The role of entrepreneurship education in preparing future entrepreneurs: A case of third-year diploma students at a selected university of technology

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DECLARATION

I, the undersigned, Thabane Wiseman Qwabe, hereby declare that this dissertation submitted to the Durban University of Technology for the Master of Management Science in Administration and Information Management has not been previously submitted to any other institution of higher education. I further acknowledge that the work presented in this study is entirely my own, except where sources are acknowledged.

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Thabane W Qwabe	Date

DEDICATION

This research is dedicated to my grandmother, the pillar of strength and source of endless love and support throughout my academic journey. Your unwavering belief in my abilities has been a constant source of motivation, inspiring me to pursue excellence in all my endeavours. Your sacrifices and efforts to provide me with the best possible opportunities have not gone unnoticed, and I am forever grateful for everything you have done for me. Your wisdom, guidance, and unconditional love have shaped me into the person I am today. Your resilience and determination in the face of challenges have taught me valuable life lessons that I carry with me. This research is a testament to your influence in my life, and I hope to make you proud of my accomplishments. Thank you, Grandma, for your endless love and support.

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ABSTRACT

Many developing countries, such as South Africa experience high levels of unemployment rate (32.1%), with an unemployment rate among graduates sitting at 44.3%. This has led to entrepreneurship education emerging as a crucial tool for economic empowerment and job creation. Despite this, the current entrepreneurship programmes in South African universities often fall short in providing students with the essential skills needed to thrive in today's competitive business environment.

Tertiary institutions have the responsibility of offering entrepreneurship courses to equip students with the necessary skills and knowledge. One major issue in South Africa is the lack of sufficient entrepreneurship qualifications to develop students with abilities for the entrepreneurial sector. To address this issue and combat unemployment among South African graduates, there is a need to evaluate the effectiveness of entrepreneurship programmes currently in place at a selected university of technology.

This research aimed to investigate the impact of entrepreneurship education on enhancing students' entrepreneurial skills and aspirations. A quantitative research approach was followed in this study, aligning with the positivism research philosophy. The sample for the study was 269 undergraduate students who were registered for entrepreneurial modules, which were chosen using a nonprobability purposive sampling method. The research findings revealed shortcomings in the university's entrepreneurial education programmes, particularly in adequately supporting students' entrepreneurial aspirations and providing them with the necessary access to modern technological tools essential for succeeding in a digitally driven business environment.

The study recommended that educational institutions pay more attention to nurturing students' entrepreneurial development to enhance their skills and ambitions, ultimately playing a more significant role in addressing the escalating unemployment rates in South Africa. The study further recommended that it is the importance of maintaining a conducive environment that fosters entrepreneurial abilities and equips students with the necessary tools and resources to thrive in the competitive business landscape. Universities should update their entrepreneurship syllabuses to help students succeed in acquiring entrepreneurship knowledge. In addition to improving the curriculum, new teaching methods in line with current industry trends should be employed. This will ensure that students have

the practical skills they need for business. By incorporating innovative teaching methodologies and practical experiences, higher education institutions can empower students to develop a robust entrepreneurial mindset and be ready to enter the dynamic business world.

The study underscored the importance of integrating entrepreneurship modules into a full academic qualification to ensure that students receive comprehensive training and guidance in realising their entrepreneurial ambitions. This holistic approach transforms students into proactive and resourceful individuals capable of leveraging opportunities and overcoming obstacles in the cut-throat business environment. Therefore, the study concluded that a paradigm shift should be considered where higher education institutions prioritise student entrepreneurial growth and fostering a culture of innovation and creativity. By addressing the current gaps in entrepreneurial education, universities can play a pivotal role in shaping the next generation of entrepreneurs who are well-equipped to drive economic growth and development in South Africa.

Keywords: Entrepreneurship education, university of technology, student development, teaching and learning, Skills, Unemployment, curriculum, 4IR innovation

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Entrepreneurship education plays a pivotal role in economic development by fostering innovation, creating job opportunities, and driving economic growth. By offering entrepreneurship programmes that equip students with entrepreneurial skills, such as problem-solving, risk management, and strategic thinking, preparing them for the challenges of starting and managing a business. In today's dynamic and competitive business landscape, entrepreneurship education has gained significant importance as a vital tool to equip individuals with the necessary knowledge, skills and mindset to start successful business projects (Lamula-Mthanti 2023). This research conducted at a specific university of technology provides a compelling case study that highlights the importance of entrepreneurship education in preparing third-year students for the challenges and opportunities of the business world. The research results highlight that entrepreneurship education not only imparts theoretical knowledge but also practical experience and skills, essential for future entrepreneurs. Hossain (2023) asserts that providing students with a comprehensive education that includes business planning, financial management, marketing strategies and problem-solving skills, contributes to the development of confident and well-rounded entrepreneurs. Therefore, this study provides valuable insights into the effectiveness of entrepreneurship education in training the next generation of business leaders, highlighting the importance of entrepreneurship education in universities and its long-term impact in developing students' entrepreneurial capabilities which are key to their success in future entrepreneurial activities.

1.2 BACKGROUND OF THE STUDY

The discussion on entrepreneurship education has grown significantly in both developed and developing countries. However, the focal point is still on student preparation concerning developing strategies to combat graduate unemployment (Amuda 2020). In developed countries, entrepreneurship education is a critical component for teaching students to meet market competencies through studies in conjunction with education and professional fields that address the gaps identified local businesses (Do Nguyen 2023). For instance, the United States of America has implemented a market-based curriculum in its entrepreneurship programmes to include entrepreneurship topics such as marketing,

pricing, and sales techniques (Loukopoulos, 2022). China's Tsinghua University has developed structures to effectively support entrepreneurial activities (Eesley 2021). This means that better coordinated entrepreneurship education that fully supports results in effective and efficient execution competencies. This market-based curriculum is also designed to capacitate future entrepreneurs with practical skills that are necessary for business development and sustainability. This means that developed countries have been successful in designing structured entrepreneurship education programmes that produce productive graduates that are expected to be dominantly involved in entrepreneurship. However, developing countries are lagging in terms of developing entrepreneurship education programmes and feasible structures for students to build opportunities and be involved in entrepreneurial activities. This is reflected in a rise in the unemployment rate of graduates in South Africa which is a serious challenge not only for the government but also for the universities which are tasked with developing and inspiring lifelong skills within graduates (De Lannoy 2020). According to Mahlaole and Malebana (2021), evidence from South African public university prospectuses show that few universities have entrepreneurship programmes, indicating a significant gap in preparing students to start their businesses and gradually expand their operations. Only four of South Africa's 26 universities, which include both traditional and technological universities, offer fully entrepreneurship qualifications (Mahlaole and Malebana 2021). Furthermore, the low numbers of universities offering entrepreneurship education qualifications are contributing to the rise in graduate unemployment. This is because university curricula are not designed to increase self-employment but are more focused on developing students that are job seekers, but this model and approach is outdated and needs revisiting (Mensah-Williams and Derera 2023). Du Toit (2021) further argue that the underlying reason for such a high and rising number of unemployed graduates in South Africa is because of a lack of entrepreneurship education programmes in South African universities. Furthermore, Musara (2020) observed that South Africa's public universities have a low level of entrepreneurship education. Musara (2020) also highlighted that South Africa suffers from high unemployment because of a mismatch between the skills required by the industry and the curriculum covered in tertiary institutions. Zembe (2020) echoed the same sentiments and further indicated that the university sector, faculty members and educational institutions follow a set curriculum, and the most difficult challenge is incorporating entrepreneurship programmes within an already existing programme. As a matter of serious concern, Mayombe (2021) revealed that South African public universities are struggling to initiate entrepreneurship education programmes, with only 20% of public university's offering

entrepreneurship degree programmes and 28% offering short courses. This is a pressing issue considering that in developed countries entrepreneurship graduates are considered as change agents including contributing to the development of solutions for improving the economic situation, promoting growth, and mitigating high unemployment (Kathpalia, Ong and Leong 2020).

Entrepreneurship education in academic institutions is a critical component in building economic growth and improving students' skills and knowledge, and practical experience (Marzocchi, Kitagawa and Sánchez-Barrioluengo 2019). When students start new businesses, they need entrepreneurship education to help them survive in a fast-paced, ever-changing corporate environment (Linton and Klinton 2019), with research showing that the knowledge gained from entrepreneurship education enables graduates to achieve their goals of growing and expanding a business in terms of quality, quantity, and turnover (Coad and Storey 2021). When graduates correctly apply their entrepreneurship skills and knowledge, their chances of surviving for a longer period in business increase (Wang 2020). Entrepreneurship education encourages students to see opportunities to expand their entrepreneurship and innovation (Guerrero and Espinoza-Benavides 2020). Not all students can be entrepreneurs, but the learning experience and personal development they receive should improve their overall chances of employment. Therefore, education is key to learning new skills, and entrepreneurship education promotes the skills required for the fourth industrial revolution (4IR) (Kruger and Steyn (2020).

1.3 PROBLEM STATEMENT

According to Guma and Dahlan (2020), entrepreneurship in higher education is the most difficult part of preparing future entrepreneurs around the globe. The absence of adequate entrepreneurial programmes in higher education institutions (HEIs) has a global impact on unemployment rates (Musara 2020). The limited entrepreneurship programmes being offered in higher education can hamper students' ability to build entrepreneurial skills and facilitate technology transfer. Noureldin (2021) affirms that recent changes in the labour market necessitate a shift in the structure of education, specifically entrepreneurship education. Over the last few decades, entrepreneurship education and its accessibility have evolved. Developed countries have progressed to the fifth industrial revolution (5IR), where their entrepreneurship education intersects with the revolution's requirements (Irawanto and Novianti 2021). However, developing countries are falling behind in terms of entrepreneurship education programmes that intersect and compact the demands that

come with the 4IR (Olaitan and Mavuso 2022). South Africa is no exception, as they are struggling to integrate their curricula to incorporate a rigorous entrepreneurship education which correlates with the needs of 4IR.

South Africa's higher education system is failing to produce enough entrepreneurs (Ramchander 2021). According to Ngubane, Mndebele and Kaseeram (2023), South Africa's graduate unemployment rate increased to 32.5% in the fourth quarter of 2020, up from 30.8% in the previous period. Interestingly in the fourth quarter of 2020, 4.3 million graduates were recorded as unemployed, with 8.2% of the unemployed having tertiary qualifications as their highest level of education. According to Maphalala and Adigun (2021) the African continent appears to be the most lacking in entrepreneurship education, with South Africa being one of the most impacted countries with low entrepreneurship education programmes. Therefore, this study seeks to assess the impact of entrepreneurship education in preparing students to be future entrepreneurs at a select university of technology. Research has shown that entrepreneurship education can improve graduates' job prospects and provide students with the necessary skills to succeed in a competitive job market (Ojule 2024). Current literature often overlooks the specific impact of entrepreneurship education on students at technical institutions, focusing instead on broader academic levels or different educational settings. Additionally, there is a lack of in-depth on how students perceive and integrate their entrepreneurship training into real-world preparedness. Moreover, studies frequently neglect the influence of innovative curriculum components and institutional support services tailored to diploma programmes, leaving a gap in understanding their effect on students' entrepreneurial readiness.

1.4 AIM AND OBJECTIVES

The aim of the study was to investigate the role of entrepreneurship education in preparing students as future entrepreneurs at a selected university of technology in KwaZulu-Natal. For this primary aim to be successfully achieved, the following objectives were addressed.

1.5 THE OBJECTIVES OF THE STUDY

- To assess the perceptions of students on whether entrepreneurship education modules are designed to prepare them as future entrepreneurs.

- To determine the perceptions of students on whether entrepreneurship education modules provide the necessary entrepreneurial skills and knowledge in line with 4th industrial revolution requirements.
- To formulate strategic approaches that could be utilised to promote entrepreneurship education at the selected university of technology.

1.6 RESEARCH QUESTIONS

The study addressed the following research questions:

- What are the perceptions of students regarding the effectiveness of entrepreneurship education modules in preparing them for entrepreneurial roles?
- How do students perceive the relevance of entrepreneurship education modules in preparing them for the demands of the 4th industrial revolution?
- What are the best practices that could be utilised to improve entrepreneurship education at the selected university of technology?

1.7 SIGNIFICANCE OF THE STUDY

The growing number of unemployed graduates in South Africa challenges researchers to look for solutions from a variety of perspectives. This study provides detailed insight into entrepreneurship education by focusing on entrepreneurship education at a selected university of technology and how it fosters entrepreneurial intent and skills development. Moreover, the study seeks to provide insights on the influence of entrepreneurship education, and the knowledge and skills needed to connect with the current advanced technology of the 4IR. This study benefits the selected university of technology and other institutions of higher learning by providing them with key elements that are needed to bolster capability intensive entrepreneurship programmes that seek to promote the development of student's skills within a 4IR driven economy. This will subsequently benefit students enrolled for entrepreneurship modules as they will acquire relevant skills needed in the modern business environment. This study is a contribution to the Department of Higher Education and Training's (DHET) initiative to improve the offerings and standard of entrepreneurship in South African institutions of higher learning. This study offers valuable insights for policymakers and researchers in the higher education sector by highlighting the critical role of entrepreneurship education in addressing graduate unemployment and preparing students for the demands of the Fourth Industrial Revolution (4IR). For policymakers, the study provides evidence-based recommendations for enhancing entrepreneurship

programmes to better align with contemporary technological advancements and industry needs, thereby improving the effectiveness of these programmes in fostering entrepreneurial intent and skill development. This alignment is crucial for developing a workforce that is not only adept at navigating the complexities of a 4IR-driven economy but also capable of driving economic growth and innovation. For researchers, the study contributes a detailed analysis of how current entrepreneurship education practices impact students' readiness for modern business environments, offering a foundation for further exploration into best practices and programme improvements.

1.8 RESEARCH METHODOLOGY

A quantitative design was employed in this study to advance understanding of the impact of entrepreneurship education in preparing future entrepreneurs. This research design enabled the researcher to examine student's hidden interpretations, understandings, and insights about entrepreneurship education as a catalyst behind entrepreneurial intentions.
The population for this study consisted of third-year students who were currently registered for undergraduate study at the selected university of technology and who are registered for entrepreneurship modules in their qualifications under a selected faculty. The faculty of Accounting and Informatics is made up of six diversified departments, which specialise in Accounting, Information Technology, Business and Information Management, Information Systems, Taxation and Auditing. Of these departments, only four offer entrepreneurship education modules. Therefore, the target population for this study consisted of 920 third-year students registered in the selected faculty. The third-year students that constitute this population are those who have completed entrepreneurship modules.

Nonprobability sampling was employed in this study, specifically, purposive sampling. The researcher decided that a purposive sampling technique was appropriate because not all third-year students in the faculty were enrolled for or had done an entrepreneurship module. Therefore, the sample size for this study was 269 students from a population of 920 as recommend by Sekaran and Bougie's sample table (Sekaran and Bougie 2016). To address the study's objectives, the researcher used both primary and secondary data. The goal of collecting and summarising data is to turn it into meaningful information that can be used to identify and measure variables. A Likert scale questionnaire was utilised to collect data from research participants. To test the reliability and validity of the instrument, the researcher piloted the questionnaire to 30 respondents. Pilot study data was not included in the data analysed, and participants were not included in the main study. The data set from the

Microsoft form was analysed using the Statistical Package for Social Sciences (SPSS) version 28.0 for Windows. Reliability is the extent to which the findings can be reproduced when the research is repeated under the same conditions by other researchers (Cardinale and Marsh 2020) and is a measure of consistency across different parts of the test itself as per Cronbach's alpha test (Rose and Johnson 2020). Validity is a measure of how well the results match established theories and other measures of the same concept (Ismail 2020). Validity was ensured by asking research experts in the field to read the questionnaire and comment on it, and by conducting a pilot text.

The study was delimited to third-year diploma students currently enrolled in entrepreneurship programmes at a selected university of technology. This was not extended to students not enrolled for entrepreneurship education. The study focuses exclusively on the impact of the specific entrepreneurship curriculum provided by the selected institution and will not consider other tertiary institutions. The research study focuses on third-year diploma students enrolled in entrepreneurship modules within a specific faculty at a selected university of technology. Since the study is limited to this particular group, its findings may not be applicable to students at other academic levels or those in programmes outside of diploma courses. Consequently, while the study offers valuable insights into the effectiveness of entrepreneurship education for this demographic, caution should be exercised when generalizing these results to other groups or educational settings. Additionally, the study's focus on a university of technology in KwaZulu-Natal may limit the relevance of its findings to traditional universities, as the environment, customs, and teaching methods at technology institutions can differ significantly from those at conventional universities. Therefore, it is important to carefully consider these differences when applying the results to other types of universities or educational contexts. Research ethics are moral principles and actions guiding and shaping research from its inception through to completion (Liguori and Winkle 2020). Participation was voluntary and a letter of information and consent form (Appendix B) was circulated to participants. Confidentiality and anonymity were practised so as to protect the privacy of the participants. Ethical clearance from the Faculty Research Ethics Committee and gatekeeper's permission from the office of the Directorate for Research and Postgraduate Support (Appendix A) were obtained.

1.9 OVERVIEW OF CHAPTERS

CHAPTER 1: INTRODUCTION AND BACKGROUND

Chapter one discusses the background to the problem, the objectives of the study, the significance of the study and the methodological approach adopted.

CHAPTER 2: LITERATURE REVIEW

Chapter two discusses studies conducted by other researchers in this field.

CHAPTER 3: RESEARCH METHODOLOGY

Chapter three discusses research design, research philosophy, research methods, population and sampling approach, and ethical considerations.

CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS

This chapter focuses on the presentation, interpretation and discussion of the findings in relation to secondary literature.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

This chapter discusses the key literature findings and focuses on how the objectives of the study were achieved. Furthermore, the chapter provides comprehensive discussion on the proposed practical recommendations to help address and improve knowledge and practice related to the phenomenon being investigated.

1.10 SUMMARY

Chapter one outlined the problem, research objectives, and methodology, emphasising the need for improved entrepreneurship education to enhance graduate employability and address economic challenges in South Africa. This chapter provides an in-depth overview of the significance of entrepreneurship education in fostering economic development and addressing graduate unemployment. It begins by highlighting the crucial role that entrepreneurship education plays in nurturing innovation, creating job opportunities, and spurring economic growth. In addition, the chapter underscores that effective entrepreneurship education equips students with essential skills such as problem-solving, risk management, and strategic thinking, and emphasises the importance of integrating practical experiences.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the literature relating to entrepreneurship education in HEIs. Ratten and Usmanij (2021) describe entrepreneurship education as developing inventive talents, which are a key driver of students' future development. Liguori and Winkle (2020) affirm that entrepreneurship education strives to educate and equip students with the skills they need to run their businesses successfully and continuously. This chapter discusses relevant theories regarding entrepreneurship education, the impact of the structure of entrepreneurship modules, the influence of entrepreneurship education on students, the impact of the FIR on entrepreneurship modules, and strategies to promote entrepreneurship education. The importance of the literature review is to demonstrate clearly how pivotal entrepreneurship education is in combating the high employment rate, developing students' capabilities and innovative and creative thinking to stimulate entrepreneurial growth.

2.2 CONTEXT OF THE RESEARCH

Entrepreneurship education is a fast-growing research field which links current business practices with academic theory. Entrepreneurship education develops graduates with the relevant skills, knowledge, and know-how to engage in new venture and help reduce the high graduate unemployment rate (Carpenter and Wilson 2022). The issue of unemployment in South Africa is increasingly worrying and raises the question of whether entrepreneurship education is sufficiently contextualised to produce successful entrepreneurs. The discussion on entrepreneurship education has grown significantly in both developed and developing countries with the focus on appropriate student preparation for employment (Amuda 2020). Popescu (2021) observes that in developed countries entrepreneurship education is designed to meet market competencies which have been determined through engagement with local businesses.

The Global Entrepreneurship Monitor Report (2023) indicates that South African public universities have a low level of entrepreneurship education. The Entrepreneurship Development in Higher Education (2020) initiative highlights that South Africa suffers from high unemployment because of a mismatch between the skills required by the industry and the curriculum covered in tertiary institutions. As a matter of serious concern, Entrepreneurship Development in Higher Education (2020) revealed that South African

public universities are struggling to initiate entrepreneurship education programmes, with only 20% of public university's offering entrepreneurship degree programmes and 28% offering short courses. This is a pressing issue considering that in developed countries entrepreneurship graduates are considered as the character of many ways including making a significant difference in determining potential solutions for improving economic situation, promoting growth, and mitigating high unemployment (Kathpalia and Leong 2020).

Entrepreneurship education in academic institutions is a critical component in building economic growth and improving students' skills, knowledge, and practical experience (Marzocchi, 2019: 144). When students start new businesses, they need entrepreneurship education to help them survive in a fast-paced, ever-changing corporate environment (Linton and Klinton 2019), with research showing that the knowledge gained from entrepreneurship education enables graduates to achieve their goals of growing and expanding a business in terms of quality, quantity, and turnover (Coad and Storey 2021). When graduates correctly apply their entrepreneurship skills and knowledge, their chances of surviving for a longer period in business increase (Wang 2020). Entrepreneurship education encourages students to see opportunities to expand their entrepreneurship and innovation (Guerrero and Espinoza-Benavides 2020). Not all students can be entrepreneurs, but the learning experience and personal development they receive should improve their overall chances of employment. Therefore, education is key to learning new skills, and entrepreneurship education promotes the skills required for the fourth industrial revolution (4IR) (Kruger and Steyn (2020).

2.3 THE SCOPE OF UNIVERSITY EDUCATION

A university education encompasses general and specialised knowledge which enables a university graduate to solve issues that they encounter in the workplace, or to conduct scientific research in the specialization area in which they have acquired knowledge (Vosloo and Antonites 2018). At university students learn about new research and technology and think independently and creatively (Urban 2019). In study abroad programmes, students can travel around the globe and take part in international entrepreneurship experiences. The scope of university education is designed to link the information from a variety of programmes to broaden entrepreneurship education (Khanyile 2018). The expansion of entrepreneurship education at the university level can improve academic funding for entrepreneurial studies, particularly work integrated learning (Garwe 2020).

Student entrepreneurship entails using the nation's student and graduate resources that are linked to 4IR technology to launch successful businesses that generate both income and jobs (Olaniran 2021). Furthermore, Ifeoma (2019) suggests that universities should create an entrepreneurial atmosphere that enables them to strategically initiate projects. This entrepreneurial atmosphere can be cultivated through a combination of curriculum development, experiential learning opportunities, and industry partnerships. Havenga (2021) defines education modules as consisting of learning content that is well structured and offered as a single unit within a learning programme. This unit looks at specifics such as goals, objectives, teaching and learning strategies, curriculum guide, assessment strategies, and their impact on achieving specific learning objectives. Jengeta and Phiri (2021) state that HEIs in South Africa offer design programmes and undergraduate programmes that cater for scarce skills. In addition, Akunne (2020) highlights that the entrepreneurship modules provide the opportunity for academic institutions to incorporate entrepreneurship education into existing undergraduate courses. Entrepreneurship modules are critical in guiding students towards entrepreneurship, even if they have not enrolled in an entrepreneurship programme, they will gain a strong understanding of self-employment in their respective disciplines (Maltitz and Lingen 2022).

2.4 DEFINITION OF ENTREPRENEURSHIP EDUCATION

Entrepreneurship education is a set of formal lessons and activities that inform, educate and prepare anyone interested in starting a business (Bauman and Lucy 2021). Entrepreneurship education programmes are an educational attempt to equip students with the knowledge and competency necessary to create businesses and develop economic value and jobs (Mei and Symaco 2022). Entrepreneurship stimulates economic processes, provides new merchandise, boosts the incomes of households, and benefits society by creating employment (Baggen, Lans and Gulikers 2022).

2.5 THE THEORIES THAT UNDERPIN THE STUDY

Theory is made up of generalised statements that describe, explain, or anticipate links or correlations across or among observations within the limits of the theory's fundamental constraining assumptions (Kivunja 2018). The current study was underpinned by four theories, namely, social cognitive career theory (SCCT), entrepreneurship career model, experiential learning theory (ELT), and economic theory of entrepreneurship.

2.5.1 SOCIAL COGNITIVE CAREER THEORY

The SCCT tries to unravel some of the intricate relationships between people and the circumstances that affect their careers, between interpersonal and cognitive variables, and between self-directed and external effects on career behaviour (Lent 2002). The theory supports students in their entrepreneurial career to be more inclined towards entrepreneurship and become successful entrepreneurs. The theory must be well emphasised in entrepreneurship studies to entice students to be more involved in entrepreneurship education after their undergraduate studies. The SCCT has application in a wide range of psychosocial domains such as academic achievement, health behaviours, organisational management, and effective reaction (Lent, 2019: 154). SCCT embraces constructivist beliefs regarding students' ability to control their own growth, and environment in entrepreneurship. SCCT theory proposes three pillars of career development (Bandura 1989) namely, self-efficacy beliefs, outcome expectations, and goals. These pillars are discussed below.

2.5.1.1 SELF-EFFICACY BELIEFS

Self-efficacy appraisal is the SCCT component that has attracted the greatest interest in career literature. Bandura (1986: 1390) defined self-efficacy as "people's assessments of their capacities to plan and carry out actions necessary to achieve specified forms of performance". Through self-efficacy beliefs, the students enrolled for entrepreneurship education are able to assess themselves in determining the right type of entrepreneurship while they are pursuing their undergraduate studies. Chunna (2019) observe that self-efficacy belief has a correlation with entrepreneurship because it provides a clear path for students to build an accurate entrepreneurship career. Career adaptability identifies a person's capacity and aptitude to deal with ongoing and upcoming activities connected to job development and career change (Johnson, Adkins and Chauvin 2020).

2.5.1.2 OUTCOME EXPECTATIONS

The term 'outcome expectancies' is related to how the undergraduate entrepreneurship student anticipates that all the academic theory and practicals they are doing will be applicable when they start their new business venture after graduating (DÖLarslan, Koçak and Walsh 2020). This is about how positive behaviour is perceived; in the context of this study this means a respondent holds an attitude that entrepreneurship modules prepare undergraduate students to become future entrepreneurs.

2.5.1.3 PERSONAL GOALS

Personal goals are the intent to engage in a specific activity (such as pursuing a specific academic major or to perform at a particular level, such as to perform best in a particular course). By establishing goals students can better organise and control their plans about entrepreneurship because they then know what they want to achieve as a major goal in entrepreneurship and commit enough time to work on those goals. According to Social Cognition Theory (Bandura 1989), people prefer to choose objectives that are compatible with their perceptions of their own talents and the results they anticipate achieving from pursuing a specific course of action.

2.5.1.4 BENEFIT OF SCCT

Ndhlovu (2020) asserts that entrepreneurship programmes as a career choice at HEIs would benefit if SCCT is applied. SCCT has been used in this research as it suits the research at hand which explores the relevance of entrepreneurship educational modules offered as part of undergraduate qualifications to students. The theory was used in this study to illustrate the main pillars that can be used in the entrepreneurship education being offered by HEIs in preparing future entrepreneurs. In addition, this theory explains how interests develop, how career choices are formed, and how academic and professional success is attained. Valentine and Kosloski (2021) state that SCCT can help entrepreneurial students understand what they want to achieve in entrepreneurship and career development. Nabi Walmsley and Akhtar (2021) propose that the pillars of self-efficacy belief, outcome expectation and personal goals are able to produce well equipped future entrepreneurs. Students can advance entrepreneurial values, knowledge and skills, opportunity recognition, and self-esteem if SCCT is adopted in entrepreneurial studies. Figure 1 illustrates how academic and career interests are developed to have an effective and reliable programme in tertiary institutions.

