Entrepreneurship Education and ICT Competencies as Determinants of SMEs Development Skills among Business Education Students' in Colleges of Education, Southwest, Nigeria

Folashade Rebecca ABIOLA
LCU/PG/003211

Being a PhD Thesis Submitted to the Department of Arts & Social Science Education, Faculty of Education, Lead City University, Ibadan, Oyo State, Nigeria

In Partial Fulfilment of the Requirements for the Award of Doctor of Philosophy Degree (PhD) in Business Education

2025

Certification

This is to certify that **Folashade Rebecca ABIOLA** with the matriculation number **LCU/PG/003211** carried out this research work titled:‘ **Entrepreneurship Education and ICT Competencies as Determinants of SMEs Development Skills among Business Education Students’ in Colleges of Education, Southwest, Nigeria ’** in the Department of Arts and Social Sciences Education, Faculty of Education, Lead City University, Ibadan, Nigeria for the award of Doctor of Philosophy Degree (PhD) in Business Education and that this has not been previously submitted.

Professor Senimetu Ileuma — **Date**
Supervisor

Dr.Oluyomi Pitan — **Date**
Head of Department

Dedication

This work is dedicated to God Almighty for being a source of inspiration, wisdom, health, strength and enablement to carry out this research.

Acknowledgement

My utmost gratitude goes to the librarian (s) at the Lead City University Library for providing me with materials that aided the completion of this thesis especially resources for the literature review. I express my unreserved appreciation to the Department of Arts and Social Science Education, Faculty of Education for providing me with knowledge and information in area of educational management. My appreciation goes to my supervisor - Professor Senimetu Ileuma for her meticulous guidance and supervision on my thesis. She was very thorough in her contribution to this work. Thank you so much ma.

I am grateful to the current Head of the Department of Arts and Social Science Education – Dr. Oluyomi Pitan for her encouragement. I wish to express sincere appreciation to the Dean, Faculty of Education, Lead City University, Ibadan – Professor Donald Abidemi. Odeleye for his quality leadership. My appreciation also goes to Professor Afolakemi Oredein, who is the Provost of the Postgraduate College, Lead City University, Ibadan for her contribution to this thesis. I also wish to tender my unreserved appreciation to the brilliant scholars - Professor PhiliasYara and Professor Ewart for their thorough contribution to this thesis. I also wish to express my profound appreciation to Dr. Ukamaka Akuche, Dr. Toyin Oyedeji, Dr. Monilola Oyetade, Dr. Christiana Sam-Kayode, Dr. Sabina Obi, Dr. Olabisi Kilian, Dr. Mojirade Ayantunji, Dr. Ayobami Adeyemi Ebo, Dr. Omobola Gambo, Dr Seyi David, Dr Deborah Ayeni, Dr Yejide Ibikunle, Dr Albert Olaniyi, Dr Joseph Kolashi and Miss Dolapo for their immense contribution to this research. Also my sincere appreciation goes to Dr Akinjide Yusuf and Mr Audu Agaba for his immense support.

My sincere appreciation goes to my God gift children; Dr Wumi Okanlawon, Olajide Abiola and Funmilola Oyewole for their immense support and understanding. However, “even though the above-mentioned institutions and persons have assisted in the process of this research work, I alone stand responsible for the errors, if any, found in the work.”

Abstract

This research investigated Entrepreneurship Education and ICT Competencies as Determinants of Small Medium Enterprise Scale Development Skills among Business Education Students' in Colleges of Education, Southwest, Nigeria. Thorough search of literature shows scarcity of studies on the joint contribution of the independent variables (entrepreneurship education, ICT Competencies) on SMEs Development Skills among Business Education Students. Three research questions and two hypotheses were raised. Descriptive survey research design was employed. Target population comprised of all the colleges of education business education lecturers in (167) and colleges of education business education students (2,980) in Southwest, Nigeria. 1280 business education students and 116 business education lecturers were sampled using multi-stage sampling procedure. Two instruments–Entrepreneurship Education Indices and ICT Competencies Questionnaire (EEICTQ)(α = .890)"and "Students SMEs Development Skills Questionnaire (SSDSQ)(α = .850)"were used to collect data. Data were analysed using descriptive and inferential statistics. Results showed moderate level of SMEs Development of students in Colleges of Education ($\overline{x}$ = 2.885), moderate level of entrepreneurship education integration into business education curriculum ($\overline{x}$=2.708). ICT Competencies ($\overline{x}$ = 2.620) is at a moderate level in colleges of education. There was a significant joint contribution of entrepreneurship education integration and ICT Competencies to SMEs Development Skills of Students in Colleges of Education ($F_{8, 1396}$ = 176.54, R^2 = .0642, Adjusted R^2 = .0644, p<0.05). Curriculum relevance (β =.172; t = 1.007; p. < 000), access to resources (β =.146; t = 1.236; p < .000), entrepreneurial intension and attitude (β =.022; t = 1.311; p < .005), start creation and success rate (β =.081; t = 1.206; p < .005), digital literacy (β =.035; t = 1.004; p < .005), cyber security awareness and skills (β = .135; t = 1.214; p < .000) and information management and digital collaboration (β = .128; t = 1.693; p < .001) are significant at P>0.05. In conclusion, moderate adoption of entrepreneurship education and moderate adoption of ICT Competencies positively affected SMEs Development Skills of Students in Colleges of Education. It was recommended that, the government should establish a formal system for recognizing and revisit the business education curriculum regularly. Moreover, ICT competenices among business education lecturers as well as the students should be improved with a comprehensive training program.
.

