-G7 EDU: I1-I5 EI: E1-E7	Ajzen (2011); Liñán and Chen (2009); Lüthje and Franke (2003).
3. To explore the mediating effects of entrepreneurial orientention (innovativeness, risk taking and proactivity) on the relationship	INN: B1-B4 RSKT: C1-C3 PROA: D1-D3	Marques *et. al.* (2018)

between the entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurshipeducation) and entrepreneurial intentions.	EI: E1-E7	Liñán and Chen (2009); Lüthje and Franke (2003).
4. To confirm the moderating effects of gender on the relationship between entrepreneurial orientention (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.	Gender: A2 INN: B1-B4 RSKT: C1-C3 PROA: D1-D3 EI: E1-E7	Marques *et. al.* (2018) Arshad *et al*., 2016 Liñán and Chen (2009); Lüthje and Franke (2003).

Therefore, this study adopted the quantitative approach using a questionnaire as a primary data collection instrument to establish the relationship between variables (Saunders et al., 2009; Leedy and Ormrod, 2010).

Qualitative studies tend to be subjective and interpretive and apply the following strategies; case studies, phenomenology, practical research, grounded theory, ethnography and achieve research (Saunders et al, 2009). On the other hand, quantitative studies reflect objectivity and positivism philosophical assumptions and usually employee surveys and experimental strategies (Creswell, 2015). Therefore, in this study quantitative study is employed to 1) determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions, 2) explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions. Furthermore, the research confirmed 3) the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions. Objectives 1 to 3 will be investigated using structural equestion modelling to establish the interactions between variables of interest wihile objective 4 will be subjected to Hayes Process.

4.4.1 Research Approach

According to the Suanders *et al* (2016) there are anumber of research strategies employed in various studies, namely surveys, ethnography, grounded theory, action research, case studies, interviews, archival research and experiments. Case studies enables researchers to assess complext situations with a number of variables to analyse (Queirós, Faria and Almeida, 2017). In this study a combination of a survey and case study was employed. The survey method has been chosen as a strategy of inquiry because it gives a quantitative or numerical presentation of trends, personal opinions of the members of the community by analysing a sample of that community or population (Saunders et al., 20 16). The choice of a cases study was influenced by its ability to explore the phenomenon across all the students or for understanding replicable phenomenon in the students context (Yin 2018)

Table 4.4: Comparisons between survey and case studies

Method	Advantages	Disadvantages
Survey	• Low development time • Cost-effective • Easy data collection and analysis using statistical methods • Can reach high audiences • High representativeness • Not affected by the subjectivity of the researcher	• Reliability of data is very dependent on the quality of answers and on the survey' structure • Rigidity of the structure • Don't capture emotions, behavior and changes of emotions of respondents
Case studies	• A lot of information and different domains can be explored • Degree of association between two variables can be easily calculated • No manipulation of behavior is required	• Complex of the employed techniques • Requires the use of specialized statistical software

Source: Queirós et al (2017)

4.5 SAMPLING PROCEDURE

4.5.1 Target Population

This research focuses on investigating the formation of entrepreneurship intentions of final year students at MU , therefore, 588 full-time final year students studying at MU , enrolled in the year 2019 potentially formed the target population for this study (Bhardwaj, 2019). . In this study, participants with charecterostics relating to the research question were chosen (Campbell et al., 2020; Schrag, 2017).

The research participants were full-time students in their final year enrolled in the 2019 academic year at MU There are 9 public and 53 private universities currently operating and reistered by the higher education authority (HEA) in Zambia

Table 4.5 below shows the institutions of higher learning in Zambia registered with HEA.

Table 4.5: Public and Private Universities in Zambia

Public Universities	
1.	University of Zambia
2.	Copperbelt University
3.	Mulungushi University
4.	Kwame Nkrumah University
5.	Chalimbana University
6.	Mukuba University
7.	Robert Kapasa Makasa University
8.	Palabana University
9.	Levy Mwanawasa University
	Private Universities
1.	Lusaka Apex University
2.	University of Lusaka
3.	DMI St. Eugene University
4.	Rusangu University
5.	Zambia Open University
6.	Cavendish University
7.	Chreso University
8.	LIUTEB
9.	Northrise University
10.	Zambia Catholic University
11.	City University of SandT
12.	Africa Research University
13.	Trans-African University
14.	Evangelical University
15.	Southern Valley University

16.	African Christian University
17.	Ambassador International university
18.	Bethel University
19.	Blessings University of Excellence
20	Brook Besor University
21	Central Africa Baptist University
22	City University of Science and Technology
23	Eden University
24	Evangelical University
25	Gideon Robert University
26	Harvest University
27	Information and Communication University
28	Justo Mwale University
29	Kenneth Kaunda Metropolitan University
30	Kopaline University College
31	MANCOSA
32	Mansfield University
33	Mosa University
34	Oak University
35	Open Windows University
36	Open Windows University
37	Paglory University
38	Rockview University
39	St. Bonaventure University
40	St. Dominic's Major Seminary
41	Sunningdale University
42	Supershine University
43	Texila American University
44	The University of Barotseland
45	Trans-Africa Christian University
46	Trinity University
47	Twin Palm Leadership University
48	UCZ University
49	UNICAF University Zambia
50	University of Africa
51	University of Edenberg
52	University of FCE
53	VFU of Technology

From the list above, Mulungushi university was chosen for this study because it is the only university in Zambia which offere entrepreneurship course as a compulsory course to all the students across schools. Besides that the university was one of the first to offer a Bachelors Degree in Entrepreneurship and Bachelor of Business Administration and Entrepreneurship. Esay access to research participant was also another factor considered when selecting the university.

The choice of employing final year students as participants were based on the premise that they have done entrepreneurship courses and other courses related to entrepreneurship and the career is shaped towards entrepreneurship (Zainuddin and Ismail, 2009). Similarly, experience gained during the study equips students to take up opportunities in the public or private sector and enable them to own business start-ups (Gunawardena, Hemachandra and Kodithuwakku, 2018). Table 4.6 below indicate the summary definition of the study population.

Table 4.6: Study population definition

Population criterion	Explanation
Element	Final years students registered 2019 at MU in Zambia
Sampling unit	For easy access, minimize costs and time related to the collection of primary data, sampling unit is defined as final year full-time students registered at MU in Zambia
Extent	The classrooms located in various schools within MU
Time	The survey was conducted between February and June 2020.

Source: adapted from Malhotra (2010)

4.5.2 Sample and Sample Size

To obtain an adequate sample size, this research followed guidelines provided in Westland (2010) and (Bell, Best, Hope and Ward, 1998), on the sample size sufficient to employ for structural equation modelling. In the model, there were 27 indicators and 7 latent variables (r = 3.86). Westland (2010) refers to Boomsma's (1982) simulations which indicated that a ratio (r) of indicators to latent variables of r = 3 would need to have a sample size of 200 or more and of at least 100 for r =4 for adequate analysis. The research actual sample size was 372, therefore, exceeds the requirement of 200. Also, our ratio of a sample size to free parameters was 372:85 which converts into 4.4:1. This ratio is fairly close to Bentler's (1989) rule of thumb/recommendation of a ratio of 5:1.

As proposed by Field (2009), this study seeks to achieve the sample number which will generate a 95 percent confidence interval with 5 percent precision. The minimum sample size required for this research is calculated below as proposed by Saunders et al (2009: 612).

$n = p\% \times q\% [z/e\%]_2$

n: is the minimum sample size required

$p\%$: Proportion of students with entrepreneurial intentions (50 percent-assumed)

$q\%$: Proportion of students without entrepreneurial intentions

Z: z score value of 1.95 corresponding to 95 percent confidence

$e\%$: Margin of error (5 percent)

Therefore, the calculated sample size statistically is n= 380 with a possibility of 76 students per school. Mulungushi University main campus has five (5) schools. The larger sample of the survey research is considered appropriate in selecting statistical software for analysing data and generalizability of the results to the general population of interest.

Table 4.7: 2020 student sampled decomposed by schools

School	Sampling Frame	The actual number of respondents
School of Agriculture and Natural Sciences	76	73
School of Business Studies	76	76
School of Education	76	74
School of Science Engineering and Technology	76	74
School of Social Science	76	75
Total	**380**	**372**

5.5.3 Sampling Methods

According to Kapur (2018: 44), probability samling which is also known as random sampling provides every member of the population a non-zero probability of being included in a sample. There are different types of probability sampling methods (simple random sampling, systematic random sampling, cluster sampling and multi stage sampling) identified by Alvi (2016). This research employed simple random sampling where each participant was chosen entirely by chance. (Dudovskiy, 2022; Alvi, 2016). Simple random sampling is utilized because it provides accuracy and easy access to the sampling frame required and it's affordable and manageable in terms of time on the part of the researcher (Bhardwaj, 2019). For this study, students were easily accessed and the study minimized the cost and time of collecting data since the sample was homogeneous and mate the defined criteria of the target population (Kapur, 2018). . This is in agreement with Kapur (2018) and Saunders *et al* (2016) who

proposed the need to maximize the use of homogenous respondents which does not compromise the findings or theory testing.

Table 4.8 below shows the advantages and disadvantages of sinple random sampling

Table 4.8: Advantages and Disadvantages of Simple Randon Sampling

No	Advantages	Disadvantages
1.	Associated with the minimum amount of sampling bias	Application of random sampling method requires a list of all potential respondents (sampling frame)
2.	Given the large sample frame is available, the ease of forming the sample group	Large sample size can be a major disadvantage in practical levels.
4.	Research findings can be generalized due to representativeness of this sampling technique and a little relevance of bias.	Not suitable for studies that involve face-to-face interviews covering a large geographical area due to cost and time considerations.
5.	It is straightforward sampling method that requires no advanced technical knowledge	

Source: Dudovskiy (2022).

Previous studies have set precedence by using students as research participants (Syam, Akib, Yunus, and Hasbiah, 2018; Munir, Jianfeng and Ramzan, 2018; Gunawardena, Hemachandra and Kodithuwakku, 2018; Al *et al.*, 2017; Yıldırım, Çakır and Aşkun, 2016; Westhead, 2016; Fayolle and Gailly, 2015; Ahmad, Ramayah, Mahmud, Musa and Anika, 2019: Nabi, Holden and Walmsley, 2010; Liñán and Chen, 2009), which is an indication that employing students samples increases the quality of the research.

4.6 MEASURING INSTRUMENT

This research utilised the descriptive design to explain the variables affecting the choice of behaviour (Kapur, 2018; Blumberg, Cooper, and Schindler, 2011). Since the study also involves testing the existing theories and explaining the relationship between the research variables, it has also adopted an explanatory design (Boru, 2018; Grey, 2014. Wihle descriptive

places enphasis on addressing the " what" question, explanatory design address the "why" and " how" questions (Grey, 2014) . An explanatory design is a systematic way of finding out 'what is happening; to seek new insights; to ask questions and to assess phenomenon in a new light' (Boru, 2018). Explanatory studies are considered effective in establishing a causal relationship between the variables of interest. This research aims to investigate the development of entrepreneurship intentions of students in Zambia by utilizing the final year MU students as a sample, hence adopting the survey method.

The research data for this study is collected using the survey method. Surveys are considered to be superior techniques for descriptive, explanatory and exploratory studies (Queirós *et al*., 2017) and enable a researcher to collect large amounts of quantitative data economically (Kapur, 2018: 18) . It applies to studies that employ individuals as research participants or other units of analysis such as groups or interactions where some individuals may serve as respondents or informants (Suanders *et al*., 2015). . The responses obtained from the respondents can be analyzed and summarized quantitatively using frequency distributions to explain the possible interactions between constructs (Saunders *et al.,* 2016; Leedy and Ormrod, 2010). The decision for collecting and analyzing quantitative data in this study has been influenced by the need to confirm the research hypotheses (Field, 2009).

On the other hand, since the survey method has been used in many prior empirical research studies, its inclusion in this study increases the validity and reliability of this study (Boru, 2018; Grey, 2014). Similarly, the use of tried and tested measurement constructs to collect primary data in research reduces the budget restrictions associated with doctoral research (Perry, 2011).

The measurement instrument for this research has two distinct sections namely; demographic information and the research variables (See Appendix A). Table 4.8 below presents the sections and the rationale for the measuring instrument.

Table 4.9: Measuring Instrument Structure

Part	Section Summary	Scale development	Rationale
Section A	Respondents' demographic characteristics: Demographic information's	Constructed from the literature review for this study	To describe demographic characteristics of the sample and measure moderation effects
Section B	Antecedents predictors' scales: Measure dependent, independent, mediating variables	Liñán and Chen (2009); Ruthje and Franke (2003); Rauch (2009); Marques *et al*. (2018)	Measuring entrepreneurial intentions and their antecedents and entrepreneurial environmental variables

The items contained in the instrument were constructed and adapted from Liñán and Chen (2009); Ruthje and Franke (2003); Rauch (2009); Marques et al. (2018).

4.6.1. Research variables

The survey instrument is developed using the theories reviewed in the literature to address the research question for this research. The adopted theories on EO have been used to establish the mediation effects on the antecedents of EIs and the moderating effects of gender on the relationship between EO and EIs. The proposed conceptual research model is constructed with ten key variables namely, PES, PUS, EE, risk-taking, innovativeness, proactivity and gender and EI. All these variables are operationalized by EIs. To achieve the context of this research, Zambia in particular, the scales used in previous studies have been adopted.

The proposed research conceptual model contained eight (8) variables from the literature as follows: a) PES, b) PUS, c) EE, d) risk-taking e) innovativeness, f) proactivity and g) gender. All these continuous variables [Table 4.9 above] were measured in the measurement instrument using a 5-point Likert response type scale ranging from strongly disagree to strongly agree. EI as a dependent variable is measured by the respondent's desire to establish a new business venture immediately after completing studies or shortly afterwards.

In this study, the survey instrument on EI which was developed and validated by Liñán and Chen (2009) and Asmara, Djatmika and Indrawati (2016) was adopted, and questions relating to EO were adopted from Marques *et al*. (2018). These variables used in the survey instrument have been proved to be consistent in previous studies (Moruku, 2013; Karabulut, 2016; Nabi *et al*., 2017; Munir, Jianfeng and Ramzan, 2018; Arora and Jain, 2019; Jain and Arora, 2020). Table 4.10 show the research variable and the number of items on each variable contained in the measurement instrument.

Table 4.10: Research Variables

Variable	Type of variable	Measurement	No. of items
Entrepreneurial intention	Dependent	Continuous	7
Entrepreneurship education	Independent	Continuous	5
Gender	Moderating	Continuous	2
Innovativeness	Mediating	Continuous	4
Perceived environmental support	Independent	Continuous	5
Perceived university environment	Independent	Continuous	7
Proactivity	Mediating	Continuous	3
Risk-taking	Mediating	Continuous	3
TOTAL			**36**

The measurement instrument contained eight (8) constructs and the minimum number if items on each construct was two (2) and the maximum seven (7). In total the measurement instrument had 36 items (See Appendix A).

4.6.2 Pilot study

Before primary data collection, the survey instrument was assessed on two module leaders and ten undergraduate final year students in February 2020 at MU. This was meant to eliminate the difficulties of answering questions among respondents and also increase the validity and reliability of the data collected (Saunders *et al,* 2012). Additionally, a pilot study is done to increase the clarity of the instruments ensure that students have adequate time to complete the questionnaire; the questions are understandable and clear; respondents have not been subjected

to any form of discomfort and that the layout of the questionnaire is clear (Bell, 2005). The feedback from the pilot study was used to improve the clarity of the questions (numbering and language) in the questionnaire. The students who participated in this prior study are not included in this actual data collection**.** This suggested that the survey instrument met the research expectations or needs.

4.6 DATA COLLECTION

The Questionnaire was 7 pages long and divided into two sections: the respondent's demographic information and the other section on measurement scales. It took not more than 20 minutes for students to complete the questionnaire. Structured questions were used [Appendix A] and a Likert response type scale (1=strongly disagree to; 5 strongly agree) (Kapur (2018)). The first part of the questionnaire contained information on what the study was all about, its potential benefits, the rights of participants and the issues of confidentiality and anonymity.

Permission was sought from Munlungushi University Dean of students to access final year students as research participants [See Appendix B] and the ethical clearance from UNISA. A research assistant was recruited and assisted in the distribution of questionnaires to students and collection. The research assistant distributed questionnaires to respondents in various schools during the practical related courses to avoid interference with the learning periods. The distribution of the questionnaires was done by the research assistant from during the second week of Febraury 2020 from Monday to Thursday. Participants were chosen by the research assistants randomly. After completing the survey, participants were requested to deposit the completed questionnaires in the boxes placed at their departments next to the assistant Deans offices. The research assistant then went around the schools and collected the completed questionnaires from the boxes. Remainders were sent to participants after two weeks and the data collection lasted for the period of four months from February 2020 to June 2020.

4.7 Statistical Analysis

In this study, the five antecedents of EIs (PUS, PES, EE, risk-taking, innovativeness and proactivity) contained in the conceptual research model were assessed using the primary data collected from students. To strengthen the explanatory power of the research conceptual

model, mediating and moderating variables were tested to increase the ability of the model to explain the interaction between the research variables (Baron and Kenny. 1986). To test the hypotheses and models, structural equation modelling (SEM) was used and the Hayes process was performed to meet the research objectives.This analysis was conducted between November 2020 and June 2021.

Before the various statistics and tests were performed, factor analysis was conducted to group primary data into smaller sets of similar dimension or latent variables. (Pallant, 2010). The study performed both confirmatory and exploratory factor analysis due to misfit as indicated by the confirmatory factor analysis. This is reported in chapter 5 in section 5.4.

The primary data collected was captured on the spreadsheet and analysis was done using Statistical Package for the Social Sciences (SPSS) version 27, AMOS v27 and STATA version 14. Both descriptive and several statistical techniques were employed. Data analysis was performed in different stages using frequencies, the Hayes process, and structural equation modelling. The following steps were followed during the data analysis process:

a) **Data Screening:** This was the first stage in the data analysis process. During this stage, the researcher inspected summarised data for errors by calculating and checking the frequencies for all the research variables of interest and items that constitute the scale. Later on, the inspection was done to scrutinize the responses and check for missing values and outliers (Hair, Black Babin and Anderson, 2010).

b) **Descriptive Statistics:** In the second stage, descriptive statistics were conducted to describe the sample's demographic profile and make statistical conclusions based on the frequencies. This involved frequency tables and frequencies of each variable of interest. The researcher checked whether there were any violations of assumptions governing statistical techniques employed to answer the research question for this study. The descriptive statistics on key research variables in the research conceptual model provided an overview and highlighted the critical information (Tabachnick and Fidell, 2007).

c) **Confirmatory Factor Analysis:** In the third stage, confirmatory factors analysis was done to determine the reliability and validity of the measurement model for this research

(Hair et al., 2010) and examine whether the theory-based study model fits within the Zambian context. In other words, to validate the theory of planned behaviour (TPB) in a Zambian set-up. Confirmatory factor analysis provides more restrained clarifications and significant flexibility to achieve the fitness of the measurement model in structural equation modelling (Shau, 2017). AMOS version 27 was used to obtain the standardized estimates and squared multiple correlations. The analysis output reported a misfit of the measurement model to the study's data; therefore, exploratory factor analysis (EFA) was conducted.

d) **Exploratory Factor Analysis:** The fourth stage involved exploratory factor analysis. The researcher performed exploratory factor analysis to understand reasons for the misfit of the measurement model and secondly for the following reasons: a) to identify the correction patterns in each set of variables under the study, b) to highlight a smaller number of variables that are causing the variances, c) identify most the manifest variables and, d) to screen variables for subsequent analysis. Exploratory factor analysis causes a reduction in the number of variables to achieve a smaller sub-set of elements or latent variables based on variability in the correlation pattern (Pallant, 2005: 181-182). When conducting exploratory factors analysis, primary data were first analysed to identify factors for the classification of items using principal axis factoring analysis (Pallant, 2005:174). The following extraction rules and approaches were observed: Kaiser's criteria (eigenvalue > 1 rule) and the scree test.

e) **Testing the Hypotheses:** In the fifth stage, testing the hypotheses and identifying the best model fit, SEM using AMOS V27 were used. SEM, a second-generation used to analyse various quantities of variables (Bagozzi and Fornell, 1982), includes economic aspects to make predictions and uses a psychometric method to models concepts as latent variables inferred indirectly from various observed measures (Hair, Black, Babin, and Anderson, 2010). SEM is considered superior to other classical linear modelling techniques due to the following: a) it exposes the relationship among hidden structures that are not intended to be measured directly, b) measurement errors of the observed variables are taken into consideration and, c) suitable for analysing highly complex multiple variable models and shows the direct and indirect relationship between variables with a single, systematic and comprehensive analysis (Çelik and Yilmazi, 2013). This approach is considered a more suitable technique for testing hypotheses

than other methods (Karagöz, 2016). Additionally, SEM allows the researcher to employ various models to identify relationships among observed variables to test the hypothesised research conceptual model quantitatively (Schumaker and Lomax, 2004). This study used fit indices to provide information on the goodness of fit for the structural model. Standardised beta coefficients and their associated statistical significance indicated the power and connection of structural paths between variables

f) **The goodness of fit test**: The sixth stage involved measuring the quality of the model of this study. A worldwide criterion of the goodness of fit proposed by Amato, Esposito Vinzi and Tenenhaus (2004) was utilised to evaluate the strength of the research conceptual model. The index measures models performance in both the measurement and the structural model. It also provides a measure for the real ability of the model to predict performance (Esposito Vinzi, Chin, Henseler and Wang, 2010). The goodness of fit is the test to establish whether the model fits into the variance-covariance matrix of the data set. Bagozzi and Yi (1988) explain that confirmatory factor analysis (CFA), measurement and structural models report a good fit when a recognised set of fit indices indicates fit according to certain thresholds such as CMIN/df ratio (<3); CFI, IFI and GF1 of > 0.9; and root mean square error of approximation (RMSEA) of values less than 0.08 (Hair *et al*., 2010).

g) **Testing for Mediation and Moderation:** Finally, to test the mediating and moderation effects, the Hayes process using AMOS v 27 was conducted on measurement data. Hayes process is preferred because of the following; a) combines mediation and moderation in one analysis, b) enables mediators to be connected in a linear form in a causal model and, c) measures the effect size for indirect effects in both single and multiples mediator model (Hayes, 2012). The PROCESS enables the researcher to conduct mediation analysis or answer the "how" questions (Baron and Kenny, 1986; Judd and Kenny, 1981), and also conduct moderation analysis or answer the "when" questions in a study (Aiken and West, 1991; Jaccard and Turrisi, 2003). Therefore mediation analysis was carried out to assess the degree to which the independent variables influences the dependent variable through the mediator variables (antecedents), while moderation was used to establish whether the size or sign of the effects of some putative causal variable (antecedents) on the dependent variable depends in one way or another on a moderator (gender).

4.8 VALIDITY AND RELIABILITY OF THE STUDY

The quality of the research design is measured by validity and reliability. Reliability and validity are the extent to which the test measures, what it claims to measure (Kapur, 2018). The literature consistently indicates that the robustness of the study is evaluated by validity and reliability measures (Brear, 2019; Fusch *et al*., 2017; Foley *et al*., 2017). . Reliability refers to the ability of the scale to measure consistently the same value under the same conditions, validity is the measure of what the researcher intended to measure.

The study achieved validity by ensuring that the research variables of interest in the survey instrument are linked to the key variables of the research topic or the research conceptual model. Additionally, confirmatory and exploratory factor analyses were performed to confirm whether or not each question loaded onto the construct as indicated in the research instrument as proposed by Welman, Kruger and Mitchell (2005: 142).

Reliability is the degree to which the measuring instrument produces similar findings or measure the same thing when the unit of analysis remains the same (Yin, 2018). For this study, internal consistency was a preferred indicator of a scale's reliability (Dudovskiy,2022; Suanders et al., 2016) . Internal consistency of the research variables in the survey instrument was tested via Cronbach's alpha coefficient for reliability. The use of Cronbach's alpha as an indicator of internal consistency has gained popularity in social science research studies (Dondolo, 2014). Internal consistency s applied to assess the extent of differences within the test items that explore the same construct produce similar results (Dudovskiy, 2022). It is also described as " a measure of the homogeneity of the items"which allows the study enables the researcher to determine the ability of different items to give similar results when administered at the same time (Suanders **et al** ., 2016).

4.9 LIMITATION OF METHODOLOGY

This study, just like any other research, is not exempted from limitations related to the methodology utilized as suggested by Dudovskiy (2022).. The study researched the final year full-time student sample from Mulungushi University in Zambia excluding other student groups. Therefore, results may not be generalized to other student groups.

Since the research budget was limited, several components of the methodology had to be conducted within the budget such as the choice of the sample and data collection method. To maintain the doctoral degree requirements, the study had to be concluded within a specified period. This influenced the choice of not including longitudinal methodologies.