The Social Cognitive Career Theory (SCCT) diagram illustrates how individual career development is influenced by personal, behavioral, and environmental factors through a dynamic, interactive process. The diagram typically features three core components: self-efficacy, which reflects individuals' beliefs in their ability to succeed in specific career tasks; outcome expectations, which are individuals' beliefs about the potential results of their actions; and career interests and goals, which are shaped by these beliefs and expectations. The interactions among these components, along with contextual influences like social support and barriers, determine career choices and development paths. The

SCCT framework emphasises that career decisions and behaviors are the result of an ongoing interplay between personal attributes, learned experiences, and external factors.

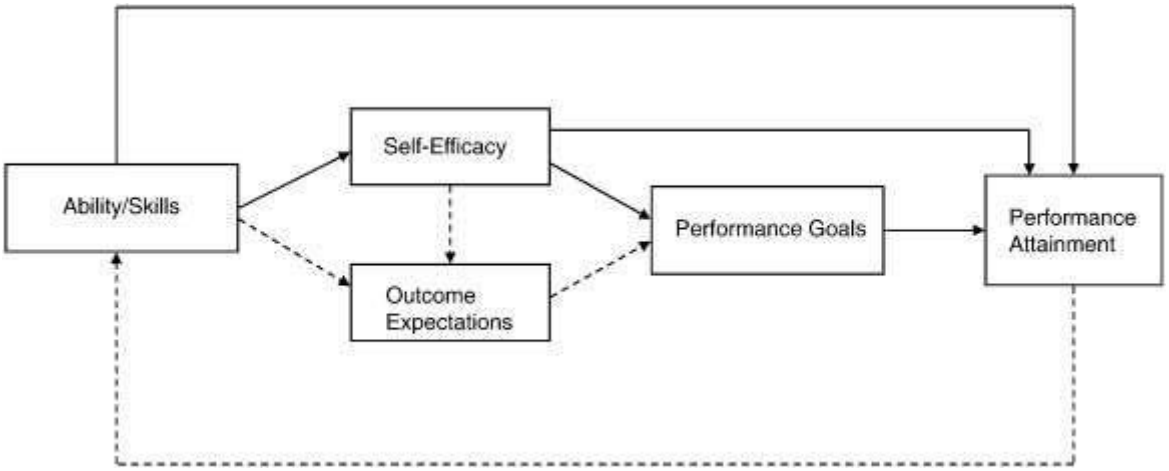

Figure 1: SCCT diagram

Adapted from Bundura's Social Cognitive Career Theory

2.6 ENTREPRENEURSHIP CAREER MODEL

The entrepreneurial career model emphasises the elements of education that are essential for preparing students for a successful entrepreneurial career, such as career choices, socialisation, orientation, and growth (Dyer 1994). The theory establishes the amount of entrepreneurship material that should be included in the curriculum. There are three aspects of the philosophy of entrepreneurial careers which are examined in entrepreneurial careers, namely, career socialisation, career orientation, and career development (Muofhe and Du Toit 2011). The current study adopted the entrepreneurship career model because of its alignment with the practical, skill-oriented needs of South African diploma students, its focus on integrating educational and institutional factors, and its applicability in assessing the effectiveness of entrepreneurship education programmes. This ensures that the study provides relevant and actionable insights into enhancing entrepreneurial preparedness in the South African Higher Educational Institution context.

2.6.1 CAREER SOCIALISATION

According to Weidman and DeAngelo (2020) a career is an element that characterises a person's journey through life in a variety of facets, such as education, training, and work experience. The authors state that career socialization helps students perform better because it improves the quality of learning and training. Career socialisation is the process by which individuals learn to integrate into a new team or position (Sonnenschein 2020).

This prepares undergraduates with a practical understanding of entrepreneurship. An individual develops the attitudes, actions, and knowledge necessary for a specific job function through this process.

2.6.2 CAREER ORIENTATION

Career orientation is related to an individual's professional self concept, which has an impact on the kinds of jobs and work environments they choose (Struwig and Botha 1994). The relevance of career awareness and guidance programmes in the education sector cannot be overstated because this helps the undergraduate to understand the activities that are involved in particular avenues of entrepreneurship (Koekemoer 2019). This awareness makes it much easier to start a business because the student is already well orientated to the requirements of that avenue of entrepreneurship. Career orientation for students makes it easier for them to choose the right entrepreneurship activity and invest in it to gain all the required skills and knowledge. The result is successful entrepreneurs that will last longer in business because of the academic theory and practical based learning they gained from their entrepreneurial education.

2.6.3 CAREER DEVELOPMENT

Career development can be demonstrated to students through including people from the real entrepreneurial space in the academic programme where they can share their experience and be role models that students can aspire to (Gibb (1994). Hynes (1996) states that training and education in preparing students to become entrepreneurs is based on academic theory and entrepreneurial challenges. Furthermore, Hynes (1996) highlights that the methods used in preparing students in entrepreneurial studies must be suitable for combating the unemployment rate. Entrepreneurship education is one of the strategic tools that can be used to combat unemployment in South Africa. Career development if is well adopted can help in determining the required entrepreneurship skills and knowledge required by undergraduates to utilise those skill sets after completing their qualification.

2.7 EXPERIENTIAL LEARNING THEORY

Experiential earning theory (ELT) proposes a learning paradigm that includes two separate modes of gaining experience: tangible experience (apprehension) and conceptual understanding (comprehension) (Baker, Jensen and Kolb 2002). Reflective observation (intention) and active experimentation are two unique techniques of modifying experience to obtain learning (extension). In the context of entrepreneurship education, WIL programs can play a crucial role by providing students with the opportunity to work on real

entrepreneurial projects or internships in entrepreneurial settings (O'Reilly 2020). Experiential learning requires learners to constantly choose which skills and theoretical knowledge to use in each learning circumstance, which assists in integration of theory and practice. The theory will be adopted in this study to better understand the impact of experiential learning experience on students during entrepreneurship studies.

2.8 ECONOMIC THEORY OF ENTREPRENEURSHIP

The economic theory of entrepreneurship provides a theoretical insight into nature and mechanism of economic change (Schumpeter 1934; Manyaka-Boshielo 2019). Implementing novel business combinations is essentially a creative endeavour. Daka (2022) states that an entrepreneur is someone who sees potential for innovation and is able to start new businesses. Entrepreneurs are issue solvers, and innovation requires problem solving. HEIs should strive to upskill their undergraduates with entrepreneurship capabilities that will bring about the innovative business ideas that students can enact in the future as entrepreneurs. Creating new businesses is essential for economic growth and more opportunities occur where the Economic Theory of Entrepreneurship is adopted. The element of entrepreneurship education to undergraduates creates a space of entrepreneurial activities that can help develop the economy (Dana 2021). The theories mentioned above are paramount in entrepreneurship education. The entrepreneurship career model is very much in line with this study for entrepreneurship education in HEIs in South Africa to create better future entrepreneurs.

2.9 UNEMPLOYMENT RATE OF GRADUATES IN SOUTH AFRICA

According to Daniels (2021) the youth unemployment rate in South Africa is high regardless of educational degrees attained. Based on the Quarterly Labour Force Survey (2021) graduate unemployment rates for youth aged 15-24 years is 40.3% followed by graduates aged 25-34 years of 15.5% and graduates aged 35-64 years with 5.4%. These figures reveal a large gap in entrepreneurship and employment opportunities for graduates in their field of qualification. The gap in skills between graduates and what the labour market needs is a major reason for the high unemployment rates among graduates in South Africa. Ngubane, Mndebele and Kaseeram (2023) are of the view that employers value practical skills and work experience, which many graduates lack, leading to a mismatch between their academic qualifications and job requirements. The slow economic growth and limited job opportunities in certain industries make it even harder for graduates to find suitable employment (Musariwa 2023). To effectively tackle graduate unemployment in South Africa,

it is necessary to enhance the quality of education and training, foster partnerships between universities and businesses to ensure graduates have the necessary skills and provide more opportunities for internships and practical experience (MacGinty 2024). By addressing these core issues, South Africa can move closer to reducing graduate unemployment and creating a more fair and prosperous society for all its citizens.

2.10 ENTREPRENEUSHIP EDUCATION AS A TOOL TO COMBAT UNEMPLOYMENT

The high unemployment rate in the South Africa is a major concern especially among young people, emphasising the necessity for prompt and efficient remedies. Scholars such as Olumuyiwa (2023) affirm that a significant obstacle to this problem is insufficient entrepreneurial knowledge and skills possessed by individuals who have completed their tertiary education. This gap highlights the significance of incorporating entrepreneurship education into the courses offered by universities in order to provide students with the essential skills and mindset needed to thrive as entrepreneurs. Integrating entrepreneurship education into higher education programmes enables students to gain the necessary knowledge, skills, and mindset to recognise and seize entrepreneurial opportunities (Somia 2024). This change in culture has lasting impacts on the economy, as a successful environment for entrepreneurs results in higher levels of innovation, productivity, and competitiveness in the economy in general. Entrepreneurship education helps students better understand the process of starting a business and what it is that motivates them to pursue their own entrepreneurial endeavours (Ntshangase 2023). Entrepreneurship education is beneficial for students coming from disadvantaged backgrounds as it equips them with essential skills, knowledge, and attitudes needed to overcome challenges in traditional employment. Students engage in hands-on learning experiences covering areas like business planning, financial management, and marketing, allowing them to identify and make use of opportunities regardless of their circumstances (Seoke 2023). Furthermore, entrepreneurship education promotes creativity and resilience, inspiring students to think outside the box and persevere in the face of obstacles. Dadam (2024) emphasise that providing students with these skills and mindsets, entrepreneurship education opens up new avenues for learning, financial independence, and success, empowering students to carve out their own paths and improve both their personal and community well-being.

Entrepreneurship education is crucial for combating unemployment because it encourages creativity, independence, and the creation of new job opportunities. Scholars such as Havenga (2021) agree that this type of education equips students with the skills and

knowledge needed to get good information on how to start and expand businesses. Promoting entrepreneurship enables students to become self-sufficient and lessen their dependence on traditional jobs (Ncube 2024). Additionally, entrepreneurship education fosters a mindset that focuses on recognising and seizing opportunities, adapting to changes, and persevering through difficulties, all of which are necessary for a successful entrepreneurial career. Entrepreneurship education should be incorporated into formal academic programmes at all levels, from elementary schools to universities. Hands-on learning experiences like business simulations and mentorship programmes, and collaboration with educational institutions, government agencies, and private businesses, is vital to ensure that entrepreneurship education meets the demands of the job market and that graduates receive the necessary support to start and maintain their own businesses (Motta 2023).

2.11 THE SOUTH AFRICAN HIGHER EDUCATION INSTITUTION CONTEXT OF ENTREPRENEURSHIP EDUCATION

Naong (2019) found that African HEIs are attempting to reshape the graduate labour market by introducing entrepreneurship programmes to help minimise graduate unemployment. Entrepreneurial studies have grown in importance in South Africa as a means of addressing economic issues, due to growing unemployment. Mahlaole and Malebana (2021) affirm that entrepreneurship education should inform young people about the possibility of pursuing a career as an entrepreneur, but also instill the mindset, attitudes, and develop the skills and abilities required to determine, appraise, and utilise market opportunities. However, Kunene (2021) argues that South African universities still do not have special training for most successful innovative business ideas, but instead rely solely on the academic curriculum. Tehseen and Haider (2021) state that the incorporation of empirical methodologies into commerce leads to the creation of long-term businesses. Circumstances have altered the way enterprises are conducted and universities should adapt to the practical ramifications of this in their entrepreneurial studies programmes.

Cera *et al.* (2020) state that universities see entrepreneurship as a tool for building economic growth, using academics as catalysts to turn students into entrepreneurs. Traditional universities and universities of technology in South Africa are gradually filling the missing entrepreneurial qualification gap (Daka and Siad 2022). Some South African HEIs have introduced entrepreneurship modules to encourage and emphasise student entrepreneurship (Hiver, Al-Hoorie and Larsen-Freeman 2022). However, the fact is that

South Africa lacks sufficient entrepreneurship programmes in universities. Lazzaro (2021) is of the view that entrepreneurship modules provide the basics of entrepreneurship leaving students with insufficient knowledge of entrepreneurship. The teaching methodology of entrepreneurship modules in South Africa is based on academic theory (Koekemoer and Crafford 2019). Lamanauskas and Makarskaite Petkeviciene (2021) suggest that guest lectures by experienced entrepreneurs should be used to teach students about the reality and experience successful entrepreneurship. Listening to stories from successful entrepreneurs who have faced obstacles and accomplished their goals can be very inspiring for students. These narratives act as strong illustrations of what can be achieved and can assist students in picturing themselves as thriving business owners (Radebe and Vezi-Magigaba 2021).

Unless South Africa closes the entrepreneurship education gap, the unemployment rate will rise exponentially (Mbila 2021). All traditional universities and universities of technology should have at least one entrepreneurship programme. Entrepreneurship programmes inspire students to start thinking about entrepreneurship. The knowledge that students receive from entrepreneurship programmes influences students in the entrepreneurship environment. The DHET assists HEIs to promote entrepreneurship through academic programmes (Department of Higher Education and Training [DHET] 2022). The DHET with relevant partners, including the South African Qualifications Authority (SAQA), determine programme content, curriculum and NQF levels. Madzivhandila and Musara (2020) observe that entrepreneurship education in tertiary education is developed to promote long-term entrepreneurship, specifically in South Africa.

2.12 TEACHING APPROACH TO ENTREPRENEURSHIP

The method of teaching entrepreneurship greatly impacts student choices to begin their own businesses by equipping them with the essential skills, knowledge, and mindset. Mawson, Casulli and Simmons (2023) state that students acquire practical knowledge about entrepreneurship by engaging in hands-on learning activities such as business simulations and real-world projects. Participating in these activities help students gain a better understanding of the challenges and processes involved in starting and managing a business, potentially motivating them to pursue their own entrepreneurial endeavours. The structure of entrepreneurial education modules is often criticised for being too theoretical and not closely connected to real-life entrepreneurial experiences. Antonelli *et al.* (2024) state that syllabuses tend to place a strong emphasis on business theory and concepts

while overlooking the practical skills and experiences necessary for aspiring entrepreneurs. An entrepreneurial education syllabus should focus on experiential learning such as developing business plans, conducting market research, and managing finances (Ripollés and Blesa 2024). Furthermore, some syllabus may not cater to the diverse needs and backgrounds of students, resulting in a lack of relevant and practical guidance for aspiring entrepreneurs from different socioeconomic and cultural backgrounds. The structure of entrepreneurial education modules may come under scrutiny for focusing mainly on conventional business skills like accounting and finance, while neglecting critical entrepreneurial skills such as creativity, innovation, and resilience (Janowski and Szczepańska-Przekota 2024). These essential skills are often overshadowed despite their significance in achieving entrepreneurial success. Syllabuses must also adequately address the evolving nature of entrepreneurship in the digital era, and include crucial topics like e-commerce, digital marketing, and technology integration that are increasingly vital for contemporary entrepreneurs (Ferreira, Robertson and Pitt 2023). In general, there is a call for a more comprehensive and practical approach to developing syllabi for entrepreneurial education courses, one that prioritises hands-on learning, the cultivation of critical skills, and relevance to the current entrepreneurial environment.

2.13 INTERNATIONAL PERSPECTIVE OF ENTREPRENEURSHIP EDUCATION

Rodriguez and Lieber (2020) highlight that entrepreneurship education teaches students in a variety of educational settings to deal with real-world problems. Specifically, business and entrepreneurship education focus on mindset and personal growth, preparing students to adapt to changes in the business environment. Fernandes and Ferreira (2022) claim that entrepreneurship education benefits students since it helps them to develop unique skills and enhance creativity. This means that if entrepreneurship education is offered correctly and strategically by HEIs, it will assist students in developing the proper entrepreneurial mentality that will lead to success as well as the development of entrepreneurial skills. The skills and abilities to be developed should be in line with the key educational entrepreneurship intention and must be followed in each age and maturity level of education, with different versions of entrepreneurship education being taught at every level of education, from primary school to graduate university level (Hägg and Kurczewska 2021). Furthermore, Cera *et al.* (2020) state that entrepreneurship education programmes need to be viewed not only as a tool to attract students, but also as one that fosters entrepreneurship, thereby improving one's capability, skills, and motivation to become an entrepreneur (Cera *et al.* 2020).

Germany has initiated broad support for entrepreneurship at the universities of technology that includes entrepreneurship education and business practice (Jardim, Bártolo and Pinho 2021). In Europe entrepreneurship courses are taught as project-based courses to emphasize academic-to-business connections (Colombelli *et al.* 2022). Universities of technology and science in the United Kingdom have become prospective recruiting grounds for high-growth businesses (Onjewu, Haddoud and Nowiński 2021). Graduate entrepreneurship teaches business and non-business students the fundamental aspects of entrepreneurship (Waldner 2020). China teaches entrepreneurship from low to high level and assess the socio-economic problems they have before implementing subjects in primary school (Dźwigoł 2020). Thailand provides students enrolled in entrepreneurship programmes with resources to start entrepreneurial activities; successful students are encouraged to liaise with stakeholders to help students start their own businesses (Al-Ababneh 2020). Students enrolled in the entrepreneurship programme are exposed to business realities. Various government agencies regarding entrepreneurship education in universities encourage students to become more involved in entrepreneurship (Olivier 2020). Graduate entrepreneurship is rapidly being recognised in South Africa as a critical source of competitiveness and an engine for economic growth and development (Okoh *et al.* 2024). However, this is an uphill battle in South Africa as there is a shortage of students who have the orientation and skills to create new businesses owing to a lack of adequate and vibrant entrepreneurship educational programmes in South Africa.

2.14 SIGNIFICANCE OF ENTREPRENEURSHIP EDUCATION IN HIGHER EDUCATION INSTITUTIONS

Lv *et al.* (2021) point out that the world has progressed to a new level of technology and several countries have recognised the need for entrepreneurial education. The covid-19 pandemic challenged HEIs to take significant steps and rethink their roles in knowledge advancement in the economy and entrepreneurial studies (Lazzaro 2021). There is a need for universities to strategise entrepreneurial studies to build a creative economy through entrepreneurship graduates. Lv *et al.* (2021) emphasise that entrepreneurship education encourages university students to establish firms by fostering innovation, improving leadership skills, and preparing students for an uncertain future. The economy of African countries depends on entrepreneurship for job creation, economic growth, and development, so entrepreneurship studies are very important (Ajide 2021; Mbila 2021). Entrepreneurial studies should be an experience-based learning strategy that provides a sense of industry engagement to students and if that is not done, entrepreneurship

programmes become dull and lack the intentions they were once designed for (Ratten and Usmanij 2021). It is crucial to incorporate entrepreneurship education into university courses because this will help students enhance their creative thinking, innovative mindset, and problem-solving abilities. This equips them with the skills needed to recognise and take advantage of entrepreneurial opportunities (Gamede 2023). Entrepreneurship education encourages a proactive approach to career growth, teaching students' self-reliance and adaptability in the face of economic changes, ultimately helping to reduce unemployment rates. Studying entrepreneurship in school also helps students develop a well-rounded skill set beyond just business knowledge, focusing on important life skills like adaptability, leadership, and communication that are valuable in any career (Kumar and Alwi 2023). Additionally, entrepreneurship education cultivates a mindset of constant learning and improvement, encouraging students to overcome challenges, learn from failures, and innovate consistently in today's fast-paced world. Overall, entrepreneurial education has a positive impact on students by promoting innovation and business growth, which in turn contributes to overall economic development (Olutuase, Brijlal and Yan 2023). Students who have a background in entrepreneurship often start their own companies, which not only generates employment opportunities but also encourages economic growth and innovation across different industries (Morrish, Wolf and Meriluoto 2022). Moreover, learning about entrepreneurship helps aspiring business owners understand the importance of social responsibility and ethical conduct, ensuring that their ventures should have a favourable impact on both society and the economy. In general, incorporating entrepreneurship education into academic settings is essential for decreasing unemployment rates, shaping students into flexible individuals, and promoting economic advancement and growth.

2.15 THE INFLUENCE OF ENTREPRENEURSHIP EDUCATION ON STUDENTS

Globally, there has been a growing interest in entrepreneurial education (RosadoCubero, Freire-Rubio and Hernández 2021) in recognition of the fact that entrepreneurship education programmes are influential in helping students develop their abilities as well as the skills needed to start and run a business (Galvão, Marques and Ferreira 2020). Entrepreneurship classes provide aspiring entrepreneurs with the tools they need to turn a new idea into a reality (Agarwal *et al.* 2020). To better understand the potential causes of unemployment, a study conducted by Golann and Toress (2018) discovered that undergraduate students have little interest in pursuing a career in entrepreneurship. However, when it comes to entering the business world, South African youth face numerous challenges, such as unemployment (Hamilton and Mostert 2019). Putri, Rahmawati and

Suroto (2019) state that universities can make a key contribution to development by creating a structure that equips individuals with entrepreneurial skills. Cera *et al.* (2020) are of the view that university graduates from entrepreneurship education programmes are more likely to have positive attitudes and intentions to become entrepreneurs. Therefore, universities should develop their internal ecosystems to foster student driven entrepreneurship (Kummitha and Kummitha 2021). According to Agarwal *et al.* (2020) universities are serious about changing the learning process and providing students with the knowledge they need to improve entrepreneurship education. Indeed, their efforts are rewarded by the students' success during the learning period because of the knowledge they gain. Kummitha and Kummitha (2021) affirm that education and training are two critical components of sustainable entrepreneurship and can be achieved by transferring knowledge which is facilitated through education in terms of entrepreneurial intention, skills, competencies, personality change, and, most importantly, attitude change (Agarwal *et al.* 2020).

Laguna-Sánchez, Segovia-Pérez and Vargas-Pérez (2021) are of the view that the structure of entrepreneurship modules should be designed to provide a student with the key elements of entrepreneurship. HEIs must be aligned to existing enterprises to ensure that the academic structure is suitable for the local issues relating to entrepreneurship but is also relevant in the global context (Rasiah, Somasundram and Tee 2019; Uctu, Essop and Jafta 2020; Pet'ko *et al.* 2021; Sun 2018). Practice-based projects can be included as a core component of teaching and evaluation (White and Kennedy 2021), and guest entrepreneurs make presentations so that they can be real life examples for students Dinning (2019). Entrepreneurial qualifications determine the capital, wealth and prosperity of generations (Dinning 2019). Graduates from entrepreneurial studies are much more likely to be successful (Dube 2021). Entrepreneurship education includes building skills in negotiation, leadership, new product development, creative thinking, and technological innovation (Garwe 2020). However, the limited number of entrepreneurship programmes hinder the number of future innovative entrepreneurs that can help in reducing the unemployment rates and building a better economy. Entrepreneurship education in universities plays a key role in shaping students' perspectives and skills by means of the content included in the courses. The material in the modules helps students gain a thorough understanding of the entrepreneurial journey, starting from generating ideas to establishing and expanding a business. Module content provides students with the necessary knowledge and skills to launch and oversee a prosperous business by addressing areas such as identifying opportunities, creating business plans, marketing strategies, financial management, and

operational procedures (Ayandibu 2023). Modules should include case studies and industry-based projects to give students a hands-on understanding of the practical aspects of entrepreneurship (Nchu, Tengeh and Cronje 2023). This experience can assist students in gaining a more practical understanding of entrepreneurship and equip them to tackle the obstacles of the corporate environment. Through exposing students to changing business situations and motivating them to create original solutions, the module material can assist students to cultivate a mindset of innovation and creativity. Thinking outside the box is crucial for entrepreneurship since entrepreneurs frequently have to be creative in order to recognise and take advantage of fresh opportunities. Gamede (2023) states that the material covered in a module can assist students in acquiring valuable entrepreneurial skills like communication, leadership, and teamwork. Entrepreneurship education can assist students in acquiring the necessary skills for success in entrepreneurship by including group projects, presentations, and networking opportunities within the module content.

2.16 SKILLS OFFERED THROUGH ENTREPRENEURSHIP EDUCATION PROGRAMMES

The growing utilisation of technology in all education, training, and development situations has sparked a lot of discussion. HEIs need to ensure that the entrepreneurship skills taught are marketable, and that students understand how digital technology is used for entrepreneurship (Jones, Maas and Pittaway 2017; Carrim 2022; Radebe and Vezi-Magigaba 2021). Entrepreneurship education should include managerial skills training for continuous innovation and economic growth to be ensured (Denhere and Moloi 2021). Training in business transformation can help to bridge the gap between theory and practice in higher education (Luthuli and Buthelezi 2021). Entrepreneurship programmes are designed to enable students to be able to play an important role in the economy and start new businesses (Govender 2021). The labour market determines how the structure for entrepreneurial studies should be formulated to meet precise requirements demand by the labour market (Cera *et al.* 2020).

2.17 THE IMPORTANCE OF ENTREPRENEURSHIP EDUCATION IN PROMOTING ENTREPRENEURIAL SKILLS

Entrepreneurship education aids in the establishment of a solid understanding of business fundamentals, including key areas such as marketing, finance, and operations. According to Ferreira, Robertson and Pitt (2023), aspiring students need to grasp knowledge in order to learn the basics of managing a business and then be able to make well-informed choices.

Students develop innovative thinking and gain a new perspective on problem-solving by participating in experiential learning activities and facing real-world entrepreneurial challenges (Abro *et al.* 2023). This mentality is crucial for students who frequently have to deal with uncertainties and conquer challenges in order to succeed. There are a number of reasons why undergraduate unemployment occurs, such as problems with the curriculum and insufficient entrepreneurial skill sets. The mismatch between the skills taught in colleges and universities and the skills required by the labour market is one of the main factors (Voudda and Kakouris 2023). Many university programmes place a strong emphasis on conventional disciplines and theoretical knowledge, frequently ignoring the practical skills that are essential to the workplace and in high demand by employers.

2.17.1 Technical skills in the context of entrepreneurship

Having technical skills is essential in equipping students with the knowledge and tools they need to transform their concepts into profitable businesses as future entrepreneurs. Having technical skills in fields like programming, data analysis, and digital marketing is crucial for creating and executing fresh business concepts (Bell and Bell 2023). A student who is proficient in programming will be able to develop new software products, while data analysis will enable them to be able to recognise market trends and potential opportunities (Hardini, Khaizure and Godwin 2024). Kumar and Anbanandam (2022) point out that in the current era of technology, businesses rely on technological advancements to drive innovation and improve efficiency. Students with technical abilities can leverage technology to improve business operations, expand their reach through online marketing, and develop adaptable solutions that can evolve alongside their business. Through being technically proficient, students can portray themselves as entrepreneurial individuals who are innovative and forward-thinking, able to adjust to the evolving needs of the market (Omeihe *et al.* 2023). Technical skills enhance other entrepreneurial skills such as creativity, communication, and problem-solving. For instance, a student who possesses strong technical skills can effectively convey their ideas to investors and customers, demonstrating the potential of their business. Moreover, having technical skills allows students to tackle entrepreneurial challenges by applying a problem-solving mindset, coming up with creative solutions to difficult problems.