Keywords: Entreprenuership Education, ICT Competencies, SMEs Development Skills, Colleges of Education

Word Count: 370

Table of Contents

Content		Page
Title		i
Certification		ii
Dedication		iii
Acknowledgement		iv
Abstract		v
Table of Contents		vi
List of Table		ix
List of Figures		xi
List of Appendices		xii
Chapter One: Introduction		
1.1	Background to the Study	1
1.2	Statement of the Problem	12
1.3	Aim and Objectives of the Study	13
1.4	Research Questions	14
1.5	Hypotheses	14
1.6	Significance of the Study	15
1.7	Scope of the Study	16
1.8	Limitation of the Study	17
1.9	Operational Definition of Terms	17
Endnotes		**20**
Chapter Two: Literature Review		
2.1	**Conceptual Review**	**27**
2.1.1	Concept of Entrepreneurship Education	27
2.1.2	ICT Competencies	30
2.1.2.1	Digital Literacy	30
2.1.2.2	Cybersecurity Awareness and Skills	32
2.1.2.3	Information Management	33
2.1.2.4	Digital Collaboration	34

2.1.2.5 Data Analysis 36

2.1.2.6 Adaptability to Technological Changes 37

2.1.3 Small and Medium-sized Enterprises (SMEs) 39

2.1.4 SMEs Development Skills 41

2.1.5 Curriculum Relevance 42

2.1.6 Access to Resources 44

2.1.7 Entrepreneurial Intentions 46

2.1.8 Business Start-ups 48

2.1.9 Innovation 50

2.1.10 Technology Adoption 54

2.2 Theoretical Framework 56

2.2.1 Human Capital Theory 57

2.2.3 Innovation Diffusion Theory 60

2.2.3 Self-Determination Theory 63

2.3 Review of Empirical Studies 67

2.3.1 Entrepreneurship Education and SMEs Development Skills among Business Education Students in Colleges of Education 67

2.3.2 ICT competencies and SMEs Development Skills among students Business Education Students in Colleges of Education 102

2.4 Conceptual Model 107

2.5 Summary of Literature Reviewed 108

Endnotes **110**

Chapter Three: Methodology

3.1 Research Design 132

3.2 Population of the Study 132

3.3 Sample and Sampling Techniques 134

3.4 Description of the Research Instruments 139
3.4.1 Entrepreneurship Education and ICT Competencies Questionnaire (EEICQ) 139
3.4.2 Students' SMEs Development Skills Questionnaire (SSDSQ) 140
3.5 Validity of the Instruments 141
3.6 Reliability of the Instruments 141
3.7 Methods of Collection of the Research Instrument 142
3.8 Method of Data Analysis 142
3.9 Ethical Consideration 142
Endnotes **143**

Chapter Four: Results and Discussion of Findings
4.1 Presentation of the Bio- Data Analysis of the Respondents 144
4.2 Answer to Research Questions 150
4.3 Test of Hypotheses 171
4.4 Discussion of Findings 172
Endnote **182**

Chapter Five: Conclusion
5.1 Summary of Findings 184
5.2 Conclusion 186
5.3 Recommendations 188
5.4 Contribution to Knowledge 189
5.5 Suggestions for Further Research 191
Bibliography **192**
Appendices **220**
Bio-data **254**
The University Compliance Certification **255**

List of Tables

Table	Title	Page
3.1	Population of the Study	134
3.2	Sampled Colleges of Education for the Study	136
3.3	Sampled Number of Lecturers for the Study using Total enumeration technique	
3.4	Sampled Number of Students for the Study using Total Enumeration Technique	138
3.5	Summary of the Sample and Sample size for the Study	139
4.1	Gender Distribution of the Lecturers	144
4.2	Age Range Distribution of the Lecturers	145
4.3	Highest Educational Qualification of the Lecturers	145
4.4	Marital Status of the Lecturers	146
4.5	Years of Teaching Experience of the Lecturers	146
4.6	Position of the Lecturers	147
4.7	Gender Distribution of Colleges of Education Students	147
4.8	Age Range Distributions of Colleges of Education Students	148
4.9	Marital Status of Colleges of Education Students	148
4.10	ICT/Computer Competent of Colleges of Education Students	149
4.11	Adequacy Level of Instructional Facilities	149
4.2.1	Level of SMEs Development (Business Growth) in Colleges of Education	150
4.2.2	Level of SMEs Development Skills (Access to Finance) in Colleges of Education	152
4.2.3	Level of SMEs Development Skills (Innovation and Technology Adoption) in Colleges of Education (n = 1280)	153
4.2.4	Overall of Level of SMEs Development Skills in Colleges of Education	155
4.2.5	Level of ICT Competencies (Digital Literacy) in Colleges of Education	157
4.2.6	Level of ICT Competencies (Cyber Security Awareness and Skills) in Colleges of Education	158
4.2.7	Level of ICT Competencies (Information Management and Digital Collaboration) in Colleges of Education	160
4.2.8	Overall Level of ICT Competencies in Colleges of Education	161
4.3	Status of Entrepreneurship education (curriculum relevance) integrated into Business Education C urriculum in Colleges of Education	163