This study utilized the theory of planned behaviour to evaluate the research constructs. The Theory of Planned Behaviour not being the only model that explains entrepreneurial intention, this has been highlighted also as a limitation. Finally, the study was confined to Mulungushi University full-time final students, results may not be generalizable to other situations. The above limitations of this study have been considered in the discussions of the research findings.

4.10 ETHICAL CONSIDERATIONS

Ethical consideration refers to the extent to which the protection of the rights of research participants are observed is adhered to in a study. This study complied with ethical requirements outlined by the Department of Applied Management Research Ethics Review Committee (DAM-RERC), UNISA. The ethical clearance (Reference number 2020_CEMS_DAM_002) was obtained in March 2020 from DAM-RERCof UNISA (See Appendix B). All ethical protocols were followed in line with the Covid-19 requirements Consistent with the University of South Africa, below are the ethical guidelines observed during the study:

I. Research participants were made aware of what the study was all about, the nature of the questionnaire, their role and voluntary participation and utilisation of the research results.
II. Permission was obtained from MU Dean of students to use final year students as participants before the survey instruments were distributed (Appendix B).
III. Anonymity and confidentiality of research participants were maintained during the study process and at no time were participants exposed to any form of risks. Information obtained from the instruments was considered as group and data and no person was singled out.
IV. Research data storage period of a minimum of 5 years will be retained and the dignity and characters of all the research stakeholders were upheld or treated with respect.
V. All ethical protocols as per the UNISA Ethics policy were observed during the data collection phase.

3.11 CONCLUSION

In this Chapter, the methodology used to analyse the primary data collected has been described. Quantitative methods were employed to address the study primary objective and secondary

objective numbers 1, 2 and 3. The quantitative method used to test the research conceptual model on entrepreneurial intention using MU final years students registered in 2019 has been outlined. The data for this study were collected using a questionnaire developed by Marques *et. al*. (2018), Ajzen, (2011), Liñán and Chen (2009) and Lüthje and Franke (2003) adjusted to suit the Zambian context. The quantitative data for this research were statistically analysed to test the research conceptual model of students entrepreneurial intentions and the study hypotheses.

The following chapter discusses research results arising from the quantitative data gathered from MU final year students

CHAPTER 5: QUANTITATIVE DATA ANALYSIS

5.1 INTRODUCTION

In the previous chapter the methodological approaches employed in this study to meet e the research objectives and answer the research question were outlined. This study was aimed at addressing the problem of high unemplymenet rate amon youths and gap identified in the literature. The research objectives and question were formulated as follows:

Primary Objective

The main objective of this research is to investigate the effects of environmental factors on the formation of student's entrepreneurial intentions in Zambia

Secondary Objectives

I. To critically review the literature on entrepreneurship environment in Zambia and theories on environmental factors, entrepreneurial orientation and entrepreneurial intentions.
II. To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions.
III. To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions.
IV. To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.
V. To provide a recommendation to policymakers for enhancing the formation of entrepreneurial intentions and to scholars for future research.

Research Question

Based on the above research objectives, the research question is formulated as follows:

To what extent do entrepreneurial environment factors in the form of perceived environmental support, perceived university support and entrepreneurship education

affect the antecedents of entrepreneurial intentions (risk-taking, innovativeness and proactivity) and entrepreneurial intentions?

This chapter, addresses secondary research objectives 2, 3 and 4. A review of secondary research was conducted in chapter 3 to develop the conceptual research model. To meet the study's secondary objectives the conceptual research model of EIs is based on Ajzen's (2011) Theory of Planned behaviour that was adapted by Marques *et. al*. (2018), Ajzen, (2011), Liñán and Chen (2009) and Lüthje and Franke (2003) as applied in the study. The conceptual research model of EIs was tested using quantitative data obtained from MU final year students registered in 2019.

Quantitative data from MU students were analysed quantitatively using Statistical Package for Social Sciences (SPSS) version 21 and STATA version 14 and AMOS version 27. In Section 5.3 descriptive statistics were conducted to describe the variables that contained the research conceptual model of entrepreneurial intentions. Exploratory factors analysis was performed in Section 5.4 to adjust research variables and create a smaller set of manageable size or latent variables. Thereafter, the items in the measuring instruments were assessed for reliability using Cronbach's alpha coefficient as reflected in Section 5.5. Finally, in Section 5.6 structural equation modelling was conducted to test the hypotheses and the Hayes process to identify the mediation impact of variables on EIs and moderation effects of gender.

This Chapter is outlined as follows;

Section 5.2: Demographic charecteristics of the sample

Section 5.3: Descriptive analysis of the research variables

Section 5.4: Confirmatary factor analysis

Section 5.5: Testing of the conceprual research model

Section 5.6: Testing for mediation and moderation

Section 5.7: Chapter conclusion

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5.2 DEMOGRAPHICS CHARACTERISTICS OF THE SAMPLE

Data for this research were collected from final year students from Mulungushi University in Zambia. The total planned sample size was *n=380* respondents represented as originating from the following schools as indicated in Figure 5.1 below. For this study, 380 questionnaires were distributed and only 372 were collected representing a response rate of 98 percent

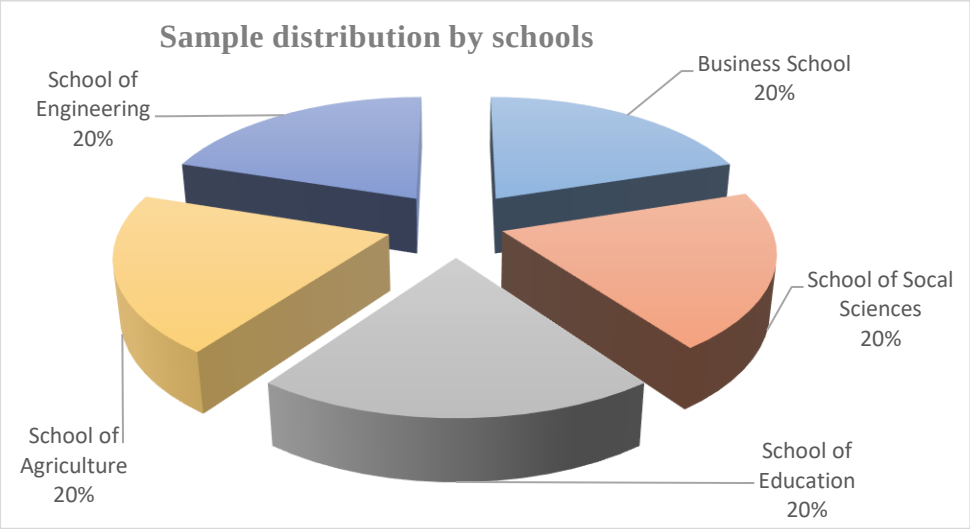

Figure 5.1: Planned sample distribution by schools

5.2.1 Age and Gender distribution

Of the 372 respondents, most of them 84 percent are aged between 18 to 25 years, 13 percent between 26 to 35 years and about 3 percent aged between 36 to 45 years. The study revealed that majority of the respondents met the higher education age entry requirement. Some 49 percent of the respondents were male and 51 percent female. Table 5.1 below presents the key demographic characteristics of the sample. This is an indication that the students are nature enough and ready to venture into entrepreneurial activities especially female students.

Table 5.1: Demographic Profile of the Sample

Demographic Characteristic		Frequency	Percent
Age	18-25	312	84
	26-35	48	13
	36-45 years	12	3
Gender	Male	183	49
	Female	189	51
Self-employed	Yes	87	23
	No	285	77
Employment Experience	Yes	168	45
	No	204	55
Student Registration	Business degree	190	51
Status	Non-Business Degree	182	49
Participated in Entrepreneurship Education	Yes	274	74
	No	98	26

The results in Table 5.1 suggest that some fewer students are in self-employment despite EE being offered to them and the majority of these students are doing business-related degrees. Therefore, it can be concluded that EE has not helped much to influence the formation of EIs among students at MU.

5.2.2 Students' plans after graduating

Figure 5.2 indicates that only 67.2 percent considered a priority starting their businesses after completing their degrees. About 51.7 percent of the respondents indicated the wilingness to work as employees, contractors and sub-contractors while 65.3 percent suggested that they would want to pursue postgraduate studies. To obtain this information, a five (5) point agreement scale was used and the categories were summed up or totaled (Priority: high priority and essential priority while not a priority: low priority and not a priority). Figure 5. 2 shows the MU students plans after graduating.

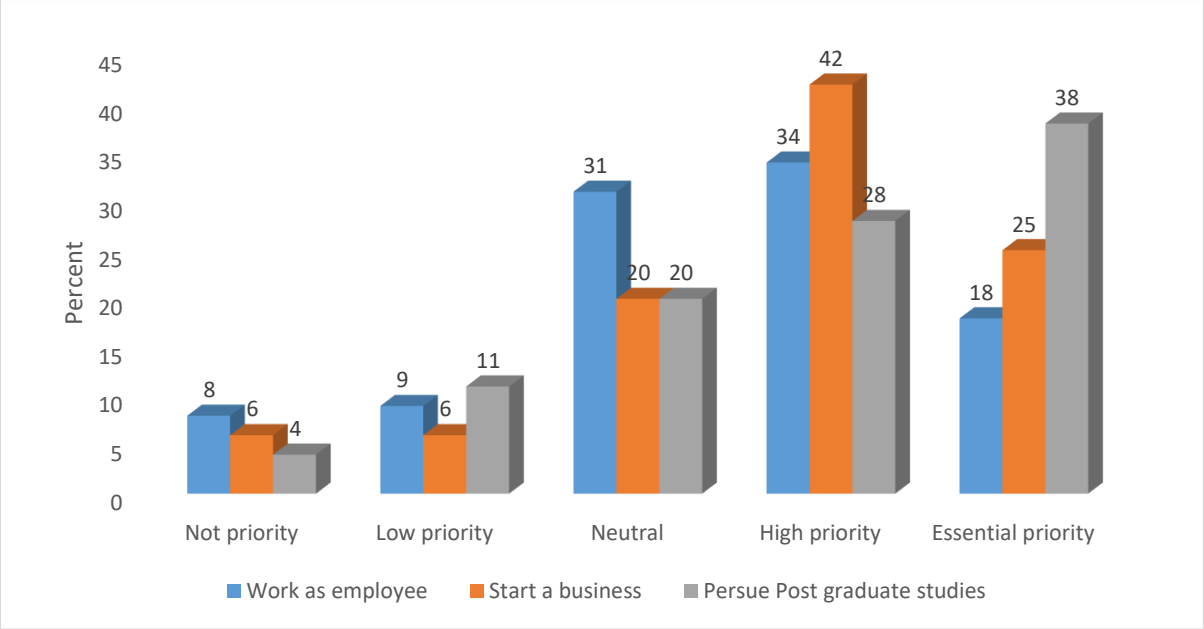

Figure 5.2: Students' plans after graduating

From figure 5.2 it can be seen that the percentage distribution of the number of students intending to take entrepreneurship activities after graduating is lower than those who have plans to go into formal employment despite the Zambian Government putting in place a policy aimed at promoting entrepreneurship in colleges and universities. Therefore there is a need for the government to strengthen entrepreneurship education in higher learning institutions.

5.3 DESCRIPTIVE ANALYSIS OF RESEARCH VARIABLES

In this section, research variables derived from the conceptual research model on the EI for this study are discussed. The essence of developing the research questions was to facilitate effective testing of the research hypotheses. The questions contained in the questionnaire (B1-B4; C1-C3; D1-D3; E1-E7; F1-F5; G1-G7; I1-I5) were completed by participants as coded using, a 7-point Likert scale ranging from strongly disagree, disagree, neutral, agree to strongly agree, according to the categories provided. Furthermore, responses from participants were grouped and the detailed responses to all the questions are presented in Appendix E and the code for each question are presented in brackets, for example (B1).

5.3.1 Innovativeness

Innovativeness is one's ability to seek and exploit business opportunities earlier than other members of society and provide dynamic or unique solutions (Armstrong and Hird, 2009). In the context of this research, innovativeness is considered as a competence that affects the development of EIs. This construct was measured by four (4) items using a five (5) point agreement scale (ranging from strongly agree, agree, natural, disagree and strongly disagree). The strongly agree and agree were summed up to represent agree while the strongly disagree and disagree represented disagree. With regards to the statements on innovation and how it can influence their EI, for example, question (B1), 70.4 percent of the respondents confirmed that they prefer a strong emphasis on projects with a unique, one-of-a-kind approach, as to whether they favour experimentation and original approach to problem-solving rather than using methods others use to solve their problems (B2), 65% of the respondents agreed and only 8.1% of them disagreed. On the statement (B3), whether respondents often like to try new and unusual activities that are not typical but necessary risk, 62.7% of them agreed while 77.2% agreed to the statement (B4) that they prefer to try their unique way when learning new things rather than doing it like everyone else does with 8.3% and 6.7 % disagreeing respectively. The results revealed that students can take risks, experiment with new situation and create something new. Therefore, it can be concluded that the students possess one of the competencies (innovation) required to exhibit entrepreneurial behaviour

5.3.2 Risk-taking

Risk-taking is a personality trait that reflects one's readiness and tendency to make a risky decision and manage the situation (Karabulut, 2016). On the statement (C1), 57.2% of the respondents indicated that they tend to act boldly in risk situations and the majority of the 84.7% indicated the willingness to invest money and time in high returns activities (C2) while 49.7% of the respondents like to venture into the unknown (C3) as indicated in Table 5.2. When measuring this construct, three (3) items were used and categories were summed up or totalled (Agree: strongly agree and agree and disagree: strongly disagree and disagree) as indicated in the previous section. Table 5.2 indicate the the responses on risk-taking and EIs

Table 5.2: Risk-taking and entrepreneurial intentions

Statement	Grouping: (Strongly agree & Agree) Agree (%)
I tend to act "boldly" in situations where risk is involved (C1)	57.2
I am willing to invest time/money in things that yield high returns (C2)	84.7
I like to take bold actions by venturing into the unknown (C3)	49.7

The results suggest that students risk-taking ability is higher and that they are likely to venture into entrepreneurship activities. Rish-aking is one of the competencies critical to the formation of EIs.

5.3.3 Proactivity

Proactivity is described as a personal initiative to take charge and implement changes within a constrained environment and regard this behaviour as a significant personal trait (Huston, 2018). It is a behaviour that requires one to take up the responsibility first and make things happen before everyone else (Bateman and Crant, 1999). Most of the students agreed to the statements describing their proactivity abilities and how they can influence them to develop the intention to start a business (Table 5.3 below). About planning on projects and other activities, 71.2% of the respondents agreed while 52.2% indicated that they prefer to "step up" and keep things going on a project rather than sitting and waiting for someone else to do it. Lastly, 68.5% of the respondents suggested that they usually act in anticipation of future problems, needs or changes. Proactivity was measured by three (3) items and the categories were summed up as indicated in section 5.3.1 above. Table 5.3 indicate the responses on proactivity and EI.

Table 5.3: Proactivity and entrepreneurial intention

Statement	Grouping: (Strongly agree & Agree) Agree (%)
I always plan ahead on projects and other activities (D1)	71.2
I prefer to "step up" and keep things going on a project rather than sitting and waiting for someone else to do it (D2)	52.2
I usually act in anticipation of future problems, needs or changes (D3)	68.5

From Table 5.3, it can be assumed that the level of proactivity among students at MU is high and that students can seek business opportunities and exploit them before they are noticed by others. Proactivity as a competency has a significant impact on the formation of EIs.

5.3.4 Entrepreneurship Intention

EI reflects the person's wiliness to try and the amount of effort allocated in planning to engage in a behaviour (Huston, 2018). Concerning measuring entrepreneurial intention, seven (7) items were employed and the categories were summed up (see section 5.3.1). Respondents evaluated positively the statements describing their situation on their intentions to create a business, 63.1% of the respondents are ready to do anything to become entrepreneurs and 83.3% of them agreed that they will make every effort to establish their own business. A total of 57.5% of the respondents believed that it is their professional goal to be entrepreneurs as indicated in Table 5.4 below.

Table 5.4: Student's Entrepreneurship Intentions

Statement	Grouping: Strongly agree Agree (%)
I am ready to do anything to be an entrepreneur (E1)	63.1
I will make every effort to establish my own business (E2)	83.3
I have never seriously considered becoming an entrepreneur (E3)	46.2
My professional goal is to be an entrepreneur (E4)	57.7
I am determined to create a business venture within the following 12 months (E5)	51.3
I am determined to create a business venture within the next 5 years (E6)	72
I am determined to create a business venture within the next 10 years (E7)	71.7

However, 53.8% of the respondents indicated that they have never seriously considered becoming entrepreneurs. This is an indication that students EIs are low and there need to put in place strategies to stimulate the formation of EI among students. Stimulating students EIs will increase the number of start-ups, create employment and contribute significantly to the country's GDP. Table 5.5 below shows the time scale for future entrepreneurial commencement intentions. Only 51.3% of the respondents believed that they are determined to create a venture within 12 months, 72% within the next 5 years and 71.7% in the next 10 years.

Table 5.5: Time Scale for future entrepreneurial commencement intentions[1]

Time Frame	**Responses (%)**				
	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
≥ 12 months	7	15	25	26	26
Next 5 Years	5	5	18	27	45
Next 10 Years	7	7	15	23	49

The findings in Table 5.5 suggest that the environmental factors have not been effective in influencing the formation of immediate EIs. Most of the students prefer to engage themselves

in entrepreneurial activities 5 to 10 years after graduating. It is assumed that students would want to work after graduating, gain experience, mobilise resources and start their businesses.

5.3.5 Perceived environmental support

Perceived environmental support refers to contextual factors which promote/prevent entrepreneurial activities when one has assessed them and intend to venture it entrepreneurial activities (Huston, 2018). To measure the perceived environmental support construct, 5 items were used and the categories high priority and essential priority were summed up into priority and not priority and low priority into not priority. Most respondents disagreed with statements about environmental support that can influence them to develop the intention to start a business. Only 36.7% of the respondents agreed (Table 5.6 below) that the government is employing policies and procedures encouraging new venture creation and about 47.6% of the respondents agreed that education programs on entrepreneurial information and business skills are always accessible. On the other statements, respondents did not agree, 50.8% of them believed that it is not easy to get financial investment from venture capitals. Furthermore, 43.3% of the respondents suggested that Incubator facilities with new venture support services are not always available for prospective entrepreneurs and 61% indicated that it is not easy to get Government start-up grants. Table 5.6 shows the responses on PES and EIs.

Table 5. 6: Perceived environmental support and entrepreneurial intentions

Statement	Grouping: (Strongly agree & Agree) Agree
The government is employing policies and procedures encouraging new venture creation (F1)	36.7
Education programs on entrepreneurial information and business skills are always accessible (F2)	47
It is easy to get financial investment from venture capitals (F3)	24
Incubator facilities with new venture support services are always available for prospective entrepreneurs (F4)	22
It is easy to get Government start-up grants (F5)	22

PES being the promoters of EIs, it can be assumed that not all the students have access to environmental support. Increasing access to venture capital, incubator facilities, start-up grants and provision of policies that encourages entrepreneurship, influences the formation of EIs.

5.3.6 Perceived University Environment

Perceived University support refers to the perceived physical facilities and materials provided to university students to facilitate learning, research and outreach activities (Lizuka and De Moraes, 2014). On perception towards the university support, seven (7) items were analyzed to measure this construct and categories summed up as indicated in section 5.3.1 above. Forty-three percent of the respondents acknowledged that at their university, people are actively encouraged to pursue their business ideas and 62.3% of them agreed that they get to meet majority of people with good ideas for a new business venture. On Entrepreneurship subjects, 50% of the respondents indicated that university prepares them adequately for an entrepreneurial career, 48.1% of them confirmed that they know many people from the university who have successfully started their businesses and 58.4% of them agreed that Entrepreneurship subjects should be made compulsory. However, 51.5% of the respondents disagree with the statement that university provides resources to assist student entrepreneurs and 53.8% of them disagree with the statement that university has the infrastructure in place to support the start-up of new businesses. Table 5.7 below indicate responses on perceived university support and entrepreneurial intention.

Table 5.7: Perceived University Environment and EI

Statement	Grouping: (Strongly agree & Agree) Agree (%)
At my university, people are actively encouraged to pursue their business ideas (G1)	43
In my university, you get to meet lots of people with good ideas for a new business (G2)	62.3

Entrepreneurship subjects at my university prepare me adequately for an entrepreneurial career (G3)	50
I know many people from my university who have successfully started their businesses (G4)	48.2
The university provides resources to assist student entrepreneurs (G5)	58.4
Entrepreneurship subjects should be made compulsory (G6)	51.5
My university has the infrastructure in place to support the start-up of new businesses (G7)	53.8

From the analysis, it can be seen that slightly above half of the students agreed that university support given is adequate and the other half did not. Students spend most of their time at the university, therefore, there is a need to provide adequate university support to enhance the formation of EIs.

5.3.7 Perceived environmental barriers

Perceived environmental barriers are contextual factors created by the government which can hinder entrepreneurial intentions, activities and entry rates (Lüthje and Franke, 2003). When respondents were asked about perceived environmental barriers, 46.2% of the respondents did not agree with the statement that the government does not encourage entrepreneurship, 36.3% of them disagreed that the government's policies would not help them run a business and 44.6% of them also disagreed that business laws and regulations do not support the start-up of new businesses. On the other hand, 49.7% of the respondents agreed that the cost of starting a new business is too high and 43.9% of them accepted that capital is not accessible to start and run a business. To get this information, perceived environmental barriers were measured by five (5) items and all the categories used were summed up (see section 5.3.1) as indicated in Table 5.8. Table 5.8 shows the responses on perceived environmental barriers and EIs.

Table 5.8: Perceived environmental barriers and EI

Statement	Grouping: Strongly agree Agree (%)
My government does not encourage entrepreneurship (H1)	53.8
The cost of starting a new business is too high (H2)	63.7
The government's policies would not help me run a business (H3)	55.4
Business laws and regulations do not support the start-up of new businesses. (H4)	49.7
Capital is not accessible to start and run a business (H5)	43.9

From Table 5.8, it can be seen that the cost of starting a new business is the most significant factor hindering students from engaging themselves in entrepreneurial activities followed by government support, policies, laws and regulations. The government should consider lowing the cost of starting a business and introduce policies, laws and regulations that promote entrepreneurship in the country. This move will help increase the number and entrepreneurial activities and create jobs fort the youths.

5.3.8 Entrepreneurship education

EE is described as education aimed at enhancing student awareness and influence to take entrepreneurship activities as a way of living (Fayolle and Gailly, 2015b). Concerning EE, 5 items were evaluated and categories summed up (see 5.3.1). Most of the respondents agreed to the statements on the extent to which it has helped them to develop various aspects. Forty- nine percent of the respondents agreed that they have gained knowledge about the entrepreneurial environment, 48.1% have developed greater recognition of the entrepreneur's figure and 45.7% of them believed that they have developed an inclination to be entrepreneurs. In addition to that 51.1% of the respondents believed that they have the necessary abilities to be entrepreneurs and 56% of them agreed that they have developed intentions to be entrepreneurs after

participating in various entrepreneurship subjects as indicated in Table 5.9. Table 5.9 show the responses on EE and EIs

Table 5.9: Entrepreneurship education and entrepreneurial intentions

Statement	Grouping: (Strongly agree & Agree) Agree (%)
Knowledge about the entrepreneurial environment (1)	49
Greater recognition of the entrepreneur's figure (I2)	48.1
The inclination to be an entrepreneur (I3)	45.7
The necessary abilities to be an entrepreneur (I4)	51.1
The intention to be an entrepreneur (I5)	56

Table 5.9 suggest that EE being offered to students is not adequately addressing the components that signal the presence of EIs. The calls for the review of the EE curriculum to include the content aimed specifically at promoting EIs.

5.4 CONFIRMATORY FACTOR ANALYSIS: MEASUREMENT MODEL

Before the SEM was conducted, the proposed measurement model was assessed using confirmatory factor analysis (CFA) to confirm the reliability and construct validity

Reliability

Literature has suggested the following two criteria (Table 5.10) for determining the reliability of the measurement model (Ahmand, Zulkurnain, and Khairushalimi, 2016). Table 5.10 indicates the criteria used to test for the reliability of the measurement model.

Table 5.10: Reliability

Reliability	Criteria
Internal Consistency	Internal Consistency is achieved when the Cronbach's Alpha value is .6 or higher.
Construct /composite reliability	**Composite reliability** is an indicator of the shared variance among the set of observed variables used as indicators of a latent construct (Bacon *et al* 1995). To achieve the construct reliability, a value of CR ≥ .6 is required

Source: Adopted from Ahmad *et al*. (2016, p.3)

Composite reliability was employed to the reliability of the research constructs in the measurement model (CFA) and is reported in table 5.11 below.