2.17.2 Computer applications skills for entrepreneurship to meet the demands of 4IR

Having computer application skills is crucial for entrepreneurs to adapt to the 4IR, where technologies are starting to merge and create a continuous line between the physical, digital, and biological worlds. According to the study conducted by Seleke and Chukwuere

(2023), 4IR-related abilities allow students to use technology to come up with new ideas, add value, and stay competitive in a constantly changing business world. Ntombela and Civilcharran (2023) assert that it is essential for student in the 4IR to have a good understanding of e-commerce platforms and online payment systems. As online shopping and the digital economy continue to expand, students who possess the ability to create and oversee an online store can benefit from accessing new markets and boosting their earnings. Proficiency in cybersecurity is crucial for venturing into the 4IR to safeguard important business information and systems from cyber risks. Students with expertise in cybersecurity have the ability to establish strong security protocols that protect their businesses and establish credibility with their clients (Baadjie 2023). Learning these skills, students can improve their entrepreneurial abilities and be better equipped to handle the opportunities and challenges of the 4IR.

2.17.3 MARKETING SKILLS NEEDED TO START A SMALL BUSINESS

A crucial marketing skill for entrepreneurs is being adept in digital marketing. The emergence of digital technologies has shifted the focus of marketing from traditional mediums to digital platforms such as social media, search engines, and email (Tyson and Schell 2024). Students who have a strong understanding of digital marketing are able to advertise their products or services effectively, connect with a wider range of people, and interact with customers in a more individualised way. Students must grasp the fundamentals of market research in order to recognise and understand potential customers, evaluate competitors, and establish the demand for their products or services as entrepreneurs (Ferreira, Robertson and Pitt 2023). This basic understanding will assist students create focused marketing plans that connect with their desired audience. Students must understand branding and positioning in order to distinguish their business from competitors and establish a distinctive presence in the market. According to Kumar and Alwi (2023), marketing skills involve creating an engaging brand narrative, crafting a distinctive logo and visual style, and building a solid brand presence on different marketing platforms. Students must recognise the significance of market segmentation and targeting in order to customise their marketing strategies for specific groups of customers. This includes the process of recognising various customer groups with characteristics like age, interests, and actions, and creating marketing tactics that cater to each specific group. Students ought to acquire knowledge in marketing analytics in order to gauge the success of their marketing efforts and to base their decisions on data-driven insights (Ferreira, Robertson and Pitt 2023). This

involves knowing how to monitor important metrics, interpret marketing data, and improve campaigns for enhanced outcomes.

2.17.4 COMMUNICATION SKILLS IN THE CONTEXT OF ENTREPRENEURSHIP

For students who want to start their own business, communication skills are crucial because they will be needed to succeed in the competitive business environment. Proficiency in communication enables students to effectively communicate their vision, mission, and goals to various stakeholders, such as partners for future entrepreneurship, employees, investors, and customers (Olutuase, Brijlal and Yan 2023). A crucial component of entrepreneurship is networking, and students who are good communicators have a higher chance of making lasting relationships with mentors, business leaders, and possible partners. As students set out on their entrepreneurial journeys, these connections can offer invaluable direction, encouragement, and growth possibilities (Sibanda and Iwu 2023). Students who communicate better are able to set expectations, give constructive criticism, and create a cooperative, productive work atmosphere. Decision-making and problem-solving require effective communication. To recognise and handle obstacles, come to wise judgements, and adjust to shifting conditions, entrepreneurs must be proficient communicators (Somia, Lechner and Pittaway 2024). Students who possess strong communication skills can successfully negotiate the challenges of entrepreneurship and get around roadblocks. To prepare students for success as entrepreneurs, communication skills must be incorporated into entrepreneurship education. These abilities are essential for problem-solving, leading teams, developing connections, selling goods and services, and pitching ideas. Through the cultivation of robust communication abilities, students can enhance their capacity for success in the ever-changing scope of entrepreneurship.

2.18 GRADUATES' CHALLENGES IN CREATING OPPORTUNITIES FOR SELF-EMPLOYMENT

Graduate unemployment is linked to the global economic downturn and increased access to higher education on a worldwide scale (Graham, Williams and Chisoro 2019). This is because of the way entrepreneurship education has been addressed. Pet'ko *et al.* (2021) state that entrepreneurial abilities can be measured using widely acknowledged criteria, and they can be strengthened through training and development to satisfy employment requirements. Graduates select purposeful career paths when they choose their entrepreneurial programme. Price and Ronnie (2021) state that the world of work has changed rapidly and there are fewer and more competitive employment opportunities for

graduates, thus introducing the challenge of self-employment. Lu, Song and Pan (2021) argue that the incompatibility of university skills and training means graduates are faced with the challenge of finding jobs in their academic field, and at the same time facing the barriers to self-employment. Graduates without the element of entrepreneurship encounter challenges to start their own business because the required skills and knowledge to run such businesses positively is lacking (Yende and Mugovhani 2021). A significant challenge for South African graduates seeking self-employment opportunities is a lack of entrepreneurship credentials. The country's HEIs are struggling to provide access to entrepreneurial education and training programmes (Ratten and Usmanij 2021). Many recent graduates find it challenging to negotiate the complexities of entrepreneurship because they lack the fundamental knowledge and abilities required to launch and run their own firms. Graduates generally lack experience of, and comprehension of, entrepreneurship as a feasible career option. In South Africa, there is still an ongoing traditional attitude that prioritises official employment above entrepreneurship, which causes many graduates to discount or ignore the prospect of launching their own enterprises. The restricted entrepreneurial culture and ecosystem that results from this lack of knowledge makes it more difficult for graduates to pursue prospects for self-employment. South Africa's tertiary education system does not provide entrepreneurship degrees, so graduates frequently lack the resources and direction needed to launch their own businesses (Odeyemi *et al* 2024). Graduates with degrees in entrepreneurship may benefit from mentorship, networks, and resources, as well as transferable skills that are essential for success in business. Graduates could find it difficult to get past the early obstacles of launching a business without these credentials, and they might give up on their dreams of becoming entrepreneurs more easily.

2.19 IMPACT OF 4IR ON ENTREPRENEURSHIP EDUCATION

Tshabalala and Beharry-Ramraj (2021) state that education involves the acquisition of knowledge and skills because of multiple events influenced by several factors, among which technology has probably the greatest influence. In this day and age, 4IR technology and skills are often required (Adeniyi and Ganiyu 2021) to start businesses, but South Africa has few entrepreneurial qualifications, which could be a reason graduates are struggling to create entrepreneurial ventures. Yali and Changwei (2021) observe that information technology is now widely used in HEIs, transforming higher education, but that is not enough; there must also be a focus on entrepreneurship and 4IR (Yali and Changwei 2021; Mtsweni, Serumaga-Zake and Kruger 2020; Elayyan 2021). Universities should adopt good

strategies to provide relevant knowledge connected to 4IR as technology changes (Naudé 2017; Mkwanazi and Mbohwa 2018). Mlambo (2020) is of the view that South African universities are still lagging far behind in terms of new technologies. HEIs should recognise that a 4IR-compatible industrial framework necessitates the promotion of entrepreneurial experimentation within a suitable entrepreneurial environment (Guma and Dahlan 2019). Understanding the consequences of 4IR on entrepreneurship education requires universities to invest resources in entrepreneurship education learning and teaching (Breznitz and Zhang 2022; Fatima 2021). Employers in South Africa expect graduates to have at least the bare minimum of skills compatible with 4IR, but entrepreneurship education is lagging behind (Zwane 2020). Developed countries have adequate finance and resources made a swift shift in entrepreneurship education (Aman, Shaari and Ibrahim 2021) but in developing countries many sectors are struggling to meet the 4IR's requirements (Mustapha and Ralphs 2021).

2.20 SUMMARY

High unemployment in South Africa, especially among youth, requires urgent solutions. Insufficient entrepreneurial skills hinder job creation. Universities must integrate entrepreneurship education to equip students with necessary knowledge and mindset. Entrepreneurship education fosters innovation, productivity, and independence, benefiting disadvantaged individuals. Collaboration with various stakeholders is key to providing practical skills and support for successful business ventures, ultimately reducing unemployment and fostering economic growth. HEIs in South Africa are focusing on entrepreneurship education to address graduate unemployment and economic issues. Some argue that universities lack specialised training for innovative business ideas, while others see entrepreneurship as a tool for economic growth. The DHET is working with partners to promote entrepreneurship through academic programmes in South Africa. Practical knowledge is acquired through hands-on activities and other methods that inspire students. Criticisms of existing entrepreneurial academic programmes include too much theoretical focus along with a lack of real-world connection, and neglect of diverse student needs. Syllabuses may overlook critical entrepreneurial skills and fail to address digital era trends. A more practical, comprehensive approach prioritising critical skills and relevance is evidently needed. Thus, entrepreneurship education is a deliberate academic intervention that influences entrepreneurial aspirations and motivates students to succeed in the business world, and it should be structured in a way that teaches students to deal with real-

world problems as well as focus on students' mindset, personal entrepreneurial development and growth, to prepare for the business environment.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter discussed the theories guiding the research and analysed the literature on entrepreneurship education. This chapter presents the research methodologies used during the fieldwork portion of the study. The chapter covers research design, philosophy, methodology, population, sampling, inclusion and exclusion, data collection and instruments, pilot testing, data analysis, reliability, validity, and ethics.

3.2 RESEARCH PHILOSOPHY

Research philosophy is the development of logical reasoning that incorporates contemporary ideas with previously established methods of thought (Horne 2021; Kornberger and Mantere 2020). A research philosophy is a system of beliefs about how data about a phenomenon should be collected, analysed, and used (Kamal 2019). According to Brou (2021) the two major philosophical perspectives used in social science studies are ontology (what is assumed to be true) and epistemology (what is accepted as true). Positivist philosophy entails using existing theory to generate hypotheses that can be tested during the research process and is suitable for a quantitative research approach (Apostolopoulos 2021). Positivism holds that real events can be empirically observed and logically explained (Kamal 2019). This is similar to the philosophy of objectivism which is a belief that social entities exist external to social actors, and is suitable for a quantitative or mixed methodology research approach (Alharahsheh and Pius 2020). On the other hand, subjectivism emphasises that social phenomena are created from perceptions and consequent actions of social actors and is suitable for a qualitative research approach (Al-Ababneh 2020). Considering the nature of this research study, a positivism research philosophy is used to enable the researcher to uncover the role and influence of entrepreneurship education in preparing students as future entrepreneurs at a selected university of technology in KwaZulu-Natal. Positivism is founded on the notion that through studying social life, scientists may gain a reliable and consistent understanding of its underlying workings (Nickerson 2022). The positivism philosophy also assisted in identifying a suitable research approach and instrument to collect data. The application of positivist research philosophy in the study of entrepreneurship education at a selected university of technology in KwaZulu-Natal involves a systematic approach to understanding and

measuring the impact of educational interventions on students' entrepreneurial preparedness. Positivism, grounded in the belief that knowledge is derived from observable and measurable phenomena, drives the research by using established theories. This approach supports the use of quantitative methods, such as statistical analysis to collect objective data and derive reliable conclusions about how different elements of the curriculum influence students' readiness to become entrepreneurs. By emphasising empirical observation and logical explanation, positivism ensures that the research findings are based on consistent, verifiable evidence, providing a clear and objective assessment of the educational programme’s effectiveness in preparing future entrepreneurs.

3.3 RESEARCH DESIGN

A research design is a comprehensive plan for linking conceptual research problems to applicable empirical studies, specifying what information is needed, what methods will be used to collect and analyse data, and how it will clarify the researcher's research questions (Bian and Lin 2020; Kamboj and Rahman 2017; Taherdoost 2022). A quantitative research design carefully devises procedures and rules that govern the research (Güzel 2021). The quantitative sequential procedures enable defining the broad timeframe required to carry out an investigation utilising various research methodologies this supported by (Gravlee 2022). Sequential steps assist researchers to focus on specific measurement and analysis (Gravlee 2022; Dawadi, Shrestha and Giri 2021). Following a proper quantitative sequence allows a researcher to choose the appropriate sample techniques and tools to gather data for the study (Stoecker and Avila 2021). The researcher carried out an empirical study based on a survey and questionnaire to gather data (Li and Zhong 2021). The study was guided by the problem statement and research questions and related research objectives to arrive at a meaningful research design and fulfill the research aims (Hiver, Al-Hoorie and Larsen-Freeman 2022). The study adopted a quantitative research approach to investigate the role of entrepreneurship education in preparing future entrepreneurs in the selected university of technology. In the context of investigating the role of entrepreneurship education in preparing future entrepreneurs among third-year diploma students at a selected university of technology, quantitative research design is particularly effective. This approach allows for systematic collection and analysis of numerical data to assess the impact of the educational programmes on students' entrepreneurial readiness. By employing structured surveys and questionnaires, the research quantifies students' perceptions, skills, and intentions related to entrepreneurship. The design enables the researcher to establish patterns, correlations, and potentially causal relationships between

the educational interventions and entrepreneurial outcomes. Furthermore, the quantitative methodology supports the use of statistical techniques to generalize findings across the student population, providing a robust basis for evaluating the effectiveness of the entrepreneurship education curriculum. Through careful sampling and adherence to sequential research procedures, the study generated insights that inform curriculum development and the broader goal of enhancing entrepreneurial capacities among graduates.

3.4 RESEARCH METHODS

According to Mishra and Alok (2022), there are three types of research methodologies that are used to present a methodology for conducting research: qualitative, quantitative, and mixed-method research. The three types of research methods are discussed below.

3.4.1 QUALITATIVE RESEARCH METHOD

Qualitative research is a type of study that focuses on the collection and analysis of natural and interpretive data (St. Pierre 2021). When conducting qualitative research, contextual sensitivity is commonly overlooked in favour of meanings and experiences. For instance, the phenomenological approach seeks to discover, interpret, and comprehend the participants' experiences (Thunberg and Arnell 2021). Qualitative research is employed to develop interpretive meanings to explain a phenomenon by scholars immersing themselves within their collected data (Frost 2021). Roberts, Pavlakis and Richards (2021) critique this approach by pointing out that, because of the small sample size and subjective meanings and experiences, it is not possible to generalise the findings of the research to the population.

3.4.2 QUANTITATIVE RESEARCH METHOD

Quantitative research is a systematic and objective method of gathering data on the topic under study by using numerical data from only a subset of the population which is then able to be generalised to the population as a whole (Mwangi, Miricho and Maranga 2021; Turnbull, Chugh and Luck 2021). The quantitative research method gathers information on social behaviour which can be measured and patterned, rather than simply discovering and interpreting the meanings that people bring to their actions (Kamboj and Rahman 2017). Quantitative research is concerned with numbers and how things have been happening, why things have happened, and the possibility of forecasting what will happen in the future (Williams, Wiggins and Vogt 2022). A criticism of the quantitative research approach is that it gathers responses at a particular point of time, which in turn can depend on the

circumstances existing at that specific time (Maroto and Pettinicchio 2022). Furthermore, a quantitative method often requires selection of pre-determined answers, and a participant's thoughts, feelings, or actions may not be elicited (Modisane and Jokonya 2021). To save time and resources, the researcher must have specific research questions and know what respondents are trying to answer before they start. This study adopts a quantitative approach because it allows a researcher to summarise large amounts of information while maintaining the accuracy and objectivity of the results obtained which are key in establishing and understanding the role of entrepreneurship education in preparing future entrepreneurs at a selected university of technology in KwaZulu-Natal.

3.4.3 MIXED RESEARCH METHOD

Mixed method research combines elements of qualitative and quantitative research within a single study (Strijker, Bosworth and Bouter 2020). This approach offers methodological flexibility, and an in-depth understanding of a smaller number of cases which enables researchers to answer research questions with sufficient depth and breadth (Dawadi, Shrestha and Giri 2021). Mixed research methods combine qualitative and quantitative research approaches. Through the integration of several views and approaches, this approach facilitates researchers to gain a more comprehensive knowledge of a study problem (Guetterman, Clark and Molina-Azorin 2024). Researchers can triangulate their findings and improve the validity and reliability of their findings by combining qualitative methods like observations, interviews, or content analysis with quantitative methods like surveys, experiments, or statistical analysis.

3.5 POPULATION

A population is a large group of people or things that contain the characteristics that are of interest to the researcher (Majid 2018; Yano 2019; Kadi and Khelfaoui 2020). Accurately defining a population allows the researchers to focus their efforts and resources on specific groups within the population, reducing the time and costs associated with data collection. Choosing the appropriate population, one can clearly define the goal and scope of the research as well as the sorts of data that will be used. Selecting the right population enables a researcher to get accurate information so that the study better accomplishes its goals (Richard 2021; Wise, Holbrook and Investigators 2022; Kirby and Tamariz 2022). Selecting the population carefully prevents having respondents who do not match the needs of the study and hence inaccurately represent the target population (Casteel and Bridier 2021; Charbit 2022).

The population for this study consisted of third-year students who were at that time registered for an undergraduate study at the selected university of technology and who were doing entrepreneurship namely, Accounting, Information Technology, Business and Information Management, Information Systems, Taxation and Auditing. Only four of these departments offer entrepreneurial education modules. Therefore, the target population for this study was 920 third-year students at the selected university of technology who had completed entrepreneurship modules.

3.6 SAMPLING

Sampling is the process of selecting a smaller group of interest to generalise the results to the population from which the individuals were chosen (Berndt 2020). There are two types of sampling approaches, namely, probability and non-probability sampling.

3.6.1 PROBABILITY SAMPLING

Probability sampling is a method in which the researcher selects participants from a population using a method based on probability theory. The participants to be regarded must be chosen at random (Omeihe 2021).

3.6.1.1 SIMPLE RANDOM SAMPLING

Every member of the population has an equal probability of getting chosen using this method. This is a suitable method when the population size is small, and the population is generally homogeneous. According to Rahman (2020), the simplicity and convenience of use of simple random sampling are its primary benefits. It might not be appropriate for huge populations, though, as getting a comprehensive list of every member of the population can be expensive and time-consuming.

3.6.1.2 SYSTEMATIC SAMPLING

Systematic sampling involves selecting every nth individual from a population to be part of the sample, ensuring a fair representation of the entire population (Mukhandi, Ferreira and Peixoto 2024). This method plays a crucial role in minimizing biases and enhancing the reliability of research findings, especially when researchers aim to make informed conclusions about a larger population based on a smaller sample size.

3.6.1.3 STRATIFIED SAMPLING

Taking a random sample from each stratum after the population has been divided into homogeneous subgroups, or strata, is known as stratified sampling. This method

guarantees that every subgroup is represented in the sample and is helpful in situations when the population is heterogeneous. When stratified sampling is used instead of just random sampling, estimates can be more precise. Nevertheless, it necessitates prior understanding of the demographic composition, which is not always accessible.

3.6.1.4 CLUSTER SAMPLING

Cluster sampling is separating the population into groups, such as regions or educational institutions, and then choosing groups at random to include in the sample. After that, every person inside the chosen clusters is added to the sample. When it is impossible or impracticable to compile an exhaustive list of the population, cluster sampling can be helpful. In contrast to other methods, it may result in more sampling error, particularly if the clusters are not homogeneous.

3.7 NON-PROBABILITY SAMPLING

Non-probability sampling is a sampling technique in which the researcher chooses samples based on his or her subjective judgement rather than random selection (Waldner 2020). Non-probability sampling is employed in this study with convenience and purposive sampling.

3.7.1 CONVENIENCE SAMPLING

Convenience sampling this method chooses participants based on their accessibility or suitability for the researcher. Convenience sampling is a popular option among academics since it is quick, simple, and affordable. However, because it depends more on convenience than chance, the results could be skewed since it might not fairly represent the larger population.

3.7.2 PURPOSIVE SAMPLING

Purposive sampling was appropriate for this study because not all the third-year students in the faculty had done entrepreneurship modules, with a total of 920 students having completed such modules. Therefore, the sample size for this study was 269 from the population of 920 as recommended by Sekaran and Bougie sample table (Sekaran and Bougie 2016). Purposive sampling is based on subjective judgement where the researcher chooses members of the population to participate in the study based on his or her own judgement of them having appropriate knowledge or experience in the area under study (Thomas 2022).

3.7.3 SNOWBALL SAMPLING

The process of snowball sampling entails selecting initial participants and then requesting that they recommend more possible participants. This method is frequently applied to populations that are hidden or difficult to reach. Snowball sampling can be useful in reaching these demographics, but because participants are more inclined to recommend individuals who are similar to them, it may result in sample bias.

3.7.4 QUOTA SAMPLING

Quota sampling, the population is divided into subgroups according to attributes like age, gender, and occupation. Individuals are then chosen from each category until a predefined quota is reached. Quota sampling is frequently employed in surveys and market research. Although quota sampling enables researchers to guarantee a varied sample, if the quotas are not established adequately, the sample may not be representative of the total population.

3.8 INCLUSION AND EXCLUSION

Inclusion and exclusion criteria establish the criteria for who can take part in the study and implies that every person who passes the screening and meets all the requirements can be involved in the study (Hornberger and Rangu 2020). Inclusion criteria are based on the important characteristics of the target group that the researcher wants to utilise to answer their study questions (Connelly 2020). The inclusion requirements include the ability to identify the research population accurately, consistently, universally, and objectively. Exclusion criteria are characteristics that disqualify the recruited group from participating in the study (Yazdani *et al.* 2020; Lachover 2022). The inclusion criteria for this study were students in their third year and who had completed entrepreneurship modules in the Faculty of Accounting and Informatics. They completed entrepreneurship modules during the first year and the second-year level of study. The exclusion criterion was students who had not done entrepreneurship studies because one of the main characteristics of this study is that the students should have been exposed and completed entrepreneurship modules in the Faculty of Accounting and Informatics.

3.9 DATA COLLECTION

Data can be collected from primary and secondary sources. Primary data is information obtained first-hand by the researcher on the outcome variable for the specific purpose of the study, and secondary data as information gathered from previously existing sources

(Sekaran and Bougie 2016; Kishore 2022). To address the study's objectives, the researcher used both primary and secondary data. The benefit of primary data, according to Samuels (2020), is that primary data is gathered and generated by individuals who give close attention to each question they want to ask, making the data more reliable and accurate.

3.10 RESEARCH INSTRUMENT

A research instrument is a tool or device used by researchers to collect data for a study Sukmawati *et al* (2023). Research instruments can take various forms, including questionnaires, surveys, interviews, observation forms, and tests. These instruments are designed to gather specific types of data that are relevant to the research question or objectives (Maia 2024). Research instruments are carefully constructed to ensure that they are valid, reliable, and able to collect the necessary data accurately. They are an essential part of the research process, as they help researchers collect empirical evidence to support their hypotheses or research questions (Samuels 2020). A questionnaire is a study instrument that requests responses from participants in order to compile relevant data (Sharma and Kumar 2022). It is a quick and affordable way of gauging individuals' preferences, intentions, attitudes, and worldviews (Fox and Lash 2020). In the current study, a Likert scale questionnaire was utilised to collect data from research participants. The researcher personally handed out and explained the questionnaire, which was then self-completed by the participants. Respondents had the option to select from a list of predetermined responses. The questionnaire (refer to Appendix C) consisted of four sections, namely section A, biographical information, section B, the impact of entrepreneurship education on students, section C, skills required to prepare students in entrepreneurship education and section D, proposed strategies to promote entrepreneurship. Sections were used to help organise the questionnaire into coherent parts, making it easier for respondents to understand and navigate.

3.11 ADMINISTRATION AND COLLECTION OF DATA

The method employed for gathering data in this research project comprised the physical dissemination of questionnaires among students within the confines of their lecture sessions. In order to maintain transparency and obtain proper consent, students were requested to sign a consent form, thereby granting them the authority to respond to the questionnaire, and permission to the researcher to collect the data and use it for academic purposes. In addition, the questionnaire contained detailed instructions that were verbally

articulated to the participants to ensure a clear understanding and minimise errors in their responses. This approach was implemented to uphold the ethical standards of data collection and guarantee the accuracy and reliability of the gathered information. Before commencing data collection, authorisation was secured from the research office to guarantee adherence to ethical guidelines and university protocols. This preliminary action played a vital role in ensuring that the data gathering procedure was carried out ethically and responsibly. These precautionary steps were put in place to elevate the accuracy and dependability of the information gathered from the participants. By seeking approval in advance, the research team demonstrated a dedication to upholding ethical standards and maintaining integrity throughout the data collection process. This proactive approach not only instilled confidence in the validity of the data but also safeguarded the rights and privacy of research subjects. In essence, these meticulous procedures underscored the commitment to conducting the research in a transparent, accountable manner.

3.12 PILOT TESTING

According to Fraser *et al.* (2018), pilot testing in research is the method of undertaking a smaller-scale study that allows a researcher to discover problems with the study plan before investing significant time and resources. A pilot study is a form of risk mitigation strategy to reduce the possibility of failure in a larger project (Okamoto 2019; Dźwigoł 2020). The main purpose of a pilot study is to test the suitability of the research tool/s and determine whether a larger study is feasible (Joubert and Costas 2020). Lakens (2022) suggest a rule of thumb to determine the number of participants in a pilot study is 10% of the population to be studied. This was adhered to in this study. Pilot participants were not included in the main study. Participants in the pilot study were drawn from all seven departments that offer entrepreneurship modules at the university of technology under study, with a total of 30 participating. The main outcome of the pilot study was that a clear and thorough explanation of the steps to follow when filling out the questionnaire was prepared as a way to guide participants in providing accurate and relevant responses.

3.13 DATA ANALYSIS

Data analysis is the process of inspecting data to discover useful information (Rahman 2020). The responses to the close-ended structured quantitative questionnaire were captured to form a data set. The data collected from the responses were analysed using SPSS version 28.0. Descriptive statistics were employed to summarise the data, with results presented in the form of graphs, and cross-tabulations that effectively display the

quantitative findings. The use of graphs, such as bar charts allowed for a clear visual representation of the distribution and frequency of responses, while cross-tabulations helped identify relationships between variables by displaying the frequency distribution of variables across different categories. This approach provided a comprehensive overview of the data, enabling a better understanding of trends and patterns within the responses.

3.14 RELIABILITY AND VALIDITY

Reliability is the extent to which the findings can be reproduced when the research is repeated under the same conditions (Cardinale and Marsh 2020), and examines the coherence of results over time, among different observers, and across different parts of the test itself (Rose and Johnson 2020). The reliability was tested in the form of test-retest reliability because the questionnaire was distributed to third year students from different departments in the faculty on separate days. The results from the respondents were compared to each other to ensure the reliability of the study (Perry *et al* 2024). The questionnaire was correctly designed to generate accurate and genuine data that would guarantee the reliability of the study. Reliability was also tested using SPSS. The measurement of reliability was tested using Cronbach's coefficient alpha at 0.60 and to show that the instrument was reliable, all the tested subthemes in the questionnaire were above 0.60, signalling that the instrument was reliable. The validity of an instrument is concerned with its suitability for addressing the purpose and research questions of a study (Evenson and Spade 2020), and how well the results match established theories and other measures of the same concept (Ismail 2020). Lewis (2020) highlights that validity is important because it determines which survey questions to use and helps researchers ensure that they are asking questions that truly measure the issues of importance. Questions were clear and understandable to the respondents and the questionnaire was the correct instrument to the study. A pilot study was conducted to eliminate the ambiguity of questions, and a high-quality questionnaire was distributed to students who met the inclusion criteria. The questionnaire was also sent to research experts to assess and check the relevance and consistency of the questioning. Thus, reliability and validity criteria were met, indicating the high quality of research instruments.

3.15 ETHICAL CONSIDERATIONS

According to Cammaerts (2020) research ethics are moral principles and actions guiding and shaping research from its inception through to completion. Research ethics are crucial because they guarantee that individuals participate voluntarily in studies. Research ethics

remind researchers that they do not have the authority to compel subjects to be identified and compelled to take part in the study. In addition to ensuring that participants are informed about the research, ethical considerations also guarantee the safety of the research subjects. While seeking knowledge and the truth, as well as respecting and protecting the rights of the respondents, ethics prevents the researcher from engaging in misbehaviour.
Ethical clearance from the Faculty Research Ethics Committee and a gatekeeper's letter was obtained from the office of the Directorate for Research and Postgraduate Support (Appendix A).