4.4 Status of Entrepreneurship education (access to resources) integrated into Business education curriculum in Colleges of Education 165

4.5 Status of Entrepreneurship education (access to resources) integrated into Business education curriculum in Colleges of Education 167

4.6: Status of Entrepreneurship education (Entrepreneurial intensions & Attitude) integrated into Business education curriculum in Colleges of Education 168

4.7 Over all Status of Entrepreneurship Education Integration into Business Education Curriculum in Colleges of Education Southwest, Nigeria 170

4.8 Multiple Regression Analysis and Model Summary for the joint contribution of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and Start creation and success rate), ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development among students of business education in colleges of education, Southwest, Nigeria 172

4.9: Coefficients of Multiple Regression Analysis for the relative influence of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and Start creation and success rate), ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development among students of Business Education in colleges of education, Southwest, Nigeria 174

List of Figure

Figure	Title	Page
2.4	Conceptual Model	107

List of Appendices

Appendix	Title	Page
I	Research Instruments	220
II	Computation Results from SPSS Analysis	228
III	Pictures of Researcher in the Field	250

Chapter One

Introduction

1.1 Background to the Study

Small and Medium-sized Enterprises (SMEs) are the lifeblood of many economies, driving job creation, innovation, and economic growth. SMEs are typically characterized by their smaller size, limited resources, and flexibility, which allow them to adapt quickly to changing market conditions. In the realm of business education, fostering the development of Small and Medium-sized Enterprises (SMEs) among students is crucial for preparing the next generation of entrepreneurs. SMEs play a vital role in economic growth, job creation, and innovation, making it imperative for business education programs to equip students with the skills and knowledge needed to navigate the dynamic landscape of entrepreneurship.

SME development refers to the process of helping small and medium-sized enterprises (SMEs) to grow and succeed[1]. This can be done through a variety of initiatives, such as providing access to finance, business support services, and training. The goal of SME development is to help SMEs create jobs, boost economic growth, and improve the quality of life for people in the communities they serve.SMEs are defined as businesses that have fewer than 500 employees[2]. They play a vital role in the global economy, accounting for over 90% of all businesses and employing over 50% of the workforce. SMEs often face challenges in obtaining funding due to their size and perceived risk. However, access to affordable and accessible financing is crucial for SMEs to invest in technology, expand operations, hire skilled employees, and compete in the marketplace. Governments, financial institutions, and international organizations often implement various financing mechanisms, such as grants, loans, and venture capital, to support SMEs[3].

Business education serves as a foundation for students to understand the intricacies of running a successful SME. Through a well-rounded curriculum, students are exposed to

various aspects of business, including finance, marketing, human resources, and strategic management. This holistic approach enables them to grasp the multifaceted nature of SMEs and the challenges and opportunities that come with establishing and managing such enterprises. Moreover, integrating practical experiences into business education programs enhances students' ability to apply theoretical knowledge to real-world scenarios[4]. Internships, case studies, and collaborative projects with local SMEs provide invaluable hands-on experiences. These opportunities allow students to develop a deeper understanding of the challenges faced by SMEs and formulate innovative solutions, preparing them for the dynamic nature of entrepreneurial ventures[5].

SMEs benefit greatly from business education programs that cultivate entrepreneurial skills. These programs utilize interactive and participatory teaching methods to foster critical thinking, problem-solving, and adaptability among students. By encouraging creative and analytical thinking, aspiring SME owners are empowered to identify business opportunities and develop strategies to tackle emerging challenges. These essential skills are vital in today's rapidly changing business environment, where SMEs play a crucial role[6]. With the ability to think critically, analyze situations, and adapt to new circumstances, these entrepreneurs are better equipped to navigate the complexities of the market, seize opportunities, and drive their businesses towards success and growth[6, 7].

Incorporating technology into business education is another key aspect of preparing students for SME development skills. With the digital transformation influencing business operations, students need to be well-versed in utilizing technology to enhance efficiency, reach customers, and stay competitive. Integrating courses on digital marketing, e-commerce, and data analytics ensures that students are equipped with the tools necessary for success in the contemporary business landscape[8]. Furthermore, fostering an entrepreneurial mindset is essential for SME development skills among students. Business education programs should

instill qualities such as risk-taking, resilience, and a willingness to learn from failures[9]. Encouraging students to embrace a proactive and innovative approach to problem-solving prepares them to navigate the uncertainties inherent in the entrepreneurial journey.

SME development skills rely heavily on the collaboration between academia and industry. This collaboration plays a pivotal role in fostering an ecosystem that supports the growth and success of small and medium-sized enterprises. By establishing partnerships with local businesses, industry experts, and entrepreneurship networks, academic institutions create opportunities for students to gain invaluable insights, mentorship, and networking experiences[10]. These collaborations go beyond traditional classroom learning, bridging the gap between theory and practice. Students are exposed to the practical aspects of SME ownership, gaining a realistic perspective on the challenges and rewards they may encounter in the real world[11]. Through these partnerships, they can acquire hands-on knowledge, learn from industry professionals, and build connections that can facilitate their entry into the business world. By combining academic knowledge with industry expertise, the collaboration between academia and industry significantly contributes to the holistic development of aspiring entrepreneurs and creates a supportive environment for SME growth and innovation[11].