To measure the internal consistency, Cronbach's alpha coefficient is utilized to assess each construct with a threshold stated in the literature as indicated in table 5.13 below. It determines whether or not the approach used in a study is consistent and that the measuring instruments measures what is intended to be measured (Gibb, 2007: Leedy and Ormrod, 2010). For this study, the reliability of each of the research variables was measured using the Cronbach alpha coefficient with threshold stated in the literature, 0.5 or higher (Perry, Charlotte, Isabella and Bob, 2004). Accordingly, the study observed the minimum alpha threshold of 0.7 was with the absolute minimums of 0.5.

Construct validity

Construct validity is the instrument's ability to determine what it intends to measure for a construct (Blumberg *et al*., 2011; Zainudin, 2015). Three forms are measuring both endogenous and exogenous constructs' validity in a proposed measurement model namely, convergent, construct and discriminant validity as indicated in Table 5.11 below (Shau, 2017).

Table 5.11: Validity

Validity	Requirement
Convergent validity	. This validity could also be verified through Average Variance Extracted (AVE). The average variance extracted (AVE) is a measure of the amount of **variance** that is captured by a construct concerning the amount of **variance** due to measurement error. The value of AVE should be greater or equal to 0.5 to achieve this validity.
Construct validity	The construct validity is achieved when the Fitness Indexes achieve the level of model acceptance
Discriminant validity	. Discriminant validity is the correlation between each pair of latent exogenous constructs and should be less than 0.85. Other than that, the square root of AVE for the construct should be higher than the correlation between the respective constructs (Zainudin, 2015)

Source: Adopted from Ahmad *et al*. (2016,p.3)

To attain good quality of the construct validity of the scale (Table 5.11), the researcher adopted validated scales besides using an appropriate sampling method (Marques et al., 2018; Ajzen, 2011; Liñán and Chen, 2009; Lüthje and Franke, 2003). All respondents in this study were final year Business and Non-Business students registered at MUFor this study, all of the above three mentioned criteria were investigated in the measurement model.

From Table 5.11, the AVE was less than 0.5 for all constructs, therefore no convergent validity could be illustrated. In addition, acceptable fit according to a set of criteria could not be established, therefore no construct validity. Lastly, discriminant validity, only two construct shows discriminant validity.

As the CFA indicates a misfit of the measurement model to the study's data, exploratory factor analysis was performed to determine the reasons for the misfit and the important factor structure of the data. Figure 5.4 shows the measurement model for the dimensions of entrepreneurial intention

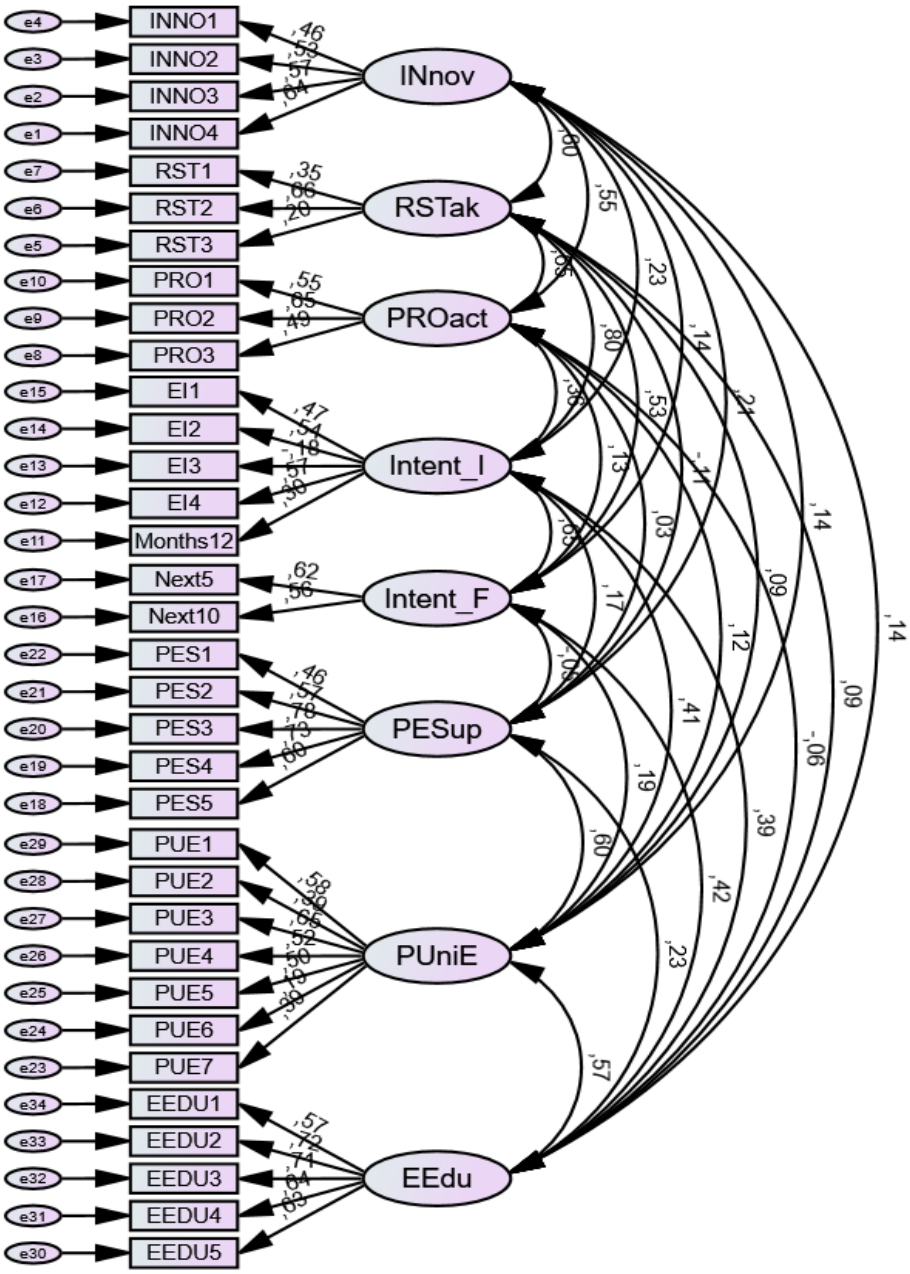

Figure 5.4: Measurement model for the dimensions of entrepreneurial intention

The results of the CFA are presented in Table 5.11 and Table 5.12 below.

Table 5.12: Goodness of fit indices of the proposed measurement model

Model	CMIN (X^2)	Df	P	CMIN/ df	RMSEA	IFI	TLI	CFI	AIC	BCC
Model 1	1474.179	499	0.000	2.954	0.073	0.667	0.589	0.655	1734.179	1761.262
Indicate acceptable fit	-	-	-	<3 or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90		

Table 5. 13: Correlations, AVE and CR estimates

	CR	AVE	MSV	MaxR(H)	EEdu	INnov	RSTak	PROact	Intent_I	Intent_F	PESup	PUniE
EEdu	0.790	0.431	0.323	0.798	**0.657**							
INnov	0.640	0.310	0.355	0.853	0.135	**0.557**						
RSTak	0.382	0.201	0.635	0.871	0.085	0.596	**0.449**					
PROact	0.581	0.319	0.423	0.892	-0.058	0.552	0.650	**0.565**				
Intent_I	0.415	0.192	0.635	0.905	0.392	0.234	0.797	0.365	**0.438**			
Intent_F	0.516	0.349	0.429	0.914	0.424	0.139	0.529	0.132	0.655	**0.590**		
PESup	0.769	0.408	0.360	0.936	0.234	0.213	-0.107	0.026	0.172	-0.054	**0.639**	
PUniE	0.658	0.230	0.360	0.944	0.568	0.135	0.093	0.122	0.406	0.195	0.600	**0.480**

In conclusion, the above results reported a misfit between the measurement model and the study's data. Exploratory factor analysis was subsequently performed to identify reasons for the misfit and explore the critical factor structure for these constructs

5.4.1 Exploratory Factor Analysis

Exploratory factor analysis (EFA) was performed to explore the dimensionality of each of the 6 areas of interest. Separate EFA was conducted for each scale because each scale was extracted from the literature and should be tested individually. Factors with eigenvalues above 1 were accepted in the factor structures of the six areas. EFA was performed using the principal axis factoring (PAF) extraction method. Promax rotation was used when multiple factors were extracted. The researcher adopted a required minimum factor loading of 0.3 in this study. Comery and Lee, (1992) and Tabachnick and Fidell (2007) recommended the application of the a tight cut-off ranging from 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good) or 0.7 (excellent) where the frequency distribution of items is not similar. Additionally, for a

minimum sample size of 350, a cut-off of 0.3 can be adopted for the factor loading (Hair *et al*., 2010). Table 5.14 indicates the summary of the exploratory factor analysis results.

Dimension Determination

Table 5.14: Summary of the EFA

Factor	KMO and Barlett's test (sig. value)	% Variance explained (common after extraction)	Factor loadings	Cronbach's Alpha
Risk-Taking (factor analysis on three items)	.545 p < 0.00 1	23.475		N/A
RST1			0.761	
RST 2				
RST 3				
Risk-Taking 2(factor analysis on two items)	.500 P<0.001	22.703		.0.369
RST 1			0.476	
RST3			0.476	
Innovation	.702 P<0.001	31 .34		0.628
INNO1			0.412	
INNO2			0.573	
INNO3			0.528	
INNO4			0.690	
Proactivity	.625 P<0.001	32.61		0.583
PRO1			0.632	
PRO2			0.604	
PRO3			0.462	

Perceived Environmental Support	.774 P<0.001	40.690			0.756
PES 1				0.459	
PES2				0.556	
PES3				0.814	
PES4				0.736	
PES5				0.557	
Entrepreneurship Education	.841 P<0.001	51.314			0.837
EEDU1				0.643	
EEDU2				0.789	
EEDU3				0.734	
EEDU4				0.664	
EEDU5				0.741	
Entrepreneurial Intention	.641 P<0.001	30.279	F1	F2	
EI1				0.440	0.562
EI2			0.491		0.572
EI3			-0.419		
EI4				0.697	
12 Months				0.549	
Next 5 years			0.454		
Next 10 Years			0.672		
Perceived University Support 1	.672 P<0.001	38,234	F1	F2	
PUE 1					
PUE2				0.405	0.592
PUE3				0.665	
PUE4				0.529	
PUE6				0.524	

Perceived University Support 2			F1	F2	
PUE5			0.994		0.601
PUE7			0.445-	-	

The results in Table 5.14 above confirmed the unidimensionality (all items loaded into one factor only) of the innovation, proactivity, PES and EE constructs. In the case of EI and PUS, two factors were identified respectively. The two factors associated with EI are labelled as immediate (EI1, EI4, and 12months) and future (EI2, EI3, 5 Years, 10 Years) intentions and the two factors associated with PUS are labelled as resources or academic content and context (PUE1, PUE2, PUE3, PUE4, PUE6) and infrastructure (PUE5 and PUE7) respectively. Initial factor analysis of the risk-taking construct indicated that only one item loaded with a loading larger than 0.32. However, when considering only items 1and 3, which relate to auctioning (item 1) and willingness (item 3) it formed a factor but with an unacceptable value of Cronbach alpha (less than 0.5). EE explains above 50% of the common difference while the percentage of variance explained ranges between 30% and 50% for all the others, except the risk-taking construct (Table 5.14 above). Therefore risk-taking will be considered in further modelling as three separate indicators not linked to a latent construct. Thus, considering this information and the Cronbach alpha values, it was considered feasible to continue with the newly formed factors.

Following the EFA, discriminant validity, through using the Heterotrait-Monotrait criteria measure was calculated and besides the Cronbach Alpha and composite reliability. Table 5.15 indicates the discriminant validity

Table 5.15: Discriminant Validity: Heterotrait-Monotrait criteria Analysis

	PES	**EEDU**	**PUEF1**	**PUEF2**	**Inno**	**Proa**	**EI_L1**	**EI_L2**
PES								
EEDU	0,172							
PUEF1	0,597	0,473						

PUEF2	0,630	0,196	0,463					
Inno	0,275	0,033	0,110	0,080				
Proa	0,091	0,000	0,167	0,026	0,553			
EI_L1	0,000	0,346	0,324	0,000	0,270	0,277		
EI_L2	0,317	0,312	0,347	0,452	0,145	0,303	0,461	

Henseler, Ringle, and Sarstedt (2015) suggested discriminant validity thresholds of 0.850 (strict) and 0.999 (liberal). In this research, the analysis revealed that all the constructs showed discriminant validity as none was above the threshold of 0.85 according to Table 5.15.

Concerning composite reliability, three of the research constructs were above 0.6 which are considered satisfactory. The constructs that had values above 0.5 were the two constructs that split into two sub-constructs, based on the EFA. These constructs were two or three item constructs and as such would result in lower reliability levels. Malhotra and Dash (2011) proposed that when AVE is too strict, reliability can be determined through CR alone. Table 5.16 shows the composite reliability

Table 5.16: Composite Reliability

CR	0. 726	0.840	0.585	0.555	0.640	0.582	0.563	0.582
Variable	PES	EEDU	PUEF1	PUEF2	INNO	PROA	EI_L1	EI_L2

5.5 TEST OF THE CONCEPTUAL RESEARCH MODEL

The research quantitative data from students were designed to test a research model on entrepreneurial intentions (Immediate and future). The process of testing the models requires establishing the model fit and testing the hypotheses using Structural Equation Modelling (SEM). To test the model, the study employed AMOS V27. The choice of SEM was informed by the ability of the software to go beyond regression models and provide the significance and magnitude of the structural relationship between the research constructs (Mayhew, Hubbard, Finelli, Harding, and Carpenter, 2009). Besides, SEM combines measurements evaluation and structural models in a single analysis (Acock, 2013).

The conceptual research model (Figure 5.6) below shows the research hypotheses generated.

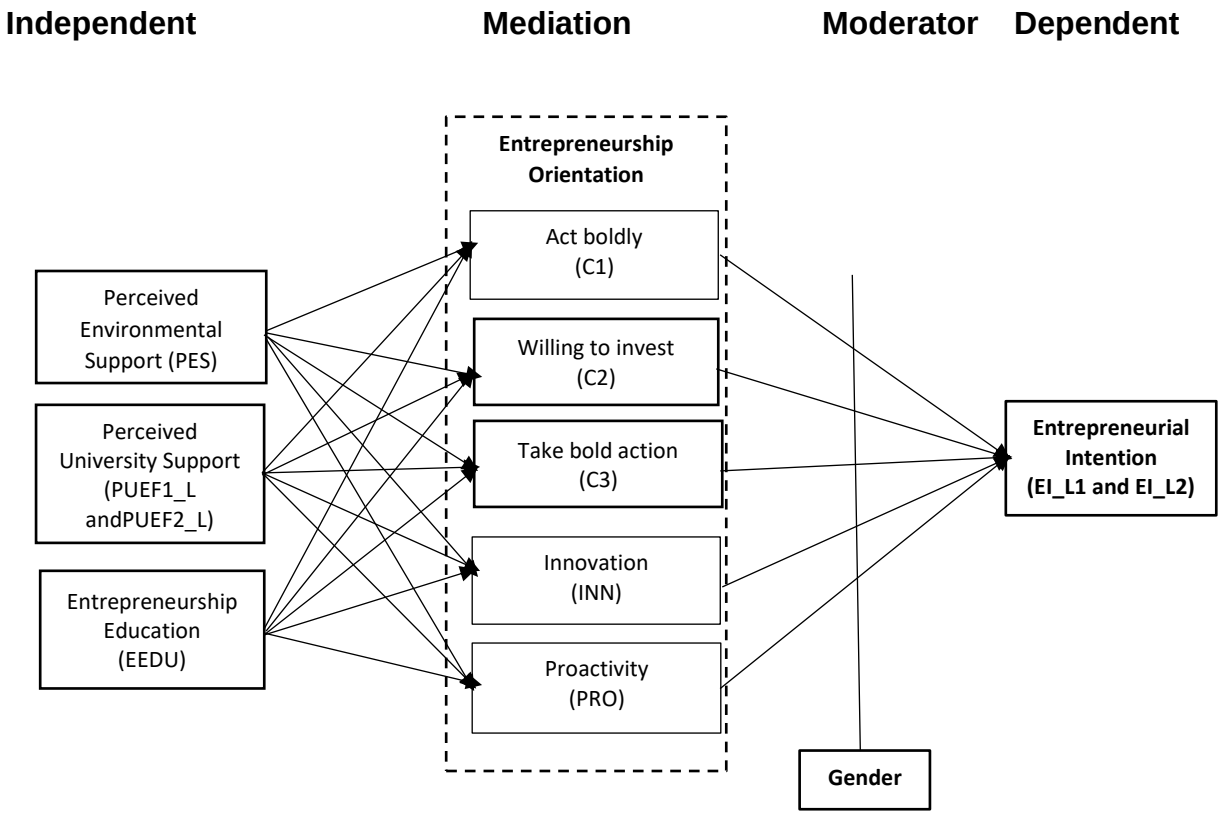

Figure 5.6: Conceptual Research Model

Source: Adopted from Marques *et. al.* (2018); Ajzen (2011); Liñán and Chen (2009); Lüthje and Franke (2003).

The research hypotheses intended to be tested by the primary data collected and by association the fitness of the conceptual research model are presented below:

H_1: Student's tendency to act "boldly" in situations where risk is involved as an entrepreneurial competency mediates the relationship between:

H_{1a}: *Perceived environmental support and entrepreneurial intentions*

H_{1b}: *Perceived university support and entrepreneurial intentions*

H_{1C}: *Entrepreneurship education and entrepreneurial intentions*

H_2: Student's willingness to invest time/money on things that yield high returns as an entrepreneurial competency mediates the relationship between:

H_{2a}: *Perceived environmental support and entrepreneurial intentions*

H_{2b}: *Perceived university support and entrepreneurial intentions*

H_{2C}: *Entrepreneurship education and entrepreneurial intentions*

$\boldsymbol{H_3}$: **Student's likeness to take bold actions by venturing into the unknown as an entrepreneurial competency mediates the relationship between:**

H_{3a}: *Perceived environmental support and entrepreneurial intentions*

H_{3b}: *Perceived university support and entrepreneurial intentions*

H_{3C}: *Entrepreneurship education and entrepreneurial intentions*

$\boldsymbol{H_4}$: **Student's innovation ability as an entrepreneurial competency mediates the relationship between**:

H_{4a}: *Perceived environmental support and entrepreneurial intentions*

H_{4b}: *Perceived university support and entrepreneurial intentions*

H_{4C}: *Entrepreneurship education and entrepreneurial intentions*

$\boldsymbol{H_5}$: **Student's proactivity ability as an entrepreneurial competency mediates the relationship between:**

H_{5a}: *Perceived environmental support and entrepreneurial intentions*

H_{5b}: *Perceived university support and entrepreneurial intentions*

H_{5C}: *Entrepreneurship education and entrepreneurial intentions*

$\boldsymbol{H_6}$: **Gender as an influencing factor of an individual's self-perception will influence the relationship between:**

H_{6a}: *Student's tendency to act "boldly" in situations where risk is involved as an entrepreneurial competency and entrepreneurial intentions*

H_{6b}: *Student's willingness to invest time/money on things that yield high returns as an entrepreneurial competency and entrepreneurial intentions*

H_{6c}: *Student's likeness to take bold actions by venturing into the unknown as an entrepreneurial competency and entrepreneurial intentions*

H_{6d}: *Student's innovation ability as an entrepreneurial competency and entrepreneurial intentions.*

H_{6e}: *Student's proactivity ability as an entrepreneurial competency and entrepreneurial intentions.*

5.5.1 Conceptual Research Model Fit

Structural equation modelling was employed to assess the original research conceptual model as depicted in Figure 5.6. In this research, an appropriate normal statistical distribution of the items was considered and the maximum likelihood estimation method (ML). The sample size was also considered adequate as, based on the guidelines provided in Westland (2010), the sample size is sufficient for structural equation modelling. In the model, there were 27 indicators and 7 latent variables (r = 3.86). Westland (2010) refers to Boomsma's (1982) simulations which indicated that a ratio (r) of indicators to latent variables of r = 3 would require a sample size of at least 200 and of at least 100 for r =4 for adequate analysis. Our sample size of 372, therefore, exceeds the requirement of 200. Also, our ratio of a sample size to free parameters was 372:85 which converts into 4.4:1. This ratio is fairly close to Bentler's (1989) rule of thumb/recommendation of a ratio of 5:1.

To assess the model fit, the chi-square and normed X^2/df value together with other model fit indices such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), RSMR and the Root Mean Squared Error of Approximation (RMSEA) were employed. The study uses the cut off value for the goodness of fit of indices recommended by Hu and Bentler's (1999), Hair *et al*.'s (2010) and Schumaker and Lomax (2016). As a standard practice, the different acceptable threshold values are presented in Table 5.17 below

Table 5.17: Fitness indexes

Name of Category	Name of index	Level of acceptance
Absolute Fit	Chisq	p> 0.05
	RMSEA	< 0.08
	GFI	> 0.90
Incremental Fit	AGFI	> 0.09
	CFI	> 0.09
	TLI	> 0.90
	NFI	> 0.90
Parsimonious Fit	Chisq/df	< 5.0
	RSMR	< 0.08

Source: adopted from Ahmad *et al*. (2016)

The results of the fit indices are tabled in table 5.18 below

Table 5.18: Goodness-of-fit indices of research conceptual model: SEM model

Model	CMIN (X^2)	Df	P	CMIN/df	RMSEA	IFI	TLI	CFI	AIC	BCC
Model 1	1369.716	464	0.000	2.952	0.073	0.708	0.635	0.698	1629.716	1655.948
Indicate acceptable fit	-	-	-	<3 or <5	$\leq$ 0.08	$\geq$ 0.90	$\geq$ 0.90	$\geq$ 0.90		

The initial research conceptual model (Table 5.18) revealed the following results: RMSEA= .073, CMIN/df = 2.952, IFI= .708, TLI= .635, CFI= .698. Studying the set of fit indices, it was clear that the model had merit but did not meet the generally acceptable thresholds for the IFI, CFI and TLI set of fit indices. It was therefore considered to study possible improvements to the model.

Potential improvements on the model were considered using (1) deleting items (observed variables) with loadings less than 0.5; (2) deletion of non-statistical significant paths; and (3) studying the modification indices for potential additional covariances with the condition that these needs be theoretically justified as well (Hair *et al*., 2010). Therefore, it is critical that these changes are not made purely to improve the model fit statistics and that the model used still portray the core theoretical model postulated. Figure 5.7 below shows the initial conceptual research model.

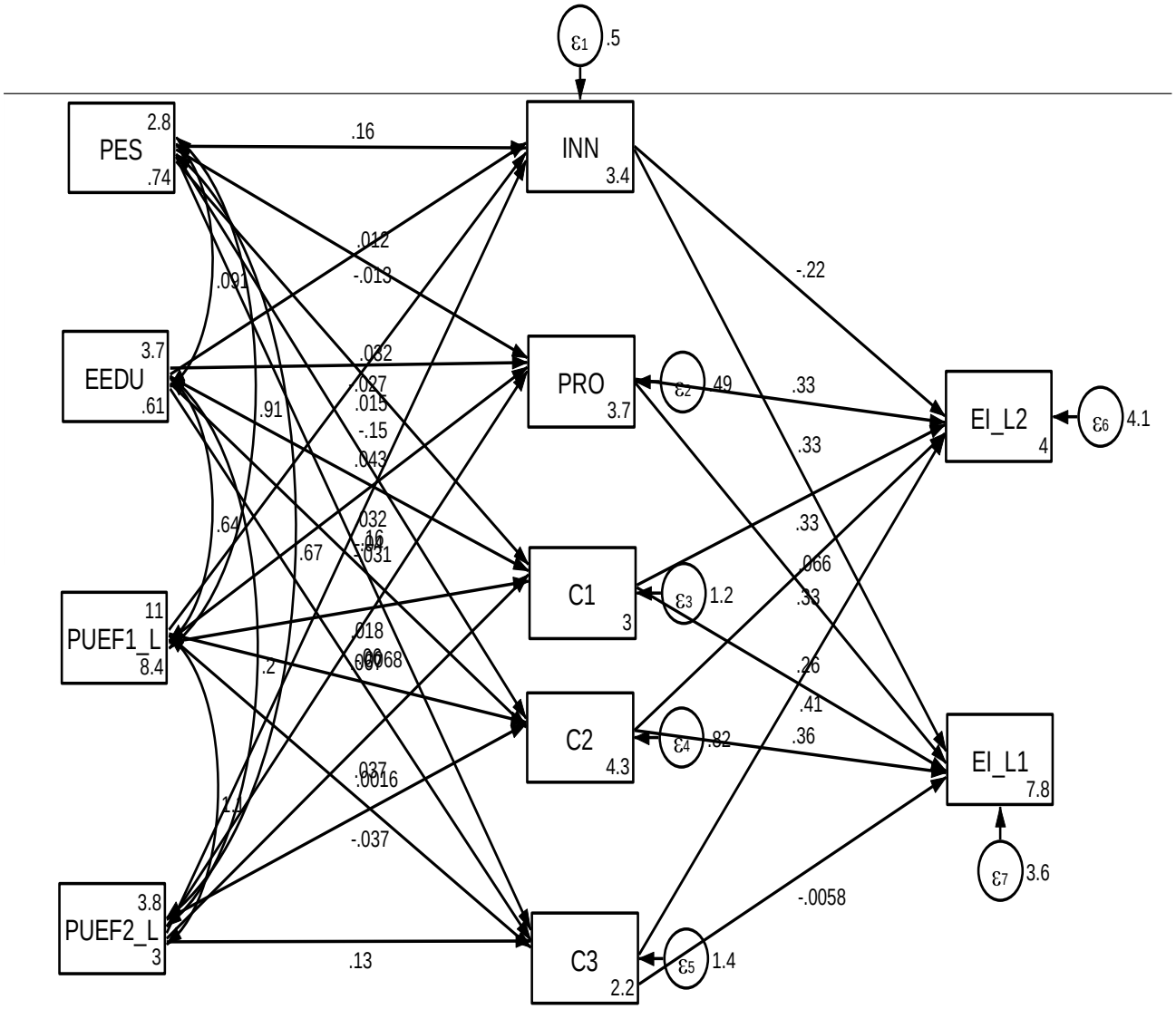

Figure 5.7: Initial research conceptual model

From the figure, it is shown that three items with low loadings (below 0.4) were removed. At this stage, items with loadings of 0.4 and above remained in the model as removing them would lead in some instances to the removal of a construct. The model also indicated some standardized regression weights larger than one. This can be as a result of multicollinearity between constructs and was investigated. According to Joreskog (1999), these values are not wrong but complicate interpretation of the paths as one can only deduce a positive or negative relationship but not the strength. The potentially shared variance between the three risk indicators, the two constructs (innovation and proactivity) as well between the two entrepreneurial intent constructs were added to the model.