3.15.1 CONFIDENTIALITY

Confidentiality refers to a circumstance in which the researcher takes precautions to prevent the identity of a study subject from being learnt by others despite knowing the subject's identity (Tamin 2020). This means that only the investigator or individuals of the research team can identify the responses of individual subjects, and the researcher must make every effort to prevent anyone outside of the project from connecting individual subjects with their responses (Olivier 2020). The responses from the participants were secured in a locked safe, with only the researcher and the supervisors having access to the information as needed. The researcher used a complicated password to gain access to data records. After 5 years, the collected data will be safely destroyed. This study established sufficient safeguards to preserve participant privacy and anonymity, and maintain data confidentiality

3.15.2 ANONYMITY

Anonymity means that neither the researcher nor anyone else involved in the project will ever be aware of the participants' identities (Tamin 2020; Fawns-Ritchie and Deary 2020). All the provided information from the participants was used only for the benefit of the study and all participants were unknown to the researcher and were kept anonymous throughout the course of the study.

3.15.3 TRUSTWORTHINESS

Trustworthiness is a set of criteria that shows a research project was carried out competently and morally (Johnson, Adkins and Chauvin 2020). Following these guidelines persuades the reader that the study has significance and value and that the findings are reliable, making them potentially helpful in directing future study and practice. The acknowledged standards and practices for robust research methodology as well as the accepted standards and procedures for ethical interaction with participants must be

considered when determining standards for judging trustworthiness. This study demonstrated trustworthiness.

3.15.4 LETTER OF INFORMATION AND CONSENT

An information and consent letter explains a research project to a prospective participant and records their consent to participate in the study (Downey 2021). The letter of information and consent form (Appendix B) was distributed together with the questionnaire (Appendix C) to ensure the voluntary participation of students. The letter of information and consent was issued to students to inform them about the purpose of the study, what participating entailed, and how their information would be utilised for reporting purposes. Furthermore, the letter of information and consent explained the rights of the individuals, such as the ability to withdraw from the study at any point without facing any repercussions. This document also acts as a record, proving that participants have willingly agreed to be part of the study.

3.15.5 UNIVERSITY ETHICAL PROCESSES AND COMPLIANCE

All the university processes were adhered to prior to applying for ethical clearance. The proposal was first submitted to the Faculty Research Committee (FRC) for approval. The next step was to submit the proposal with all the supporting documents to the Faculty Research Ethical Committee (FREC) for ethical clearance. The Faculty of Accounting and Informatics has a fully functional FREC that assesses and reviews research proposals for ethical compliance. This study was no exception, as it was reviewed and ethically cleared (Appendix C) by the FREC. The last step was to apply for a Gatekeeper's letter through the Department of Research and Postgraduate Support. The Gatekeeper's letter (Appendix A) was granted on the 7th June giving permission to the researcher to collect data from the participants in this study.

3.16 SUMMARY

Chapter 3 focused on research methodology, covering various aspects such as research design, philosophy, methodology, population, sampling, data collection, analysis, reliability, validity, and ethical considerations. Research design is crucial in connecting conceptual problems to empirical studies, enabling the researcher to delve deeply into students' perceptions of entrepreneurship education. Quantitative studies follow sequential procedures to ensure a focused and successful investigation. The researcher conducted an empirical study using a questionnaire to gather information for the study. The study followed empirical research principles, guided by research questions and objectives, adopting a

quantitative approach to investigating entrepreneurship education in a university. Research philosophy helps in logical reasoning and method selection, with positivism philosophy underlying this study to understand entrepreneurship education's role in preparing future entrepreneurs.

CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

The previous chapter discussed research design, philosophy, methodology, population, sampling, inclusion and exclusion, data collection and instruments, pilot testing, data analysis, reliability, and validity. The core objective of this chapter is to present the primary data obtained from students via a questionnaire. The findings from the questionnaires used in this study are presented and discussed in this chapter. The questionnaire, which was sent out to students enrolled in entrepreneurial studies, was the primary tool used to collect data. The data collected from the responses were analysed with SPSS version 28.0. The results are presented as descriptive statistics in the form of graphs, cross-tabulations and other figures from the quantitative data that was collected.

4.2 THE SAMPLE

A total of 269 questionnaires distributed to participants for feedback on the topic that was investigated. All 269 questionnaires were returned to make a 100% response rate, the objective was to collect comprehensive and detailed insights from students who were registered in entrepreneurship modules.

4.3 THE RESEARCH INSTRUMENT

As indicated in Chapter 3, the research instrument consisted of thirty-four items, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into four sections which measured various themes as follows:

A Biographical data

B The impact of entrepreneurship education on students

C Skills required to prepare students in entrepreneurship education

D Proposed strategies to promote entrepreneurship

The questionnaire was designed according to Likert scale, including only closed questions. Participants were expected to select the most appropriate answer that represented their perception with regards to the phenomenon being tested.

4.4 RELIABILITY STATISTICS

The two most important aspects of precision are reliability and validity. Reliability is computed by taking several measurements on the same subjects. A reliability coefficient of 0.60 or higher is considered as “acceptable” for a newly developed construct.

Table 1 reflects Cronbach’s alpha score for all the items that constituted the questionnaire.

	Section	**Number of Items**	**Cronbach’s Alpha**
B	The impact of entrepreneurship education on students	10	0.780
C	Skills required to prepare students in entrepreneurship education	11	0.718
D	Proposed strategies to promote entrepreneurship	7	0.785
All items included		28	0.756

Table 1:The Cronbach’s alpha score for all the items that constituted the questionnaire

As reflected in Table 1, the reliability scores for all sections exceed the recommended Cronbach’s alpha value. This indicates a degree of acceptable, consistent scoring for these sections of the research. This means that the instrument was reliable.

4.5 FACTOR ANALYSIS

Factor analysis is a statistical technique whose main goal is data reduction. A typical use of factor analysis is in survey research, where a researcher wishes to represent several questions with a small number of hypothetical factors. In this study, as part of the entrepreneurship education survey participants answered four separate sections relating to the role of entrepreneurship education, reflecting their perceptions on the impact of entrepreneurship education on students, skills required to prepare students for entrepreneurship, and strategies to promote entrepreneurship education. Each question, by itself, would be an inadequate measure of attitude towards the role of entrepreneurship, but together they provide a better measure of attitude. Miao *et al.* (2020) state that factor analysis can be used to establish whether the three measures referred to are the factor loadings, eigenvalues, and factor rotation results obtained from the factor analysis. Factor

loadings indicate the relationship between each observed variable and the underlying factor, eigenvalues represent the amount of variance explained by each factor, and factor rotation helps to simplify and interpret the factors. If so, they can then be combined to create a new variable, a factor score variable that contains a score for each respondent on the factor. McNeish and Wolf (2023) state that factor techniques are applicable to a variety of situations. A researcher may want to know if the skills required to be a decathlete are as varied as the ten events, or if a small number of core skills are needed to be successful in a decathlon. You need not believe that factors actually exist in order to perform a factor analysis, but in practice the factors are usually interpreted, given names, and spoken of as real things.

The matrix table/s is preceded by a summarised table that reflects the results of KMO and Bartlett's Test. The KMO and Bartlett's Test in Table 2 shows that both tests indicate the suitability of data for structure detection. The Kaiser-Meyer-Olkin measure of sampling adequacy is a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors. High values (close to 1.0) generally indicate that a factor analysis may be useful with the data. If the value is less than 0.50, the results of the factor analysis probably will not be very useful.

Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with the data.

Factor analysis was done only for the Likert scale items. Certain components divided into finer components. This is explained below in the rotated component matrix.

		Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
	Section		Approx. Chi-Square	df	Sig.
B	The impact of entrepreneurship education on students	0.759	1410.586	45	< 0.001
C	Skills required to prepare students in entrepreneurship education	0.691	1295.833	55	< 0.001
D	Proposed strategies to promote entrepreneurship	0.801	1568.929	21	< 0.001

Table 2:KMO and Bartlett's test

Table 2 shows that all the conditions are satisfied for factor analysis. That is, the Kaiser-Meyer-Olkin measure of sampling adequacy value is greater than 0.500 and the Bartlett's test of sphericity significance value is less than 0.05.

The following section present the primary data obtained from the entrepreneurship education participants in relation to the biographical information of the participants.

4.6 SECTION A: BIOGRAPHICAL INFORMATION

This section was designed to identify students who were enrolled for entrepreneurial studies with the faculty. The section includes six questions as presented below. The questions were based on age, gender and qualifications enrolled for. The findings below illustrate the frequency and percentages.

4.6.1 AGE GROUP

Table 3 shows the overall gender distribution by age.

		Gender			Total
Age group (years)		**Male**	**Female**	**Other**	
17 – 19	Count	5	2	1	8
	% within Age group (years)	62.5%	25.0%	12.5%	100.0%
	% within Gender	4.6%	1.3%	33.3%	3.0%
	% of Total	1.9%	0.7%	0.4%	3.0%
20 – 25	Count	87	135	2	224
	% within Age group (years)	38.8%	60.3%	0.9%	100.0%
	% within Gender	79.8%	86.0%	66.7%	83.3%
	% of Total	32.3%	50.2%	0.7%	83.3%
26 – 30	Count	14	17	0	31
	% within Age group (years)	45.2%	54.8%	0.0%	100.0%
	% within Gender	12.8%	10.8%	0.0%	11.5%
	% of Total	5.2%	6.3%	0.0%	11.5%
31 – 35	Count	3	3	0	6
	% within Age group (years)	50.0%	50.0%	0.0%	100.0%
	% within Gender	2.8%	1.9%	0.0%	2.2%
	% of Total	1.1%	1.1%	0.0%	2.2%
Total	Count	109	157	3	269

	% within Age group (years)	40.5%	58.4%	1.1%	100.0%
	% within Gender	100.0%	100.0%	100.0%	100.0%
	% of Total	40.5%	58.4%	1.1%	100.0%

Table 3: Age group

Table 3 shows that the ratio of males to females was approximately 2:3 (40.5%:58.4%) ($p < 0.001$). Within the age category of 20 to 25 years, 38.8% were male. Within the category of males 79.8% were between the ages of 20 to 25 years. This category of males between the ages of 20 to 25 years formed 32.3% of the total sample. Within the age category of 20 to 25 years, 60.3% were female. Within the category of female, 86.0% were between the ages of 20 to 25 years. This category of males between the ages of 20 to 25 years formed 50.2% of the total sample. Within the age category of 20 to 25 years, 0.9% were Other. Within the category of Other, 66.7% were between the ages of 20 to 25 years. The category of males between the ages of 20 to 25 years formed 0.7% of the total sample. Therefore, the age distributions are not similar as there are more respondents younger than 26 years ($p < 0.001$).

4.6.2 LEVEL OF STUDY

Table 4 shows the level of study of the respondents.

	Frequency	**Percent**
First Year	1	0.4
Third Year	268	99.6
Total	269	100.0

Table 4: Level of study

Table 4 reflects the respondent's level of study. Based on the findings, most of the respondents, 268 (99.6%) were third year students. These empirical findings reflect that most of the respondents were mature enough to understand and participate in this study. Moreover, they had direct experience and knowledge about the entrepreneurship modules, which was an inclusion criterion.

4.6.3 QUALIFICATION ENROLLED FOR

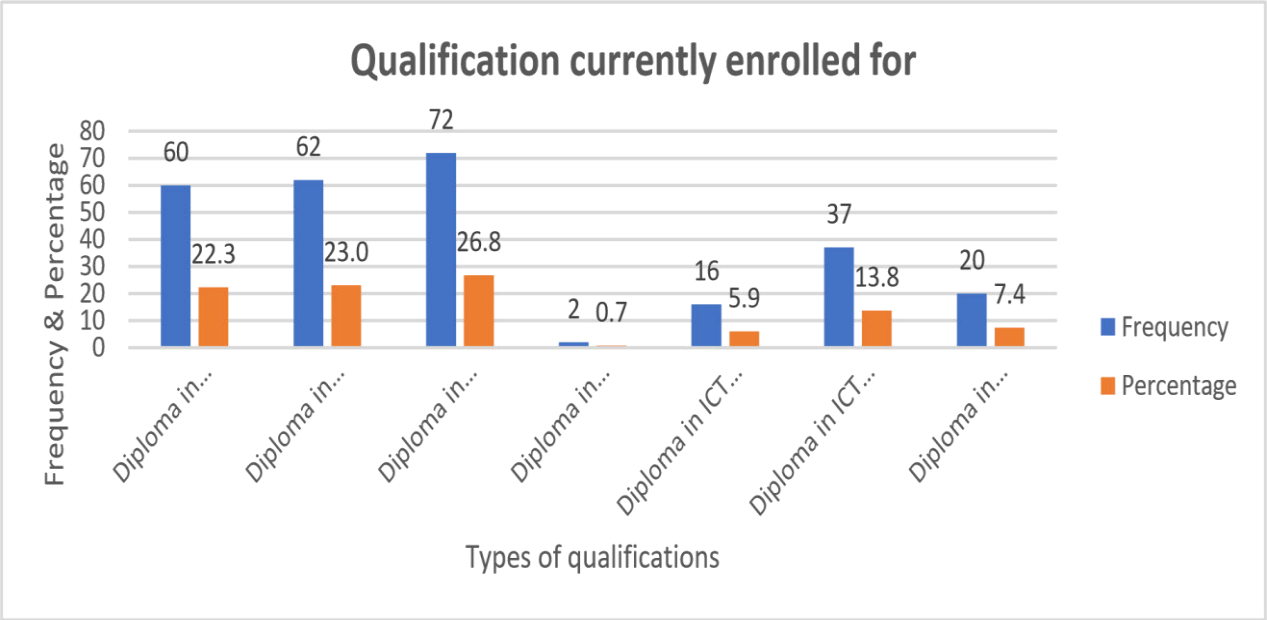

Figure 2: Qualification currently enrolled for

Figure 2 shows that the majority (72, 26.8%) of the respondents that were studying or studied entrepreneurship education were registered for a Diploma in Business and Information Management, with 62 (23.0%) registered for the Diploma in Accounting, 60 (22.3%) for the Diploma in Taxation, 37 (13.8%) for the Diploma in ICT Business Analysis, 20 (7.4%) for the Diploma in Library and Information Studies, 16 (5.9%) for the Diploma in ICT Application Development and 2 (0.7%) for the Diploma in Management Accounting. The above findings show that the Diploma in Business and Information and Management had the most participants that had enrolled for entrepreneurship modules. The probable rationale behind this finding is that some of the qualifications offer entrepreneurship modules as elective modules, allowing the student the freedom to select or choose modules that interest them the most. Furthermore, another factor to be considered is student enrolment in these various qualifications. Additionally, students' availability and commitment in participating in the study can also be viewed as another determining factor to the difference in the numbers of students per department registered for entrepreneurship modules.

4.6.4 At which level did you enroll for an entrepreneurship module?

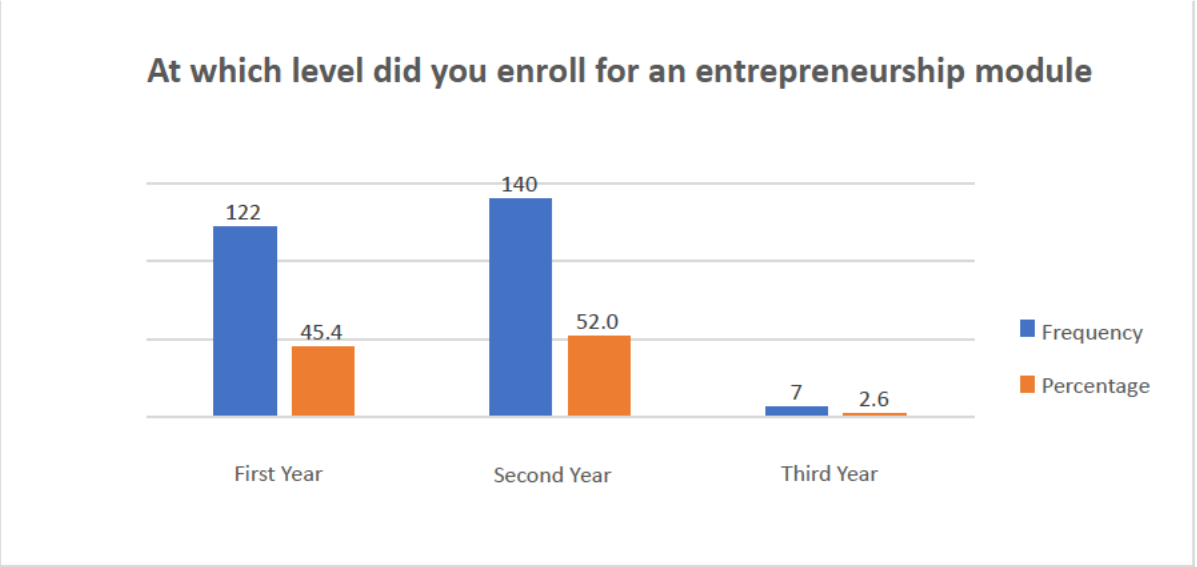

Figure 3: Level at which the respondent had enrolled for entrepreneurship module

Figure 3 demonstrates that the level at which the students began to study entrepreneurship education modules while enrolled for undergraduate studies. Based on the empirical finding, most of the respondents (140, 52%) studied entrepreneurship education during their second year of study, while 122 (45.4%) were introduced to entrepreneurship education at first-year level. Only 7 (2.6%) of the respondents were introduced to entrepreneurship education at third year level. These findings highlight that most qualifications offered in the selected faculty offer entrepreneurship education modules at an early stage to help students to gravitate towards the module. Furthermore, these findings also reflect that the early introduction of entrepreneurship modules prepares students and seeks to fully equip them with the necessary capabilities that are integral to assist students to seize the opportunities in a country that is plagued by graduate unemployment. More entrepreneurship modules and qualifications are needed urgently to fully develop the students for entrepreneurship (Lavhelani, Ravhuhali and Lavhelani 2022).

The next section concentrates on the key statements that seek to uncover the influence of entrepreneurship education on students' entrepreneurial intents.

4.7 SECTION B: THE IMPACT OF ENTREPRENEURSHIP EDUCATION ON STUDENTS

The main intention of this section is to determine the influence of entrepreneurship modules in improving students' entrepreneurship understanding and its role in enticing students into pursuing entrepreneurship.

4.7.1 Entrepreneurship modules provide you with better knowledge of what entrepreneurship is about

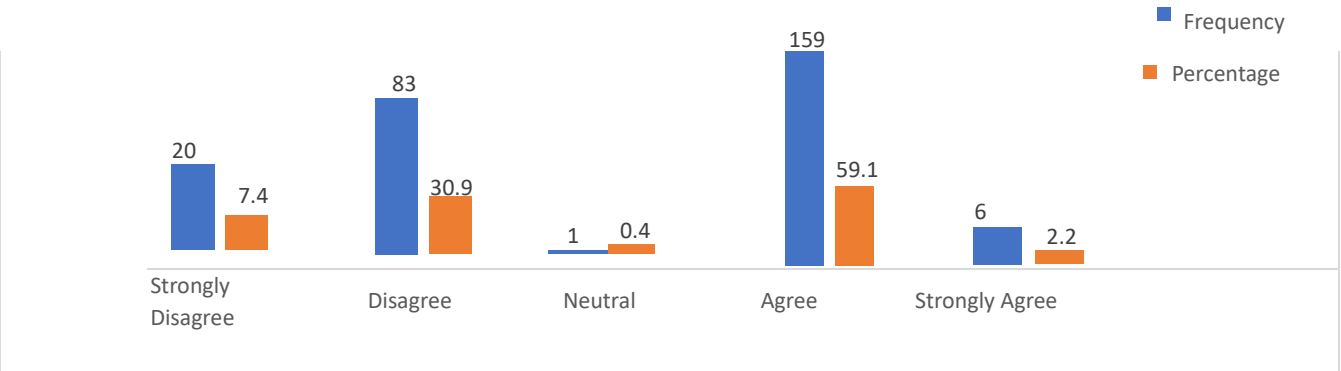

Figure 4:Entrepreneurship modules provide you with better knowledge of what entrepreneurship is about

Figure 4 shows that most of the respondents (159, 59.1%) agreed that entrepreneurship modules provide them with better knowledge of what entrepreneurship is about. In contrast to that, 83 (30.9%) and 20 (7.4%) of the respondents disagreed and strongly disagreed respectively with the statement, indicating that their perception was that entrepreneurship modules did not provide them with better entrepreneurship knowledge. Only 6 (2.2%) of the respondents strongly agreed with the statement and only 1 (0.4%) respondent was neutral. These findings clearly demonstrate that, even though more than 60% percent of the respondents agreed that entrepreneurship modules provided them with entrepreneurship knowledge, a significant number (38.3%) of the respondents were not really convinced about the content taught under entrepreneurship education modules. These findings are supported by Akinbinu and Chiloane-Phetla (2022) who urged that universities need to promote entrepreneurship education that improves students capabilities and entrepreneurship knowledge.

4.7.2 Entrepreneurship module helps you to build your entrepreneurial skills

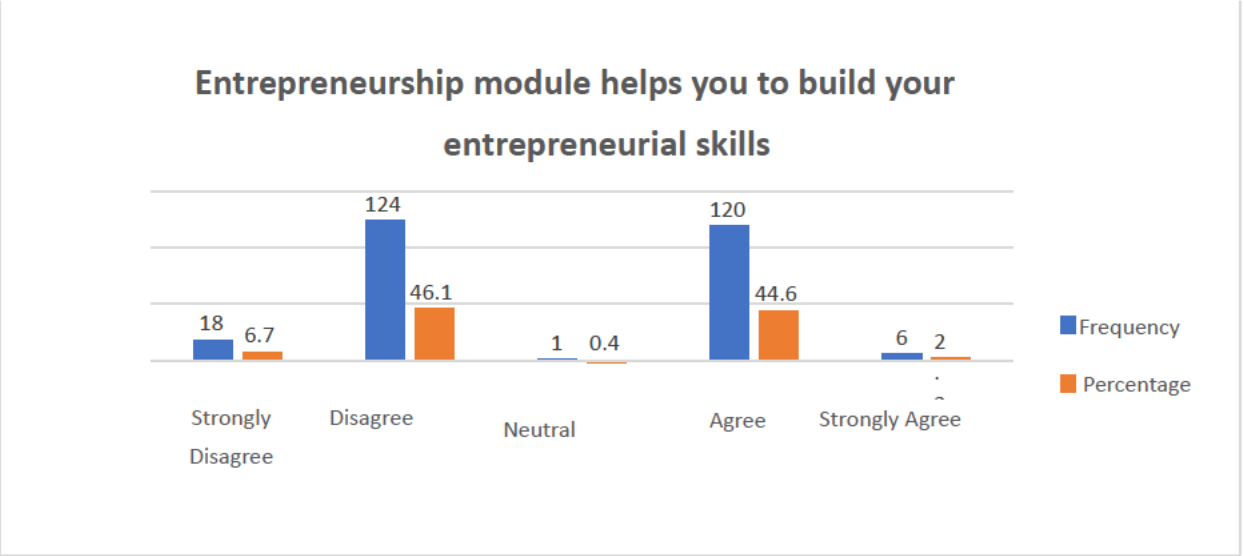

Figure 5:Entrepreneurship module helps you to build your entrepreneurial skills

Figure 5 shows that a considerable number of respondents disagreed (124, 46.1%) and strongly disagreed (18, 6.7%) that the entrepreneurship module helps build students' entrepreneurial skills. However, almost half of the respondents agreed (120, 44.6%) and strongly agreed (6, 2.2%) that entrepreneurship modules help build entrepreneurship skills, with only 1 (0.4%) respondent being neutral to the statement. These results mean that respondents were not collectively in agreement that the entrepreneurship module equipped them with the necessary entrepreneurial skills. As stated by Hargreaves, Sibanda and Nomlala (2022), the structure of the syllabus has a critical influence on the type of entrepreneurship skill to be impacted on students. Therefore, as claimed by Motta and Galina (2023), in order for students to be able to benefit from entrepreneurship modules, they need to acquire entrepreneurial skills to help them open their minds about creating enterprises.

4.7.3 The knowledge gained from the entrepreneurship module will enable you to start thinking of a business concept for your own business

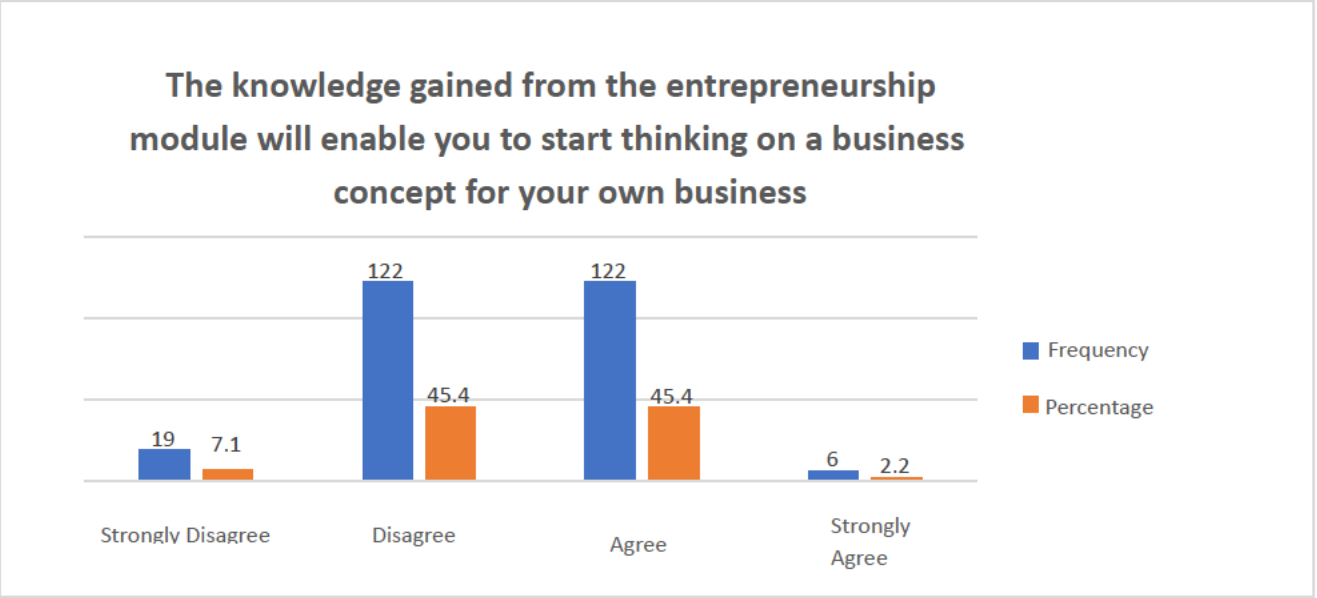

Figure 6: Knowledge gained from entrepreneurship module to start your own business

Figure 6 shows that more than half of the respondents disagreed (122, 45.4%) and strongly disagreed (19, 7.1%) that the knowledge gained from the entrepreneurship module enabled them to start thinking of a business concept for their own businesses. However, almost half of the respondents agreed (122, 45.4%) and strongly agreed (6, 2.2%) that knowledge gained from the entrepreneurial education module enabled them to start thinking about a business concept. These findings clearly indicate that the respondents had different perspectives on whether knowledge gained from entrepreneurial education enabled them to consider their own business concepts. These findings suggest that the entrepreneurial education modules are lagging behind in providing the comprehensive knowledge and skills sets needed to construct a business concept note and there seems to be variations in terms of how the module is delivered from different departments. Basically, this means that the module is not constructively designed to provide students with sufficient knowledge on entrepreneurial activities. As claimed by Olutuase, Brijlal and Yan (2023), entrepreneurship education that is not well adapted to a specific context of entrepreneurship may not optimally yield the desired results.