Practical knowledge related to budgeting, financial planning, and accessing funding sources should be a priority in business education programs. Financial literacy serves as a cornerstone for SME development, empowering entrepreneurs with the skills necessary to manage finances effectively[12]. By understanding how to budget, plan, and secure funding, SME owners can make informed decisions that contribute to their sustainable growth. These financial skills enable them to navigate the complexities of the business world, adapt to changing market conditions, and seize opportunities for expansion. Prioritizing financial

literacy in business education programs ensures that aspiring entrepreneurs have the necessary tools to succeed in managing and growing their SMEs[13].

Integrating ethical considerations and social responsibility into business education is crucial. By instilling a sense of ethics and responsibility in students, they ensure that they establish and operate SMEs with a strong commitment to sustainable practices and ethical conduct. This holistic approach fosters the development of socially responsible entrepreneurs who not only contribute to the economy but also make positive impacts on society. Teaching students about the importance of ethical decision-making and emphasizing social responsibility empowers them to prioritize long-term sustainability and consider the broader social and environmental implications of their business practices[14]. Such an education prepares future SME owners to navigate ethical dilemmas, actively contribute to societal well-being, and build businesses that align profitability with a positive impact on people and the planet[15].

The development of SMEs among students of business education, most especially in colleges of education requires a comprehensive and dynamic approach. By combining theoretical knowledge with practical experiences, fostering an entrepreneurial mindset, embracing technology, and promoting ethical considerations, business education programs can effectively prepare students to not only succeed in the SME sector but also contribute to the overall economic and societal well-being[16, 17]. The collaborative efforts of academia, industry, and students are essential in shaping a generation of entrepreneurs capable of driving sustainable and innovative SMEs.

Entrepreneurship has become a significant driver of economic development globally, with Small and Medium-sized Enterprises (SMEs) playing a vital role in job creation, poverty reduction, and overall economic growth[18]. In Nigeria, SMEs are considered crucial to the economy, contributing significantly to the GDP and employment. To ensure continuous

growth and competitiveness for SMEs, there is an increasing acknowledgment of the importance of entrepreneurship education and Information and Communication Technology (ICT) skills[19].

Entrepreneurship education is a specialized form of instruction that aims to equip individuals with the knowledge, skills, attitudes, and mindset needed to identify, create, and exploit business opportunities[20]. It goes beyond traditional business education by emphasizing the development of an entrepreneurial spirit and practical skills necessary for starting, managing, and growing successful businesses. This type of education fosters creativity, innovation, and risk-taking abilities, which are crucial traits for aspiring entrepreneurs. It encompasses various fields such as business management, economics, psychology, marketing, and finance, providing a comprehensive education that covers technical, psychological, and emotional aspects necessary for entrepreneurship, such as resilience, adaptability, and coping with uncertainty[21].

Entrepreneurship education can take different forms, including workshops, seminars, mentorship programs, and experiential learning opportunities[22]. These diverse formats enable students to gain hands-on experience and interact with real-world entrepreneurs, developing a deeper understanding of the challenges and opportunities in entrepreneurship. The importance of entrepreneurship education has gained recognition at the national and international levels, leading governments and educational institutions to integrate it into their curricula. This recognition has resulted in the formulation of entrepreneurship education policies and initiatives aimed at equipping individuals with the skills needed to succeed in a competitive and dynamic business environment.

Curriculum relevance plays a crucial role in entrepreneurship education, as it determines how effective educational programs are in preparing students for entrepreneurship. It involves aligning the curriculum with the ever-changing demands of the business world,

incorporating current industry trends and emerging market opportunities[23]. Given the fast pace of change in business environments, educational institutions must regularly update their curricula to expose students to the latest developments, technologies, and market dynamics. This real-time relevance allows students to stay ahead and gain practical knowledge and skills applicable to their entrepreneurial endeavors[24].

Curriculum relevance extends to the incorporation of practical and experiential learning components. Hands-on experience is the best way to learn entrepreneurship, and educational programs should provide opportunities for students to apply their theoretical knowledge in real-world settings[25]. Examples of experiential learning methods include internships, business incubators, mentorship programs, and entrepreneurial projects. These methods bridge the gap between theory and practice, making the curriculum more relevant. Additionally, an entrepreneurship curriculum should nurture adaptability and resilience, essential qualities for entrepreneurs. By exposing students to various scenarios and challenges they may encounter, the curriculum teaches them how to pivot, adapt, and persevere in the face of adversity, preparing them for the unpredictable nature of entrepreneurship.

Access to resources significantly influences the quality and impact of entrepreneurship education. Resources encompass financial support, physical infrastructure, mentorship, and networking opportunities[26]. The availability and accessibility of these resources greatly shape students' entrepreneurial experiences. Financial resources play a pivotal role as aspiring entrepreneurs often require startup capital. In an educational setting, financial resources can be accessed through scholarships, grants, or funding for student-run businesses or innovation projects. By reducing financial barriers, these resources allow students to focus on innovation and business development rather than worrying about funding constraints[27].