The revised conceptual model introduced removed the three items, adding the error covariances between the endogenous variables to enable the capturing of their shared variance and adding two additional covariances (between items PES 5 and PUE 5; and between RISK items 1 (C1) and 3 (C3)). One of the PUE subconstructs showed correlations of above 0.7 and could potentially be the reason for the standardized coefficients above 1. Although this leaves the construct PUE only represented by two items, it is known that two item constructs are not necessarily desirable but are admissible (Kline 2011)

The results of the fit indices are tabled in table 5.19 below

Table 5.19: Goodness-of-fit indices of the revised research conceptual model: SEM model

Model	CMIN (X^2)	df	P	CMIN /df	RMSEA	IFI	TLI	CFI	GFI	AIC	BCC
Model 1	704.643	246	0.000	2.846	0.071	0.805	0.757	0.800	0.868	862.643	874.55
Indicate acceptable fit	-	-	-	<3 or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90		

After modifications of the model (Table 5.18), all the fit indices indicated better values than the initial model as indicated above. The revised conceptual model tested is shown in figure 5.8 below.

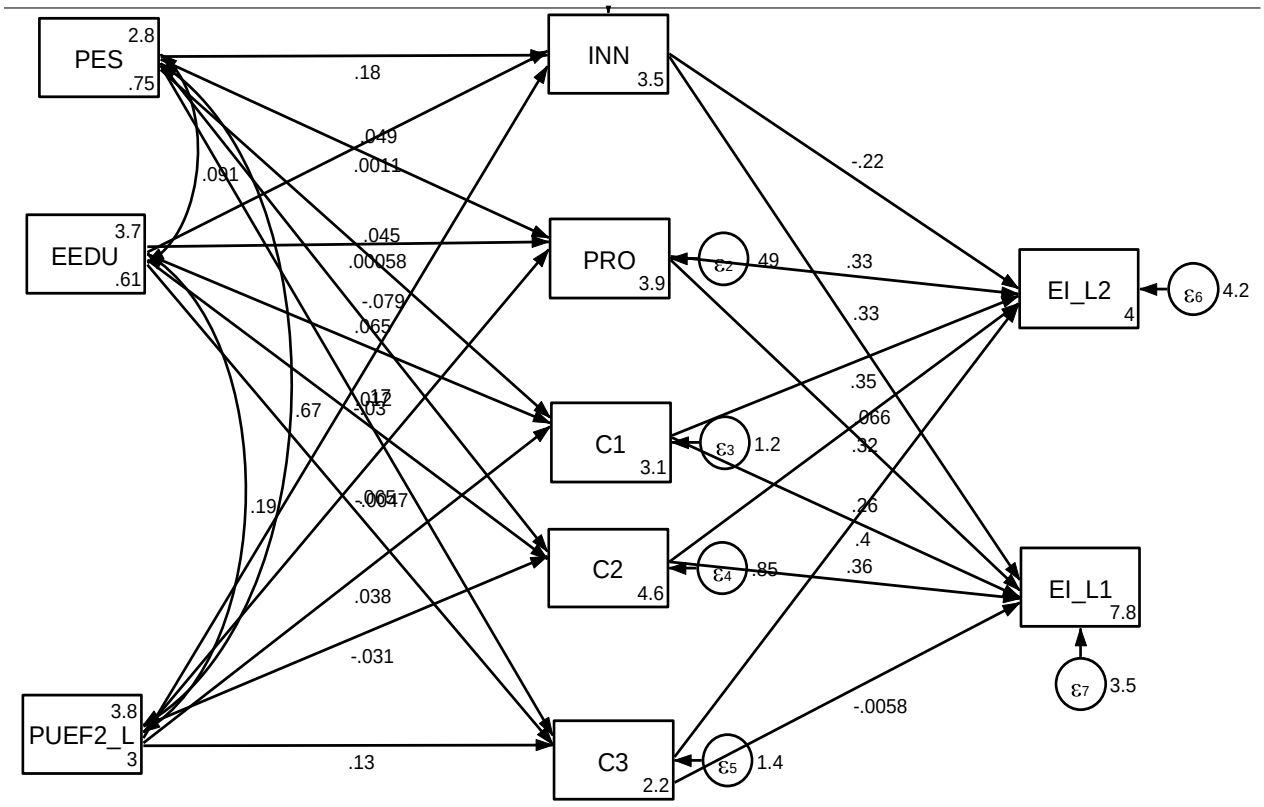

Figure 5.8: Revised conceptual research model

The standardized regression coefficients of the above model are shown in table 5.20**Table 5.**

20: Revised research model standardised regression coefficients

			Estimate
Innovation_L	<---	PES_L	,164
ProActivity_L	<---	PES_L	-,072
C1_1	<---	PES_L	-,043
C2_1	<---	PES_L	-,154*
C3_1	<---	PES_L	,095
Innovation_L	<---	EEDU_L	-,034
ProActivity_L	<---	EEDU_L	-,087
C1_1	<---	EEDU_L	,033
C2_1	<---	EEDU_L	-,002
C3_1	<---	EEDU_L	,031
Innovation_L	<---	PUEF2_L	-,020

			Estimate
ProActivity_L	<---	PUEF2_L	,026
C1_1	<---	PUEF2_L	,138
C2_1	<---	PUEF2_L	,026
C3_1	<---	PUEF2_L	,259**
EI_L2	<---	Innovation_L	-,155
EI_L1	<---	Innovation_L	,125
EI_L2	<---	ProActivity_L	-,019
EI_L1	<---	ProActivity_L	-,028
EI_L1	<---	C3_1	-,005
EI_L2	<---	C3_1	,303***
EI_L1	<---	C2_1	,570***
EI_L2	<---	C2_1	,230***
EI_L1	<---	C1_1	,075
EI_L2	<---	C1_1	,262***

The standardised regression coefficient (Table 5.20) reported that:

a) There is a weak negative, statistically significant relationship between PES and STstudents willingness to invest their money and time in high returns activities
b) There is a weak positive, statistically significant relationship between PUEF1(resources or academic content and context) and students ability to venture into the unknown
c) There is a moderate positive, statistically significant relationship between students ability to venture into the unknown and future entrepreneurial intention (EI2)
d) There is a strong positive, statistically significant relationship between students willingness to invest their money and time in high returns activities and immediate entrepreneurial intention (EI1)
e) There is a weak positive, statistically significant relationship between students willingness to invest time and money in high returns activities and future entrepreneurial intention (EI2)
f) There is a weak positive, statistically significant relationship between students ability to act boldly in risk situations and future entrepreneurial intention (EI2)

5.5.2. Test of Mediating Effects of Variables on Entrepreneurial Intentions

One of the secondary objectives of this research was to establish the mediation effects of EO on the interaction between environmental factors and EIs. The testing for mediation effects was achieved through the use of the Hayes mediation method (Hayes, 2018). Baron and Kenny (1986: 1176) defined a mediator as a "third variable that accounts for the interaction between the predictor (independent variable) and the criterion (dependent variable). This method test for mediation of the five items (innovation, proactivity, C1, C2 and C3) on the paths between the three variables on the left (EEDU, PES and PUEF2_L) with EI_L1 and EI_L2. A total of 30 mediation tests were conducted as depicted in Table 5.21 below.

The analysis from the Hayes (2018) process produces different types of mediation outcomes depending on the p-value linked to the standardized indirect impact and the associated bootstrap confidence intervals (Baron and Kenny, 1986). Mediation exists when 95% confidence limits do not contain a zero, which would be the case for an indirect effect test that is statistically significant (Fritz, Taylor and Mackinnon, 2012; Hayes and Schukow, 2013). When the confidence interval between the lower and the –upper bounds contains a zero, the presence of mediation is not confirmed (Baron and Kenny, 1986; Mackinnon, Lockwood, Hoffman, West, and Sheets, 2002).

Complete mediation is confirmed when the interaction between the independent variable (X) and the dependent variable (Y) is not statistically significant. Similarly, partial mediation is confirmed when the interaction between the independent variable (X) and dependent variable (Y) is statistically significant. Table 5.21 presents the test results of the conceptual research model

Table 5.21: Mediation test results: Conceptual research model

Description of test	Standardised Indirect effect	Dependent variable	Indirect effects of X on Y		Conclusion
			Bootstrapped LLCI	BootstrappedULCI	
Perceived environmental support					
Innovativeness as a mediator between perceived environmental support and entrepreneurial intention	.0018	Immediate intention	-0.0198	.0227	No mediation
	-.0259	**Future intention**	**-.0630**	**-.0064**	**Partial mediation**
Proactivity as a mediator between perceived environmental support and entrepreneurial intention	.0001	Immediate intention	-.0080	.0077	No mediation
	.0009	Future intention	-.0114	.0142	No mediation
C1(act boldly) as a mediator between perceived environmental support and entrepreneurial intention	.0053	Immediate intention	-.0031	.0208	No mediation
	.0117	Future intention	-.0063	.0422	No mediation
C2 (willingness to invest) as a mediator between perceived environmental support and entrepreneurial intention	-.0391	Immediate intention	-.0853	.0027	No mediation
	-.0193	Future intention	-.0564	.0007	No mediation
C3 (taking bold action) as a mediator between perceived environmental support and entrepreneurial intention	-.0065	Immediate intention	-.0280	.0150	No mediation
	.0405	**Future intention**	**.0166**	**.0888**	**Partial mediation**
Entrepreneurship education					
Innovativeness as a mediator between entrepreneurship education and entrepreneurial intention	-.0002	Immediate intention	-.0049	.0090	No mediation
	-.0014	Future intention	-.0207	.0190	No mediation
Proactivity as a mediator between entrepreneurship education and entrepreneurial intention	-.0003	Immediate intention	-.0077	.0069	No mediation
	-.0013	Future intention	-.0169	.0112	

C1 (act boldly) as a mediator between entrepreneurship education and entrepreneurial intention	.0039	Immediate intention	-.0025	.0172	No mediation
	.0098	Future intentions	-.0069	.0439	No mediation
C2 (willingness to invest) as a mediator between entrepreneurship education and entrepreneurial intention	-.0006	Immediate intention	-.0386	.0407	No mediation
	-.0002	Future intention	-.0220	.0246	No mediation
C3 (taking bold actions) as a mediator between entrepreneurship education and entrepreneurial intention	-.0041	Immediate intention	-.0165	.0047	No mediation
	.0187	Future intention	-.0027	.0643	No mediation
Perceived university environment					
Innovativeness as a mediator between the perceived university environment and entrepreneurial intention	.0007	Immediate intention	-.0049	.0081	No mediation
	-.0259	Future intention	-.0210	.0072	No mediation
Proactivity as a mediator between the perceived university environment and entrepreneurial intention	-.0002	Immediate intention	-.0059	.0049	No mediation
	.0009	Future intention	-.0120	.0056	No mediation
C1 (act boldly) as a mediator between the perceived university environment and entrepreneurial intention	.0005	Immediate intention	-.0018	.0164	No mediation
	.0117	Future intention	-.0016	.0344	No mediation
C2 (willingness to invest) as a mediator between the perceived university environment and entrepreneurial intention	**-.0353**	**Immediate intention**	**-.0535**	**-.0017**	**Complete mediation**
	-.0193	**Future intention**	**-.0366**	**-.008**	**Partial mediation**
C3 (taking bold actions (as a mediator between the perceived university environment and entrepreneurial intention.	-.0071	Immediate intention	-.0242	.0133	No mediation
	.0405	**Future intention**	**.0137**	**.0724**	**Partial mediation**

Source: Adopted from Meuter, Bitner, Ostrom and Brown (2005 and modified by the researcher

Thus, C2, the statement on students willingness to invest time and money in high returns activities completely mediates the relationship between PUS (resources or academic content and context) and immediate EIs and the relationship between PUS (resources or academic content and context) and immediate EIs was not statistically significant (direct effect) and the confidence interval for C2 did not include zero.

About future EI, the following partial mediations were observed; innovativeness as a mediator on the relationship between PES and future EI, C3 (students ability to venture into the unknown) as a mediator between PES and future EI, C2 (students willingness to invest time and money in high returns activities) as a mediator between the PUS and future EI and C3 as a mediator between the PUS and future EI.

In summary, the analysis suggests that (Table 5.21), C2 (students willingness to invest time and money in high returns activities) was observed to mediate the relationship between the independent variable (PUS - resources or academic content and context) and the dependent variable EIs (both immediate and future intention), innovativeness mediate the relationship between the independent variable (PES) and the dependent variable (future entrepreneurial intention), C3 (students ability to venture into the unknown) mediate the relationship between the independent variable (PES) and the dependent variable (future EI), C3 (students ability to venture into the unknown) mediate the relationship between the independent variable (PUS-resources or academic content and context) and the dependent variable (future EI)

5.5.3 Test of Moderation Effects of Gender on Entrepreneurial Intentions

The fourth secondary objective of this research was to determine how gender moderates the association between entrepreneurial orientation and entrepreneurial intentions among students in Zambia. Previous studies confirmed that demographic variables positively correlate with students' entrepreneurial intentions, mostly age and gender (Cetindamar, Gupta, Karadeniz and Egrican, 2012). Previous research studies have indicated similarities in terms of the development of entrepreneurial intention among male and female students (Kristiansen, Furuholt and Wahid, 2003; Pruett, Shinna, Toney, LIops and Fox, 2009) while others have reported contradicting results stating that entrepreneurial intention differs significantly across gender (Kolveried, 1996; Wilson, Marlino and Kickul, 2004; Shay and Terjesen, 2005; Gibson, 2008). This study employed gender as a moderating variable between entrepreneurial

orientations and entrepreneurship intentions to confirm whether gender moderates the association between entrepreneurial orientation and entrepreneurial intention.

To achieve this the moderation analysis Hayes moderation regression analysis approach (process macro) was used which provide the interaction term and its associated significance. (Hayes, 2018). According to Lai (2013), a moderator is a third variable that influences the strength of the association between an independent variable and the dependent variable. A simple moderated multiple regression model called process model 1 was utilized to conduct the moderation analysis (Hayes and Agler, 2014; Hayes, 2017).

There were ten (10) analyses that represent the regressions for each of the five (innovativeness, proactivity, C1, C2, C3) variables with the two outcome variables future and immediate entrepreneurial intention. The presence of the moderation effect was observed using the interaction term (Int_1) - the p-value and the associated confidence interval. If the p-value of a term in each analysis is bigger than .05 and the confidence interval contains zero, then no moderation occurs and vice versa (Hayes, 2017). Table 5. 22 below shows Hayes process output for the models probing the moderation effect of gender on the association between entrepreneurial orientation and entrepreneurial intention (immediate and future intention). Table 5.22 presents the Hayes process output for the moderation models

Table 5.22: Hayes process output for the moderation models

Outcome variable	Model 1	Coefficient	P	LLCI	ULCI
EI_L2					
	Constant	3.9096	.0000	3.5770	4.2422
	Innov	.0198	.9255	-.3959	.4354
	Gender	-.1448	.1747	-.3542	.0646
	Int_1	-.0271	.8459	-.3016	.2473
EI_L2					
	Constant	3.9270	.0000	3.5972	4.2567
	Proact	.0046	.9833	-.4222	.4313
	Gender	-.1578	.1357	-.3654	.0497
	Int_1	.1046	.4334	-.1577	.3669
EI_L2					
	Constant	3.85992	.0000	3.5380	4.1804
	C1	.2296	.1271	-.0656	.5248
	Gender	-.1114	.2794	-.3135	.0908
	Int_1	.0111	.9055	-.1726	.1948
EI_L2					
	Constant	3.8927	.0000	3.566	4.2188
	C2	.2118	.2367	-.1396	.5631
	Gender	-.1338	.2006	-.3391	.0714

	Int_1	-.0004	.9973	-.2168	.2160
EI_L2					
	Constant	3.8990	.0000	3.5790	4.2189
	C3	.2518	.0523	-.0026	.5061
	Gender	-.1381	.1784	-.3395	.0633
	Int_1	-.0171	.8386	-.1825	.1482
EI_L1					
	Constant	4.1418	.0000	3.8737	4.405
	Innov	-.2195	.1917	-.5495	.1105
	Gender	-.0316	.7084	-.1979	.1346
	Int_1	.2508	.0242	.0329	.4687
EI_L1					
	Constant	4.1449	.0000	3.8795	4.4102
	Proact	-.0524	.7643	-.3958	.2910
	Gender	-.0328	.6994	-.1998	.1342
	Int_1	.1255	.2432	-.0856	.3365
EI_L1					
	Constant	4.111	.0000	3.8468	4.3758
	C1	-.0414	.7379	-.2845	.2017
	Gender	-.0066	.9379	-.1731	.1599
	Int_1	.1053	.1721	-.0460	.2566
EI_L1					
	Constant	4.1015	.0000	3.8554	4.3475
	C2	.4207	.0019	.1557	.6858
	Gender	-.0030	.9697	-.1578	.1519
	Int_1	-.0503	.5452	-.2135	.1130
EI_L1					
	Constant	4.1316	.0000	3.8638	4.3993
	C3	-.0659	.5426	-.2787	.1468
	Gender	-.0221	.7963	-.1906	.1464
	Int_1	.0583	.4074	-.0800	.1967

The moderation analysis (Table 5.22) have revealed significant and non-significant results. For instance, on immediate EI, the interaction between innovativeness and gender is statistically significant. On the future entrepreneurial intention, the interaction was not statistically significant. Similarly, no moderation effects were observed between proactivity and entrepreneurial intentions (immediate and future intention).

About the statements associated with the risk construct, the interaction between C1 (students ability to act boldly in risk situations) and both immediate and future intention was not statistically significant. Similarly, the interactions between C2 (willingness to invest time and money into high returns activities) and the EI was not statistically significant. On C3 (students

ability to venture into the unknown), the association with both immediate and future intention yielded non-significant results.

Figure 5.9 below shows how gender moderates the association between innovation and immediate entrepreneurial intention

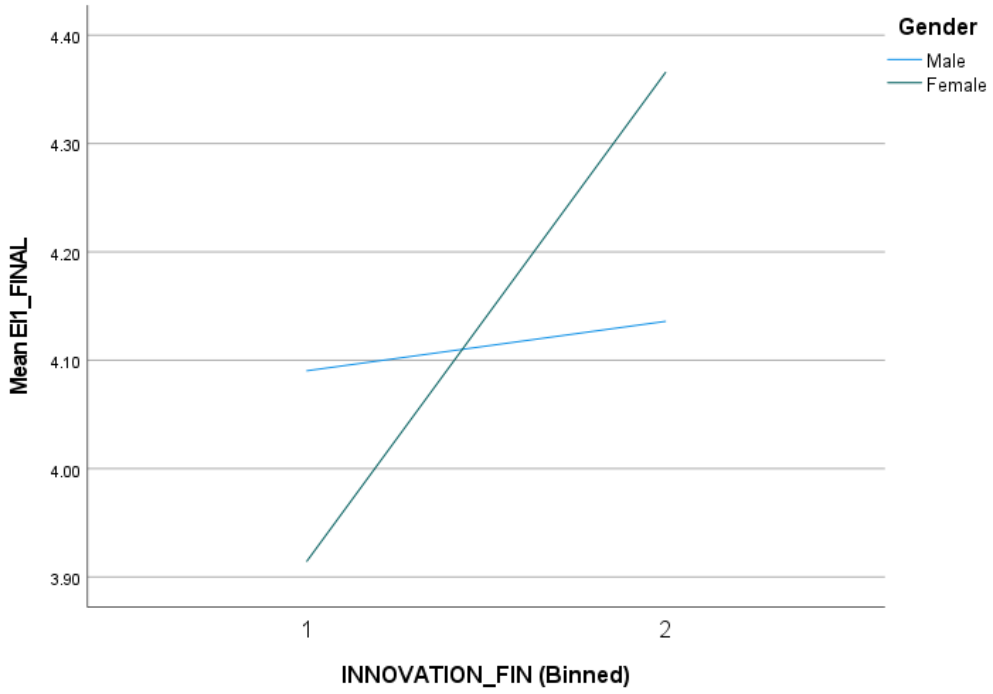

Figure 5.9: Moderating effects of gender

The moderation results (figure 5.9) have further indicated that the average immediate EI increases only marginally (from just below 4.10 to just over 4.10) as the level of innovativeness increases for male students, while for females (dark blue line) there is a sharp increase (from just above 3.9 to almost 4.4) in average immediate entrepreneurial intention as the level of innovativeness increases. The results of moderation have indicated that female students have higher entrepreneurship intentions than men when innovation levels increase, contrary to the findings in previous research. An explanation for this contradiction lies in the introduction of entrepreneurship education in higher institutions of which seem to be benefiting female students. Wilson, Kickul and Marlino (2007), observed that entrepreneurship education has a significant influence on the aspirations of female students to engage in entrepreneurial activities than on males'. Also, society's perception of the role of a woman in the family that of looking after the family and providing support to a man through entrepreneurial activities can

be attributed to this contradiction. Because of this, women are engaged in entrepreneurial activities to get organised and manage the imbalance gender division of domestic tasks (Schober, 2013) and regard entrepreneurship as an alternative to part-time work (Georgellis and Wall, 2005). According to Bhat and Singh (2018), women also consider support to the family and entrepreneurship to be more significant than men.

From the above findings concerning moderation effects of gender, the hypothesis H_{6d} which reads "Gender as an influencing factor of individual's self-perception will influence the relationship between student's innovativeness ability as an entrepreneurial orientation and entrepreneurial intentions" is supported.

5.5.4 Antecedents of Entrepreneurial Intentions

Given that some variable of entrepreneurial orientation mediates the interaction between EIs and the antecedent predictor, it is concluded that there is a positive interaction ($p < .05$) between these variables and EIs. The findings confirm the findings of the previous studies on EO, that reported a positive interaction between antecedents of entrepreneurial intentions and entrepreneurial intentions (Luthje and Franke, 2003; Qian, 2007; Saulo, Megan and Jill, 2007; Yusof, Sandhu and Jain, 2007; Gerry, Marques and Nogueira, 2008; Zhao, Selbert and Lumpkin, 2009; Rauch *et al*., 2009; Bolton and Lane, 2012; Jain and Ali, 2013; Yurtkoru et al., 2014; Ferreira, Fernandes and Ratten, 2016). This supports the argument of including these variables in the research conceptual model of this study. Therefore, AEI, as a mediator presents an opportunity to determine the interaction between the allowed for a meaningful investigation of the relationships between independent and dependent variables.

The Hayes output in Table 5.22 indicates that the following hypotheses are generally supported:

$\boldsymbol{H_{3a}}$: Student's ability to venture into the unknown as an entrepreneurial competency mediates the relationship between perceived environmental support and entrepreneurial intentions.

$\boldsymbol{H_{2a}}$: Student's willingness to invest time/money in high returns activities as an entrepreneurial competency mediates the relationship between perceived university environment (resources or academic content and context) and entrepreneurial intentions

$\boldsymbol{H_{3b}}$: Students' ability to venture into the unknown as an entrepreneurial competency mediates the relationship between the perceived university environment and entrepreneurial intention.