4.7.4 The entrepreneurship module contributes to a better understanding of the entrepreneurial environment

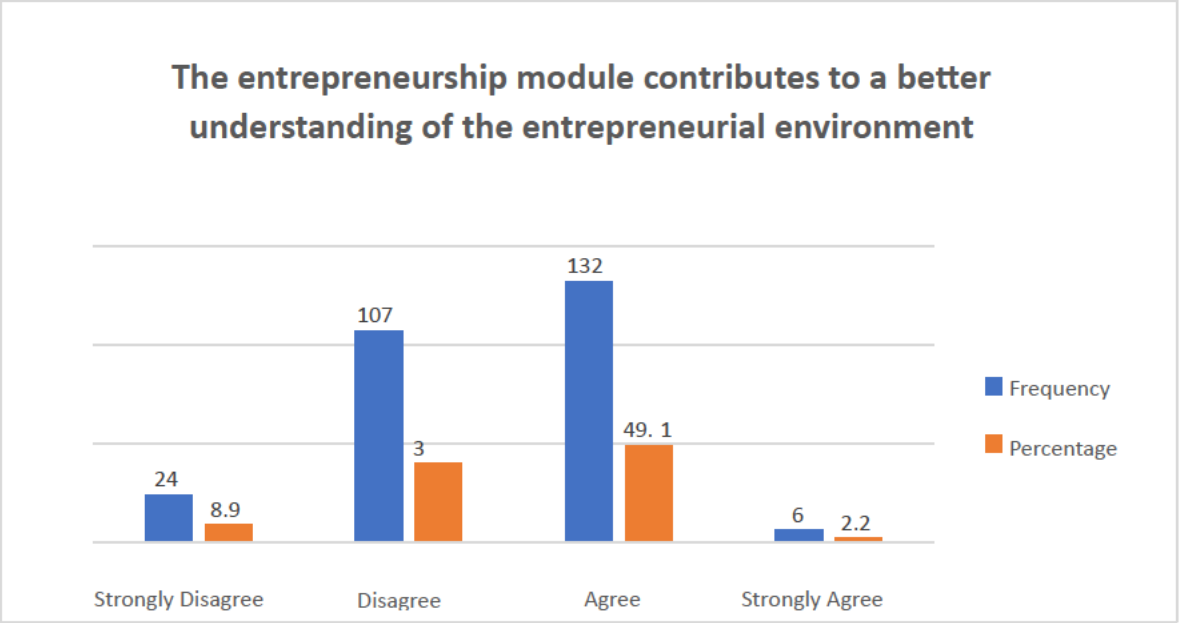

Figure 7: The entrepreneurship module contributes to a better understanding of the entrepreneurial environment

Figure 7 shows that a considerable number of respondents agreed (132, 49.1%) and strongly agreed (6, 2.2%) that the entrepreneurship module contributes to a better understanding of the entrepreneurial environment. However, almost half of the respondents disagreed (107, 39.8%) and strongly disagreed (24, 8.9%) with the statement. These findings suggest that the respondents are not entirely content with the module as it does not lead them to a better understanding of the entrepreneurial environment. It is critical to understand it if you are interested and are intending to operate in it. These findings support Kuada (2022) who found that entrepreneurship modules only provide entry level of entrepreneurship education; the deeper concepts about entrepreneurship and its dynamic environment are not covered.

4.7.5 The entrepreneurship module contributes to the development of an entrepreneurial mindset

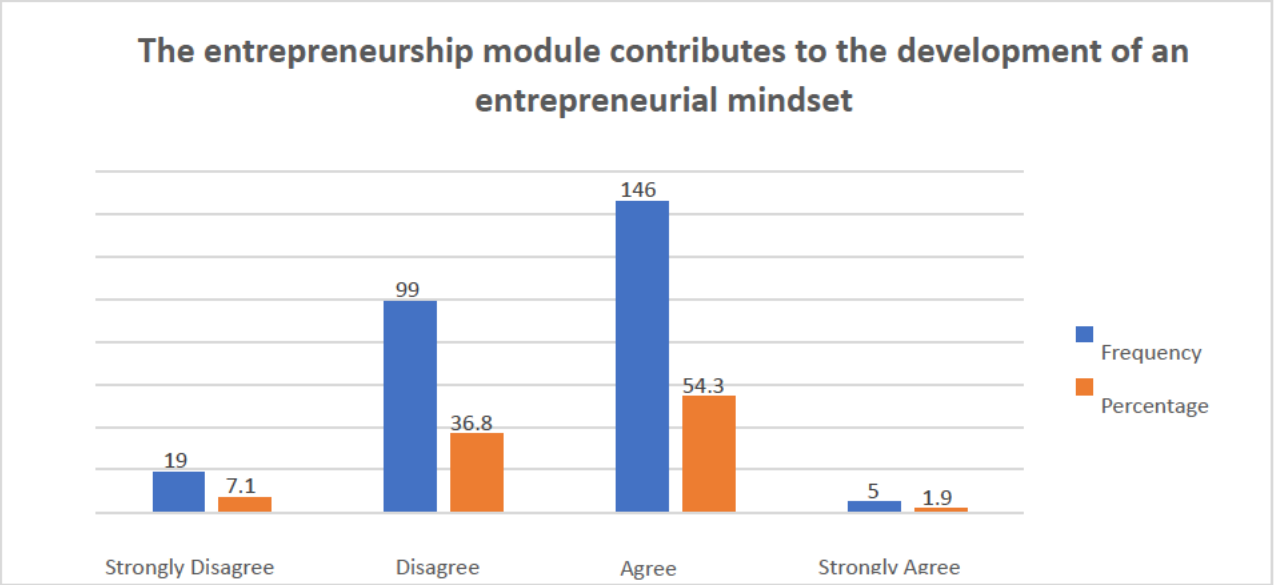

Figure 8: the entrepreneurship module contributes to the development of an entrepreneurial mindset

Figure 8 shows that a considerable number of respondents agreed (146, 54.3%) and strongly agreed (5, 1.9%) that the entrepreneurship module contributes to the development of an entrepreneurial mindset. However, almost half of the respondents disagreed (99, 36.8%) and strongly disagreed (19, 7.1%) that the entrepreneurship module contributes to the development of an entrepreneurial mindset. These findings show that the participants are not convinced about the contribution of entrepreneurship modules to the development of an entrepreneurial mindset. These findings support Saputra, Hernawan and Dewi (2024) who suggest that entrepreneurship education requires a revised curriculum that will bring interest to students and develop their mindset about entrepreneurship.

4.7.6 You have enough time in class to understand the entrepreneurship environment in coursework

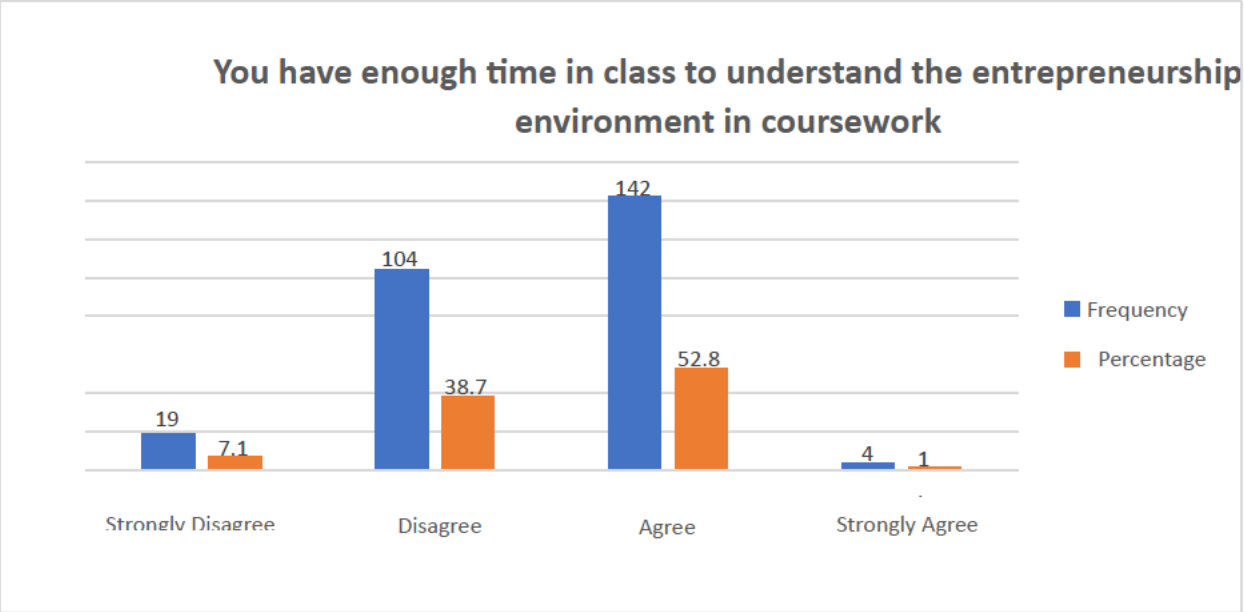

Figure 9:You have enough time in class to understand the entrepreneurship environment in coursework

Figure 9 shows that a considerable number of respondents agreed (142, 52.8%) and strongly agreed (4, 4.15%) that they have enough time in class to understand the entrepreneurship environment in coursework. However, almost half of the respondents disagreed (104, 38.7%) and strongly disagreed (19, 7.1%) with the statement. This means that respondents do not understand entrepreneurship environment as a result of their coursework. Also, the findings indicate that the time allocated to understand entrepreneurship is not sufficient for comprehending the theory and practice. Olutuase, Brijlal and Yan (2023) claims that one thing that helps undergraduate students to understand entrepreneurship is having enough time to learn and do practical components. Hargreaves, Sibanda and Nomlala (2022) suggest that all students enrolled in entrepreneurship modules should have the same intention and understanding of entrepreneurship and not be limited by the time allocated for entrepreneurship modules.

4.7.7 The module content helps you to discover your entrepreneurial potential and capabilities

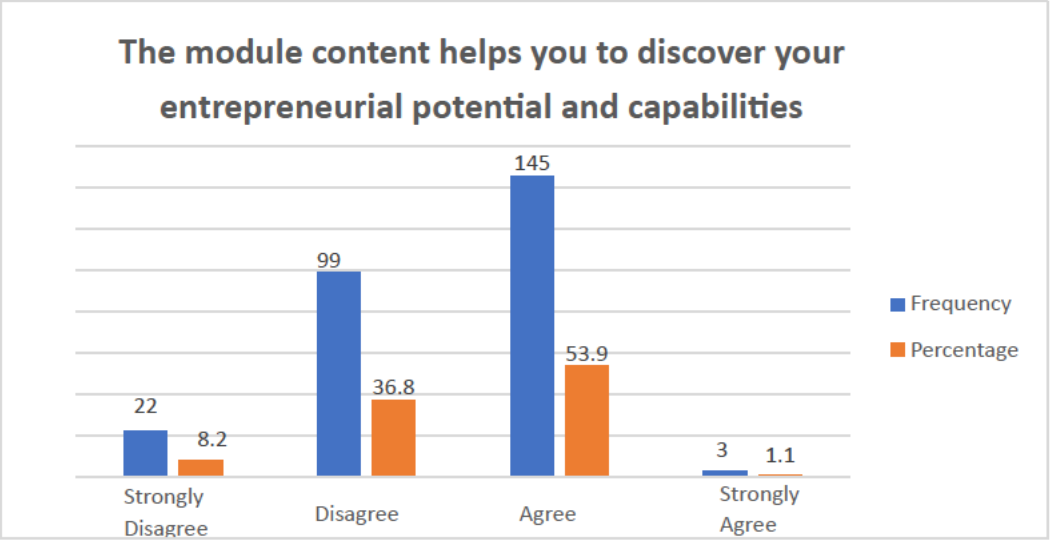

Figure 10:The module helps you to discover your entrepreneurial potential and capabilities

Figure 10 shows that a considerable number of respondents agreed (145, 53.9%) and strongly agreed (3, 1.1%) that the module helps them to discover their entrepreneurial potential and capabilities. However, almost half of the respondents disagreed (99, 36.8%) and strongly disagreed (22, 8.2%) with the statement. These findings mean that to a certain degree the entrepreneurial modules make enough impact to influence respondents to be able to identify their potential and capabilities. However, a considerable number of respondents did not echo the same sentiments which means that the content provided is not contributing significantly to helping students identify potential entrepreneurial capabilities. Gani, and Mangesa, (2024) state that entrepreneurship modules should be designed to influence the student so that they can apply what the content of the module provides in the future. Additionally, students must be able to identify their potential skills so that what they learnt can be efficiently applied in the process of starting their own businesses (Nuraini *et al.* 2022).

4.7.8 The teaching methods applied in entrepreneurship modules are understandable and practical

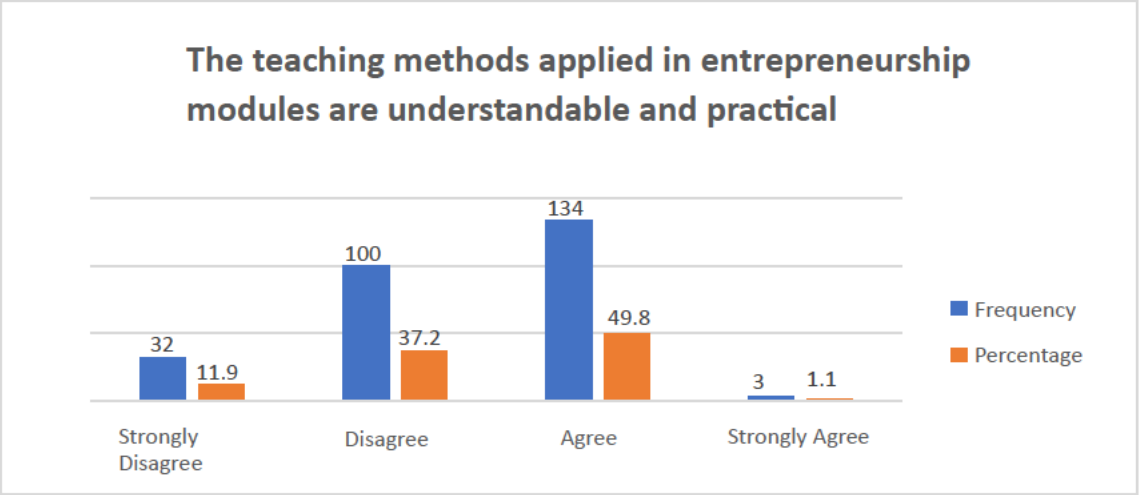

Figure 11: The teaching methods applied in entrepreneurship modules are understandable and practical

Figure 11 shows that a considerable number of respondents agreed (134, 49.8%) and strongly agreed (3, 1.1%) that the entrepreneurship module contributes to a better understanding of the entrepreneurial environment. However, almost half of the respondents disagreed (100, 37.2%) and strongly disagreed (32, 11.9%) with the statement. Even though most of the respondents (50.9%) agreed that the teaching methods applied are understandable and practical, these findings suggest that the respondents are not entirely convinced, as the findings are closely matched. The findings are supported by Kuada (2022), who claims that one of the impediments to effective comprehension of entrepreneurship content is the poor development of learning materials and teaching strategies. Lyu, Shepherd and Lee (2024) further add that the type of resources used to teach entrepreneurship can influence students' understanding of entrepreneurship content.

4.7.9 As part of the coursework, you have interacted with successful entrepreneurs in a guest lecture setting

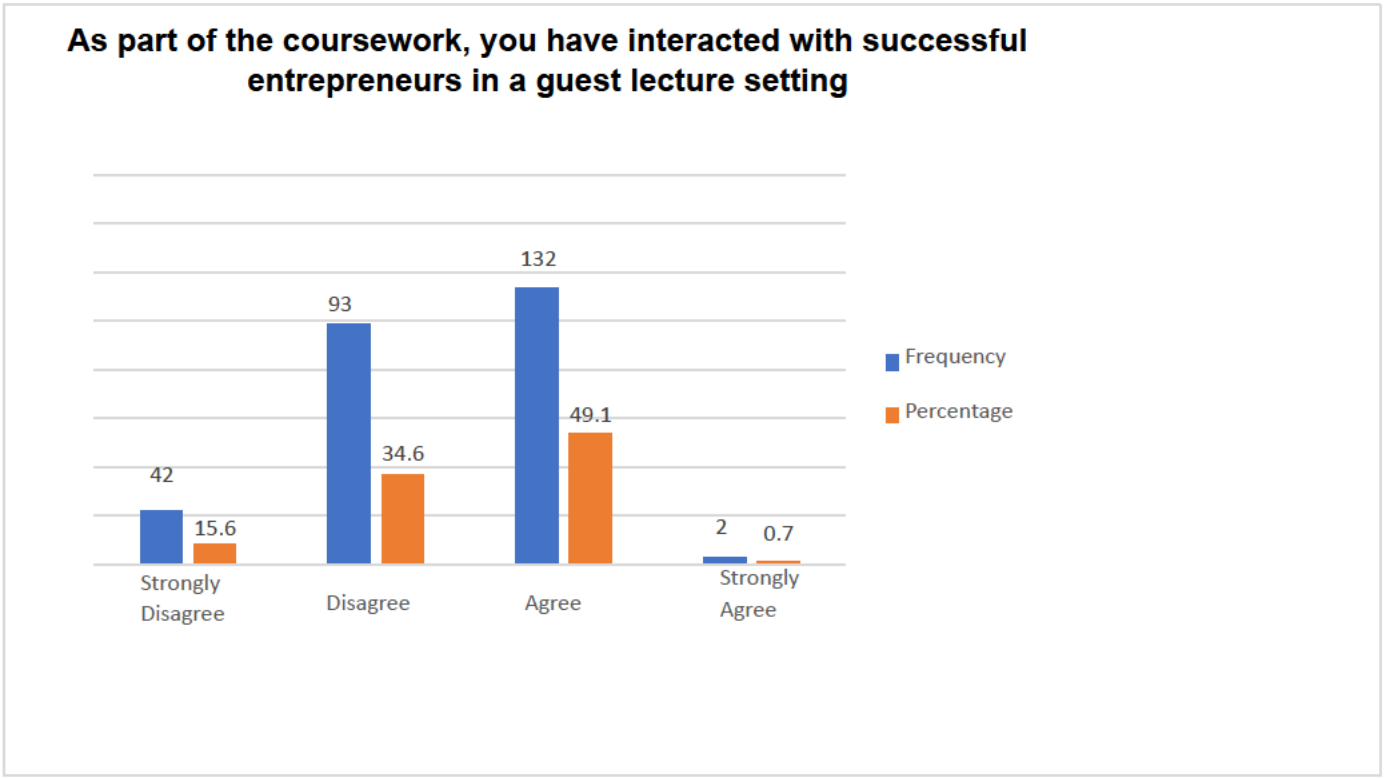

Figure 12: As part of the coursework, you have interacted with successful entrepreneurs in a guest lecture setting

Figure 12 shows that a considerable number of respondents agreed (132, 49.1%) and strongly agreed (2, 0.7%) that as part of the coursework they have interacted with successful entrepreneurs in a guest lecture setting. However, almost half of the respondents disagreed (93, 34.6%) and strongly disagreed (42, 15.6%) with the statement. These findings clearly show that respondents had contradicting views and experiences in terms of whether guest lecturers who are entrepreneurs were brought in to share their experiences as experts in the field. Therefore, based on these findings, one can assume that the delivery of entrepreneurship modules is not consistent from department to department. However, as literature suggests, entrepreneurship modules do need lecturers or people with strong entrepreneurship experience who understands how markets operate and how

entrepreneurs are expected to conduct themselves when faced by various challenges (Mngoma, and Ayonrinde 2023). Akinbinu and Chiloane-Phetla (2022) assert that students' interest in entrepreneurship education is further demonstrated when successful entrepreneurs actively participate in the teaching process. The results of this study show that many of the participants have not interacted with entrepreneurs in a guest lecture setting, which is a major concern.

4.7.10 The entrepreneurship module influences your decision to pursue a career in entrepreneurship rather than being a jobseeker

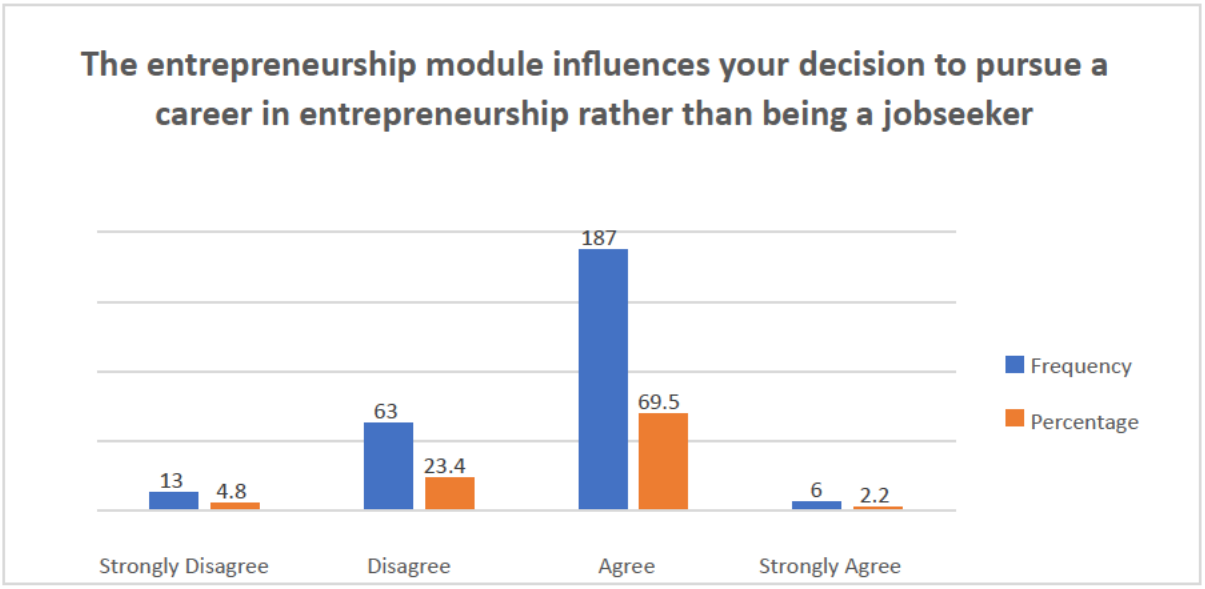

Figure 13 The entrepreneurship modules influences your decision to pursue a career in entrepreneurship rather than being a jobseeker

Figure 13 shows that a considerable number of respondents agreed (187, 69.5%) and strongly agreed (6, 2.2%) that the entrepreneurship module influences their decision to pursue a career in entrepreneurship rather than being a jobseeker. However, some of the respondents disagreed (63, 23.4%) and strongly disagreed (13, 4.8%) with the statement. The results show that most participants believe in self-employment after completing their undergraduate study. However, close to 30% of the respondents believed that the entrepreneurship module does not influence them to pursue entrepreneurship. These findings clearly reflect that respondents enrolled for entrepreneurship modules have ambitions of becoming future entrepreneurs. These aspirations, turned into viable and sustainable businesses, can effectively deal with the ever-increasing number of postgraduate students. As stated by Baggen, Lans, and Gulikers (2022), entrepreneurship

education has the potential to reduce unemployment by providing people with the necessary skills and mindset to establish their own opportunities by launching their own businesses. The next section concentrates on the key statements that seek to uncover the skills required to prepare students in entrepreneurship education.

4.8 SECTION C: SKILLS REQUIRED TO PREPARE STUDENTS IN ENTREPRENEURSHIP EDUCATION

4.8.1 The module teaches technical skills in the context of entrepreneurship

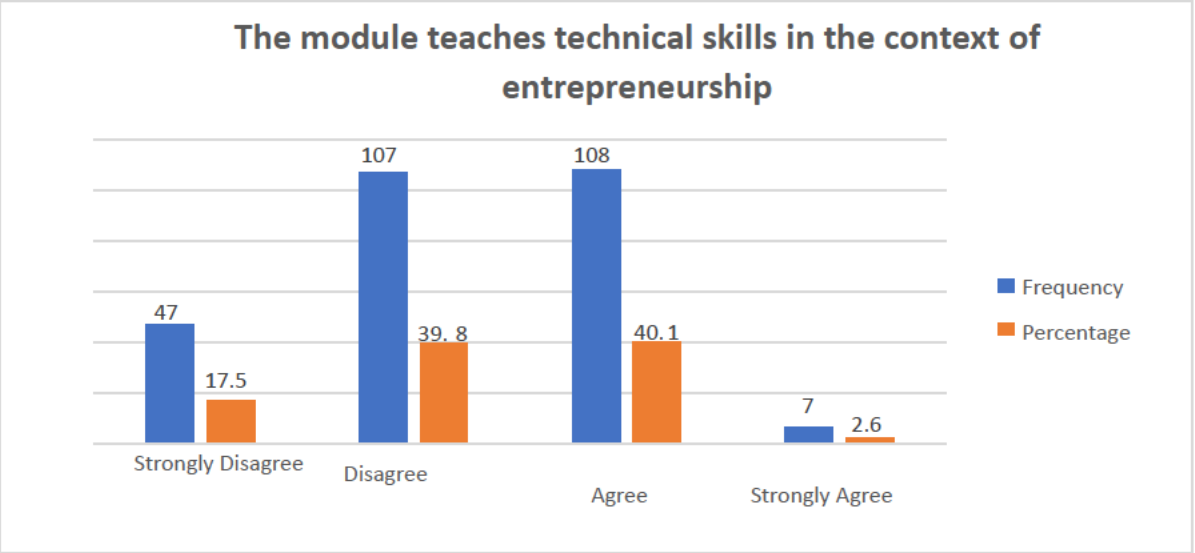

Figure 14: The module teaches technical skills in the context of entrepreneurship

Figure 14 shows that a considerable number of respondents agreed (108, 40.1%) and strongly agreed (7, 2.6%) that the module teaches technical skills in the context of entrepreneurship. However, almost half of the respondents disagreed (107, 39.8%) and strongly disagreed (47, 17.5%) with the statement. The results show that almost half of the respondents are not receiving technical skills in the context of entrepreneurship. As suggested by Tu and Akhter (2023), technical skills are greatly needed to support students pursuing entrepreneurship education to help them conceptualise their ideas and put them into practice.