Entrepreneurial intentions are an individual's inclination to engage in entrepreneurial activities[28]. They signify a person's desire and motivation to become an entrepreneur and are

a crucial precursor to actual entrepreneurial behavior. Intentions are influenced by various factors, including personal characteristics, social influences, educational experiences, and economic conditions. Education, particularly entrepreneurship education, has a significant impact on shaping entrepreneurial intentions[29]. Exposure to entrepreneurship courses, mentorship programs, and experiential learning opportunities can stimulate and reinforce students' intentions to start their own businesses.Social factors such as family, peers, and role models also play a significant role in shaping entrepreneurial intentions. Positive support and encouragement from these social networks can boost an individual's confidence and motivation to pursue entrepreneurship. Economic conditions and opportunities within a specific region or industry can impact entrepreneurial intentions as well. Favourable economic conditions can encourage individuals to take the entrepreneurial leap, while economic instability or barriers may deter potential entrepreneurs[30, 31].

Entrepreneurial attitude encompasses a set of beliefs, values, and cognitive orientations that influence how individuals' approach entrepreneurship[32]. It includes traits like risk-taking propensity, innovation orientation, resilience, and adaptability. Entrepreneurship education plays a crucial role in nurturing and cultivating an entrepreneurial attitude among students[33]. Courses and programs designed to foster entrepreneurial mindsets emphasize creativity, problem-solving, and the ability to see opportunities in challenges. Attitudes are also influenced by personal experiences and role models, as exposure to successful entrepreneurs and overcoming challenges can inspire a more entrepreneurial attitude[34].

The creation of new businesses, often referred to as business start-ups, is a vital driver of economic growth, job creation, and innovation in economies worldwide[35]. Understanding the dynamics of start-up creation and success rates is essential for policymakers, educators, and entrepreneurs themselves. The process involves entrepreneurs generating innovative ideas, developing business plans, securing resources, and launching new ventures. These start-

ups can vary in size, industry, and scope[36]. The motivations for starting a business are diverse and can include pursuing passion, capitalizing on market opportunities, or seeking financial independence[37].

Several factors influence the rate of business start-up creation, including the overall economic climate, access to capital and resources, government policies, and cultural attitudes toward entrepreneurship[38]. Regions with supportive systems for entrepreneurs and a risk-taking culture tend to have higher rates of business start-up creation. Entrepreneurship education is vital in fostering business start-up creation, as it equips aspiring entrepreneurs with knowledge, skills, and mentorship needed to turn their ideas into reality. Entrepreneurship courses cover essential topics such as market research, business planning, financing, and marketing, enabling students to navigate the complexities of starting a business.

The success rate of business start-ups reflects the challenges and risks associated with entrepreneurship. Launching a new venture is inherently risky, and many start-ups face obstacles like competition, cash flow problems, market volatility, and regulatory issues. Not all start-ups achieve long-term sustainability and profitability[39]. The success rate of start-ups varies depending on factors such as industry, location, and the entrepreneur's experience. Industries like technology and healthcare have higher success rates due to their potential for disruptive innovation and scalability. Conversely, sectors with high entry barriers, such as manufacturing, may encounter greater challenges.

Information and communication technology (ICT) competences are the skills, knowledge, and abilities people require to access, manage, and convey information using technology tools, applications, and systems[40, 41]. To traverse an increasingly technologically-driven environment, ICT competencies have become crucial for people in a variety of areas and industries in the modern digital age. From fundamental computer literacy to sophisticated data analytics and programming talents, these competencies cover a broad spectrum of skills.

Digital literacy is a fundamental aspect of ICT competencies, that involves proficient use of digital devices and understanding of software applications and online communication tools[42]. As technology progresses, specialized ICT competencies, such as proficiency in software applications, data analysis tools, graphic design software, and programming skills, have become increasingly valuable in creating tailored digital solutions[43].

ICT competencies go beyond basic technical skills and involve the ability to assess and adapt to new technologies effectively. They encompass evaluating ethical implications, understanding cybersecurity principles, and troubleshooting technical issues[44]. In the business world, ICT competencies play a crucial role in streamlining operations, improving communication, and making data-driven decisions. Entrepreneurs and small business owners benefit from these competencies in terms of cost-effective marketing, efficient financial management, and e-commerce opportunities. Educational institutions recognize the importance of ICT competencies in preparing students for the modern workforce, especially with the increasing integration of these skills into curricula at all levels[45].

Digital literacy is a critical skill in today's technology-driven world. It involves the ability to access, understand, evaluate, and proficiently use information and technology tools[46]. This competency spans from basic computer skills to advanced capabilities such as critical thinking, information literacy, and cybersecurity awareness. Fundamental skills include operating a computer, using software applications, and navigating the internet for tasks like emailing, document creation, online research, and social media participation. Digital literacy serves as a foundation for developing advanced technology skills and is crucial for individuals of all ages and backgrounds[47].

Cybersecurity awareness and skills are crucial in the digital age due to the rising threat landscape. Awareness involves understanding risks, protecting personal information, and avoiding common cyber threats[48]. Cybersecurity skills encompass practical abilities to protect

digital assets and respond to cyber threats effectively. These skills are in high demand as organizations and governments seek to defend against sophisticated cyberattacks. Cybersecurity professionals are responsible for securing networks, systems, and data while identifying and mitigating vulnerabilities.

Information management involves organizing, storing, retrieving, and utilizing data and knowledge within an organization or across digital platforms[49]. It is crucial in today's data-driven world for making informed decisions and maintaining a competitive edge. Data governance is a key aspect of information management, which includes defining roles, responsibilities, and processes for managing data throughout its lifecycle, ensuring data quality, security, and compliance with regulations. Robust data governance ensures accurate, reliable, and accessible information while protecting it from unauthorized access or breaches[50].