H_{4a}: Student's innovative abilities mediate the relationship between perceived environmental support and entrepreneurial intention.

This confirms that statements (C2 and C3) can be viewed as a stepping stone to entrepreneurial intention. To enhance entrepreneurial intentions among students, it's necessary to increase their positive risk tolerance attitude (willingness to invest time and money in high returns activities and the ability to venture into the unknown) towards entrepreneurship. Risk-taking is regarded as the signature trait of entrepreneurs than other people, those who are willing to invest their money and time into high returns activities and venture into the unknown are likely to develop EIs faster (Karabulat, 2016). The study results correspond to the past empirical results (Ahmed, 1985; Mathews and Scott, 1995; Polich and Bogby, 1995; Busenitz, 1999) that individuals willing and likely to establish business venture face the risk and always deal with the uncertainty surrounding the situation. Therefore, students' perception about engaging in entrepreneurial activities or not is heavily linked to their ability to invest and take bold actions by venturing into the unknown and into managing the risky situation (Begley and Boyd, 1987).

Innovativeness yielded significant results when linked to future entrepreneurial intentions. Therefore, there is a direct interaction between innovativeness and entrepreneurial intentions, which is in line with the findings in the past and recent research (Carland and Carland, 1991; Goldsmith and Kirr, 1991; Ahmed, Nawaz, Shaukat, Usman, Rehman and Ahmed, 2010; Sun et al., 2015; Mirjana, Ana and Marjana, 2018; Wathanakom, Khlaisang and Songkram, 2020) which reported a positive interaction between innovativeness and entrepreneurship intentions.

On proactivity, while several previous studies (Crant, 1996; Becherer and Maurer, 1999; Gupta and Bhawe, 2007; Zampetakis, 2008; Yan, 2010; Prabhu, McGuire, Drost and Kwong, 2012; Mahon and Chee, 2016; Mustafa, 2016; Israr and Hashim, 2017; Kumar and Shukla, 2019; Munir, Jianfeng and Ramzan, 2019) have reported a positive direct interaction with entrepreneurial intention. Unfortunately, this study yielded non-significant results on both immediate and future intentions. An explanation for this as suggested by Prabhu, McGuire, Drost and Kwang (2011) is that individual factors alone can not explain why individuals take part in entrepreneurial activities and what makes them succeed or fail. Gartner (1988, p.12) also indicated that "traits were inadequate to explain the phenomenon of entrepreneurship". The other explanation can be attributed to the lack of well-organised entrepreneurship education as indicated by Koe (2016), where entrepreneurship education is not well designed entrepreneurial orientation as competence is not well developed and may fail to stimulate the

formation of entrepreneurial intentions among students. Entrepreneurship education is intended to stimulate entrepreneurial behaviour and thinking nature entrepreneurial ideas and assist in the creation of a venture (Keat, Selvarajah and Meyer, 2011).

Moderating results from Table 5.23 indicated no interactions between the statements associated with risk-taking (C1, C2 and C3) and proactivity and both immediate and future entrepreneurial intentions for both groups indicating that both male and female students reported similar entrepreneurial intention levels contrary to the findings in previous research (Brush, 1992; Crant, 1996; Chen *et al*., 1998; Mazzarol, Volery, Doss and Thein, 1999; Delmer and Davidsson, 2000; Gupta, *et al*., 2009; 2012; Prabhu *et al*., 2012; Arshad *et al*., 2016). Gender did not predict differently on the formation of intention between female and male students. As the level of C1, C2, C3 and proactivity increases, entrepreneurial intention performance for male and female students remains the same for both male and female students.

5.6 TESTS OF MEDIATION AND MODERATION

The research question was formulated in section 1.5. The research question seeks to address the effect of environmental factors in form of the PUS, PES and EE on antecedents of EIs (risk-taking, proactivity and innovativeness) and entrepreneurial intention. The revised structural models (figure 5.8) and the standardised regression coefficients (Table 5.18) produced the following:

C3 (students ability to venture into the unknown) was observed to have a moderate positive statistically significant relationship with future EI and mediates the interaction between the PUS associated with infrastructure and future EI. C2 (students willingness to invest time and money in high returns activities) had direct interaction with immediate EI and a weak association with future entrepreneurial intention. Similarly, C1 (students ability to act boldly in risk situations) also reported a weak positive interaction with future EI while innovativeness and proactivity did not show any statistically significant interaction with EI. It is therefore concluded that increasing the power of students' willingness to invest time and money and their ability to venture into the unknown by fighting negative bias, building self-efficacy, accepting failure, encouraging students to run their own business would positively influence and increase their entrepreneurial intention.

The above findings are an indication of the indirect impact interaction between the university environment and future entrepreneurial intention through the student's ability to take bold

action and venture into the unknown. Thus, increasing the perceived university environment might influence students' entrepreneurial behaviour. Furthermore, supported by resources and physical infrastructure for entrepreneurship such incubators, universities and colleges needs to re-enforce the entrepreneurship curriculum and integrate it into all the programmes.

The moderation effect of gender was also observed on the association between innovativeness and immediate EIs for male and female students. It was also observed that gender did not predict future entrepreneurship intentions in this study.

Further analysis indicated higher immediate entrepreneurial intensity in female students than men. Thus, increasing entrepreneurial intention among female students could help to reduce a massive gap between male and female participation levels in entrepreneurship in Zambia. This gender gap is explained by the presence of gender stereotype that exists in most communities (Gupta, Goktan and Gunay, 2014; Goktan and Gupta, 2015). Since participation in entrepreneurship education has significant effects on the entrepreneurial intentions of students, therefore, there is a need to restructure entrepreneurship education in universities by integrating anti-gender stereotype elements that could influence and increase entrepreneurial intention among female students thereby reducing the gender gap.

5.8 CONCLUSION

This chapter discussed the findings from the analysis of quantitative primary data collected to meet the research objectives, answer the research question and test the research conceptual model of entrepreneurial intentions. In this chapter the following secondary objectives have been addressed:

a) Secondary objective 2: To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions.
b) Secondary objective 3: To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions.

c) Secondary objective 3: To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions

The secondary objectives above were addressed by conducting several statistical tests, including descriptive, confirmatory factor analysis, exploratory factor analysis, structural equation modelling and, the Hayes process. However, most of the findings did not confirm the findings in the previous research studies. Among the noted findings highlighted in this chapter include the following: a) intention to engage in entrepreneurial activity was observed to be time-specific; innovativeness and the statements related to risk-taking (students ability to act boldly in risk situations and students willingness to invest time and money in high returns activities) reported a direct positive interaction with entrepreneurial intentions. They also mediate to mediate the interaction between environmental support, university support and entrepreneurial intentions; b) although proactivity as a competency has significant effects on entrepreneurial intention, the study results could not reach the statistical significance; c) gender was observed to moderate the association between entrepreneurial orientation and entrepreneurial intention and d) female student's entrepreneurial intentions were higher than in male students.

The next chapter presents the research conclusion and recommendations.

CHAPTER 6: CONTRIBUTIONS AND IMPLICATIONS

6.1. INTRODUCTION

In the previous chapter, the findings from the analysis of data collected to answer the research question and test the research hypotheses were discussed. The conclusion and the key results are presented. This chapter outlines the summary of the research including the background of the research, problem statement, research objectives, research question in Section 6.2. In Section 6.3 the findings from the analysis of quantitative data to test the research conceptual model and address the primary objective and secondary objectives 2, 3, and 4 are presented. The contribution of this study to the body of existing knowledge is highlighted in Section 6.4. Thereafter, the summary of the findings regarding the research question and tested research hypotheses are discussed in Section 6.5. The implications of the research findings and recommendations for MU and policymakers to address secondary objective 5 are outlined in Section 6.6 and 6.7 respectively. Lastly, research limitations are discussed in Section 6.8 and suggested areas for future research are presented in Section 6.9.

6.2 SUMMARY OF THE RESEARCH

A review of the secondary research in chapter 2 and 3 reported, among other things, the following:

a. Youth entrepreneurship in Zambia has been recently recognised for its importance because the youth is a significant period in one's life and it is the time when people start realising their aspirations (Kew *et al*, 2014). However, most of the youths in Zambia waiting to venture into entrepreneurship face a lot of challenges related to limited access to capital, inadequate training in business practices, difficulties in identification of products and markets and lack of capacity to manage their enterprises effectively (GEM, 2013). This influences graduating students' willingness to venture into entrepreneurship activities despite the entrepreneurship education being offered as a compulsory course. Therefore, due to the above constraints, there is a need to explore the drivers or antecedents of entrepreneurial intentions in these contexts.

b. To grasp what promotes the formation of individual's EIs, several theoretical approaches have been applied by different scholars including the following; TPB (Ajzen, 1991); Krueger and Casrud's (1993) TPBEM; EEM (Shapero and Sokol (1982) and; EIM (Boyd and Vozikis, 1994). Although TPB has received criticisms concerning limited validity, it is still being considered as a validated model to use in the research on the formation of entrepreneurial intent (Yıldırım, Çakır and Aşkun, 2016). Unlike other models, the TPB is a refined framework used to guide and explain the formation of EIs of people. The model does not focus on demographics but environmental and contextual aspects such as EE as antecedents of entrepreneurial behaviour (Krueger, Reilly and Carsrud, 2000; Ozaralli and Rivenburgh, 2016) and is employed in this study.

c. Unlike innovativeness and proactivity, there are contradictory findings concerning the interaction between risk-taking and ELs with most studies suggesting a positive relationship (Karabulut, 2016; Do and Dadvari, 2017; Ibrahim and Lucky, 2014; Ibrahim and Mas'ud, 2016; Bolton, 2012; Salati Marcondes de Moraes, Sadao Iizuka and Pedro, 2018; Fashami *et al.*, 2021; Herdjiono *et al.*, 2018; Karimi *et al.*, 2017). Thus, further analysis is needed to resolve this contradiction on the interaction between risk-taking and EI. Hence, the influencing variable of risk-taking on EI is included in this research.

d. Existing secondary research has shown that EE can be provided in a classroom set-up and that it increases entrepreneurship skills, competencies and altitude (Solesvik, Westhead and Matlay, 2014; Law and Breznik, 2017; Nabi andLinan, 2011; Greene and Saridakis, 2008; Rideout and Gary, 2013; Lüthje and Frank, 2002; Kuratko, 2003; Nabi *et al.*, 2018; Nabi *et al.*, 2017). Although there is a growing interest in research on entrepreneurship education, limited studies have been undertaken to investigate the influence of EE on EI in the context of developing nations (Keat, Selvarajah and Meyer, 2011), Zambian universities such as Mulungushi University in particular. In this case, institutions of higher learning support several entrepreneurial outcomes through training and skills development, provision of start-up support and employment creation (Greene and Saridakis, 2008; Keat and Addullahi, 2015). Besides curriculum and content development, universities provide support services systems such as incubators, start-up units and advice centres (Nabi, Holden and Walmsley, 2010). Therefore, this research proposes that EE and PUE have direct or indirect effects on the formation of students' EIs which this research try's to investigate.

e. Tran and Von Korflesch (2016) observed am in studies that attempt to explain the effects of contexctual factors on EIs. Entrepreneurship behaviour is considered to be a function of the business activities going and the societal environment and that an individual does not decide on engaging in entrepreneurial activities without taking into consideration contextual or environmental factors (Schwarz *et al*., 2009). Unlike other contextual factors discussed in the secondary research, PES is one construct linked to the formation of EI. (Luthje and Franke, 2003). To conclude, the study proposes that PES has a direct influence on EI.

f. A review of the existing literature has shown that studies on the effects of gender on EIs are still limited and inconclusive (Skinnar *et a*l., 2012; Wilson *et al*., 2007), several studies have reported mixed results regarding the role of gender on the formation of EIs (Arora and Jain, 2019; Pawlak, 2016; Maes, Leroy and Sels, 2014; Santos, Roomi and Liñán, 2016; Luis, Robledo and Arán, 2015; Alok, Kocherlakota and Beernelly, 2017; Westhead, 2016). Therefore, more studies are needed to resolve the non-conclusive moderating effects of gender on the formation of EIs. Hence, the inclusion of how gender moderates the association between EO and EIs in this study.

g. Furthermore, secondary research suggests a limitation in the previous research studies in testing the mediating effects of EO on the interaction between environmental factors (PUS, PES and EE) and EI and how gender moderates the association between EO and EIs in the context of Zambian universities, Mulungushi university in particular.

After identifying the above-mentioned limitation in the existing literature, the following sections present the research problem addressed and the research question answered.

6.2.1 Problem Statement

This research was designed to address the problem of youth unemployment and limited EIs among students in Zambia. The country is characterised by a high youth unemployment rate with fewer established enterprises. An indication that the majority of the youths are not involved in entrepreneurship activities. The failure rate of startups in Zambia is as high as 65% in three years compared to the 55% failure rate over the period over five years for European start-ups (World Bank Report, 2012). According to the Lusaka Chamber of Commerce report (2016), SMEs in Zambia are characterised by slow growth and a failure rate of around 75%.

University students as potential entrepreneurs have dynamic capabilities which can be employed to promote sustainable economic growth and employment creation in Zambia. Therefore this research investigates how the environmental factors affect the development of Mulungushi university students EIs who have acquired entrepreneurship knowledge, experience and other technical skills. In this study, the research problem was formulated as follows:

> *Despite entrepreneurship education being offered as part of the curriculum at Mulungushi University in Zambia, graduating students seemingly do not take up entrepreneurial activities after graduating*

The next sections present the research question and objectives

6.2.2 Research Question

To address the research problem identified above, the research question was formulated as shown below:

> *To what extent do environmental factors in the name of perceived environmental support, perceived university support and entrepreneurship education have on the antecedents of entrepreneurial intentions (innovativeness, proactivity and risk-taking) and entrepreneurial intentions?*

6.2.3 Research Objectives

The primary objective

The main objective of this research was to investigate the effects of environmental factors and on the formation of student's entrepreneurial intentions in Zambia

The secondary objectives of this study were:

I. To critically review the literature on entrepreneurship environment in Zambia and theories on environmental factors, entrepreneurial orientation and entrepreneurial intentions
II. To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions.

III. To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions.

IV. To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.

V. To provide a recommendation to policymakers for enhancing the formation of entrepreneurial intentions and to scholars for future research.

Research question

The research question for this study is formulated as follows;

> To what extent do entrepreneurial environment factors in the form of perceived environmental support, perceived university support and entrepreneurship education affect the antecedents of entrepreneurial intentions (risk-taking, innovativeness and proactivity) and entrepreneurial intentions.

To meet the study objectives presented above, the conceptual research model was formulated (Section 1.6). The model was tested and the results were presented and reported in Chapter 5. The following section presents the conclusions and implications of the study based on the findings.

6.3 CONCLUSIONS: REVISED CONCEPTUAL MODEL

Figure 6.1 below shows the revised research conceptual model. The analysis revealed that there the statement associated with risk about student's willingness to invest their time or money in ventures associated with high returns has a weak negative, statistically significant relationship with PES. Similarly, its relationship with immediate EI is strongly positive, statistically significant and with future EI is positively weak, statistically significant. Also, the statement on students ability to venture into the unknown is observed to have a weak positive, statistically significant, relationship with PUE associated with resources or academic content and context and it has a moderate positive, statistically significant interaction with future EI, while the statement student's ability to act boldly is observed to have a weak positive, statistically

significant, relationship with future EI. This indicates that a person's willingness to invest and ability to take bold actions basis for the formation of EIs. Thus, increasing students' willingness to invest is necessary to enhance their ability to take bold actions towards entrepreneurship.Figure 6.1 presents the revised conceptual research model.

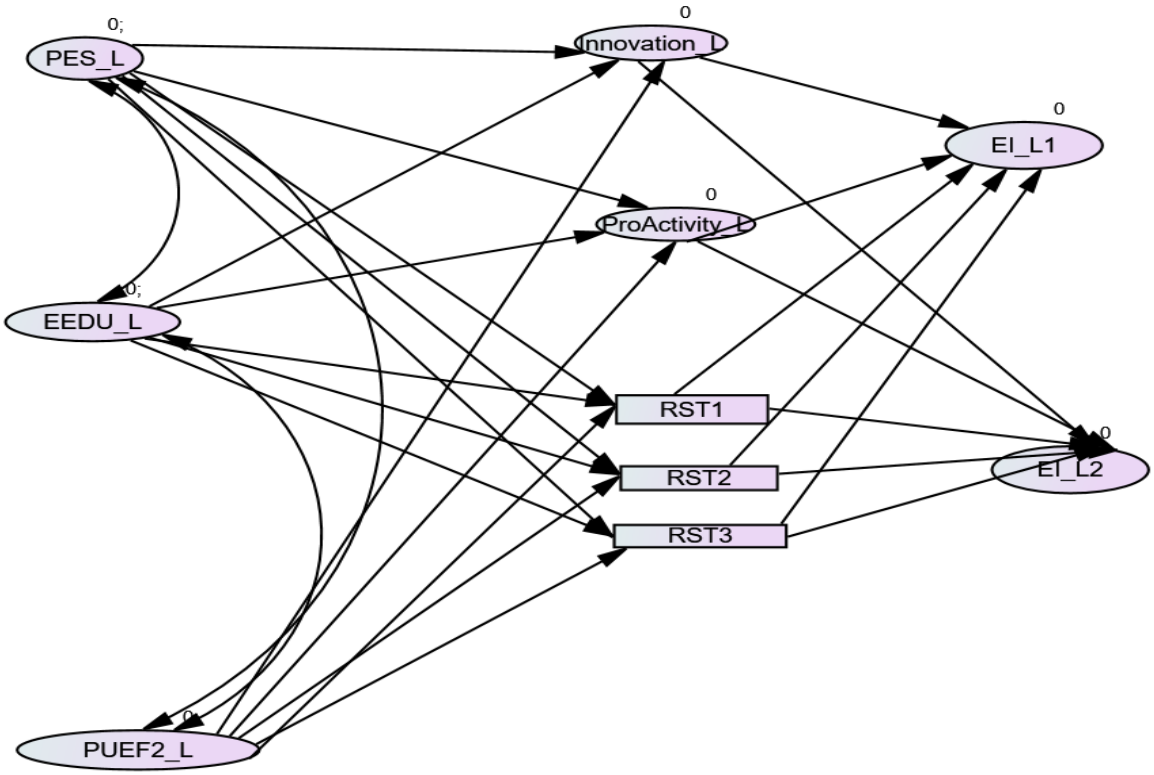

Figure 6.1: Revised Conceptual Research Model

This research was aimed at constructing a model to measure students' EIs. This research measured three effects; the effects of the entrepreneurial environment on Mulungushi University students' EIs, the mediating effects of EO (Innovativeness, proactivity and risk-taking,) on the interaction between environmental factors and EIs and, how gender moderates the association between EO and EI. The following interactions were observed:

I. The statement on students' willingness to invest money or time into entrepreneurial activities with high returns mediates the interaction between PUE (resources or academic content and context) and EI (both immediate and future intention). Therefore, an increasing number of students belief in risk tolerance particularly their financial risk attitude and attitude towards entrepreneurship could positively enhance their EIs.

II. Innovativeness was also reported to mediate the interaction between PES and future EI. Thus, an increase in students innovativeness as an ability might increase their chances of becoming entrepreneurs immediately and after some time

III. Also, the statement on the student's ability to venture into the unknown mediates the interaction between PES and future EI and the interaction between PUE (resources or academic content and context) and future EI. It was observed that increasing students' exposure to different types of entrepreneurship case studies might influence and increase their ability to take bold actions and increase their chances of venturing into entrepreneurship.

IV. The above findings suggest an indirect impact of PUE on both immediate and future EIs through the statement describing the student's willingness to invest their money or time on high returns activities. Additionally, an indirect impact of PES on future EI through innovativeness and indirect impact of future EI again through a statement on students ability to venture into the unknown. Thus, enhancing the PUE and PES might influence and increase the entrepreneurial behaviour of students.

V. Concerning moderation, a statistically significant interaction was observed between innovativeness and gender on immediate entrepreneurial intention. On the future entrepreneurial intention, the interaction was not reported as statistically significant. Similarly, no moderation effects were observed between proactivity and entrepreneurial intentions (immediate and future intention) in the research study.

6.4 CONTRIBUTION TO THE BODY OF KNOWLEDGE

This research contributed new knowledge to the existing literature in several ways. Below are the significant contributions made by this study to the body of existing knowledge:

1. This research addresses the limitation or gap highlighted in the existing literature regarding the shortage of research studies on mediating factors affecting antecedents of EI (such as innovativeness, students willingness to invest their time or money into high return entrepreneurial activities and their ability to venture into the unknown) and EIs. Additionally, how gender moderated the association between the antecedent of EIs (innovativeness) and EIs in a Zambian context, Mulungushi University in particular. This provides the basis for similar studies to be conducted in institutions of higher learning in Zambia or the region at large.
2. Connected to part (a) above, the use of the TPB (Ajzen, 1991; 2011, 2012) within the Zambian University context has been confirmed. The application of the theory in this study has provided additional confirmation of the model and a platform for similar studies in future. Particularly innovativeness and students willingness to invest money

or time on high returns entrepreneurial activities and their ability to venture into the unknown should be incorporated as critical factors and predictors of EIs.

3. While previous studies (including Zambian studies) have focused significantly on studying variables in isolation in explaining the formation of entrepreneurial intention- either exogenous or endogenous variables. In this study, both predictors have been tested. Furthermore, the variables have been studied together through the testing of mediation and moderation effects using the Hayes process. This methodology has provided a better explanation of the phenomenon.
4. The study highlights the difference between immediate (within 12 months after graduation) and future ($5 \leq$ years < 10 after graduation) entrepreneurial intention. The student's willingness to invest their money or time in entrepreneurial activities with high returns is significant to immediate entrepreneurial intention and the interaction between innovativeness and gender is statistically significant. Innovativeness, willingness to invest money or time and ability to venture into the unknown are significant for future intention. Therefore enhancing the development needs of both immediate and future intentions might influence and increase students' entrepreneurial behaviour.
5. The antecedent variable of proactivity was observed not mediating the interaction between environmental factors and EIs like innovativeness and the statements associated with risk-taking. Similarly, the interactions between proactivity and statements associated with risk-taking and gender are not statistically significant.

6.5 IMPLICATION FOR THEORY

In summary, the results have highlighted that students willingness to invest their money and time in high returns activities mediates the interaction between the independent variable (PUE- resources or academic content and context) and the dependent variable EI (both immediate and future intention), innovativeness mediates the interaction between the independent variable (PES) and the dependent variable (future EI), the ability to venture into the unknown mediates the interaction between the independent variable (PES) and the dependent variable (future EI), ability to venture into the unknown mediates the relationship between the independent variable (PUE- resources or academic content and context) and the dependent variable (future EI). In moderation, a statistically significant interaction was observed between innovativeness and gender on immediate EI.

An interesting observation was that the student's ability to act boldly in risk situations reported non-significant interaction with EIs. However, in a revised model, a direct interaction between the ability to act boldly in risk situations and EIs were observed. Additionally, the willingness to invest money and time on high returns activities reported mediation effects on the interaction between PES and both immediate and future EIs. The study also highlighted the differences in students' *immediate intentions* (within 12 months after completing school) and *future intention* ($5 \leq$ years < 10 after completing school). Furthermore, this research makes a significant contribution to the literature relating to the TPB by suggesting that proactivity is not an important variable and predictor of both immediate and future intentions. Finally, students' participation in entrepreneurship education does not influence an increasing number of students' abilities to take up entrepreneurship activities as a means of survival.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter discussed the findings resulting from the analysis of quantitative data collected from students. Descriptive statistics, validity and reliability tests, factor analysis and structural equation modelling and Hayes process (for hypotheses test) were carried out. In some parts, results conformed to the findings in past research.

7.2 SUMMARY OF THE FINDINGS

The trend emerging from the analysis can be summarised as follows:

a) A notable difference was observed with entrepreneurial intentions, where the stated intentions to engage in entrepreneurial intentions conforming to time-specific categories of immediate entrepreneurial intentions (with 12 months after completing school) and future entrepreneurial intentions ($5 \leq$ years < 10 after completing school)
b) Innovativeness was reported to be significantly related to future EI and that it mediates the interaction between PES and future EI.
c) Students ability to venture into the unknown (C3) was also observed to be directly related to future EI and mediates the interaction between PES and future EI and the interaction between PUE associated with infrastructure and future EI.
d) Students willingness to invest their money or time in entrepreneurial activities with high returns (C2) was observed to predict both immediate and future EI and mediates the interaction between PUE associated with infrastructure and EIs (both immediate and future).
e) The ability to act boldly in risk situations (C1) and proactivity were observed to have non-significant interactions with EI (future and immediate) and did not mediate the interaction between environmental factors (PUE, PES and EE) and EI.
f) The association between innovativeness and EI was moderated by gender in female and male students
g) Female students reported a slightly higher intensity of immediate entrepreneurial intentions than their counterparts.
h) No moderation effects were observed between C, C2, C3 and proactivity on entrepreneurial intention (both immediate and future intentions)

7.3 RECOMMENDATIONS

Recommendations arising from the research results above have been presented in the following sections for policymakers as well as Universities in Zambia are presented.