4.8.2 The module teaches computer applications for entrepreneurship to meet the demand of the 4IR

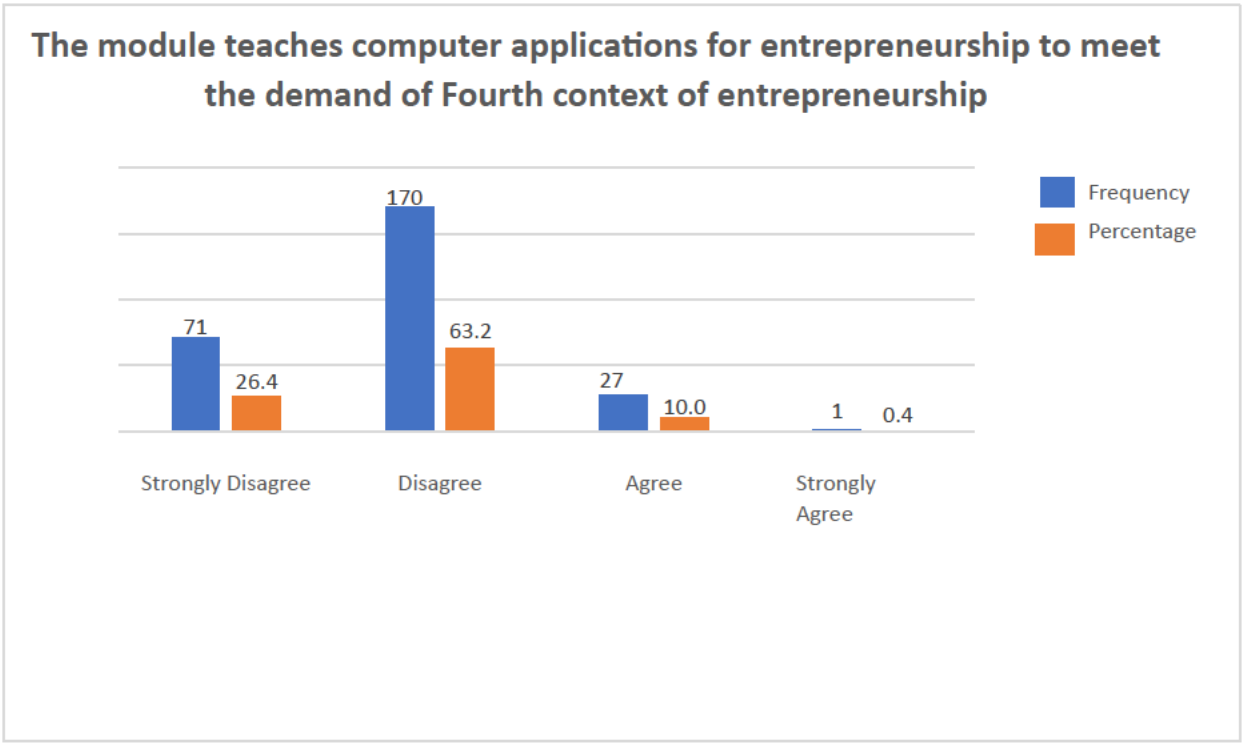

Figure 15: The module teaches computer application for entrepreneurship to meet the demand of the 4IR

Figure 15 shows that most respondents disagreed (170, 63.2%) and strongly disagreed (71, 26.4%) that the module teaches computer applications for entrepreneurship to meet the demand of 4IR. Only 27 (10.0%) agreed and 1 (0.4%) strongly agreed that indeed the module teaches computer applications for entrepreneurship to meet the demand of 4IR. The result shows that the entrepreneurship module does not cater for infusion of 4IR technologies that are used to support entrepreneurial activities. Even though the utilisation of 4IR technologies to support entrepreneurship is crucial for students to learn and understand, the limited resources in higher education prevent students from accessing software and computer applications that can help them understand entrepreneurship in a digital space to enhance their skills (Abro *et al.* 2023).

4.8.3 Your department, promotes 4IR-related innovation and entrepreneurship modules

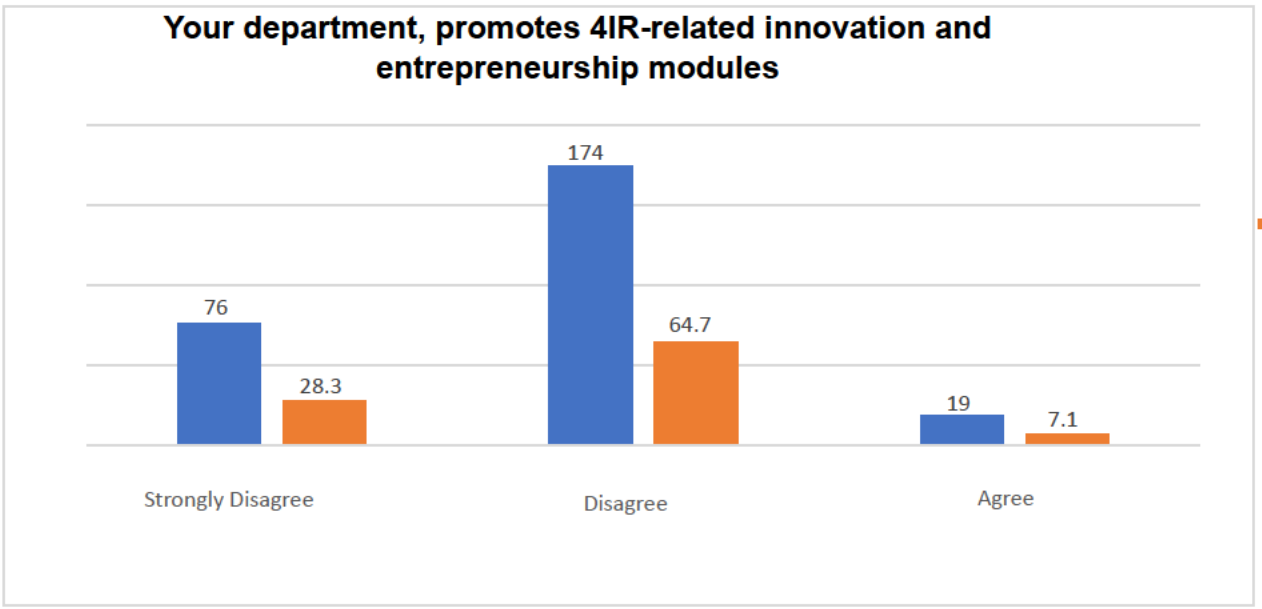

Figure 16: Your department, promote 4IR-related innovation and entrepreneurship modules

Figure 16 shows that a considerable number of respondents disagreed (174, 64.7%) and strongly disagreed (76, 28.3%) that their department promotes 4IR-related innovation and entrepreneurship modules. However, only 19 (7.1%) agreed that their department promotes 4IR-related innovation and entrepreneurship module. The findings show that most departments were lagging behind in terms of promoting 4IR related innovation and entrepreneurship modules. This means that the departments are not sufficiently committed to instructing students about the modules that foster innovation and entrepreneurship associated with the 4IR. This fact that only a small fraction (7.1%) of respondents agreed that the modules offered promoted 4IR is a testament that these modules are there but that a sizeable number of students might not be cognizant that these modules are intended to promote 4IR-related innovation and entrepreneurship. Havenga (2021) highlights that there is not enough support for entrepreneurship education by colleges and universities in the context of 4IR. This makes it harder for students to use new technologies to their fullest potential for entrepreneurship purposes.

4.8.4 In your department, there are sufficient resources for learning entrepreneurship to satisfy 4IR demands

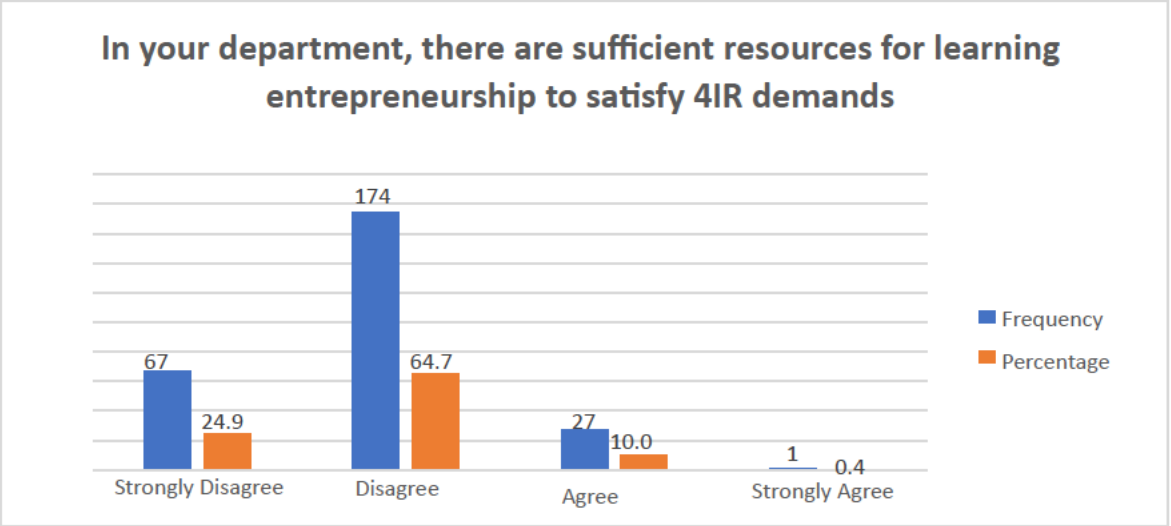

Figure 17: In your department, there are sufficient resources for learning entrepreneurship to satisfy 4IR demands

Figure 17 shows that the majority of respondents disagreed (174, 64.7%) and strongly disagreed (67, 24.9%) that in their department there are sufficient resources for learning entrepreneurship to satisfy 4IR demands. However, some respondents agreed (27, 10.0%) and strongly agreed (1, 0.4%) that indeed there are sufficient resources for learning computer applications for entrepreneurship to meet the demand of 4IR.

Based on the empirical findings, the departments do not have adequate resources to promote entrepreneurship teaching and learning related to 4IR. These results support Shoba *et al* (2022) who indicated that there is a great need for entrepreneurship modules to be specifically designed to improve student's capabilities and technical skills.

4.8.5 The entrepreneurship modules equip you with the marketing skills needed to start a small business

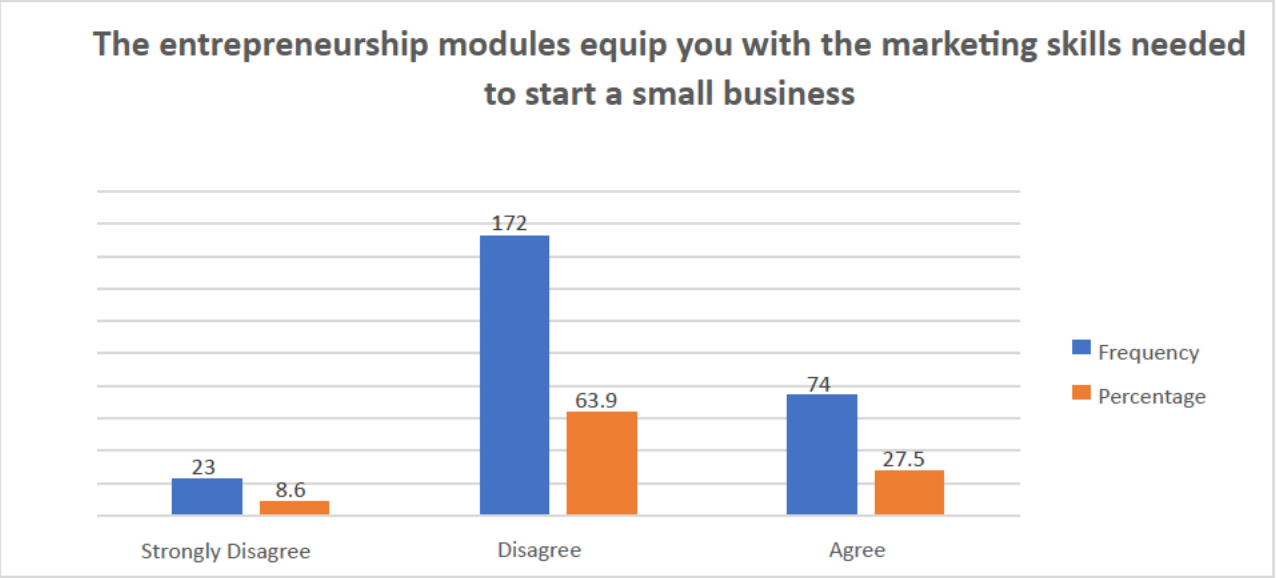

Figure 18: The entrepreneurship modules equip you with the marketing skills needed to start a small business

Figure 18 shows that a considerable number of respondents disagreed (172, 63.9%) and strongly disagreed (23, 8.6%) that the entrepreneurship modules equipped them with the marketing skills needed to start a small business. Fewer respondents agreed (74, 27.5%) that indeed the entrepreneurship modules did equip them with the marketing skills needed to start a small business. These results show that most entrepreneurship modules failed to equip respondents with marketing skills which are crucial for entrepreneurship. As stated by Morrish, Wolf and Meriluoto (2022), entrepreneurship and marketing are intertwined, as entrepreneurial marketing seeks to promote innovative products and services to specific markets. These findings mean that without a greater emphasis on entrepreneurial marketing, students, whose intention is to pursue entrepreneurship, will struggle to market their products or services due to the limited knowledge they have on entrepreneurial marketing. Thurik *et al.* (2023) agree that not giving students enough information about starting and running businesses at university can make it harder for them to learn important business skills and think like an entrepreneur. This might make it more difficult for them to start and continue running their own businesses later.

4.8.6 The entrepreneurship module teaches you managerial skills that you will need to start your own small business

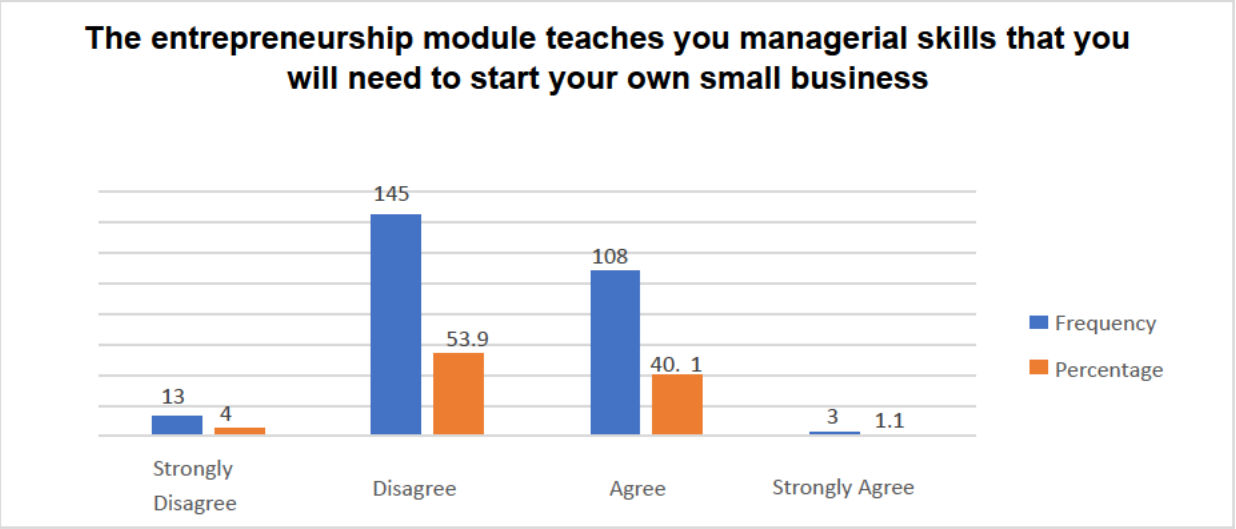

Figure 19: The entrepreneurship module teaches you managerial skills that you will need to start your own business

Figure 19 shows that more than half of the respondents disagreed (145, 53.9%) and strongly disagreed (13, 4.8%) that entrepreneurship modules teach them managerial skills that they will need to start their own business. However, less than half of the respondents agreed (108, 40.1%) and strongly agreed (3, 1.1%) that the entrepreneurship module teaches them managerial skills that they will need to start their own business. The result from the majority of respondents indicates that most students might not learn managerial skills from their entrepreneurial modules. Based on the empirical findings, most respondents perceived that the entrepreneurship module does not fully provide or equip them with managerial skills which are essential to an individual who intends to start a business venture. As stated by Dambula (2022), managerial skills are required for any business in order to be successful and they help in coordinating and managing all the operations of the business.

4.8.7 The module teaches business management and creative thinking skills

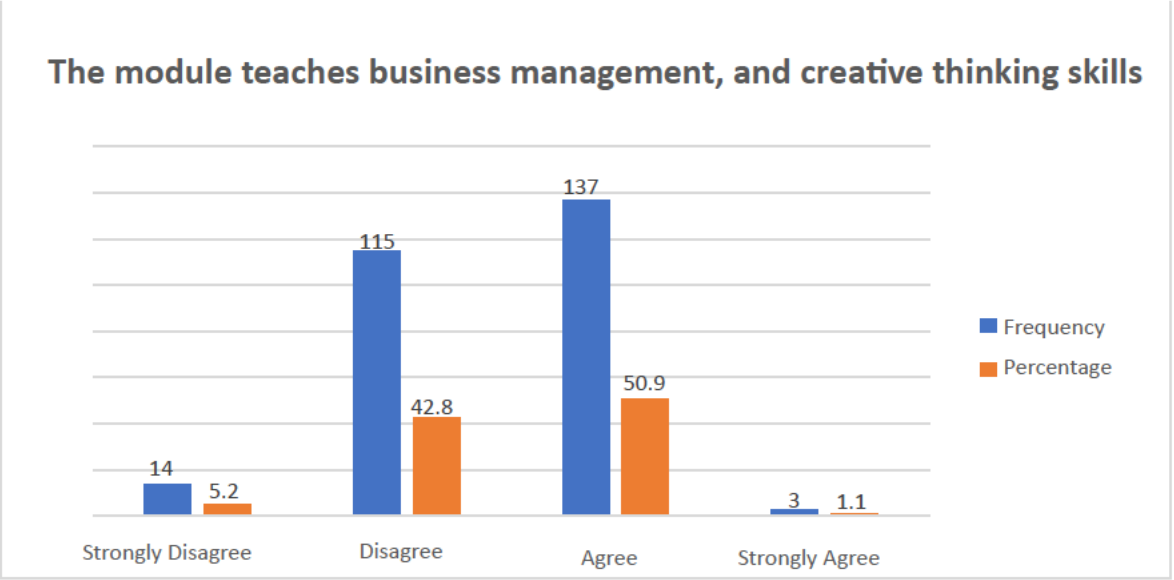

Figure 20: The module teaches business management and creative thinking skills

Figure 20 shows that more than half of the respondents agreed (137, 42.8%) and strongly agreed (3, 1.1%) that the module teaches business management and creative thinking skills. However, a considerable number of the respondents disagreed (115, 42.8%) and strongly disagreed (14, 5.2%) that the module teaches business management and creative thinking skills. Thus, the perceptions by respondents on this issue were closely matched. Even though most of the students (52%) believed that the module caters for business management and creative thinking, almost half of the respondents (48%) disagreed with the statement. These findings clearly indicate that entrepreneurship modules are not sufficiently exposing students to the dynamics of entrepreneurship. Adebola and Kolawole (2022) claim that successful business is derived from a good understanding of business management and creative thinking, meaning that if students are taught such skills their level of comprehending business management would improve and greatly support their initiatives to create a business opportunity for themselves. Shoba *et al* (2022) states that knowing business management can give an entrepreneur an ability to stay longer in business while creative thinking provides you with the ability to identify challenges and what is required by the market.

4.8.8 The module teaches communication skills in the context of entrepreneurship

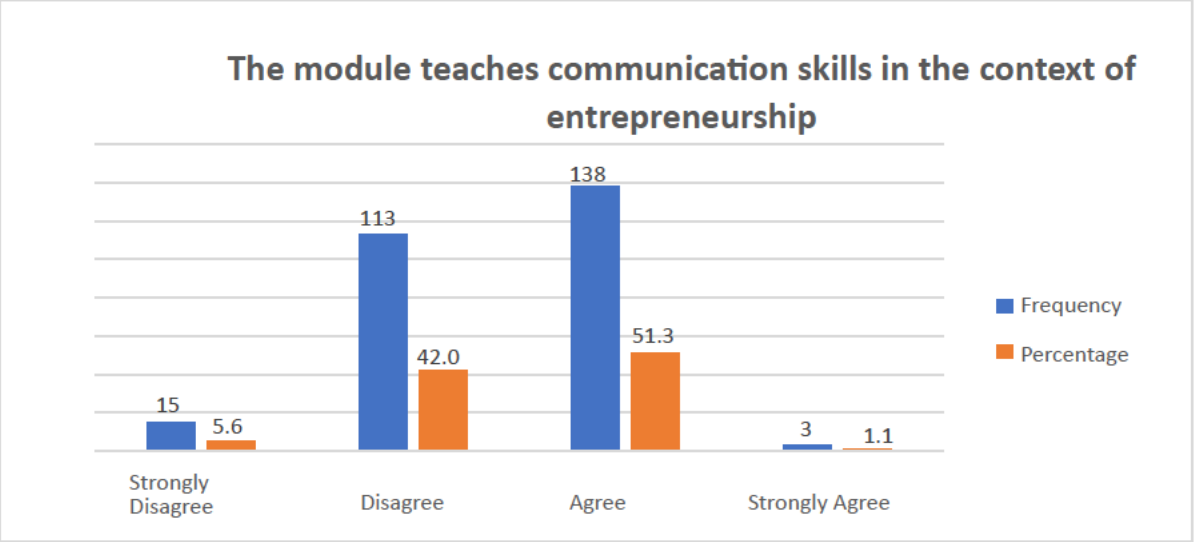

Figure 21: The module teaches communication skills in the context of entrepreneurship

Figure 21 shows that more than half of the respondents agreed (138, 51.3%) and strongly agreed (3, 1.1%) that the module teaches communication skills in the context of entrepreneurship. Slightly less than half of the respondents disagreed (113, 42.0%) and strongly disagreed (15, 5.6%) that the module teaches communication skills in the context of entrepreneurship. These results show that respondents generally agreed that the entrepreneurship module teaches communication skills in the context of starting a business. As articulated by Ntshangase and Ezeuduji (2023), the incorporation of entrepreneurship modules into the curriculum can result in substantial improvements in students' communication capacities. This is achieved by placing them in real-life situations where effective communication is crucial for entrepreneurial achievement. Nkwei, Rambe and Simba (2023) found that without strong communication skills in these modules, people may find it difficult to articulate their goals, engage in productive negotiations, respond to criticism, and engage in successful cooperation. However, nearly half of the respondents (48%) did not agree with the statement that the module had taught communication skills. Ultimately, this could impede their success and advancement in both the entrepreneurial and wider professional spheres.

4.8.9 The entrepreneurship module includes a practice-based project as a fundamental element

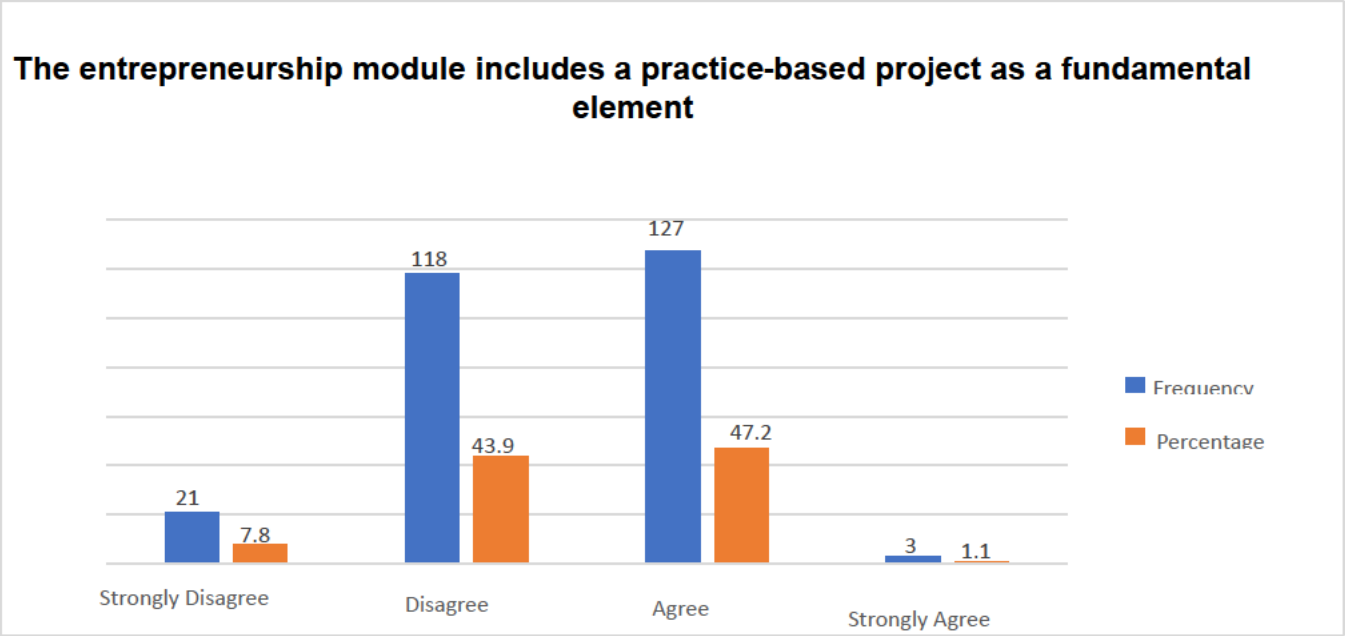

Figure 22: The entrepreneurship module includes a practical-based project as a fundamental element

Figure 22 shows that slightly more than half of the respondents disagreed (118, 43.9%) and strongly disagreed (21, 7.8%) that the entrepreneurship module includes a practical-based project as a fundamental element. Slightly less than half of the respondents agreed (127, 47.2%) and strongly agreed (3, 1.1%) that the entrepreneurship module includes a practical-based project as a fundamental element. The results are closely matched. The absence of practical projects in entrepreneurship modules may result in students failing to acquire essential skills and practical experience that are crucial for thriving in the business space. Sibanda and Iwu (2023) warn that students may not be fully ready for the dynamic and challenging world of entrepreneurship if they do not receive practical projects in their modules. Without practical projects, students may find themselves lacking the practical knowledge required to transform their innovative ideas into viable ventures.