Digital collaboration involves the utilization of digital tools and technologies to facilitate communication, cooperation, and teamwork among individuals or groups, even when they are located in different geographical areas[51]. It is an integral part of contemporary work environments, particularly in the context of remote work and globalized business operations. Various digital collaboration tools, such as email, instant messaging, video conferencing, project management software, and cloud-based document sharing, offer a wide range of applications. These tools have numerous advantages, including improved communication, breaking down barriers to effective teamwork, and enabling seamless collaboration regardless of physical distance. For instance, video conferencing and virtual meeting platforms allow for real-time face-to-face interactions, creating a sense of connectivity among remote teams.

Business growth is a vital process involving expanding operations, market presence, and profitability[52]. Revenue expansion and market expansion are key drivers of growth,

achieved through strategies like entering new markets, launching products, or diversifying. These initiatives help companies increase sales, profits, customer base, and reduce reliance on a single market. Access to finance is a critical factor in the success and growth of businesses, particularly for Small and Medium-sized Enterprises (SMEs) and startups. It refers to the ability of individuals, entrepreneurs, and businesses to obtain the necessary funds or capital to start, operate, and expand their ventures[53]. Access to finance is essential for various reasons and plays a pivotal role in fostering entrepreneurship and economic development. For startups and entrepreneurs, access to finance is often the lifeline that transforms innovative ideas into viable businesses. The initial stages of entrepreneurship typically require capital for product development, market research, prototype testing, and other essential activities. Without access to finance, many promising business ideas may remain unrealized, hindering economic growth and innovation[53, 54].

Innovation and technology adoption are closely connected concepts that have a significant impact on businesses, industries, and societies. Innovation involves creating new ideas, processes, products, or services, while technology adoption refers to incorporating and using new technologies or tools to enhance efficiency, improve operations, and stimulate growth[55]. Innovation drives progress and economic development, ranging from small improvements to groundbreaking advances. Innovations can emerge from diverse origins such as research and development, team collaborations, customer input, and serendipitous discoveries[56]. However, not many known studies have focused on entrepreneurship education and ICT competencies as a determinants of SME development among Business education students in college of education. There was therefore a need for a study on the influence of entrepreneurship education and ICT competencies as a determinants of SME development among Business education students in colleges of education so as to close this gap or scarcity in literature on the subject matter.

1.2 Statement of the Problem

The level of SME development skills among the students raises concerns about the effectiveness of current entrepreneurship education programs and the integration of ICT competencies in business education curricula. The extent to which these competencies contribute to SME development remains unclear. Entrepreneurship education in Southwest Nigeria is gaining recognition for its potential to prepare students for the challenges and opportunities of entrepreneurship. Despite the recognition of the pivotal role played by Small and Medium Enterprises (SMEs) skills in economic development, many new ventures continue to face significant challenges in their journey towards survival and growth. One of the key obstacles encountered by entrepreneurs is the limited availability and accessibility of adequate entrepreneurship education and Information and Communication Technology (ICT) competencies. This lack of comprehensive development skills hinders the ability of aspiring entrepreneurs to navigate the complexities of the business landscape effectively. This therefore provides a gap in knowledge that needs to be filled. In view of the above, it becomes imperative to conduct a detailed investigation into the current state of entrepreneurship education and ICT competencies among students of business education in colleges of education located in Southwest Nigeria.

1.3 Aim and Objectives of the Study

The aim of this study was to investigate the entrepreneurship education and ICT competencies as determinants of SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria. The objectives were to;

i. identify the level of SMEs' development skills among students of business education in Colleges of Education in Southwest, Nigeria;
ii. identify the level of ICT competencies among students of business education in Colleges of Education in Southwest, Nigeria;
iii. examine the status of entrepreneurship education integration into the business education curriculum in Colleges of Education in Southwest, Nigeria;
iv. ascertain the significant joint contribution of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and Attitude, and Start creation and success rate) and ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria; and
v. examine the significant relative influence of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate) and ICT competencies (digital literacy, cybersecurity awareness and skills, and information management and digital collaboration) on SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria.

1.4 Research Questions

Based on the stated objectives, the following research questions would be answered in this study:

1. What is the level of SMEs' development skills among students of business education in Colleges of Education in Southwest, Nigeria?
2. What is the level of ICT competencies among students of business education in Colleges of Education in Southwest, Nigeria?
3. What is the status of entrepreneurship education integration into the business education curriculum in Colleges of Education in Southwest, Nigeria?

1.5 Hypotheses

The hypotheses stated below would be tested at 0.05 level of significance:

$H_0$1: There will be no significant joint contribution of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate) and ICT competencies (digital literacy, cybersecurity awareness and skills, and information management and digital collaboration) on SMEs development skills among students of Business Education in Colleges of Education, Southwest, Nigeria.

$H_0$2: There will be no relative influence of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate) and ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria.