7.3.1 Recommendations to policy markers

The fact that the study has found that innovativeness and the statements associated with risk-taking such as the willingness to invest money and time on high returns activities and the ability to venture into the unknown to be the most significant antecedents of entrepreneurial intention. Policymakers should therefore develop the strategy that would use to enhance entrepreneurship education in the country. It should be noted that government initiatives will influence new venture creation only if these initiatives influence risk-taking and innovativeness which in turn will inspire students to engage in entrepreneurial activities.

Policymakers should consider reviewing the policy on entrepreneurship contained in Vision 2030 and make it more specific such as the Technical Education, Vocation and Entrepreneurship Training (TEVET) policy which supports entrepreneurship among students in colleges as opposed to university graduates. Despite government commitment to funding, promotion and development entrepreneurship education in Zambia, there is still a lack of clear vision on whether the outputs should be to create entrepreneurs, create awareness on entrepreneurship, impact business education skills, improve employability or new venture creation skills. There is a need for clarity to avoid inconsistency in the implementation of policies and different applications of teaching methods. Additionally, the Zambia government should invest in entrepreneurship education research to develop the evidence base, evaluate the intervention and develop the policies and context to strengthen education in entrepreneurship programmes. In line with this study results, the idea behind strengthening EE policy in Zambia is to expand the number of start-ups through well-designed and packaged EE initiatives.

The research findings have identified environmental factors to be significant factors promoting or hindering potential entrepreneurs' intentions. This calls for an urgent need for the creation of a business environment that supports the development of EIs, especially among the students. Where an environment is perceived to be conducive and supportive, self-belief to undertake entrepreneurship activities increases. The capacity to engage in entrepreneurship activities is

evaluated based on the person's perception of the availability of resources, opportunities and environmental barriers in existence. Thus, personal altitude towards entrepreneurship is likely to be developed and sustained in a supportive environment than an unsupportive one. The agencies like the Zambia Development Agency (ZDA), Citizen Economic Empowerment Commission (CEEC) and others created to support the development of entrepreneurship in Zambia should consider providing business development services to university students. Students engaged in entrepreneurial activities should be given both financial and material support by the government during and after their studies. This should also be extended to the private sector to increase the quality of the entrepreneurial programme

7.3.2 Recommendations to Universities

Entrepreneurship education can enhance students learning experiences if educators can make it stimulating, practical and interactive. Learners should be allowed to experiment with real-life situations and also listen to business talks presented by successful entrepreneurs. Educators should endeavour to provide students with theories and practices to increase their commercial awareness and new venture creation stills.

A well-designed entrepreneurship education programme promotes individual achievements and presents opportunities for teamwork and strengthens learners' soft skills which are important to business and society's wellbeing. Therefore, EE providers have a critical role to play in enhancing students' university learning experience.

It is important to incorporate educators in designing and packaging entrepreneurship education programmes or curricula with the emphasis on the practical aspects of entrepreneurship than theory. The focus should be on experimentation, practice, exploring, and opportunities for students to learn from their peers during role play and other practical. The focus of the curriculum should be extended beyond new venture creation to include innovation, creativity, networking and problem-solving. On the practical aspect, learners or students should be equipped with the skills required to identify business opportunities, manage risks, communicate effectively, effective planning, develop resilience, work in teams and problems solving. Universities offering entrepreneurship education should develop strong links with the industry and successful entrepreneurs who can provide the expertise lacking among educators through live talks or business talks.

7.3.3 Recommendations to Mulungushi University

The research findings indicate the indirect relationship between PUE (resources or academic content and context) and EIs (immediate and future intentions) through the student's willingness to invest their money and time in high returns activities and on future EI alone through the ability to venture into the unknown. Mediation effects of statements associated with risk-taking were observed on the interaction between PUE and both immediate and future EIs. This is an indication that when students become more confident in their capabilities for entrepreneurship, their risk-taking abilities towards venturing into entrepreneurship increase. Thus, the literation on EIs places more emphasis on the risk-taking abilities of students in explaining the formation of new ventures and its influence on entrepreneurial behaviour patterns. In this regard, a practical implication is that risk-taking should be considered a vital component or element of entrepreneurship education. Therefore, Mulungushi University and other universities should appreciate their role as entrepreneurship educators and provide complementary learning support that can influence potential entrepreneurial intentions.

Entrepreneurship is taught based on textbook materials usually in large classes, but there is an effective alternative way of teaching that embeds learning within the mainstream curriculum. The implication is that Mulungushi University and other universities should redesign the curriculum and consider reducing the class size to create a conducive environment that can stimulate the formation of entrepreneurial abilities and capabilities. Also, entrepreneurship education and other supporting courses should be offered to students every academic year to enable students to appreciate entrepreneurship as a way of living. Entrepreneurship education should not just promote the formation of new ventures, but also equip students with competencies such as marketing, accounting and finance and business management.

To give students in different programmes a chance to acquire a basic skill in entrepreneurship, a different approach is needed in each degree programme that connects directly and build upon entrepreneurial content and stimulate students thinking positively about talents about entrepreneurship. Incorporating an entrepreneurial way of thinking into different university programmes will shift students' attention to entrepreneurship and be able to recognise complimentary support.

As part of the curricula, Mulungushi University should consider successful entrepreneurs as guest lecturers, presenters and role models. They should be invited to come and present

business talks explaining the ups and downs of entrepreneurship and allow students to interact with them. This will increase students' awareness of the downside of entrepreneurship and provide them with the necessary information for them to be resilient, manage the risk and enhance the quality of their new ventures.

Mulungushi University should actualise the creation of an incubator to promote the development of business concepts within the university community. Students should have easy access to the incubator and create business linkages and market knowledge and information. By blending real-life business situations and theory, the incubator is expected to operate also as a business accelerator and provide seed funds, mentorship and coaching to potential entrepreneurs. Additionally, the combination of practical business and incubator support specific to different students' needs will increase the success rate of student-driven enterprises.

The university should consider the incubator to be a channel of entrepreneurship development through its provision of seed funds, space for rehearsals and experiments, worships and office space and access to government assistance (access to finance, training and business development services).

Looking at the current Zambian youth unemployment as well as Mulungushi university employment-oriented teaching, there is a serious concern to find a replacement to employment-centred learning, particularly for programmes where there is a little or a limited number of companies offering internships to students. In this regard, the study proposes an introduction of an Entrepreneurship Internship Programme (Learning entrepreneurship by experience). The programme will expose students to the challenges and rewards of entrepreneurship, business development activities, networking and marketing, financial management, managing people, business plan or proposal writing and presentation and product and service development. The programme will provide a possibility of seed funding viable business plans from participants. Therefore learning entrepreneurship by experience should be enhanced in all universities to stimulate the formation of EI and sustainable new business ventures.

7.4 SUGGESTION FOR FUTURE RESEARCH

For studies to be conducted in future, a thorough examination of the appropriateness of EE content concerning its influence on students' risk-taking, innovativeness and entrepreneurial intention. Future research should also examine the limitations in entrepreneurial competency of graduates in Zambia and propose a measure to mitigate them. This will help to review and

redesign well-tailored pedagogical entrepreneurship education programmes that can be incorporated into several curricula offered in the Zambian universities. Further research could also establish the most appropriate method of teaching entrepreneurship in universities and also develop an effective internship programme and graduate entrepreneurship programme. There is also a need to conduct a longitudinal study to establish whether entrepreneurial intention can result in venture creation, for example after 5 or 10 years of graduating. Future studies should also include the family background to establish whether the level of entrepreneurial intentions between students from families with businesses and those from families without businesses. Apart from assessing students' entrepreneurial intentions, a study should be conducted to determine entrepreneurship educator's attitude towards entrepreneurship, their perception of entrepreneurship and entrepreneurship education as a curriculum. This study should explore the extent to which educators agree that entrepreneurship education courses being offered can influence students' entrepreneurial intentions. Future studies should consider employing a mixed-method (qualitative and quantitative) to get in-depth knowledge of students' decision making and triangulate with the quantitative results. It will be insightful also to draw samples from different groups like business and non-business students or students from public and private institutions of higher learning. This will provide valuable information to policymakers that can be used to develop unified entrepreneurship support programmes.

7.5 LIMITATIONS OF THE STUDY

This research is restricted to university students in Zambia, particularly Mulungushi University. Furthermore, the research results may not be generalizable to the influence of environmental factors on non-fourth year students' EI in universities in Zambia. Being a cross-sectional study was another limitation, which hinders the ability to determine the cause and effects of variables due to a lack of detailed student's views or opinions. Also, lack of experimental data made it difficult to measure the interaction between global constructs and differentiated constructs or vice versa. It is believed that modelling the Theory of Planned Behaviour based on global constructs may be more advantageous to increase entrepreneurial intentions. A longitudinal study would entail stronger validation of the findings by applying the model in practice, however, in this study time and resources constraints prevented the validation and practical application of the model. Furthermore, the focus of this research was on the development of students' EIs and not the formation of new ventures. The detailed assessment of EE courses offered in universities in terms of content, design, method of

instruction, and mode of delivery was not conducted as they were not part of the focus for this research. Finally, although a sample of final-year students was considered to be adequate for this study; graduates who are engaged in entrepreneurial activities could have also been included in the study.

7.6. CONCLUSION

This study addressed the problem of the high unemployment rate among youths in Zambia and the gap identified in the literature. To address these problems, the study investigated the formation EIs of Mulungushi University final students in Zambia. The choice of using final years students was influenced by the entrepreneurship education they have acquired and experienced during their four-year study period. The purpose of this research was to investigate the effects of environmental factors on the students EIs, the mediating effects of EO on the interaction between environmental factors and EI and the moderating effects of gender on the interaction between EO and EIs. A critical review of the secondary research presented a limitation in the existing literature on the mediating influence of antecedents of EIs and moderating effects of gender in a Zambian context, particularly Mulungushi university.

Based on the gap identified, the study developed the research question and hypotheses as presented in Chapter 1, and their justification was presented in Chapter 3. Consequently, the research model developed in Chapters 1 and 3 served as a foundation for data collection to address the research question and confirm the hypotheses. In Chapter 4, the methodology employed to answer the research questions and test the hypotheses was discussed. Chapter 5 presents the procedure used to analyse quantitative data. Conclusions and implications together with a suggestion for research to be undertaken in future were addressed in Chapter 6.

The objectives of this research were; a) To critically review the literature on entrepreneurship environment in Zambia and theories on environmental factors, entrepreneurial orientation and entrepreneurial intentions; b) To determine the effects of entrepreneurial environmental (perceived environmental support, perceived university support and entrepreneurship education) on entrepreneurial intentions; c) To explore the mediating effects of entrepreneurial orientation (innovativeness risk-taking and proactivity) on the relationship between entrepreneurial environment (perceived environmental support, perceived university support and entrepreneurship education) and entrepreneurial intentions; d) To confirm the moderating effects of gender on the relationship between entrepreneurial orientation (risk-taking,

innovativeness and proactivity) and entrepreneurial intentions; e) To provide a recommendation to policymakers for enhancing the formation of entrepreneurial intentions and to scholars for future research.

The research findings highlighted some areas of interest.

Firstly, the statement associated with risk-taking relating to students willingness to invest money or time on high returns activities mediates the interaction between the independent variable (PUE - resources or academic content and context) and the dependent variable EIs (both immediate and future intention). Secondly, innovativeness mediates mediate the interaction between the independent variable (PES) and the dependent variable (future EIs).

Thirdly, another statement associated with risk-taking relating to students ability to venture into the unknown produced mediation effects on the interaction between the independent variable (PES) and the dependent variable (future EI).

Fourthly, the statement on students ability to venture into the unknown presented mediation effects on the interaction between the independent variable (PUE- resources or academic content and context) and the dependent variable (future EIs). However, proactivity was reported a non-significant relationship with EIs.About moderation, a statistically significant interaction was reported between innovativeness and gender on immediate EI while proactivity and the statements associated with risk-taking were observed to have insignificant interaction with the gender on entrepreneurial intentions. Lastly, one interesting observation was noticed on the EI, segregated as *immediate* intention (within 12 months after completing school) and *future* intention ($5 \leq$ years < 10 after completing school).

In line with the results above, the following recommendations have been made:

a) Entrepreneurship education curricula to be reviewed for innovation. An entrepreneurship education programme that includes business management and marketing information elements to be developed in consultation with the industry. Mulungushi University and other universities in Zambia should come together and establish the Entrepreneurship Internship Programme which will serve as a channel for entrepreneurship development.
b) Policymakers should consider developing a national policy to promote specifically entrepreneurship education in universities in Zambia. This will transform universities

into entrepreneurial institutions with a focus beyond traditional learning, research, consultancy and community engagement.

c) Investment should be made in infrastructure that will promote and support entrepreneurship development in universities such as incubators. University incubators will facilitate students' access to government support such as access to finance and business development services needed for specific needs.

Finally, the study has recommended future to examine the effectiveness of EE content concerning the effects on students' risk-taking, innovativeness and entrepreneurial intention. Further research should also examine the limitations in entrepreneurial competency of graduates in Zambia and propose a measure to mitigate them. There is also a need to conduct a longitudinal study to establish whether entrepreneurial intention can result in venture creation, for example after 5 or 10 years of graduating. This study could also include the family background to establish whether the level of entrepreneurial intentions between students from families with businesses and those from families without businesses. Apart from assessing students' entrepreneurial intentions, a study should be conducted to determine entrepreneurship educator's attitude towards entrepreneurship, their perception of entrepreneurship and entrepreneurship education as a curriculum. Studies to be conducted in future should consider employing a mixed-method (qualitative and quantitative) to get in-depth knowledge of students' decision making and triangulate with the quantitative results.

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APPENDICE

APPENDIX A: RESEARCH INSTRUMENT

College of Economic Management Sciences

School of Public and Operations Management

Department of Entrepreneurship, Supply Chain, Transport, Tourism and Logistics Management

QUESTIONNAIRE

(Final)

Clement Mwaanga

Student number: 63392100

Research title:

ENVIRONMENTAL FACTORS AND THE FORMATION OF STUDENTS' ENTREPRENEURIAL INTENTIONS: PERSPECTIVES FROM ZAMBIA

Supervisor: **Prof R Shambare**

Co-supervisor: **Prof C van Zyl**

INFORMATION LEAFLET AND INFORMED CONSENT

Dear Research participant,

You are invited to participate in a research study that forms part of my formal doctoral study. This information leaflet will help you to decide if you would like to participate. Before agreeing to participate, you should know enough about it to make an informed decision. Please ask and be sure you are completely satisfied with all aspects of the study before participating.

WHAT IS THE STUDY ALL ABOUT?

The Study is entitled: entitled *"Environmental factors and the formation of student's entrepreneurial intentions: Perspectives from Zambia".* The focus of the study is to measure the effects of entrepreneurial environment on students' entrepreneurial intention comparing two groups (business and non-business final years students) on one hand and on the other hand, examine the mediating effects of entrepreneurial orientation on the relationship between entrepreneurial environment and entrepreneurial intention and the moderating effects of gender on the relationship between entrepreneurial orientation and entrepreneurial intentions.

WHAT WILL BE REQUIRED TO DO IN THE STUDY?

If you decide to take part in the study, you will be required to complete the attached questionnaire; it should not take more than 20 minutes to complete it.

ARE THERE ANY CONDITIONS THAT MAY EXCLUDE YOU FROM THE STUDY?

Participation in this study involves only final year business and non-business students from Mulungushi University.

CAN ANY OF THE STUDY PROCEDURES RESULT IN PERSONAL RISK, DISCONFORT OR INCONVENIENCE?

There are no known risks associated with this research project other than possible discomfort with the following:

- You will be asked to be completely honest about yourself when completing the form,
- You will be asked questions about personal experiences and entrepreneurial environment at your university.

WHAT ARE THE POTENTIAL BENFITS THAT MAY COME FROM THE STUDY?

Your participation will contribute towards understanding the relationship between perceived entrepreneurial environment and student's entrepreneurship intention; in particular, it will assist the design of an improved university entrepreneurship environment and education that is likely to influence both business and non-business students' inclination towards entrepreneurship specifically in the Zambian setting by identifying entrepreneurial initiatives to promote the development of attitudes and intentions towards entrepreneurship as a career option.

WILL YOU RECEIVE ANY FINANCIAL COMPENSATION OR INCENTIVE FOR PARTICIPATING IN THE STUDY?

Please note that you **will not** be paid to participate in the study.

WHAT ARE YOUR RIGHTS AS A PARTICIPANT IN THIS STUDY?

Your participation in this study is entirely voluntary. You may choose to participate, and you may withdraw at any stage during the research project. In addition, you will NOT be penalised in any way should you choose not to participate or to withdraw. You do not even have to

provide the reason(s) for your decision.

HOW WILL CONFIDENTIALLITY AND ANONYMITY BE ENSURED IN THE STUDY?

All the data that you provide during the study will be handled confidentially. This means that access to your data will be strictly limited to the researcher, the supervisors of the study and the designated examiners (appointed by UNISA). Also, your data and personal information will be kept and stored in a confidential format which will only be accessible to the researcher. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

ACADEMIC VULNERABILITY

The information received during the project will only be used for research purposes and will not be released for any academic assessment, study progress and/or disciplinary purposes.

IS THE RESEARCH QUALIFIED TO CARRY OUT THE STUDY?

The researcher is adequately trained and qualified researcher in the study fields covered by this research project.

HAS THE STUDY RECEIVED ETHICAL APPROVAL

This study has been reviewed and approved by the Research Ethics Committee, University of South Africa (Ref #: 2020_CEMS_DAM_002). All parts of the study will be conducted according to internationally accepted ethical principles.

WHO CAN YOU CONTACT FOR ADDITIONAL INFORMATION REGARDING THE STUDY?

The primary Investigator, Mr Clement Mwaanga, can be contacted on his cellular at +260977767924. The study leader Dr Richard Shambare, can be contacted during office hours at Tel: (012) 382 3032. For questions regarding your rights and/or the ethical conduct of this research, contact: engelm1@unisa.ac.za.

A FINAL WORD

Your co-operation and participation in the study will be greatly appreciated.

GENERAL INSTRUCTIONS

Before you begin, make sure you understand the following instructions:

a) When evaluating the questions, please provide responses from your own perspective, as honestly as possible.
b) Please respond to the items (or questions) by making a tick (x) what you consider to be the answer, or filling in the blanks.
c) You are free to answer questions you are comfortable with or questions you prefer
d) You are requested to apply the scale provided for each of the questions.
e) Please note that your name is not required nor is it requested, hence confidentiality is assured.

Please find the questionnaire on the next page

A. DEMOGRAPHIC INFORMATION

A1. Please indicate your age group

18 – 25	1
26 – 35	2
36 – 45	3
46 – 65	4
65+	5

A2. What is your gender?

Male	1
Female	2

A3. Are you currently self-employed?

Yes	1
No	2

A4. Do you have any employment experience?

Yes	1
No	2

A5. Are you a final year student from Mulungushi University?

Yes	1
No	2

A6. What degree you are studying towards?

Business related degree	1
Non Business related degree	2

A7. What would you like to do immediately after finishing your degree?

Instructions: Please choose only one answer to each question. ***(1= not a priority, 2= low priority, 3= neutral, 4= high priority, 5= essential priority)***						
A7a	Working as an employee	1	2	3	4	5
A7b	Starting-up a business	1	2	3	4	5
A7c	Continue with my post graduate studies	1	2	3	4	5

B: RESEARCH VARIABLE

B1. INNOVATIVENESS

Below are statements on your innovation and how they can influence you to develop intention to start a business. **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)***						
B1	In general, I prefer a strong emphasis on projects with unique, one-of-a-kind approach	1	2	3	4	5
B2	I favour experimentation and original approach to problem solving rather than using methods others use to solve their problems	1	2	3	4	5
B3	I often like to try new and unusual activities that are not typical but necessary risk	1	2	3	4	5
B4	I prefer to try my own unique way when learning new things rather than doing it like everyone else does	1	2	3	4	5

C. RISK-TAKING

Below are statements describing your risking-taking abilities and how they can influence you to develop intentions to start a business **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)***						
C1	I tend to act "boldly" in situations where risk is involved	1	2	3	4	5
C2	I am willing to invest time/money on things that yield high returns	1	2	3	4	5
C3	I like to take bold actions by venturing into the unknown	1	2	3	4	5

D. PROACTIVITY

Below are statements describing your proactivity abilities and how they can influence you to develop intention to start a business **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)***						
D1	I always plan ahead on projects and other activities	1	2	3	4	5
D2	I prefer to "step up" and keep things going on a project rather than sitting and waiting for someone else to do it.	1	2	3	4	5
D3	I usually act in anticipation of future problems, needs or changes	1	2	3	4	5

E. ENTREPRENEURIAL INTENTIONS

Below are statements describing your situation on your intentions to create a business **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)***						
E1	I am ready to do anything to be an entrepreneur.	1	2	3	4	5
E2	I will make every effort to establish my own business.	1	2	3	4	5
E3	I have never seriously considered becoming an entrepreneur.	1	2	3	4	5
E4	My professional goal is to be an entrepreneur.	1	2	3	4	5
E5	I am determined to create a business venture within the following 12 months.	1	2	3	4	5
E6	I am determined to create a business venture within the next 5 years.	1	2	3	4	5
E7	I am determined to create a business venture within the next 10 years.	1	2	3	4	5

F. PERCEIVED ENVIRONMENTAL SUPPORT

Below are statements about environmental support that can influence you to develop intention to start a business. **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)***						
F1	The government is employing policies and procedures encouraging new venture creation.	1	2	3	4	5
F2	Education programs on entrepreneurial information and business skills is always accessible	1	2	3	4	5
F3	It is easy to get financial investment from venture capitals.	1	2	3	4	5

F4	Incubator facilities with new venture support services are always available for prospective entrepreneurs.	1	2	3	4	5
F5	It is easy to get Government start-up grants	1	2	3	4	5

G. PERCEPTION TOWARDS UNIVERSITY ENVIRONMENT

Below are statements describing your perception towards your university environment **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree***						
G1	At my university, people are actively encouraged to pursue their own business ideas	1	2	3	4	5
G2	In my university, you get to meet lots of people with good ideas for a new business	1	2	3	4	5
G3	Entrepreneurship subjects at my university prepare me adequately for an entrepreneurial career	1	2	3	4	5
G4	I know many people from my university who have successfully started their own businesses	1	2	3	4	5
G5	The university provides resources to assist student entrepreneurs.	1	2	3	4	5
G6	Entrepreneurship subjects should be made compulsory	1	2	3	4	5
G7	My university has infrastructure in place to support the start-up of new businesses.	1	2	3	4	5

H. PERCEIVED ENVIRONMENTAL BARRIERS

Below are statements describing perceived barriers that can influence you not to develop intention to start a business. **Instructions:** Please choose only one answer to each question. ***(1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)***						
H1	My government does not encourage entrepreneurship	1	2	3	4	5
H2	The cost of starting a new business is too high	1	2	3	4	5
H3	The government's policies would not help me run a business.	1	2	3	4	5
H4	Business laws and regulations do not support the start-up of new businesses.	1	2	3	4	5
H5	Capital is not accessible to start and run a business.	1	2	3	4	5

I. ENTREPRENEURSHIP EDUCATION

I1. Have you participated in any subjects while at your University that could be considered as entrepreneurship education?

Yes	1
No	2

I3: To what extent has it helped you develop any of the following aspects?

Indicate from 1 (strongly disagree) to 5 (strongly agree)

I1: Knowledge about the entrepreneurial environment	1	2	3	4	5
I2: Greater recognition of the entrepreneur's figure	1	2	3	4	5
I3: The inclination to be an entrepreneur	1	2	3	4	5

You have completed the questionnaire!

THANK YOU FOR YOUR TIME AND KIND COOPERATION.

APPENDIX B: ETHICAL CLEARANCE

UNISA university of south africa

PERMISSION LETTER

Date: 10th September, 2019

Dr. Pandey, Z. Syachaba
Mulungushi University
Dean of Students Office
Cell: +260979225544

Dear Sir,

REQUEST FOR PERMISSION TO CONDUCT RESEARCH WITHIN IN BUSINESS AND NON-BUSINESS SCHOOL

The above matter refers.

I am a student in the department of applied management at UNISA, studying to towards a PHD..