4.8.10 The entrepreneurship modules teach you to come up with novel approaches to address unmet market demands that can be monetised

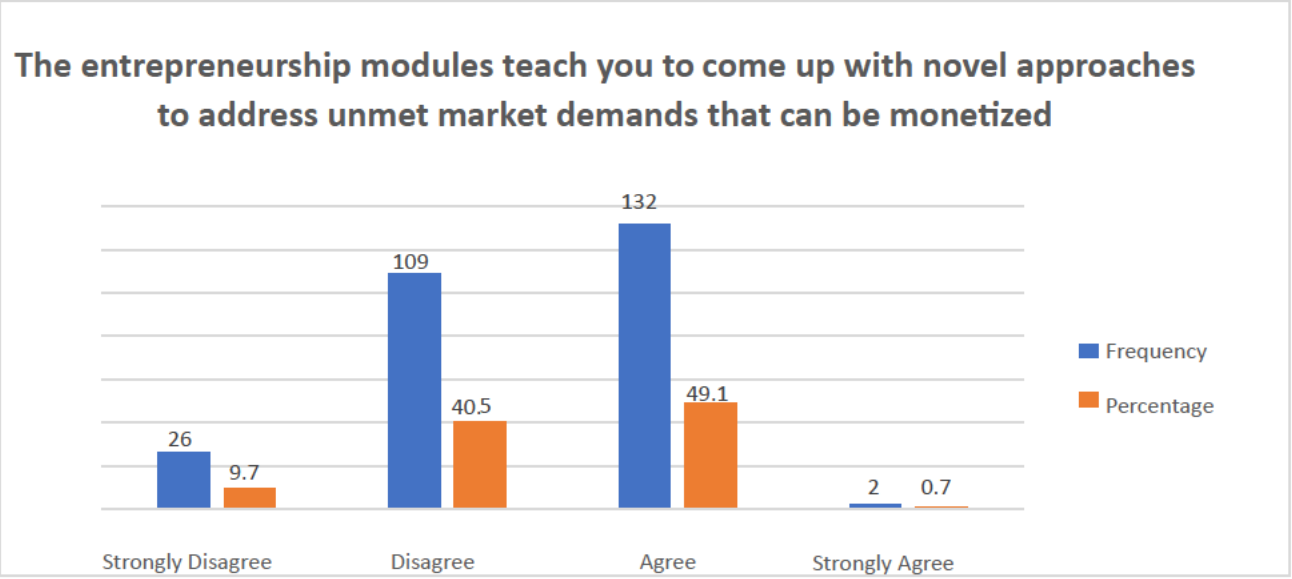

Figure 23: The entrepreneurship modules teach you to come up with novel approaches to address unmet market demands that can be monetised

Figure 23 shows that slightly more than half of the respondents disagreed (109, 40.5%) and strongly disagreed (26, 9.7%) that entrepreneurship modules teach them to come up with novel approaches to address unmet market demands that can be monetised. However, slightly less than half of the respondents agreed (132, 49.1%) and strongly agreed (2, 0.7%) that substantial teaching within entrepreneurship module helps one to come up with novel approaches to address unmet market demands. These findings demonstrate that respondents are not collectively confident that entrepreneurship modules taught them to come up with novel approaches to business and monetise them. These findings also demonstrate that the content covered in entrepreneurship modules does not really promote and encourage self-development and creativity from students. These findings support Kunene (2021) who claimed that identifying the unmet market demands is the first step to successful entrepreneurs because knowing the market demand gives more chances to understand what is in demand in the market. Up-skilling and encouraging students to be

creative and encouraging them to identify gaps in the market can help them generate income through utilisation of their skills (Baggen, Lans and Gulikers 2022).

4.8.11 Higher education should place a high importance on entrepreneurship education to combat the ever-increasing unemployment rate of graduates

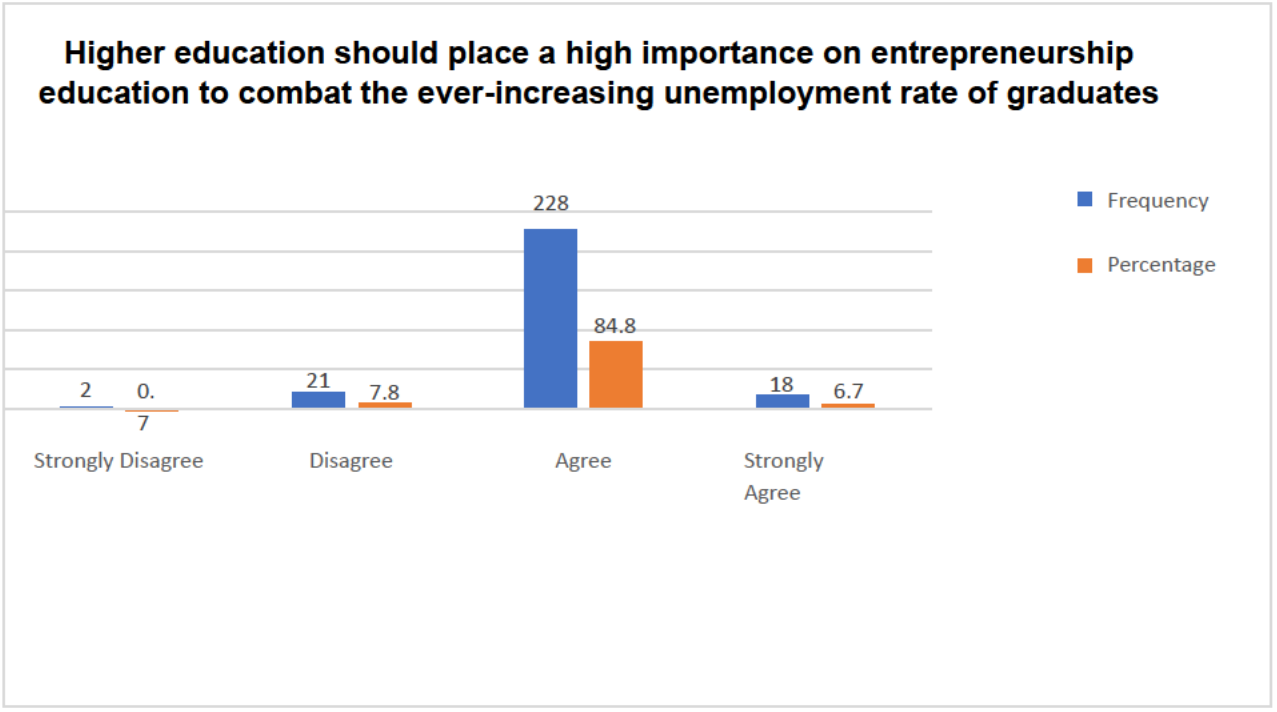

Figure 24: Higher education should place a high importance on entrepreneurship education to combat the ever-increasing unemployment rate of graduates

Figure 24 shows that the majority of the respondents agreed (228, 84.8%) and strongly agreed (18, 6.7%) that higher education should place a high importance on entrepreneurship education to combat the ever-increasing unemployment rate of graduates. Only 21 (7.8%) respondents disagreed and a further 2 (0.7%) strongly disagreed with this statement. These results show that most respondents agreed that higher education should place a high importance on entrepreneurship education, which will combat the everincreasing unemployment rate of graduates. As articulated by Awaah *et al.* (2023), universities that include entrepreneurship in their courses can educate students who are not only looking for jobs but are also capable of starting their own businesses. This can help boost the economy and make sure that there are fewer unemployed graduates. The scarcity of job vacancies in South Africa results in a high unemployment rate among graduates (Kebede 2023). This means that the country needs graduates with entrepreneurship education to create jobs and decrease unemployment in general. As advocated by the

empirical findings, there is an urgent need for vibrant and focused entrepreneurial studies to combat unemployment rates locally and nationally.

The following section will focus on the proposed strategies to promote entrepreneurship.

4.9 SECTION D: PROPOSED STRATEGIES TO PROMOTE ENTREPRENEURSHIP

4.9.1 Raising awareness and communicating the value of the entrepreneurial spirit

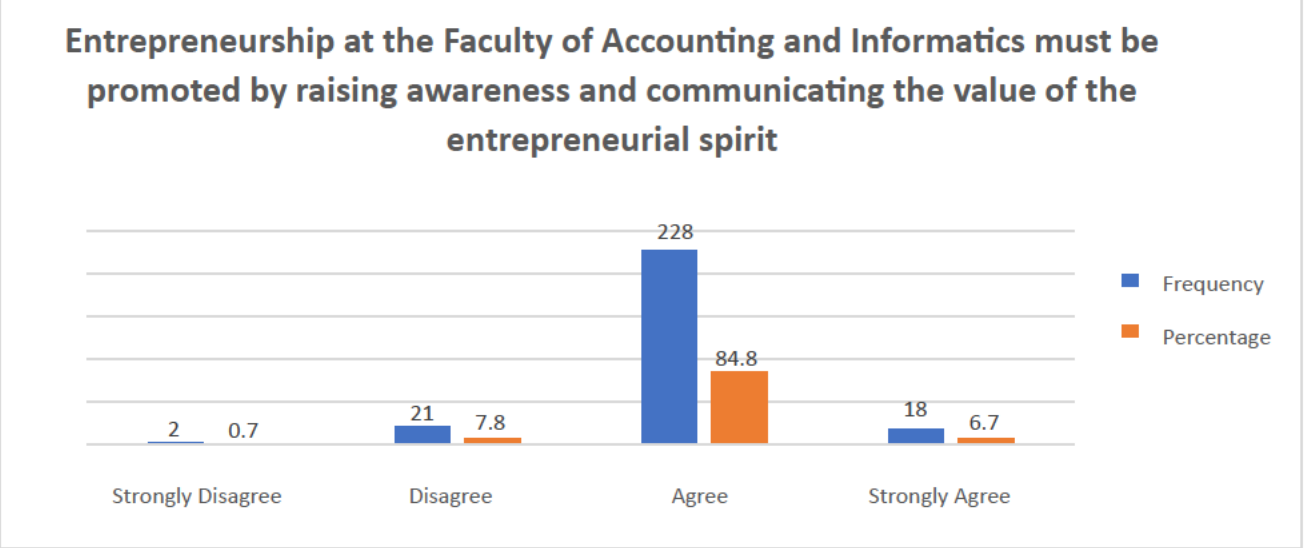

Figure 25: Raising awareness and communicating the value of the entrepreneurial spirit

Figure 25 shows that the majority of the respondents agreed (228, 84.8%) and strongly agreed (18, 6.7%) that entrepreneurship spirit must be promoted in the Faculty of Accounting and Informatics by raising awareness and communicating the value of the entrepreneurial spirit. Only 21 (7.8%) respondents disagreed and a further 2 (0.7%) strongly disagreed with the statement. These findings clearly demonstrate that respondents wanted more awareness and comprehensive knowledge about the values of entrepreneurship modules. Understanding these values seems to be critical to students who enrol for entrepreneurship modules. As indicated by Fernandes and Ferreira (2022), providing awareness and communicating about entrepreneurship entices students to adopt an entrepreneurial mindset. Jalinus *et al* (2023) adds that another way to entice students is for lecturers to encourage creativity, interpersonal skills, and educate students about financial literacy.

4.9.2 My department must invite entrepreneurs with vast knowledge and experience as guest lecturers to teach students

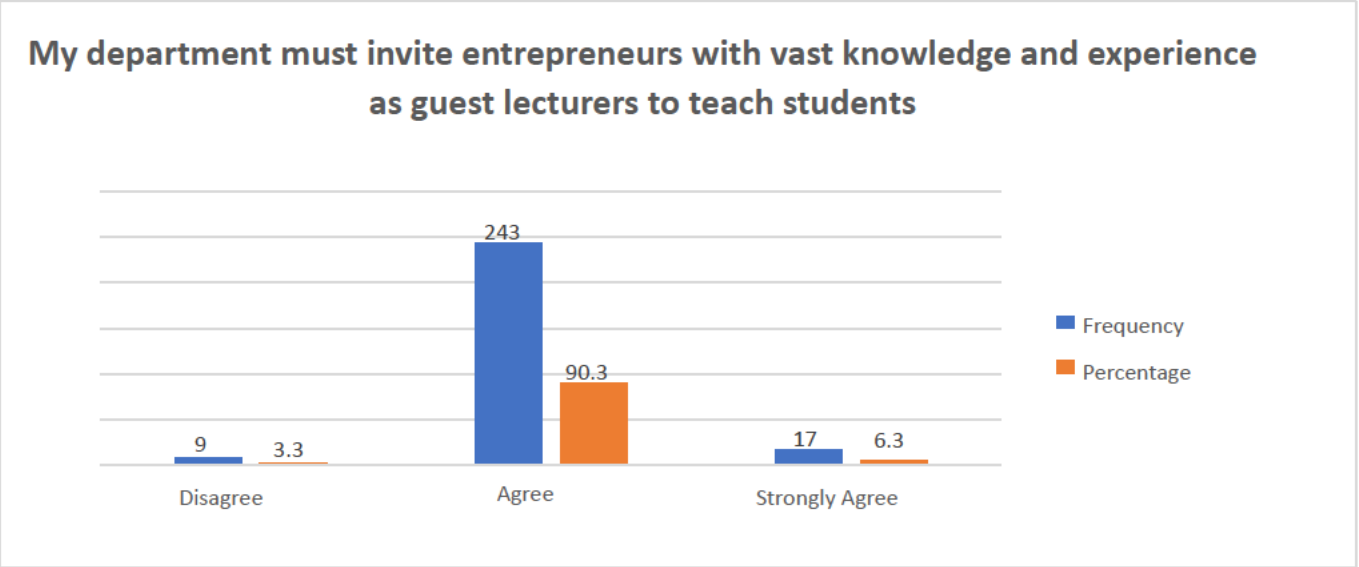

Figure 26: My department must invite entrepreneurs with vast knowledge and experience as guest lecturers to teach students

Figure 26 shows that the majority of respondents agreed (243, 90.3%) and strongly agreed (17, 6.3%) that in order to bring about awareness and exposure to entrepreneurship, departments should invest in inviting entrepreneurs with vast knowledge and experience as guest lecturers to teach students. Only a small number of respondents disagreed (9, 3.3%) with the above statement. These findings clearly demonstrate that student's entrepreneurship intentions can be improved through the teachings of experienced entrepreneurs with vast knowledge about entrepreneurship and its turbulent environment. As stated by Lazzaro (2021), entrepreneurs who have been in the business for many years have the ability to understand all the spheres of business and valuable knowledge that can help guide new entrants to business environment. Furthermore, Rasiah, Somasundram and Tee (2019) propose that local business owners are the ideal people to invite to provide guest lectures as their knowledge is extensive about socio-economic issues, opportunities, local businesses regulations, and other aspects that influence business sustainability and success within that region.

4.9.3 To foster entrepreneurial education, the department should have entrepreneurial labs with 4IR resource

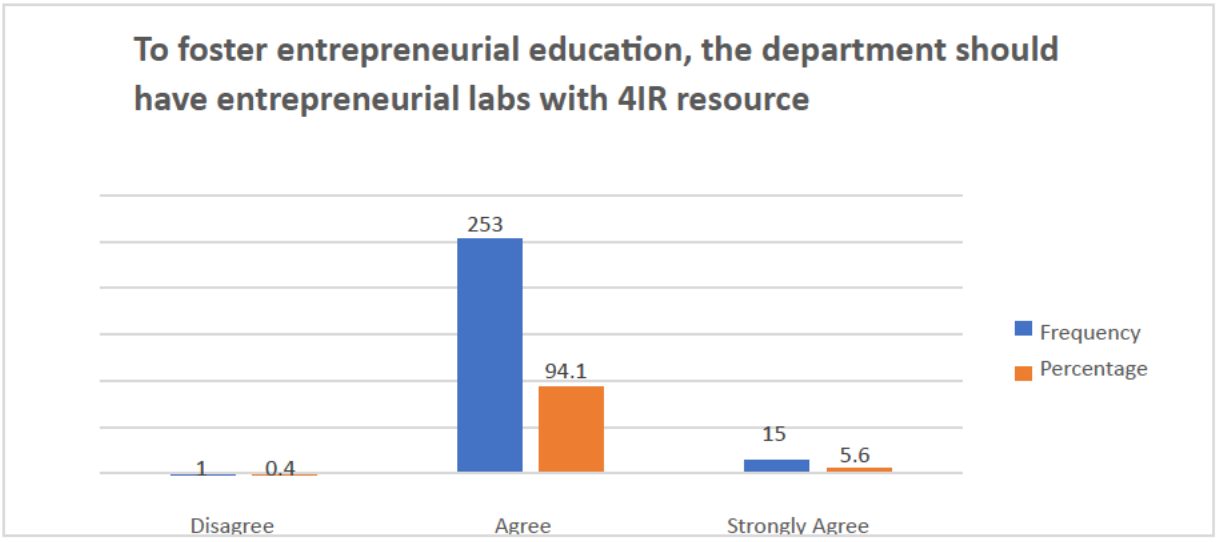

Figure 27: To foster entrepreneurial education, the department should have entrepreneurial labs with 4IR resources

Figure 27 shows that the majority of the respondents agreed (253, 94.1%) and strongly agreed (15, 5.6%) that in order to foster entrepreneurial education, departments should have entrepreneurial labs with 4IR resources, and only 1 (0.4%) respondent disagreed with the statement. These findings mean that the respondents strongly believed that one of the key strategies to promoting entrepreneurial education, is to construct entrepreneurial labs with 4IR resources. These resources are extremely important as they help students to understand 4IR resources and applications that individuals need to create business opportunities. Entrepreneurial labs and resources will enable students to be more skilled and knowledgeable about the different facets encompassed in entrepreneurial education. Furthermore, usage of advanced resources will help prepare students with unique and relevant skills.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

In the preceding chapter the collected data was presented and analysed. This chapter concludes the study on entrepreneurship education by summarising the key findings and proposing recommendations based on these empirical findings. The literature review surveyed the literature related to the impact of entrepreneurship education on students and the skills required by students to be prepared for success in the real world of entrepreneurship. Skills such as managerial skills, digital skills, and communication skills not only prepare entrepreneurship education students for entrepreneurial endeavours, but also enhances their adaptability and resilience to navigate entrepreneurial prospects. Additionally, the findings of the current research study underscored the profound impact of entrepreneurship on students, shaping their attitudes and behaviours towards innovation and risk-taking, which are crucial for entrepreneurial success.

5.2 SUMMARY OF THE KEY FINDINGS

The key findings are laid out in accordance with the research objectives of this study to allow for conclusions to be drawn. The primary aim of the study was to explore and understand the influence of entrepreneurship education on the preparedness of students to embark on entrepreneurship at a selected university of technology in KwaZulu-Natal. The results indicated that 60% of the respondents understand the effectiveness of entrepreneurship educational programmes in training future entrepreneurs, while 64.7% of respondents perceived that the inadequate entrepreneurship education programmes in higher education pose potential barriers to student’s ability to acquire the essential skills needed to exploit the potential of the 4IR through entrepreneurship education. The students' feedback suggests that they may have not effectively participated in or grasped the technological components of the modules, hinting at a chance missed to gain important skills in fields like digital marketing, e-commerce, and technology incorporation.

Additionally, 63.9% of respondents felt that entrepreneurship modules fail to provide them with marketable skills to help them start their small business. This is a concern because Adenutsi (2023) emphasises that having marketable skills not only increases students' chances of success but also enables them to adapt to changing market conditions and seize new opportunities in an increasingly competitive environment.

5.2.1 Objective One: To assess the perceptions of students on whether entrepreneurship education modules are designed to prepare them as future entrepreneurs

The following statements were designed to assess students' perceptions on whether entrepreneurship education modules were designed to prepare students as future entrepreneurs.

5.2.1.1 Entrepreneurship modules provide students with better knowledge of what entrepreneurship is about

The majority of respondents (60%) affirm that entrepreneurship modules provide a better understanding of what entrepreneurship entails. This supports the findings by Alakaleek, Harb and Harb (2023) that educational modules play a crucial role in shaping students' perceptions and knowledge about entrepreneurship. Moreover, it is evident from the responses to this statement that entrepreneurship modules are effective in fulfilling the intended purpose of educating and preparing students for entrepreneurial endeavours. This discovery emphasises the significance of promoting entrepreneurial modules in academic programmes, as they enable learners to acquire knowledge of how to navigate the ever-changing environment of entrepreneurship.

The results further confirm that entrepreneurship modules are highly valuable educational resources, providing students with a thorough and perceptive understanding of the complex field of entrepreneurship. Hussain, Zafar Sheikh and Fatima (2022) affirm that taking part in entrepreneurship classes helps students learn more about starting a business. This shows that educational programmes are very important in preparing future business entrepreneurs. The results demonstrate that to a certain extent, entrepreneurship education modules offered at the selected university of technology are indeed designed to prepare students for entrepreneurial space. Meaning that these specific educational interventions are essential in providing students with the information and abilities they need to successfully negotiate the challenges of entrepreneurship. Surprisingly, the findings revealed that a sizeable percentage (40%) of the respondents disagreed with this by indicating that they were not receiving enough knowledge of entrepreneurship from the modules offered by relevant departments. This knowledge gap has dire implications because without a clear understanding of entrepreneurship, students will graduate with a limited skillset, leading to higher rates of startup failure and a rise in unemployment.

5.2.1.2 ENTREPRENEURSHIP MODULES HELP STUDENTS TO BUILD THEIR ENTREPRENEURIAL SKILLS

Figure 5 revealed that 53% of respondents disagreed with the statement above, this disagreement clearly indicates that there are shortcomings in how entrepreneurship modules are currently structured or delivered by relevant departments. As a result, these modules are not adequately preparing students with the practical skills needed to succeed in entrepreneurship, such as business planning, financial management, and marketing strategies. These findings raise a significant concern, as the development of the above stated skills is crucial for aspiring students to become entrepreneurs. Also, the findings demonstrate that the content offered under these entrepreneurship modules differs from one programme to another, making it extremely difficult to conclusively gather whether the modules offer comprehensive entrepreneurial skill sets. As stated by Olutuase, Brijlal and Yan (2023), difference of perception arises from different factors such as how students learn, what they expect from the classes, or how the lessons are prepared and delivered. Even though the above findings show discontent, it is crucial to also note that there are some departments that are thriving in delivering these entrepreneurship modules. This sentiment is supported by 47% of the respondents who agreed that these modules are beneficial in enhancing an entrepreneurship mindset.

5.2.1.3 THE KNOWLEDGE GAINED FROM THE ENTREPRENEURSHIP MODULE WILL ENABLE THE STUDENTS TO START THINKING OF A BUSINESS CONCEPT FOR THEIR OWN BUSINESS

The findings of this research study underscored the importance of entrepreneurship education in fostering entrepreneurial thinking among students. Despite a close split between those who disagreed (52%) and those who agreed (48%) with the statement, that the knowledge gained from the entrepreneurship module enables students to start thinking about a business concept for their own venture, the overall sentiment leans towards the potential impact of entrepreneurship education. These findings resonate with the broader discourse on entrepreneurship education, which emphasises the importance of experiential learning and real-world application in preparing students for entrepreneurial endeavours. The findings from a study conducted by Obaje (2024) emphasise that the overarching goal of entrepreneurship education should be to equip students with the skills and mindset necessary to identify and pursue entrepreneurial opportunities. The findings of this study have implications for entrepreneurship education structure in the different programmes involved in entrepreneurship education.

5.2.1.4 The entrepreneurship module contributes to a better understanding of the entrepreneurial environment

Based on a review of the results, the researcher finds a relatively balanced opinion regarding the contribution of entrepreneurship modules to a better understanding of the entrepreneurial environment, with 51% of respondents agreeing and 49% disagreeing. This indicates a close divide among participants, suggesting that there is uncertainty or differing perceptions regarding the impact of these modules in this area. One interpretation of these findings is that entrepreneurship modules have varying degrees of effectiveness in enhancing students' understanding of the entrepreneurial environment. Moreover, the findings highlight the importance of providing students with a holistic understanding of the entrepreneurial environment, including its economic, social, and cultural dimensions. The results have implications for the design and delivery of entrepreneurship education programmes.

5.2.1.5 You have enough time in class to understand the entrepreneurship environment in coursework

The empirical findings reveal that a slight majority (54%) of the respondents agree that they have enough time in class to understand the entrepreneurship environment in the coursework. However, the fact that 46% of respondents disagree suggests that there is a substantial minority who believe that the time allotted in class is insufficient for understanding the entrepreneurship environment. This implies potential areas for improvement in the curriculum delivery or classroom management to address the needs of this demographic. A study conducted by Nkwei, Rambe and Simba (2023) established the critical role of lecturer training and support in implementing innovative instructional approaches and managing classroom dynamics effectively.

To achieve the primary goal of assessing students' perceptions regarding the preparedness provided by entrepreneurship education modules for future entrepreneurial roles, the study revealed that respondents lack sufficient entrepreneurship knowledge necessary for their future entrepreneurial pursuits. Consequently, they struggle to cultivate the entrepreneurial skills essential for generating business ideas that contribute to economic growth. The absence of these skills further hampers the ability to innovate, leading to stagnation in technological progress and economic diversification. This limitation impedes the economy's capacity to adapt to evolving market conditions.

5.2.2 Objective Two: To determine the perceptions of students on whether entrepreneurship education modules provide the necessary entrepreneurial skills and knowledge in line with 4th industrial revolution requirements

5.2.2.1 The module teaches technical skills in the context of entrepreneurship

Upon reviewing the study outcomes, it became evident that there exists a significant divergence of perceptions regarding the efficacy of entrepreneurship modules in imparting technical skills relevant to entrepreneurship. Responses to this statement showed that 43% of participants agreed with the notion of these modules being effective in this aspect, while the majority of respondents, 57%, held a contrary view, indicating that the entrepreneurship modules fell short of achieving this objective satisfactorily. This misalignment can be attributed to several factors, including preferable curriculum by each department, insufficient integration of practical skills, or a lack of emphasis on hands-on learning experiences. The results also suggest a need for entrepreneurship modules to evolve to better meet the demands of the modern entrepreneurial landscape. This could involve updating curriculum content to reflect the latest technological advancements and industry trends, as well as incorporating more experiential learning opportunities that allow students to apply technical skills in real-world scenarios. Manasoe, Mmbengwa and Lekunze (2023) state that entrepreneurship skills gained from entrepreneurial studies empower entrepreneurs to leverage technology, adapt to technological advancements, and effectively utilise digital tools to drive business growth, improve customer experiences, and optimise operations. Furthermore, the findings underscore the importance of collaboration between academia and industry in designing entrepreneurship modules.

5.2.2.2 The module teaches computer applications for entrepreneurship to meet the demand of the 4IR

The survey results reveal a strikingly low agreement rate, with only 10% of respondents agreeing that the entrepreneurship module teaches computer applications for entrepreneurship to meet the demands of the 4IR. In contrast, 90% of respondents disagreed with this statement, indicating a widespread perception among participants that the modules do not adequately address the technological aspects of entrepreneurship in the context of the 4IR. These findings suggest that there is a significant gap between the content covered in entrepreneurship modules, and the skills and knowledge needed to thrive in the digital age. The findings of the study underscore the importance of seizing the

opportunity to improve entrepreneurship education by effectively incorporating computer applications and technologies in line with the demands of the 4IR.

5.2.2.3 YOUR DEPARTMENT PROMOTES 4IR-RELATED INNOVATION AND ENTREPRENEURSHIP

The survey findings revealed a notably low level of agreement, as only 7% of participants indicated that their departments actively promote innovation and entrepreneurship related to the 4IR. On the other hand, 93% of the respondents disagreed that is prioritised. This result implies a considerable disparity between the perceived support for 4IR-related innovation and entrepreneurship within departments and the actual practices being implemented. One possible interpretation of these results is that there is a lack of awareness or understanding among respondents regarding the initiatives and efforts being made by their respective departments to promote 4IR-related innovation and entrepreneurship. The implications of these findings are significant for the objectives of the study. If departments are not effectively promoting 4IR-related innovation and entrepreneurship, this will hinder the development and adoption of these technologies and practices within academic institutions. This, in turn, will impact on the ability of students and faculty to stay abreast of the latest developments in their fields and to effectively contribute to innovation and entrepreneurship in society. Furthermore, these results suggest that there may be a need for greater collaboration and coordination between departments to promote 4IRrelated innovation and entrepreneurship effectively. This can be achieved by developing strategic plans and initiatives that prioritise these areas and allocate resources accordingly. The above findings are further strengthened by Manasoe, Mmbengwa and Lekunze (2023) who state that addressing these gaps will enable departments to better support their students in engaging with 4IR-related technologies and practices, ultimately contributing to greater innovation and entrepreneurship within academic institutions and society at large.

5.2.2.4 THE MODULE TEACHES COMMUNICATION SKILLS IN THE CONTEXT OF ENTREPRENEURSHIP

The survey results regarding whether the entrepreneurship module teaches communication skills in the context of entrepreneurship reveal a slight disagreement among respondents, with 48% agreeing and 52% disagreeing. This suggests a nuanced perception of the module's effectiveness in this aspect of skill development. The findings highlight the importance of aligning the content of entrepreneurship modules with the skills that are most relevant and valuable in the entrepreneurial context. Communication skills are essential for entrepreneurs to pitch their ideas, negotiate with stakeholders, and build relationships with customers and partners. The above can be achieved by acquiring the much-needed resources and support to enhance the teaching of communication skills in entrepreneurship

modules. This could include providing lecturers with training and resources to effectively teach these skills, as well as creating opportunities for students to practice and develop their communication skills in a supportive environment.