1.6 Significant of the Study

This research holds significant importance for various stakeholders, including educational institutions, policymakers, students, entrepreneurs, and the broader community in

Southwest Nigeria, and it has broader implications for entrepreneurship education and SME development globally. The study's significance lies in several key aspects:

The findings of this research would inform improvements in entrepreneurship education within colleges of education in Southwest Nigeria. By understanding the strengths and weaknesses of existing programs, the study would inform educational institutions to improve their curricula and teaching methods to better prepare students for entrepreneurial endeavours, contributing to higher-quality education. The study would also address the critical issue of SME development skills, which is crucial for economic growth and job creation. By examining the role of entrepreneurship education and ICT competencies in SME development, the research can offer insights into strategies to foster a culture of entrepreneurship and facilitate the growth of small and medium-sized enterprises in the region.

Policymakers at the regional and national levels would benefit from the study's findings to formulate evidence-based policies and strategies. These policies would support entrepreneurship education initiatives, promote the integration of ICT competencies into curricula, and create a conducive environment for SME development skills, ultimately contributing to economic development and job opportunities.For students pursuing Business Education, the research would provide insights into the value of entrepreneurship education and ICT competencies in their future careers. It would also help students make informed decisions about their educational paths and career aspirations, equipping them with the knowledge and skills needed to succeed in the competitive world of entrepreneurship.

By promoting SME development skills, the study would indirectly contribute to community development and economic growth. Successful SMEs development skills generate employment opportunities, stimulate local economies, and encourage innovation, ultimately improving the quality of life for residents in Southwest Nigeria. In summary, the significance of the study lies in its potential to enhance entrepreneurship education, promote SME

development skills, inform policymaking, empower students, and contribute to economic progress in Southwest Nigeria and beyond.

1.7 Scope of the Study

The study specifically focused on entrepreneurship education and ICT competencies as determinants of SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria. The geographical spread of this study covered the six States in Southwest geo-political zone. The respondents of the study comprised of all the Business education students and lecturers in colleges of education in the six (6) States in Southwest geo-political zone. The independent variables of the study included: entrepreneurship education and ICT competencies while the dependent variable was SMEs development skills among students of Business Education. Entrepreneurship education which is the first independent variable for the study was explored in four dimensions: curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate. ICT competencies which was the other independent variable for the study was studied in three areas: digital literacy, cybersecurity awareness and skills, and information management and digital collaboration. The dependent variable for study - SMEs development skills among students of Business Education was treated in three areas which include their business growth, access to finance and innovation and technology adoption

1.8 Limitation of the Study

This study faced some constrained related to logistical challenges during data collection, survey administration, and participant recruitment. Factors such as scheduling conflicts, administrative hurdles, or difficulties in reaching spectified areas within Southwest, Nigeria

posed logistical constraints that affected the research process. These challenges slowed down the process data collection. By acknowledging these constraints, the study provides context for interpreting its findings and offers insights into the practical realities encountered during the research process. Additionally, identifying these constraints can inform recommendations for future research to address these challenges and strengthen the validity and reliability of research findings within the context of studying entrepreneurship education, ICT competencies and SMEs development skills among students of Business Education in Southwest, Nigeria.

1.9 Operational Definition of Terms

Entrepreneurship Education: Entrepreneurship education refers to a structured learning process that equips individuals with the knowledge, skills, and mindset required to identify business opportunities, create and manage ventures, and navigate the challenges of entrepreneurship.

ICT Competencies: ICT competencies, or Information and Communication Technology competencies, encompass the skills and abilities needed to effectively use information and communication technology tools, applications, and systems. These competencies include proficiency in using computers, software applications, the internet, and digital communication tools.

Small and Medium-sized Enterprises (SMEs): SMEs are businesses characterized by their relatively small size, including factors such as the number of employees, turnover, and assets. The specific criteria for categorizing an enterprise as an SME may vary by region and industry. SMEs play a crucial role in economic development and can range from micro-enterprises to larger, more established firms.

Curriculum Relevance: Curriculum relevance refers to the alignment of educational content, including courses and programs, with the current and future needs of students and the broader

society. A relevant curriculum addresses the practical and emerging challenges and opportunities faced by students in their educational and career pursuits.

Access to Resources: Access to resources in the context of entrepreneurship refers to the ability of entrepreneurs or students to obtain necessary inputs such as financial capital, mentorship, networking opportunities, infrastructure, and information. Access to resources can significantly impact the ability to initiate and grow a business.

Entrepreneurial Intentions: Entrepreneurial intentions refer to an individual's inclination or motivation to engage in entrepreneurial activities, such as starting a new business or pursuing entrepreneurial opportunities. High entrepreneurial intentions often precede entrepreneurial actions.

Start up Creation and Success Rate: Business start-up, or start-up creation, involves the process of establishing a new business venture. It includes activities such as business planning, securing funding, registering a business entity, and commencing operations.

SME Development skills: SME development skills encompasses the growth and sustainability of Small and Medium-sized Enterprises (SMEs). It involves efforts to enhance the competitiveness, profitability, and economic impact of SMEs through various strategies, including market expansion, innovation, and access to resources.

Innovation and Technology Adoption: Innovation is the process of creating new ideas, products, services, processes, or business models that provide value and contribute to positive change. It often involves the application of creativity and the adoption of novel approaches to address existing challenges or meet emerging needs.

Digital Literacy: Digital literacy is an individual's ability to find, evaluate, and communicate information by utilizing typing or digital media platforms. It is a combination of both technical and cognitive abilities in using information and communication technologies to create, evaluate, and share information.