As part of the requirements of the said qualification, I am required to successfully conclude an independent research project. To fulfil this requirement, I have undertaken the thesis entitled "Environmental factors and the formation of students' entrepreneurial intentions: perspectives from Zambia". The focus of the study is to measure the effects of entrepreneurial environment on business and non-business students' entrepreneurial intention on one hand and on the other hand, examine the mediating power of entrepreneurial orientation on the relationship between entrepreneurial environment and student, and the moderating effects of gender on the relationship between entrepreneurial orientation and entrepreneurial intentions

This research will be conducted under the supervision of Prof. Richard Shambare and that we are very much excited with the prospects of new insights into the area of entrepreneurship that this research is likely to bring, particularly within the context of Zambia and developing countries. To achieve this, I wish to secure permission to invite your final year business and non-business students to participate in this study.

It is anticipated that a self-completion questionnaire will be used to collect data from students. This instrument is an adaption of the entrepreneurial intentions framework, which takes approximately 20 minutes to complete. Confidentiality and all ethics-related considerations have been adhered to and will be guaranteed. In particular, there is no foreseeable harm to research participants, as their names or identities will not be required or solicited. Collected data will be treated with the utmost levels of confidentiality.

The findings will be reported by means of a thesis and possibly in a scientific publication (journal or conference proceedings), but again without revealing identities of participants. The University will be provided with a copy of the research report upon completion of the study.
For your convenience, the following documents are included:
The research proposal for the intended study
A copy of the intended questionnaire (including information Leaflet and Informed Consent document)
In anticipation of a favourable response. Should you require additional information, you may contact me via email on: 63392100@mylife.unisa.ac.za or by telephone: +260 977767924 (mobile).
Yours sincerely,

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

MULUNGUSHI UNIVERSITY

DEAN OF STUDENTS OFFICE

GREAT NORTH ROAD CAMPUS
P o Box 80415
KABWE
0215-228009
CELL: +260 979 225544

MU/Student file

September 17, 2019

Prof. Cina Van Zyl
Acting COD
College of Economics and Management Science
University of South Africa
PRETORIA

ADMINISTERING A QUESTIONAIRE TO FOURTH YEAR STUDENTS

I am pleased to inform you that permission has been granted for Mr. Clement Mwaanga to administer a questionaire to fourth year students at Mulungushi University.

Pandey Z. Syachaba (Dr)
DEAN OF STUDENTS

UNISA university of south africa

UNISA DEPARTMENT APPLIED MANAGEMENT RESEARCH ETHICS REVIEW COMMITTEE (DAM-RERC)

Date: 2 March 2020

ERC Reference # :
2020_CEMS_DAM_002
Name: Clement Mwaanga
Student #: 63392100

Dear Mr Clement Mwaanga

Decision: Ethics Approval from March 2020 to March 2023

Researcher(s): Mr Clement Mwaanga (Student: 63392100)
+260977767924 / 63392100@myllfe.unisa.ac.za

Supervisor (s): Prof Richard Shambare
+27 74 459 9902 / profshambare@gmail.com
Prof Cina van Zyl
+27(012)429-6632 / vzylc@unisa.ac.za

Working title of research:
Environmental factors and the formation of students' entrepreneurial intentions: perspectives from Zambia

Qualification: Doctor of Philosophy in Management Studies (Entrepreneurship)

Thank you for the application for research ethics clearance by the Unisa DAM Ethics Review Committee for the above mentioned research. Ethics approval is granted for three years.

*The **low risk application** was **reviewed** by the DAM Ethics Review Committee in February 2020 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision was approved on the 2nd of March 2020.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the DAM Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.
7. No field work activities may continue after the expiry date (03/2023). Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

*The reference number **2020_CEMS_DAM_002** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Mrs C Poole
Chair of DAM-RERC
E-mail: damrerc@unisa.ac.za
Tel: (012) 433-4668

Prof M Mogale
Executive Dean: CEMS
E-mail: mogalmt@unisa.ac.za
Tel: (012) 429-4419

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

APPENDIX C: DEMOGRAPHICS AND DESCRIPTIVE STATISTICS

Frequencies

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	312	83.9	83.9	83.9
	26-35	48	12.9	12.9	96.8
	36-45	12	3.2	3.2	100.0
	Total	372	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	183	49.2	49.2	49.2
	Female	189	50.8	50.8	100.0
	Total	372	100.0	100.0	

Self employed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	87	23.4	23.4	23.4
	No	285	76.6	76.6	100.0
	Total	372	100.0	100.0	

work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	168	45.2	45.2	45.2
	No	204	54.8	54.8	100.0
	Total	372	100.0	100.0	

degree programme

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business Related Degree	190	51.1	51.1	51.1
	Non Business Related Degree	182	48.9	48.9	100.0
	Total	372	100.0	100.0	

Entrepreneurship education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	274	73.7	73.7	73.7
	No	98	26.3	26.3	100.0
	Total	372	100.0	100.0	

Work as employee

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not a priority	34	9.1	9.1	9.1
	Low priority	29	7.8	7.8	16.9
	Neutral	116	31.2	31.2	48.1
	High priority	128	34.4	34.4	82.5
	Essential priority	65	17.5	17.5	100.0
	Total	372	100.0	100.0	

Start Business

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not a priority	23	6.2	6.2	6.2
	Low priority	23	6.2	6.2	12.4
	Neutral	76	20.4	20.4	32.8
	High priority	156	41.9	41.9	74.7
	Essential priority	94	25.3	25.3	100.0
	Total	372	100.0	100.0	

Post graduate Studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not a priority	14	3.8	3.8	3.8
	Low priority	42	11.3	11.3	15.1
	Neutral	73	19.6	19.6	34.7
	High priority	103	27.7	27.7	62.4
	Essential priority	140	37.6	37.6	100.0
	Total	372	100.0	100.0	

DESCRIPTIVE STATISTICS FOR STUDY VARIABLES

Innovativeness (INnov)

	N	Minimum	Maximum	Mean	Std. Deviation
INNO1	372	1	5	3.85	1.123
INNO2	372	1	5	3.85	1.006
INNO3	372	1	5	3.76	1.040
INNO4	372	1	5	4.12	1.021
Valid N (listwise)	372				

Risk-taking (RSTak)

	N	Minimum	Maximum	Mean	Std. Deviation
RST1	371	1	5	3.59	1.105
RST2	372	1	5	4.28	.954
RST3	372	1	5	3.41	1.224
Valid N (listwise)	371				

Proactivity (PROact)

	N	Minimum	Maximum	Mean	Std. Deviation
PRO1	371	1	5	3.94	.990
PRO2	372	1	5	4.17	.928
PRO3	372	1	6	3.87	.936
Valid N (listwise)	371				

Entrepreneurship Intention

	N	Minimum	Maximum	Mean	Std. Deviation
EI1	371	1	5	3.74	1.195
EI2	371	1	5	4.27	1.017
EI3	372	1	5	2.52	1.441
EI4	372	1	5	3.65	1.281
12 Months	371	1	5	3.48	1.229
Next 5 years	372	1	5	4.02	1.117
Next 10 years	372	1	5	4.00	1.234
Valid N (listwise)	369				

Perceived Environmental Support (PESup)

	N	Minimum	Maximum	Mean	Std. Deviation
PES1	372	1	5	3.05	1.205
PES2	372	1	5	3.33	1.150
PES3	372	1	5	2.63	1.221
PES4	372	1	5	2.69	1.149
PES5	372	1	6	2.33	1.380
Valid N (listwise)	372				

Perceived University Environment (PUniE)

	N	Minimum	Maximum	Mean	Std. Deviation
PUE1	371	1	6	3.04	1.402
PUE2	371	1	5	3.63	1.191
PUE3	371	1	5	3.43	1.266
PUE4	372	1	5	3.23	1.320
PUE5	371	1	5	2.54	1.368
PUE6	372	1	5	3.60	1.337
PUE7	372	1	5	2.53	1.298
Valid N (listwise)	369				

Perceived Environmental Barrier (PEBar)

	N	Minimum	Maximum	Mean	Std. Deviation
PEB1	372	1	5	2.74	1.302
PEB2	371	1	5	3.43	1.216
PEB3	372	1	5	2.95	1.187
PEB4	372	1	5	2.75	1.235
PEB5	372	1	5	3.28	1.243
Valid N (listwise)	371				

Entrepreneurship Education (EEdu)

	N	Minimum	Maximum	Mean	Std. Deviation
EEDU1	272	1	5	3.81	1.156
EEDU2	274	1	5	3.87	1.017
EEDU3	274	1	5	3.86	1.074
EEDU4	274	1	5	3.79	1.102
EEDU5	273	1	5	4.18	.990
Valid N (listwise)	271				

INNO1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	20	5.4	5.4	5.4
	disagree	28	7.5	7.5	12.9
	Neutral	62	16.7	16.7	29.6
	Agree	140	37.6	37.6	67.2
	Strongly agree	122	32.8	32.8	100.0
	Total	372	100.0	100.0	

INNO2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	10	2.7	2.7	2.7
	Disagree	20	5.4	5.4	8.1
	Neutral	100	26.9	26.9	34.9
	Agree	128	34.4	34.4	69.4
	Strongly agree	114	30.6	30.6	100.0

	Total	372	100.0	100.0	

INNO3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly diasgree	18	4.8	4.8	4.8
	Disagree	13	3.5	3.5	8.3
	Neutral	108	29.0	29.0	37.4
	Agree	133	35.8	35.8	73.1
	Strongly agree	100	26.9	26.9	100.0
	Total	372	100.0	100.0	

INNO4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	13	3.5	3.5	3.5
	Disagree	12	3.2	3.2	6.7
	Neutral	60	16.1	16.1	22.8
	Agree	120	32.3	32.3	55.1
	Strongly agree	167	44.9	44.9	100.0
	Total	372	100.0	100.0	

RST1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	24	6.5	6.5	6.5
	Disagree	27	7.3	7.3	13.7
	Neutral	107	28.8	28.8	42.6
	Agree	131	35.2	35.3	77.9
	Strongly agree	82	22.0	22.1	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

RST2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	12	3.2	3.2	3.2
	Disagree	7	1.9	1.9	5.1
	Neutral	38	10.2	10.2	15.3
	Agree	122	32.8	32.8	48.1
	Strongly agree	193	51.9	51.9	100.0
	Total	372	100.0	100.0	

RST3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	42	11.3	11.3	11.3
	Dsagree	27	7.3	7.3	18.5
	Neutral	118	31.7	31.7	50.3
	Adgree	105	28.2	28.2	78.5
	Strongly agree	80	21.5	21.5	100.0
	Total	372	100.0	100.0	

PRO1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	10	2.7	2.7	2.7
	Disagree	19	5.1	5.1	7.8
	Neutral	77	20.7	20.8	28.6
	Agree	144	38.7	38.8	67.4
	Strongly agree	121	32.5	32.6	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

PRO2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	9	2.4	2.4	2.4
	Disagree	8	2.2	2.2	4.6

	Neutral	56	15.1	15.1	19.6
	Agree	138	37.1	37.1	56.7
	Strongly agree	161	43.3	43.3	100.0
	Total	372	100.0	100.0	

PRO3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	11	3.0	3.0	3.0
	Disagree	8	2.2	2.2	5.1
	Neutral	98	26.3	26.3	31.5
	Agree	156	41.9	41.9	73.4
	Strongly agree	99	26.6	26.6	100.0
	Total	372	100.0	100.0	

EI1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	24	6.5	6.5	6.5
	Disagree	35	9.4	9.4	15.9
	Neutral	77	20.7	20.8	36.7
	Agree	114	30.6	30.7	67.4
	Strongly agree	121	32.5	32.6	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

EI2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	13	3.5	3.5	3.5
	Disagree	14	3.8	3.8	7.3
	Neutral	35	9.4	9.4	16.7
	Agree	108	29.0	29.1	45.8
	Strongly agree	201	54.0	54.2	100.0
	Total	371	99.7	100.0	

Missing	System	1	.3		
Total		372	100.0		

EI3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	135	36.3	36.3	36.3
	Disagree	65	17.5	17.5	53.8
	Neutral	64	17.2	17.2	71.0
	Agree	60	16.1	16.1	87.1
	Strongly agree	48	12.9	12.9	100.0
	Total	372	100.0	100.0	

EI4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	34	9.1	9.1	9.1
	Disagree	33	8.9	8.9	18.0
	Neutral	91	24.5	24.5	42.5
	Agree	87	23.4	23.4	65.9
	5	127	34.1	34.1	100.0
	Total	372	100.0	100.0	

I am determined to create a business venture within the following 12 Months

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	27	7.3	7.3	7.3
	Disagree	56	15.1	15.1	22.4
	Neutral	97	26.1	26.1	48.5
	Agree	95	25.5	25.6	74.1
	Strongly agree	96	25.8	25.9	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

I am determined to create a business venture within the Next 5 years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	17	4.6	4.6	4.6
	Disagree	19	5.1	5.1	9.7
	Neutral	68	18.3	18.3	28.0
	Agree	102	27.4	27.4	55.4
	Strongly agree	166	44.6	44.6	100.0
	Total	372	100.0	100.0	

I am determined to create a business venture within the Next 10 years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	25	6.7	6.7	6.7
	Disagree	26	7.0	7.0	13.7
	Neutral	54	14.5	14.5	28.2
	Agree	85	22.8	22.8	51.1
	Strongly agree	182	48.9	48.9	100.0
	Total	372	100.0	100.0	

PES1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	54	14.5	14.5	14.5
	Disagree	53	14.2	14.2	28.8
	Neutral	129	34.7	34.7	63.4
	Agree	91	24.5	24.5	87.9
	Strongly agree	45	12.1	12.1	100.0
	Total	372	100.0	100.0	

PES2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	28	7.5	7.5	7.5
	Disagree	59	15.9	15.9	23.4

	Neutral	108	29.0	29.0	52.4
	Agree	116	31.2	31.2	83.6
	Strongly agree	61	16.4	16.4	100.0
	Total	372	100.0	100.0	

PES3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	74	19.9	19.9	19.9
	Disagree	115	30.9	30.9	50.8
	Neutral	94	25.3	25.3	76.1
	Agree	54	14.5	14.5	90.6
	Strongly agree	35	9.4	9.4	100.0
	Total	372	100.0	100.0	

PES4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	65	17.5	17.5	17.5
	Disagree	96	25.8	25.8	43.3
	Neutral	129	34.7	34.7	78.0
	Agree	53	14.2	14.2	92.2
	Strongly agree	29	7.8	7.8	100.0
	Total	372	100.0	100.0	

PES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	145	39.0	39.0	39.0
	Disagree	82	22.0	22.0	61.0
	Neutral	63	16.9	16.9	78.0
	Agree	42	11.3	11.3	89.2
	Strongly agree	40	10.8	10.8	100.0
	Total	372	100.0	100.0	

PUE1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	77	20.7	20.8	20.8
	Disagree	58	15.6	15.6	36.4
	Neutral	77	20.7	20.8	57.1
	Agree	93	25.0	25.1	82.2
	Strongly agree	66	17.7	17.8	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

PUE2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	30	8.1	8.1	8.1
	Disagree	34	9.1	9.2	17.3
	Neutral	75	20.2	20.2	37.5
	Agree	137	36.8	36.9	74.4
	Strongly agree	95	25.5	25.6	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

PUE3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	40	10.8	10.8	10.8
	Disagree	39	10.5	10.5	21.3
	Neutral	106	28.5	28.6	49.9
	Agree	94	25.3	25.3	75.2
	Strongly agree	92	24.7	24.8	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

PUE4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	55	14.8	14.8	14.8
	Disagree	54	14.5	14.5	29.3
	Neutral	84	22.6	22.6	51.9
	Agree	108	29.0	29.0	80.9
	Strongly agree	71	19.1	19.1	100.0
	Total	372	100.0	100.0	

PUE5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	119	32.0	32.1	32.1
	Disagree	72	19.4	19.4	51.5
	Neutral	85	22.8	22.9	74.4
	Agree	52	14.0	14.0	88.4
	Strongly agree	43	11.6	11.6	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

PUE6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	41	11.0	11.0	11.0
	Disagree	38	10.2	10.2	21.2
	Neutral	76	20.4	20.4	41.7
	Agree	91	24.5	24.5	66.1
	Strongly agree	126	33.9	33.9	100.0
	Total	372	100.0	100.0	

PUE7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	104	28.0	28.0	28.0

	Disagree	96	25.8	25.8	53.8
	Neutral	78	21.0	21.0	74.7
	Agree	60	16.1	16.1	90.9
	Strongly agree	34	9.1	9.1	100.0
	Total	372	100.0	100.0	

PEB1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	79	21.2	21.2	21.2
	Disagree	93	25.0	25.0	46.2
	Neutral	90	24.2	24.2	70.4
	Agree	65	17.5	17.5	87.9
	Strongly agree	45	12.1	12.1	100.0
	Total	372	100.0	100.0	

PEB2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	34	9.1	9.2	9.2
	Disagree	41	11.0	11.1	20.2
	Neutral	111	29.8	29.9	50.1
	Agree	100	26.9	27.0	77.1
	Strongly agree	85	22.8	22.9	100.0
	Total	371	99.7	100.0	
Missing	System	1	.3		
Total		372	100.0		

PEB3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	45	12.1	12.1	12.1
	Disagree	90	24.2	24.2	36.3
	Neutral	121	32.5	32.5	68.8
	Agree	70	18.8	18.8	87.6
	Strongly agree	46	12.4	12.4	100.0

	Total	372	100.0	100.0	

PEB4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	67	18.0	18.0	18.0
	Disagree	99	26.6	26.6	44.6
	Neutral	107	28.8	28.8	73.4
	Agree	58	15.6	15.6	89.0
	Strongly agree	41	11.0	11.0	100.0
	Total	372	100.0	100.0	

PEB5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	41	11.0	11.0	11.0
	Disagree	51	13.7	13.7	24.7
	Neutral	117	31.5	31.5	56.2
	Agree	88	23.7	23.7	79.8
	Strongly agree	75	20.2	20.2	100.0
	Total	372	100.0	100.0	

EEDU1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	19	5.1	7.0	7.0
	Disagree	13	3.5	4.8	11.8
	Neutral	59	15.9	21.7	33.5
	Agree	91	24.5	33.5	66.9
	Strongly agree	90	24.2	33.1	100.0
	Total	272	73.1	100.0	
Missing	System	100	26.9		
Total		372	100.0		

EEDU2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	1.6	2.2	2.2
	Disagree	18	4.8	6.6	8.8
	Neutral	71	19.1	25.9	34.7
	Agree	89	23.9	32.5	67.2
	Strongly agree	90	24.2	32.8	100.0
	Total	274	73.7	100.0	
Missing	System	98	26.3		
Total		372	100.0		

EEDU3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	1.9	2.6	2.6
	Disagree	20	5.4	7.3	9.9
	Neutral	77	20.7	28.1	38.0
	Agree	70	18.8	25.5	63.5
	Strongly agree	100	26.9	36.5	100.0
	Total	274	73.7	100.0	
Missing	System	98	26.3		
Total		372	100.0		

EEDU4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	15	4.0	5.5	5.5
	Disagree	21	5.6	7.7	13.1
	Neutral	48	12.9	17.5	30.7
	Agree	113	30.4	41.2	71.9
	Strongly agree	77	20.7	28.1	100.0
	Total	274	73.7	100.0	
Missing	System	98	26.3		
Total		372	100.0		

EEDU5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	1.6	2.2	2.2
	Disagree	9	2.4	3.3	5.5
	Neutral	50	13.4	18.3	23.8
	Agree	72	19.4	26.4	50.2
	Strongly agree	136	36.6	49.8	100.0
	Total	273	73.4	100.0	
Missing	System	99	26.6		
Total		372	100.0		

APPENDIX D: EXPLORATORY FACTOR AND RELIABILITY ANALYSIS

Factor Analysis

Warnings

The number of degrees of freedom (0) is not positive. Factor analysis may not be appropriate.

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
RST1	3.59	1.105	371
RST2	4.28	.954	371
RST3	3.41	1.223	371

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.545
Bartlett's Test of Sphericity	Approx. Chi-Square	39.561
	df	3
	Sig.	.000

Communalities[a]

	Initial	Extraction
RST1	.095	.580
RST2	.053	.089
RST3	.053	.090

Extraction Method: Maximum Likelihood.[a]

a. One or more communalitiy estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.369	45.623	45.623	.758	25.257	25.257
2	.911	30.370	75.993			
3	.720	24.007	100.000			

Extraction Method: Maximum Likelihood.

Factor Matrix[a]

	Factor 1
RST1	.761
RST2	
RST3	

Extraction Method: Maximum Likelihood.[a]

a. 1 factors extracted.

12 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
FACTOR
  /VARIABLES C1 C2 C3
  /MISSING LISTWISE
  /ANALYSIS C1 C2 C3
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.40)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
RST1	3.59	1.105	371
RST2	4.28	.954	371
RST3	3.41	1.223	371

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.545
Bartlett's Test of Sphericity	Approx. Chi-Square	39.561
	df	3
	Sig.	.000

Communalities

	Initial	Extraction
RST1	.095	.508
RST2	.053	.098
RST3	.053	.099

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.369	45.623	45.623	.704	23.475	23.475
2	.911	30.370	75.993			
3	.720	24.007	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor 1
RST1	.713
RST2	
RST3	

Extraction Method: Principal Axis Factoring.[a]

a. Attempted to extract 1 factors. More than 25 iterations required. (Convergence=,003). Extraction was terminated.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

FACTOR

```
/VARIABLES D1 D2 D3
/MISSING LISTWISE
/ANALYSIS D1 D2 D3
/PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
/FORMAT BLANK(.40)
/CRITERIA MINEIGEN(1) ITERATE(25)
/EXTRACTION PAF
/CRITERIA ITERATE(25)
/ROTATION PROMAX(4)
/METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
PRO1	3.94	.990	371
PRO2	4.17	.923	371
PRO3	3.87	.931	371

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.623
Bartlett's Test of Sphericity	Approx. Chi-Square	104.468
	df	3
	Sig.	.000

Communalities

	Initial	Extraction
PRO1	.184	.400
PRO2	.176	.365
PRO3	.118	.214

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.638	54.601	54.601	.978	32.607	32.607
2	.745	24.827	79.428			
3	.617	20.572	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor

	1
PRO1	.632
PRO2	.604
PRO3	.462

Extraction Method: Principal Axis Factoring.[a]

a. 1 factors extracted.

10 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
FACTOR
  /VARIABLES D1 D2 D3
  /MISSING LISTWISE
  /ANALYSIS D1 D2 D3
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.40)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
PRO1	3.94	.990	371
PRO2	4.17	.923	371
PRO3	3.87	.931	371

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.623
Bartlett's Test of Sphericity	Approx. Chi-Square	104.468
	df	3
	Sig.	.000

Communalities

	Initial	Extraction
PRO1	.184	.400

PRO2	.176	.365
PRO3	.118	.214

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.638	54.601	54.601	.978	32.607	32.607
2	.745	24.827	79.428			
3	.617	20.572	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor 1
PRO1	.632
PRO2	.604
PRO3	.462

Extraction Method: Principal Axis Factoring.[a]

a. 1 factors extracted.

10 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
FACTOR
  /VARIABLES E1 E2 E3 E4 E5 E6 E7
  /MISSING LISTWISE
  /ANALYSIS E1 E2 E3 E4 E5 E6 E7
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.40)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
EI1	3.73	1.196	369
EI2	4.27	1.019	369
EI3	2.51	1.437	369
EI4	3.63	1.281	369
12 Months	3.47	1.227	369
Next 5 years	4.02	1.119	369
Next 10 years	4.00	1.238	369

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.641
Bartlett's Test of Sphericity	Approx. Chi-Square	300.669
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
EI1	.162	.197
EI2	.182	.286
EI3	.105	.156
EI4	.247	.510
12 Months	.194	.267
Next 5 years	.245	.303
Next 10 years	.205	.400

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	2.123	30.325	30.325	1.459	20.840	20.840	
2	1.341	19.164	49.490	.661	9.439	30.279	
3	.953	13.619	63.109				
4	.827	11.815	74.923				
5	.688	9.831	84.754				
6	.563	8.039	92.794				
7	.504	7.206	100.000				

Factor Matrix[a]

	Factor	
	1	2
EI1		

EI2	.493	
EI3		
EI4	.607	
12 Months		
Next 5 years	.533	
Next 10 years	.461	-.433

Extraction Method: Principal Axis Factoring.[a]

a. 2 factors extracted. 16 iterations required.

Pattern Matrix[a]

	Factor	
	1	2
EI1		.440
EI2	.491	
EI3	-.419	
EI4		.697
12 Months		.549
Next 5 years	.454	
Next 10 years	.672	

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Structure Matrix

	Factor	
	1	2
EI1		.444
EI2	.528	
EI3		
EI4		.713
12 Months		.507
Next 5 years	.525	
Next 10 years	.621	

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

Factor Correlation Matrix

Factor	1	2
1	1.000	.391
2	.391	1.000

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

```
FACTOR
  /VARIABLES F1 F2 F3 F4 F5
  /MISSING LISTWISE
  /ANALYSIS F1 F2 F3 F4 F5
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.40)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
PES1	3.05	1.205	372
PES2	3.33	1.150	372
PES3	2.63	1.221	372
PES4	2.69	1.149	372
PES5	2.33	1.370	372

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	453.338
	df	10
	Sig.	.000

Communalities

	Initial	Extraction
PES1	.179	.211
PES2	.279	.309

PES3	.472	.663
PES4	.418	.541
PES5	.278	.310

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.573	51.454	51.454	2.034	40.690	40.690
2	.814	16.273	67.728			
3	.739	14.771	82.498			
4	.487	9.735	92.234			
5	.388	7.766	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor 1
PES1	.459
PES2	.556
PES3	.814
PES4	.736
PES5	.557

Extraction Method: Principal Axis Factoring.[a]

a. 1 factors extracted. 9 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
FACTOR
  /VARIABLES G1 G2 G3 G4 G5 G6 G7
  /MISSING LISTWISE
  /ANALYSIS G1 G2 G3 G4 G5 G6 G7
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.40)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
PUE1	3.04	1.399	369
PUE2	3.64	1.186	369
PUE3	3.43	1.267	369
PUE4	3.24	1.322	369
PUE5	2.54	1.369	369
PUE6	3.60	1.340	369
PUE7	2.52	1.294	369

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.672
Bartlett's Test of Sphericity	Approx. Chi-Square	407.191
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
PUE1	.292	.334
PUE2	.144	.184
PUE3	.310	.505
PUE4	.225	.296
PUE5	.346	.863
PUE6	.181	.284
PUE7	.211	.210

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	

1	2.314	33.056	33.056	1.768	25.262	25.262	
2	1.429	20.413	53.469	.908	12.972	38.234	
3	.917	13.098	66.568				
4	.753	10.759	77.327				
5	.635	9.076	86.403				
6	.502	7.169	93.572				
7	.450	6.428	100.000				

Factor Matrix[a]

	Factor	
	1	2
PUE1	.578	
PUE2		
PUE3	.627	
PUE4	.454	
PUE5	.719	-.589
PUE6		.511
PUE7		

Extraction Method: Principal Axis Factoring.[a]

a. Attempted to extract 2 factors. More than 25 iterations required. (Convergence=,003). Extraction was terminated.