In summary, the aim of Objective Two was to assess the perceptions of students on whether entrepreneurship modules provide the necessary entrepreneur skills and knowledge in line with 4IR. Based on the review of the above findings, it was evident that departments are not engaging in activities to promote the awareness of embedding 4IR within the entrepreneurial modules. Moreover, lack of effective communication channels further exacerbates the inability of students to access the available initiatives departments have to promote 4IR innovation. This is attributed to various factors, such as limited resources, competing priorities, or a lack of understanding of the importance of 4IR-related technologies and practices.

5.2.3 Objective Three: To formulate strategic approaches that could be utilised to promote entrepreneurship education at the selected university of technology

5.2.3.1 Department must invite entrepreneurs with vast knowledge and experience as guest lecturers to teach students

Based on the empirical findings, 90.3% of the respondents strongly believe that inviting successful entrepreneurs with extensive knowledge and experience as guest lecturers is of great importance in promoting entrepreneurship. This approach enables students to benefit from the insights and firsthand information shared by seasoned entrepreneurs who are actively engaged in entrepreneurial pursuits daily. Guest lecturers can provide valuable insights and inspiration, they are just one component of a comprehensive entrepreneurship education. Combining these interactions with theoretical coursework, hands-on experiences, and ongoing learning is crucial to developing a well-rounded entrepreneurial skill set.

The findings demonstrate that inviting entrepreneurs as guest lecturers to share experiences with students about the practicalities of being an entrepreneur should be included as part of learning during entrepreneurial studies. Akinbinu and ChiloanePhetla (2022) affirm that people who are in the field of entrepreneurship have strongly experienced the reality of entrepreneurship and the knowledge they have gained can be of great benefit to aspiring entrepreneurial students. Regularly inviting guest lecturers to share their valuable knowledge can have a profound influence on entrepreneurship education. These

guest speakers, often industry experts or successful entrepreneurs themselves, bring real-world experience and insights that enrich students' understanding beyond what traditional coursework offers. The guest's narration of challenges experienced, successes, and practical advice can inspire and motivate students, providing them with a more holistic view of entrepreneurship journey. Shahid *et al.* (2023) further emphasise the importance of ongoing dialogue and collaboration among stakeholders involved in entrepreneurship education to continuously improve the quality and effectiveness of entrepreneurship curriculum. Overall, the influence of guest lecturers in entrepreneurship education can be transformative, bridging the gap between theory and practice and empowering students to navigate the complexities of the business world more effectively.

5.2.3.2 Department must include entrepreneurship education as a separate, stand-alone course or programme

There was overwhelming agreement in the responses to this statement, with 90% of respondents supporting the inclusion of entrepreneurship education as an isolated, stand-alone course or programme within the faculty, underscores a clear demand for a more organised and committed approach to cultivating entrepreneurial abilities. This agreement comes about as an acknowledgement among respondents of the significance of entrepreneurship education and bearing in mind the paucity of university qualifications relating to entrepreneurial endeavours in South Africa at the moment. The current scene in South Africa is that there is a stark gap in entrepreneurship education capabilities, with conventional instruction frequently falling short in preparing students with the commonsense abilities necessary to explore the complexities of beginning and overseeing entrepreneurship (Shahid *et al.* 2023). With many young people in South Africa struggling to find jobs it is important for students to learn about starting and running their own businesses. The country has a lot of people who do not have jobs, especially young people. People are starting to realise that teaching students how to start their own businesses could help with this problem. Teaching entrepreneurship as a separate programme, the faculty will help students learn how to start their own businesses. This can give them the ability to make their own job opportunities. This proactive approach helps students grow and develop in their personal and work lives, and it also helps to fight against the problem of young people not being able to find work.

Objective Three examined strategic approaches to promote entrepreneurship education at the selected university of technology and revealed several key insights. Firstly, there is a

notable lack of engagement by departments in inviting entrepreneurs with vast knowledge and experience as guest lecturers to teach students. This represents a missed opportunity to expose students to real-world entrepreneurial perspectives and practices. Secondly, respondents emphasised the importance of including entrepreneurship education as a separate, stand-alone course or programme within the curriculum. This highlights a gap in the current academic offerings, indicating a need for more comprehensive and dedicated entrepreneurship education initiatives. Additionally, the findings show a disconnect between the university's current approach to entrepreneurship education and the desired outcomes of students from such an education. This underscores the importance of aligning educational strategies with the expectations and needs of the university. Furthermore, the study highlights the potential benefits of integrating 4IR concepts and technologies into entrepreneurial modules, as this will better prepare students for the modern entrepreneurial landscape. Overall, the findings point to a clear need for strategic reforms and innovative approaches to promoting entrepreneurship education at the university, with a focus on enhancing departmental engagement, incorporating dedicated courses, and integrating cutting-edge technologies.

5.2.3.3 Implications of entrepreneurship education

Entrepreneurship education modules and qualifications play a pivotal role in fostering an entrepreneurial mindset among students. Concepts such as opportunity recognition, risk-taking, creativity, and problem-solving actively encourage students to think and approach situations with an entrepreneurial mindset. This mindset equips graduates with the necessary skills and attitudes required to identify and create their own opportunities, adapt to the ever-evolving job market, and navigate through uncertainties. Furthermore, entrepreneurship serves as a catalyst for job creation and economic growth. Through entrepreneurship education, students acquire the skills needed to identify market gaps, develop innovative ideas, and successfully launch new ventures. By fostering an entrepreneurial spirit, these modules empower students to contribute to economic development and create new employment opportunities. Whether students set up entrepreneurial business or not, entrepreneurship education modules and qualifications enhance students' employability prospects. By equipping graduates with a diverse range of skills, including effective communication, leadership, innovation, and resource management, entrepreneurial educational initiatives make students highly desirable to employers across various industries. The ability to think creatively, take initiative, and adapt

to changing circumstances in today's dynamic work environment positions graduates with entrepreneurship education as adaptable and valuable assets to organisations.

However, the absence of a robust curriculum that embraces the richness and significance of entrepreneurship education can yield negative consequences. The lack of entrepreneurship education can limit graduates' job prospects, particularly in industries that prioritise entrepreneurial skills and a proactive mindset. As a result, this situation can contribute to elevated graduate unemployment rates and the under utilisation of human capital. Additionally, the absence of exposure to entrepreneurship education may lead students to overlook or dismiss entrepreneurial opportunities, impeding their potential to initiate businesses and contribute to job creation and economic growth. A curriculum that neglects entrepreneurship education can result in graduates who lack innovative thinking and adaptability, placing them at a disadvantage in an ever-evolving job market that demands attributes such as creativity, problem-solving abilities, and the capacity to embrace technological advancements.

To summarise, entrepreneurship education modules and qualifications can play a vital role in addressing graduate unemployment rates and driving economic growth. By nurturing an entrepreneurial mindset, encouraging innovation, and providing graduates with essential skills, these educational initiatives empower individuals to seize opportunities and make meaningful contributions to a flourishing economy. Neglecting entrepreneurship education can have adverse consequences, including restricted job prospects, suppressed innovation, and a missed opportunity for entrepreneurship-led economic development.

5.3 RECOMMENDATIONS

The recommendations provided below are grounded in the objectives and aim of the research. These suggestions are designed to meet the aim identified in the study.

5.3.1 THE DESIGN OF ENTREPRENEURSHIP MODULES

To improve the impact of entrepreneurship modules, a series of measures need to be implemented. It is crucial for university leaders to place a strong emphasis on incorporating these modules into the academic curriculum, making them obligatory for students from all areas of study. The task of ensuring this integration lies with academic departments, who must collaborate with faculty members and professionals from various industries to create thorough and captivating course materials. The timing of incorporating these modules into

the curriculum plays a vital role in shaping students' academic progress. It is essential to introduce these modules at the beginning of their academic journey to facilitate a gradual enhancement of skills and complete understanding of key concepts. Introducing these modules early on enables students to start exploring entrepreneurial ideas and possibilities during their course of study.

The teaching of entrepreneurship courses should be engaging and participatory to be effective. By including real-life examples, inviting guest speakers who are accomplished entrepreneurs, and offering hands-on learning experiences, students can gain a practical insight into the world of entrepreneurship. It is also important to regularly revise the course content to keep up with the ever-changing entrepreneurial environment. This guarantees that students receive the most up-to-date and applicable information and abilities. Assessment strategies need to be carefully planned to assess students' comprehension of both theoretical concepts and their ability to apply those concepts in real-life situations. For instance, assessments should involve tasks such as creating comprehensive business plans, delivering persuasive pitch presentations, or engaging in simulations that simulate authentic business challenges, encouraging students to demonstrate their theoretical knowledge in practical scenarios.

5.3.2 Entrepreneurial skills and knowledge in line with 4IR

The university must consider various factors to make a recommendation based on the objectives outlined above. The first step is to focus on the necessary actions, responsible parties, timeline, and methods for implementing an entrepreneurship education module. The module primarily concentrates on teaching technical skills that are essential for entrepreneurship. This will necessitate collaboration among educators, instructional designers, and industry experts to create the curriculum. The responsibilities will involve designing the curriculum, creating content, and ensuring that it meets industry standards.
The implementation timeline should extend over several months, with regular reviews and revisions to include new developments in entrepreneurship and technology. The next aspect of the module involves educating on computer applications for entrepreneurship to address the needs of 4IR. This will entail pinpointing appropriate software and tools, developing teaching materials, and offering guidance to teachers. The IT department should play a significant part in facilitating the inclusion of these applications in the syllabus. The schedule for this should align with the creation of a technical skills curriculum, guaranteeing a smooth integration of both components.

A review of the entrepreneurship career model by Dyer (1994) affirms that when effectively executed the theory has the potential to significantly enhance students' understanding of entrepreneurship, equipping them with the necessary tools to get clear knowledge of how to embark on business ventures. Moreover, engaging in career development initiatives provides students with insights into the specific entrepreneurship skills and expertise required for entrepreneurial success in the contemporary employment landscape. This includes the idea of digital marketing involving different online platforms to promote products or services, such as social media, search engine optimisation (SEO), and email marketing. The above-mentioned SEO enables students to analyse and understand that data is crucial for making informed business decisions, understanding customer behaviour, and improving digital marketing strategies. In addition, e-commerce management should be used to oversee various aspects of online retail operations, such as managing website functions, supervising online payment systems, and optimising customer relationship management (CRM) strategies. Digital tools such as knowledge of software applications, cloud computing, and digital communication platforms should be utilised to improve student understanding of business operations and encourage innovation.

Ultimately, the departments of the selected university of technology will need to collaborate with industry partners such as local businesses, other HEIs, research institutions such as the Centre for Entrepreneurship and Innovation at the University of the Western Cape, and government agencies such as National Youth Development Agency (NYDA) to promote innovation and entrepreneurship related to the 4IR. This collaboration should include hosting events, funding research projects, and offering mentorship and resources to aspiring entrepreneurs. The plan is to continually launch initiatives to support the growth of ventures related to the 4IR. The module would focus on teaching communication skills within the entrepreneurial context, stressing the significance of effective communication in establishing successful ventures. Achieving this goal will involve communication experts, entrepreneurship educators, and industry professionals working together to create a curriculum that addresses the specific communication challenges faced by entrepreneurs. The timeline for this integration should be part of the overall module development process, with communication skills being incorporated into different parts of the curriculum.

5.3.3 Strategic approaches to infuse and promote entrepreneurship education at the selected university of technology

To effectively carry out the proposed strategies, the department must first identify entrepreneurs who have extensive knowledge and experience to act as guest lecturers.

Criteria should be established for selecting these guest lecturers, ensuring they possess relevant expertise and are willing to engage with students. Guest lectures should be scheduled throughout the academic year and integrated into the course curriculum to give students a thorough understanding of entrepreneurship.

The faculty or department should introduce entrepreneurship education as a standalone course or programme, which may involve creating a new course or refining existing ones to focus on entrepreneurship. Key concepts, skills, and competencies to be covered in the course should be identified, aligning them with industry requirements and trends. Practical elements such as developing business plans, pitching ideas, and networking opportunities should be included to give students hands-on experience. Faculty members or external experts with a strong background in entrepreneurship, teaching experience, and a dedication to fostering entrepreneurial skills in students should be appointed to lead the entrepreneurship education initiative. These individuals will be responsible for developing the course curriculum, organising guest lectures, and evaluating student performance. The department should offer support and resources to these leaders to ensure the successful delivery of the entrepreneurship education programme.

In order to enhance the quality of entrepreneurship education, the selected university of technology should collaborate with entrepreneurship support structures like an InnoBiz (Innovation in Business) centre, as well as an Entrepreneurial Desk to offer academic support and curriculum design. The InnoBiz department will act as a central point for encouraging innovation and entrepreneurship, offering students and educators resources, guidance, and support for those interested in pursuing entrepreneurship. This effort can facilitate workshops, seminars, and networking opportunities to create an environment that fosters innovation and entrepreneurship across the institution. Integrating the Entrepreneurial Desk with academic departments should involve incorporating entrepreneurial studies in all curriculum development. Collaborating with faculty members could lead to the creation of practical and current entrepreneurship courses that meet industry needs. By integrating entrepreneurship into the academic structure, students can develop the necessary skills to succeed as entrepreneurs in a competitive marketplace.

5.4 LIMITATIONS OF THE RESEARCH

The research study is based on students that enrolled for entrepreneurship modules within one faculty in the selected university of technology. As this study specifically focused on third-year diploma students, the results may not apply to students at other levels of

education or outside of diploma courses. Therefore, although this study may provide valuable insight into the effectiveness of entrepreneurship education for this specific group, caution should be taken when generalizing the results to broader populations and educational contexts. In addition, because the research was conducted at a selected university of technology in KwaZulu-Natal, it could restrict the relevance of the results to other conventional universities. This is because the environment, customs, and teaching methods at university of technology establishments may vary greatly from those at traditional universities, affecting how applicable the findings are. Hence, it is important to be careful when attempting to apply the results to different types of universities or educational environments.

5.5 AREAS FOR FURTHER RESEARCH

Based on the researcher's observations, most research that has been conducted focuses on theoretical knowledge rather than practical application of entrepreneurship education. Therefore, future research studies should focus on how to adjust the academic curriculum for entrepreneurial studies to provide the precise element of entrepreneurship to produce successful entrepreneurs. This will expose the undergraduate students to real-world entrepreneurial challenges. The research shows that there is not enough education about starting and running businesses in South Africa. This means we need to study this topic more to find out how to improve it. The study shows that adding entrepreneurship lessons to school courses can help students learn how to start a business. However, there are still concerns about whether everyone has equal access to entrepreneurship education in different schools and among different groups of people in the country. A thorough study of the differences in entrepreneurship education in different areas and communities would give us important information on how to close the gaps and make sure more people can benefit from it.

In addition, the study suggests that learning how to start a business could help reduce the number of people who do not have jobs. To learn more about this connection, more research could look at how entrepreneurship courses help create jobs. Studying examples of successful entrepreneurs and looking at what students do after they finish their entrepreneurship education can help us understand better how this education can help create jobs in South Africa. This study can help make suggestions for rules and ways of teaching that can help entrepreneurship education benefit more people in the community by creating jobs and improving the economy.

5.6 CONCLUSION

This study was conducted among students who had completed a module in entrepreneurial studies, and the data was analysed using descriptive statistics and visual aids. The study concludes by providing recommendations based on the key findings to enhance entrepreneurship education. Entrepreneurship education plays a critical role in equipping students with the skills and knowledge necessary to become successful entrepreneurs. It fosters creativity, problem-solving, critical thinking, and decision-making skills. Experiential learning, through real-life projects, enables students to apply their knowledge in practical situations. Business skills like marketing, finance, and management are also developed, preparing students for launching and managing successful ventures. The study's key findings indicate the importance of incorporating guest lectures by successful entrepreneurs and the need for a deeper understanding of computer applications and technical skills in entrepreneurship modules. Respondents recognised the value of entrepreneurship education in providing a holistic understanding of the entrepreneurial journey, cultivating essential skills, and uncovering entrepreneurial potential. However, the study highlights the lack of guest lecturers and the limited focus on technical skills in current modules. To enhance entrepreneurship education, the study recommends inviting successful entrepreneurs as guest lecturers and introducing a standalone entrepreneurship qualification. It also suggests incorporating computer applications and technical skills into modules to align with 4IR requirements. These recommendations aim to bridge the gap between theory and practice and better prepare students for entrepreneurial challenges and opportunities. Overall, entrepreneurship education plays a crucial role in equipping students for entrepreneurship and contributing to economic growth. Neglecting entrepreneurship education can limit job prospects and hinder innovation.

Implementing the study's recommendations can strengthen entrepreneurship education and ensure students are well-prepared for entrepreneurial endeavours.

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APPENDICES

Appendix A: Ethics clearance

DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

FACULTY OF ACCOUNTING & INFORMATICS

Faculty Research Office
Durban University of Technology
4 June 2022

Student: TW Qwabe
Student Number: 21648206
Degree: Master of Management Sciences in Administration and Information Management degree
Email: 21648206@dut4life.ac.za
Supervisor: Dr M Ngibe
Supervisor email: musawenkosin1@dut.ac.za@dut.ac.za

Dear TW Qwabe

I am pleased to inform you that the Faculty Research Ethics Committee (FREC) following feedback from two reviewers, has granted preliminary permission for you to conduct your research "The role of entrepreneurship education in preparing future entrepreneurs: a case of third-year diploma students at a selected university of technology".

When ethics approval is granted:
You are required to present the letter at your research site(s) for permission to gather data. Please also note that your research instruments must be accompanied by the letter of information and the letter of consent for each participant, as per your research proposal.

This ethics clearance is valid from the date of provisional approval on this letter for one year. A student must apply for recertification 3 months before the date of this expiry.

Recertification is required every year until after corrections are made, after examination, and the thesis is submitted to the Faculty Registrar.

A summary of your key research findings must be submitted to the FRC on completion of your studies.

Kindest regards.

Yours sincerely

Dr Olga Sizakele Ndlovu
Faculty Research Ethics Committee Chairperson
Faculty of Accounting and Informatics
Durban University of Technology

Appendix B: Letter of Information and Consent

LETTER OF INFORMATION

Title of the Research Study: The role of entrepreneurship education in preparing future entrepreneurs: a case of third-year diploma students at a selected university of technology.

Principal Investigator/s/researcher: Thabane Qwabe

Co-Investigator/s/supervisor/s: Dr M Ngibe

Brief Introduction and Purpose of the Study:

Greetings

I hope you are well and safe.

I am a master's student enrolled for Master of Management Sciences in Administration and Information Management degree under the Department of Information and Corporate Management at the Durban University of Technology. Entrepreneurship education is seen as a pivotal pillar that signifies the future of each country in developing graduates with necessary skills, knowledge, and the know-how in terms of instigating new entrepreneural ventures to help reduce the unemployment rate that hovers around graduates. I am, therefore, currently conducting a research study on the role of entrepreneurship education in preparing students as future entrepreneurs at a selected university of technology in KwaZulu-Natal. I would like to extend an invitation to you to take part in the study. In order to realise and achieve the aims of this study, your contribution is greatly required and further appreciated.

Outline of the Procedures: The aim of the study is to investigate the role of entrepreneurship education in preparing students as future entrepreneurs at a selected university of technology in KwaZulu-Natal.

Respondents / participants at DUT will be requested to complete a questionnaire independently and honestly within the allocated timeframe. By completing the questionnaire, it is assumed that the respondents / participants are aware of the purpose of the study and has given consent to participate in the study.

Risks or Discomforts to the Participant: This study will be using questionnaire to collect data, therefore, you will not be subjected to any hazards. With your full participation, this research study hopes to contribute to the development of knowledge, and the results will be published in peerreviewed journals.

Explain to the participant the reasons he/she may be withdraw from the Study: Your participation in this research study is entirely voluntary, and you may withdraw at any moment.
Benefits: There will be no financial incentives, and participation in the study will be entirely voluntary. Similarly, there will be no cost associated with taking part in the study.

Remuneration: You will not be compensated for taking part in this study.

Costs of the Study: You will not be expected to cover any expenditures when taking part in this study. All incurred costs will be soley the responsibility of the researcher and research supervisor.

Confidentiality: The confidentiality of the responses you will provide will be respected, and they will be retained in a secure location. Your identity will remain hidden.

Results: The dissertation will be available at the DUT library, and journal articles will be available on the internet.

Research-related Injury: You are not going to be associated with any injury for taking part in this study. There is nothing in the study that could have an impact on your health.

Storage of all electronic and hard copies including tape recordings: Data will be collected and maintained in the Department of Information and Corporate Management for a period of five years to preserve confidentiality. To ensure that the ethical code is followed, the obtained data will be given to the DUT research ethics office and will not be utilised for any other reason.

Persons to contact in the Event of Any Problems or Queries: For more information, please contact the researcher on 076 565 1893, my supervisor on 031 373 5858 or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031 373 2577 or researchdirector@dut.ac.za.

CONSENT

Full Title of the Study: The impact of entrepreneurship education in preparing future entrepreneurs: A case of third-year diploma students at a selected University of Technology

Names of Researcher/s: Thabane Wiseman Qwabe

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Thabane Qwabe about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____	
Full Name of Participant	**Date**	**Time**	**Signature / Right Thumbprint**	

I, Thabane Qwabe herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Thabane Qwabe

Full Name of Researcher	**Date**	**Signature**
	Date	**Signature**
Full Name of Witness (If applicable)		
Full Name of Legal Guardian (If applicable)	**Date**	**Signature**

Appendix C: Research questionnaire

STUDENTS' QUESTIONNAIRE

Welcome!

I hope you are doing well and staying safe during these challenging times.

I am a master's student enrolled for a Master of Management Sciences in Administration and Information Management under the Department of Information and Corporate Management at Durban University of Technology. I am currently doing a research study on "The role of entrepreneurship education in preparing future entrepreneurs: a case of third-year diploma students at a selected university of technology". The main aim of the study is to investigate and understand the impact of entrepreneurship education in preparing students as future entrepreneurs at a selected University of Technology in KwaZulu-Natal.

I would like to encourage and plead with you to take part in this study by completing this questionnaire that would take you about 10-15 minutes to complete.

Section A: Biographical Information

INSTRUCTIONS TO RESPONDENTS:

1. For this study, section A intends to collect data about the demographics of the participants.
2. This section requires you to select **ONLY ONE** response with a tick for each question.
3. Answer **ALL** the pre-coded questions in this section and please **DO NOT** leave any questions blank.

1. Please state your age group

1.1	17-19 years	
1.2	20-25 years	

1.3	26-30 years	
1.4	31-35 years	
1.5	Other	

2. Please state your gender

2.1	Male	
2.2	Female	
2.3	Other	

3. Please state the level of study you are currently on

3.1	First Year level	
3.2	Second Year	
3.3	Third Year Level	

4. Please indicate the qualification you are currently enrolled for

4.1	Diploma in Taxation	
4.2	Diploma in Accounting	
4.3	Diploma in Business and Information Management	
4.4	Diploma in Management Accounting	
4.5	Diploma in ICT Application Development	
4.6	Diploma in ICT Business Analysis	

4.7	Diploma in Library and Information Studies	

5. Please state the Department you are currently enrolled under

5.1	Auditing and Taxation	
5.2	Finance and Information Management	
5.3	Financial Accounting	
5.4	Information and Corporate Management	
5.5	Information Technology	
5.6	Information System	
5.7	Management Accounting	

At which level did you enrol for an entrepreneurship module?

6.1	First Year Level	
6.2	Second Year Level	
6.3	Third Year Level	

Section B: The influence of the structure of entrepreneurship education modules in fostering entrepreneurial activities

This section intends to gather student's perceptions on the influence entrepreneurship education has in preparing, supporting and improving the abilities of future entrepreneurs and also to identify strategies to promote effective entrepreneurship education.

INSTRUCTIONS TO RESPONDENTS:

1 Please select **ONLY** response with a tick for each Likert Scale statement below.
2 Ans **A** the -coded statements in this section.
3 Ple **DO** leave any statement blank.

		SD	D	N	A	SA
	The impact of entrepreneurship education on students					
1.	Entrepreneurship modules provides you with better knowledge of what entrepreneurship is about.					
2.	Entrepreneurship module helps you to build your entrepreneurial skills.					
3.	The knowledge gained from the entrepreneurship module will enable you to start thinking on a business concept for your own business.					
4.	The entrepreneurship module contributes to a better understanding of the entrepreneurial environment.					
5.	The entrepreneurship module contributes to					

	the development of an entrepreneurial mindset.					
6.	You have enough time in class to understand the entrepreneurship environment in coursework.					

7.	The module content helps you to discover your entrepreneurial potential and capabilities.					
8.	The teaching methods applied in entrepreneurship modules are understandable and practical.					
9.	As part of the coursework, you have interacted with successful entrepreneurs in a guest lecture setting.					
10.	The entrepreneurship module influences your decision to pursue a career in entrepreneurship rather than being a jobseeker.					
		SD	**D**	**N**	**A**	**SA**
	Skills required to prepare students in entrepreneurship education					
11.	The module teaches technical skills in the context of entrepreneurship.					
12.	The module teaches computer applications for entrepreneurship to meet the demand of Fourth Industrial Revolution (4IR).					
13.	Your department, promotes 4IR-related innovation and entrepreneurship.					

14.	In your department, there are sufficient resources for learning entrepreneurship to satisfy 4IR demands					
15.	The entrepreneurship modules equip you with the marketing skills needed to start a small business.					
16.	The entrepreneurship modules teaches you managerial skills that you will need to start your own small business.					
17.	The module teaches business management siklls, and creative thinking.					
18.	The module teaches communication skills in the context of entrepreneurship.					
19.	The entrepreneurship module includes a practice-based project as a fundamental element					
20.	The entrepreneurship modules teach you to come up with novel approaches to address unmet market demands that can be monetised.					
21.	Higher education should place a high importance on entrepreneurship education to combat the ever-increasing unemployment rates of graduates					
	Proposed strategies to promote entrepreneurship					
22.	Entrepreneurship must be promoted by raising awareness and communicating the value of the entrepreneurial spirit.					
23.	My department must invite entrepreneurs with vast knowledge and experience as guest lectures to teach students					

24.	Local successful entrepreneurs should be invited to teach entrepreneurship modules as guest lecturers in the department.					
25.	My department must include entrepreneurship education as a separate, stand-alone course or programme.					
26.	To foster entrepreneurial education, the department should have entrepreneurial labs with 4IR resource.					
27.	A practical project, such as a market day, must be included in the entrepreneurship module.					
28.	Before graduating from DUT, all students should have at least one practical entrepreneurship experience.					

Thank you for your corporation in answering questions.

Appendix D: Editing certificate

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EDITING CERTIFICATE

Re: **Thabane Wiseman Qwabe**
DUT master's dissertation: **The role of entrepreneurship education in preparing future entrepreneurs: A case of third-year diploma students at a selected university of technology**

I confirm that I have edited this dissertation and the references for clarity, language and layout. I returned the document to the author with track changes so correct implementation of the changes and clarifications requested in the text and references is the responsibility of the author. The intellectual content of the document is the responsibility of the author. I am a freelance editor specialising in proofreading and editing academic documents. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I was a part-time lecturer in the Department of Homoeopathy at the Durban University of Technology for 13 years and supervised many master's degree dissertations during that period.

Dr Richard Steele
05 May 2024
per email