Pattern Matrix[a]

	Factor	
	1	2
PUE1		
PUE2		.405
PUE3		.665
PUE4		.529
PUE5	.944	
PUE6		.524
PUE7	.445	

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Structure Matrix

	Factor	
	1	2
PUE1	.454	.471
PUE2		.424
PUE3		.700
PUE4		.542
PUE5	.927	
PUE6		.433
PUE7	.457	

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.

Factor Correlation Matrix

Factor	1	2
1	1.000	.281
2	.281	1.000

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.

```
FACTOR
  /VARIABLES H1 H2 H3 H4 H5
  /MISSING LISTWISE
  /ANALYSIS H1 H2 H3 H4 H5
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.40)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N

PEB1	2.74	1.302	371
PEB2	3.43	1.216	371
PEB3	2.95	1.184	371
PEB4	2.74	1.231	371
PEB5	3.28	1.242	371

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.744
Bartlett's Test of Sphericity	Approx. Chi-Square	263.432
	df	10
	Sig.	.000

Communalities

	Initial	Extraction
PEB1	.139	.193
PEB2	.133	.171
PEB3	.257	.388
PEB4	.314	.498
PEB5	.220	.301

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.203	44.061	44.061	1.552	31.035	31.035
2	.851	17.025	61.086			
3	.797	15.934	77.020			
4	.631	12.626	89.646			
5	.518	10.354	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor 1
PEB1	.440
PEB2	.414
PEB3	.623
PEB4	.706

PEB5	.549

Extraction Method:
Principal Axis
Factoring.[a]
a. 1 factors extracted.
8 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
GET
  FILE='C:\Users\User\Documents\2020\cems
2020\Clement\initialcfaoutput\Data Set Final (3).sav'.

Warning # 5281.  Command name: GET FILE
SPSS Statistics is running in Unicode encoding mode.  This file is encoded
in
a locale-specific (code page) encoding.  The defined width of any string
variables are automatically tripled in order to avoid possible data loss.
You
can use ALTER TYPE to set the width of string variables to the width of the
longest observed value for each string variable.
DATASET NAME DataSet3 WINDOW=FRONT.
FACTOR
  /VARIABLES B1 B2 B3 B4
  /MISSING LISTWISE
  /ANALYSIS B1 B2 B3 B4
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.30)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

```
[DataSet3] C:\Users\User\Documents\2020\cems
2020\Clement\initialcfaoutput\Data Set Final (3).sav
```

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
INNO1	3.85	1.123	372
INNO2	3.85	1.006	372

INNO3	3.76	1.040	372
INNO4	4.12	1.021	372

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.702
Bartlett's Test of Sphericity	Approx. Chi-Square	171.586
	df	6
	Sig.	.000

Communalities

	Initial	Extraction
INNO1	.108	.170
INNO2	.199	.329
INNO3	.172	.279
INNO4	.250	.476

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.911	47.779	47.779	1.254	31.340	31.340
2	.798	19.952	67.732			
3	.714	17.861	85.593			
4	.576	14.407	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
INNO1	.412
INNO2	.573
INNO3	.528
INNO4	.690

Extraction Method:
Principal Axis
Factoring.[a]
a. 1 factors extracted.
10 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
FACTOR
  /VARIABLES C1 C3
  /MISSING LISTWISE
  /ANALYSIS C1 C3
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.30)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
RST1	3.59	1.105	371
RST3	3.41	1.223	371

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	19.622
	df	1
	Sig.	.000

Communalities

	Initial	Extraction
RST1	.052	.227
RST3	.052	.227

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.228	61.386	61.386	.454	22.703	22.703
2	.772	38.614	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor 1
RST1	.476
RST3	.476

Extraction Method: Principal Axis Factoring.[a]

a. 1 factors extracted. 8 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

```
DATASET ACTIVATE DataSet3.
DATASET CLOSE DataSet2.
RELIABILITY
  /VARIABLES=C1 C3
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	371	99.7
	Excluded[a]	1	.3

	Total	372	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.369	2

```
RELIABILITY
  /VARIABLES=C1 C3
  /SCALE('ALL VARIABLES') ALL
  /MODEL=SPLIT.
```

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	371	99.7
	Excluded[a]	1	.3
	Total	372	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Part 1	Value	1.000
		N of Items	1[a]
	Part 2	Value	1.000
		N of Items	1[b]
	Total N of Items		2
Correlation Between Forms			.228
Spearman-Brown Coefficient	Equal Length		.371
	Unequal Length		.371
Guttman Split-Half Coefficient			.369

a. The items are: RST1

b. The items are: RST3

```
RELIABILITY
  /VARIABLES=E1 E4 E5
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	370	99.5
	Excluded[a]	2	.5
	Total	372	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.562	3

```
RELIABILITY
  /VARIABLES=E2 e3rec E6 E7
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	371	99.7
	Excluded[a]	1	.3
	Total	372	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.572	4

```
RELIABILITY
  /VARIABLES=G2 G3 G4 G6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	370	99.5
	Excluded[a]	2	.5
	Total	372	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.592	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PUE2	10.26	8.247	.313	.563
PUE3	10.46	7.192	.443	.465
PUE4	10.65	7.013	.436	.468
PUE6	10.29	7.741	.305	.575

```
RELIABILITY
  /VARIABLES=G5 G7
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	372	100.0
	Excluded[a]	0	.0
	Total	372	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.601	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PUE5	2.53	1.684	.430	.
PUE7	2.53	1.867	.430	.

```
FACTOR
  /VARIABLES q13a q13b q13c q13d q13e
  /MISSING LISTWISE
  /ANALYSIS q13a q13b q13c q13d q13e
  /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
  /FORMAT BLANK(.30)
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25)
  /ROTATION PROMAX(4)
  /METHOD=CORRELATION.
```

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
EEDU1	3.60	1.054	369
EEDU2	3.64	.956	369
EEDU3	3.64	.999	369
EEDU4	3.58	1.010	369
EEDU5	3.87	.999	369

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
Bartlett's Test of Sphericity	Approx. Chi-Square	668.251
	df	10
	Sig.	.000

Communalities

	Initial	Extraction
EEDU1	.369	.413
EEDU2	.504	.623
EEDU3	.455	.539
EEDU4	.370	.441
EEDU5	.452	.550

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.043	60.867	60.867	2.566	51.314	51.314
2	.623	12.469	73.336			
3	.521	10.415	83.752			
4	.455	9.101	92.853			

5	.357	7.147	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor 1
EEDU1	.643
EEDU2	.789
EEDU3	.734
EEDU4	.664
EEDU5	.741

Extraction Method: Principal Axis Factoring.[a]

a. 1 factors extracted. 6 iterations required.

Rotated Factor Matrix[a]

a. Only one factor was extracted. The solution cannot be rotated.

APPENDIX E: COMFIRMTARY FACTOR ANALYSIS

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF

Default model	130	1474.179	499	0.000	2.954
Saturated model	629	0.000	0		
Independence model	34	3424.758	595	0	5.756

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0.570	0.487	0.667	0.589	0.655
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	0.839	0.478	0.550
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

NCP

Model	NCP	LO 90	HI 90
Default model	975.179	863.820	1094.143
Saturated model	0.000	0.000	0.000
Independence model	2829.758	2649.435	3017.491

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	3.974	2.629	2.328	2.949
Saturated model	0.000	0.000	0.000	0.000
Independence model	9.231	7.627	7.141	8.133

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.073	0.068	0.077	0.000
Independence model	0.113	0.110	0.117	0.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1734.179	1761.262		
Saturated model	1258.000	1389.042		
Independence model	3492.758	3499.842		

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	4.674	4.374	4.995	4.747
Saturated model	3.391	3.391	3.391	3.744
Independence model	9.414	8.928	9.92	9.434

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	139	145
Independence model	71	74

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
INNO4	<---	INnov	1			
INNO3	<---	INnov	0.907	0.12	7.569	***
INNO2	<---	INnov	0.817	0.113	7.252	***
INNO1	<---	INnov	0.793	0.12	6.585	***

RST3	<---	RSTak	1			
RST2	<---	RSTak	2.538	0.767	3.307	***
RST1	<---	RSTak	1.542	0.514	2.998	0.003
PRO3	<---	PROact	1			
PRO2	<---	PROact	1.318	0.208	6.329	***
PRO1	<---	PROact	1.197	0.197	6.088	***
Months12	<---	Intent_I	1			
EI4	<---	Intent_I	1.963	0.432	4.543	***
EI3	<---	Intent_I	-0.719	0.276	-2.606	0.009
EI2	<---	Intent_I	1.487	0.331	4.494	***
EI1	<---	Intent_I	1.503	0.349	4.309	***
Next10	<---	Intent_F	1			
Next5	<---	Intent_F	1.007	0.173	5.815	***
PES5	<---	PESup	1			
PES4	<---	PESup	1.02	0.1	10.196	***
PES3	<---	PESup	1.163	0.11	10.527	***
PES2	<---	PESup	0.801	0.092	8.675	***
PES1	<---	PESup	0.667	0.092	7.233	***
PUE7	<---	PUniE	1			
PUE6	<---	PUniE	0.51	0.172	2.975	0.003
PUE5	<---	PUniE	1.363	0.242	5.622	***
PUE4	<---	PUniE	1.347	0.237	5.681	***
PUE3	<---	PUniE	1.62	0.263	6.158	***
PUE2	<---	PUniE	0.922	0.186	4.951	***
PUE1	<---	PUniE	1.606	0.27	5.945	***
EEDU5	<---	EEdu	1			
EEDU4	<---	EEdu	1.131	0.137	8.251	***
EEDU3	<---	EEdu	1.239	0.139	8.933	***
EEDU2	<---	EEdu	1.186	0.132	8.987	***
EEDU1	<---	EEdu	1.069	0.14	7.616	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
INNO4	<---	INnov	0.643
INNO3	<---	INnov	0.573
INNO2	<---	INnov	0.533
INNO1	<---	INnov	0.464
RST3	<---	RSTak	0.204
RST2	<---	RSTak	0.664
RST1	<---	RSTak	0.348
PRO3	<---	PROact	0.488
PRO2	<---	PROact	0.645
PRO1	<---	PROact	0.55
Months12	<---	Intent_I	0.302
EI4	<---	Intent_I	0.568
EI3	<---	Intent_I	-0.185
EI2	<---	Intent_I	0.542
EI1	<---	Intent_I	0.467
Next10	<---	Intent_F	0.558
Next5	<---	Intent_F	0.621
PES5	<---	PESup	0.6
PES4	<---	PESup	0.73
PES3	<---	PESup	0.783
PES2	<---	PESup	0.573
PES1	<---	PESup	0.455
PUE7	<---	PUniE	0.389
PUE6	<---	PUniE	0.193
PUE5	<---	PUniE	0.503
PUE4	<---	PUniE	0.515
PUE3	<---	PUniE	0.646
PUE2	<---	PUniE	0.391
PUE1	<---	PUniE	0.58
EEDU5	<---	EEdu	0.626
EEDU4	<---	EEdu	0.636
EEDU3	<---	EEdu	0.714
EEDU2	<---	EEdu	0.722
EEDU1	<---	EEdu	0.574

Intercepts: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
INNO4	4.118	0.053	77.792	***	

INNO3	3.763	0.054	69.803	***
INNO2	3.849	0.052	73.793	***
INNO1	3.849	0.058	66.136	***
RST3	3.414	0.063	53.776	***
RST2	4.282	0.049	86.613	***
RST1	3.594	0.057	62.668	***
PRO3	3.871	0.048	80.164	***
PRO2	4.167	0.048	86.576	***
PRO1	3.935	0.051	76.619	***
Months12	3.478	0.064	54.525	***
EI4	3.645	0.066	54.867	***
EI3	2.519	0.075	33.703	***
EI2	4.268	0.053	80.86	***
EI1	3.736	0.062	60.26	***
Next10	4.003	0.064	62.559	***
Next5	4.024	0.058	69.494	***
PES5	2.328	0.071	32.782	***
PES4	2.691	0.06	45.185	***
PES3	2.626	0.063	41.488	***
PES2	3.331	0.06	55.878	***
PES1	3.054	0.062	48.869	***
PUE7	2.527	0.067	37.558	***
PUE6	3.599	0.069	51.92	***
PUE5	2.536	0.071	35.725	***
PUE4	3.231	0.068	47.224	***
PUE3	3.428	0.066	52.199	***
PUE2	3.628	0.062	58.702	***
PUE1	3.031	0.073	41.725	***
EEDU5	4.159	0.059	70.465	***
EEDU4	3.759	0.066	57.317	***
EEDU3	3.829	0.064	60.183	***
EEDU2	3.842	0.06	63.749	***

EEDU1		3.782	0.069	54.741	***

Covariances: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
INnov	<-->	0.097	0.033	2.973	0.003	
INnov	<-->	0.164	0.034	4.835	***	
INnov	<-->	0.057	0.024	2.378	0.017	
INnov	<-->	0.063	0.041	1.521	0.128	
INnov	<-->	0.115	0.041	2.813	0.005	
INnov	<-->	0.045	0.026	1.687	0.092	
EEdu	<-->	0.055	0.034	1.641	0.101	
RSTak	<-->	0.074	0.025	2.894	0.004	
RSTak	<-->	0.073	0.027	2.707	0.007	
RSTak	<-->	0.09	0.033	2.745	0.006	
RSTak	<-->	-0.022	0.018	-1.202	0.229	
RSTak	<-->	0.012	0.012	0.996	0.319	
EEdu	<-->	0.013	0.015	0.883	0.377	
PROact	<-->	0.061	0.021	2.988	0.003	
PROact	<-->	0.041	0.03	1.375	0.169	
PROact	<-->	0.01	0.028	0.338	0.735	
PROact	<-->	0.028	0.019	1.455	0.146	

EEdu	<-->	-0.016	0.024	-0.682	0.495
Intent_I	<-->	0.167	0.044	3.768	***
Intent_I	<-->	0.052	0.026	2.02	0.043
Intent_I	<-->	0.076	0.024	3.173	0.002
EEdu	<-->	0.09	0.028	3.252	0.001
Intent_F	<-->	-0.031	0.046	-0.67	0.503
Intent_F	<-->	0.068	0.032	2.097	0.036
EEdu	<-->	0.181	0.046	3.924	***
PESup	<-->	0.249	0.05	4.968	***
EEdu	<-->	0.119	0.04	2.992	0.003
EEdu	<-->	0.178	0.039	4.609	***

Correlations: (Group number 1 - Default model)

			Estimate
INnov	<-->	RSTak	0.596
INnov	<-->	PROact	0.552
INnov	<-->	Intent_I	0.234
INnov	<-->	Intent_F	0.139
INnov	<-->	PESup	0.213
INnov	<-->	PUniE	0.135
EEdu	<-->	INnov	0.135
RSTak	<-->	PROact	0.65
RSTak	<-->	Intent_I	0.797
RSTak	<-->	Intent_F	0.529
RSTak	<-->	PESup	-0.107
RSTak	<-->	PUniE	0.093
EEdu	<-->	RSTak	0.085
PROact	<-->	Intent_I	0.365
PROact	<-->	Intent_F	0.132
PROact	<-->	PESup	0.026
PROact	<-->	PUniE	0.122

EEdu	<-->	PROact	-0.058
Intent_I	<-->	Intent_F	0.655
Intent_I	<-->	PESup	0.172
Intent_I	<-->	PUniE	0.406
EEdu	<-->	Intent_I	0.392
Intent_F	<-->	PESup	-0.054
Intent_F	<-->	PUniE	0.195
EEdu	<-->	Intent_F	0.424
PESup	<-->	PUniE	0.6
EEdu	<-->	PESup	0.234
EEdu	<-->	PUniE	0.568

Variances: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
INnov	<-->	0.097	0.033	2.973	0.003	
INnov	<-->	0.164	0.034	4.835	***	
INnov	<-->	0.057	0.024	2.378	0.017	
INnov	<-->	0.063	0.041	1.521	0.128	
INnov	<-->	0.115	0.041	2.813	0.005	
INnov	<-->	0.045	0.026	1.687	0.092	
EEdu	<-->	0.055	0.034	1.641	0.101	
RSTak	<-->	0.074	0.025	2.894	0.004	
RSTak	<-->	0.073	0.027	2.707	0.007	
RSTak	<-->	0.09	0.033	2.745	0.006	
RSTak	<-->	-0.022	0.018	-1.202	0.229	
RSTak	<-->	0.012	0.012	0.996	0.319	
EEdu	<-->	0.013	0.015	0.883	0.377	
PROact	<-->	0.061	0.021	2.988	0.003	
PROact	<-->	0.041	0.03	1.375	0.169	
PROact	<-->	0.01	0.028	0.338	0.735	
PROact	<-->	0.028	0.019	1.455	0.146	

EEdu	<-->	-0.016	0.024	-0.682	0.495
Intent_I	<-->	0.167	0.044	3.768	***
Intent_I	<-->	0.052	0.026	2.02	0.043
Intent_I	<-->	0.076	0.024	3.173	0.002
EEdu	<-->	0.09	0.028	3.252	0.001
Intent_F	<-->	-0.031	0.046	-0.67	0.503
Intent_F	<-->	0.068	0.032	2.097	0.036
EEdu	<-->	0.181	0.046	3.924	***
PESup	<-->	0.249	0.05	4.968	***
EEdu	<-->	0.119	0.04	2.992	0.003
EEdu	<-->	0.178	0.039	4.609	***

Correlations: (Group number 1 - Default model)

			Estimate
INnov	<-->	RSTak	0.596
INnov	<-->	PROact	0.552
INnov	<-->	Intent_I	0.234
INnov	<-->	Intent_F	0.139
INnov	<-->	PESup	0.213
INnov	<-->	PUniE	0.135
EEdu	<-->	INnov	0.135
RSTak	<-->	PROact	0.65
RSTak	<-->	Intent_I	0.797
RSTak	<-->	Intent_F	0.529
RSTak	<-->	PESup	-0.107
RSTak	<-->	PUniE	0.093
EEdu	<-->	RSTak	0.085
PROact	<-->	Intent_I	0.365
PROact	<-->	Intent_F	0.132
PROact	<-->	PESup	0.026
PROact	<-->	PUniE	0.122
EEdu	<-->	PROact	-0.058
Intent_I	<-->	Intent_F	0.655
Intent_I	<-->	PESup	0.172
Intent_I	<-->	PUniE	0.406

EEdu	<-->	Intent_I	0.392
Intent_F	<-->	PESup	-0.054
Intent_F	<-->	PUniE	0.195
EEdu	<-->	Intent_F	0.424
PESup	<-->	PUniE	0.6
EEdu	<-->	PESup	0.234
EEdu	<-->	PUniE	0.568

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
INnov	0.43	0.078	5.516	
RSTak	0.062	0.036	1.699	0.0
PROact	0.206	0.052	3.954	
Intent_I	0.137	0.055	2.491	0.0
Intent_F	0.472	0.114	4.149	
PESup	0.675	0.117	5.781	
PUniE	0.254	0.075	3.394	
EEdu	0.385	0.074	5.222	
e1	0.61	0.065	9.345	
e2	0.724	0.068	10.663	
e3	0.723	0.064	11.233	
e4	0.986	0.082	11.985	
e5	1.433	0.107	13.408	
e6	0.507	0.077	6.621	
e7	1.07	0.083	12.851	
e8	0.659	0.058	11.361	
e9	0.502	0.06	8.366	
e10	0.681	0.065	10.423	
e11	1.368	0.105	13.034	
e12	1.109	0.104	10.713	
e13	2.001	0.149	13.421	
e14	0.728	0.066	11.101	
e15	1.113	0.093	11.975	
e16	1.046	0.111	9.42	
e17	0.765	0.099	7.74	
e18	1.196	0.101	11.86	
e19	0.614	0.062	9.949	
e20	0.575	0.067	8.584	
e21	0.885	0.073	12.098	

e22	1.148	0.09	12.815
e23	1.425	0.111	12.845
e24	1.717	0.128	13.453
e25	1.392	0.115	12.121
e26	1.275	0.106	12.037
e27	0.929	0.089	10.43
e28	1.198	0.093	12.819
e29	1.297	0.114	11.378
e30	0.597	0.06	9.934
e31	0.725	0.074	9.856
e32	0.566	0.064	8.851
e33	0.498	0.057	8.732
e34	0.896	0.087	10.335

APPENDIX F: STRUCTURAL MODEL OUTPUTS

(8) [EEDU1]EEDU = 1

	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Measurement						
INNO2 <-						
INNO	1	(constrained)				
_cons	3.849462	.0520958	73.89	0.000	3.747357	3.951568
INNO3 <-						
INNO	1.087219	.17212	6.32	0.000	.74987	1.424568
_cons	3.763441	.0538429	69.90	0.000	3.657911	3.868971
INNO4 <-						
INNO	1.25181	.1727234	7.25	0.000	.9132782	1.590341
_cons	4.11828	.0528686	77.90	0.000	4.014659	4.2219
RST1 <-						
RST	1	(constrained)				
_cons	3.594086	.0571328	62.91	0.000	3.482108	3.706064
RST2 <-						
RST	1.670308	.3427697	4.87	0.000	.9984918	2.342124
_cons	4.282258	.0493748	86.73	0.000	4.185485	4.379031
RST3 <-						
RST	.6542051	.2242413	2.92	0.004	.2147003	1.09371
_cons	3.413978	.0634003	53.85	0.000	3.289716	3.538241
PRO1 <-						
PRO	1	(constrained)				
_cons	3.935484	.0511779	76.90	0.000	3.835177	4.035791
PRO2 <-						
PRO	1.062329	.175358	6.06	0.000	.7186332	1.406024
_cons	4.166667	.0480624	86.69	0.000	4.072466	4.260867
PRO3 <-						
PRO	.829651	.1379131	6.02	0.000	.5593464	1.099956
_cons	3.873656	.0484663	79.92	0.000	3.778664	3.968648
EI1 <-						
EI_I	1	(constrained)				
_cons	3.736559	.0617802	60.48	0.000	3.615472	3.857646
EI2 <-						
EI_I	.9601617	.2325537	4.13	0.000	.5043649	1.415958
_cons	4.266129	.0525847	81.13	0.000	4.163065	4.369193
EI3 <-						
EI_I	-.4938209	.2111513	-2.34	0.019	-.9076698	-.079972
_cons	2.518817	.0746358	33.75	0.000	2.372534	2.665101
EI4 <-						
EI_I	1.323601	.1984157	6.67	0.000	.9347136	1.712489
_cons	3.645161	.0663473	54.94	0.000	3.515123	3.7752
EI15 <-						
EI_I	.6771312	.1582025	4.28	0.000	.36706	.9872025
_cons	3.478495	.0635472	54.74	0.000	3.353944	3.603045
EI16 <-						
E_F	1	(constrained)				