Cybersecurity Awareness and Skills: Cybersecurity awareness and skills are the knowledge and abilities necessary to protect oneself and one's organization from cyberattacks. This includes understanding the different types of cyber threats, how to identify them, and how to mitigate them.

Information Management: Information management is the process of collecting, organizing, storing, retrieving, and distributing information. It involves all aspects of the information life cycle, from creation to destruction. Information management is important for ensuring that information is accessible, reliable, and secure.

Digital Collaboration: Digital collaboration is the use of digital tools and technologies to facilitate communication and cooperation between people. It can involve a variety of activities, such as sharing files, working on documents together, and participating in video conferences.

Business Growth: Business growth refers to the expansion of a business in terms of revenue, market share, or other key metrics.

Access to Finance: Access to finance refers to the ability of businesses and individuals to obtain the financial resources they need to start or grow their businesses, invest in new projects, or purchase goods and services.

Endnotes

1. M. B., Dauti, R.,Dauti, & M., Krasniqi, *Factors Determining Success of Small and Medium Enterprises (SMEs) in Kosovo.* **KNOWLEDGE-International Journal,** *42*(1), 2020.239-244.

2. Z. A., Kajal, M., Sikder, & P., Panhwar, *The Role of Cost Management Strategies for SME Business: A Conceptual Framework.* **International Journal of Small and Medium Enterprises,** *4*(1), 2021.35-58.

3. S., Durst, & W., Gerstlberger*, Financing Responsible Small-and Medium-sized Enterprises: An International Overview of Policies and Support Programmes.* **Journal of Risk and Financial Management,** *14*(1), 2020.10.

4. K., Bachnik, T., Misiaszek, & E., Day-Duro, *Integrating Corporate Social Challenge, Learning and Innovation in Business Education.* **Journal of Business Research,** *159*,2023. 113700.

5. E.,Thukral, *COVID-19: Small and Medium Enterprises Challenges and Responses with Reativity, Innovation, and Entrepreneurship.* **Strategic Change,** *30*(2), 2021,153-158.

6. A. T. H. Q., Shaher, & K., Ali, *The Effect of Entrepreneurial Orientation on Innovation Performance: The Mediation Role of Learning Orientation on Kuwait SME.* **Management Science Letters,** *10*(16), 2020. 3811-3820, https://doi.org/10.5267/j.msl.2020.7.030.

7. I., Matić, *Managerial Interpersonal Competencies-Benefiting from Learning Organization Characteristics in SMEs.* **Management dynamics in the knowledge economy,** *10*(1), 2022. 19-36, https://doi.org/10.1017/jmo.2023.32.

8. D., Zahay, W. A., Pollitte, B., Reavey, & A., Alvarado, *An Integrated Model of Digital Marketing Curriculum Design.* **Marketing Education Review,***32*(3), 2022. 205-223. https://doi.org/10.1080/10528008.2021.1947856.

9. M. P., Muthumeena, & D. G., Yogeswaran, *Entrepreneurship Education Through Successful Entrepreneurial Models in Educational Institutions.* ***Journal*** **of Development Economics and Management Research Studies,** *9*(14), 2022. 13-19.https://doi.org/10.53422/jdms.2022.91402.

10. M., Chhabra, L. P., Dana, S., Malik, & N. S., Chaudhary, *Entrepreneurship Education and Training in Indian Higher Education Institutions: A Suggested Framework.* **Education+ Training,** *63*(7/8), 2021. 1154-1174, https://doi.org/10.1108/et-10-2020-0310.

11. M., Sutherland, D., Thompson, & P., Edirisingha, *Try Before you buy: A Small Business Employer (SME) Perspective of International Student Mobility in England.* **Studies in Higher Education,** *46*(7), 2021. 1256-1271, https://doi.org/10.1080/03075079.2019.1680965.

12. A. N., Karimi, B., Bamiwera, & J., Miluwi, *Financial Planning Services and Access to Credit by Micro Enterprises in the Formal Sector in Kenya.* **Journal of International Business, Innovation and Strategic Management,** *7*(2), 2023. 48-61, https://doi.org/10.61426/sjbcm.v10i4.2748.

13. T., Munyuki, & C. M. P., Jonah, *The Nexus between Financial Literacy and Entrepreneurial Success among Young Entrepreneurs from a Low-income Community in Cape Town: A Mixed-method Analysis.* **Journal of Entrepreneurship in Emerging Economies,** *14*(1), 2022. 137-157, https://doi.org/10.1108/jeee-01-2020-0020.

14. E., Chukwu, A., Adu-Baah, M., Niaz, U., Nwagwu, & M. U., Chukwu, *Navigating Ethical Supply Chains: The Intersection of Diplomatic Management and Theological Ethics.* **International Journal of Multidisciplinary Sciences and Arts,** *2*(1), 2023. 127-139, https://doi.org/10.46799/ajesh.v2i9.118.

15. G. K., Stahl, C. J., Brewster, D. G., Collings, & A., Hajro, *Enhancing the Role of Human Resource Management in Corporate Sustainability and Social Responsibility: A Multi-stakeholder, Multidimensional Approach to HRM.* **Human Resource Management Review,** *30*(3), 2020. 100708, **https://doi.org/10.1016/j.hrmr.2019.100708.**

16. M., Das, K., Rangarajan, & G., Dutta, *Corporate Sustainability in SMEs: An Asian Perspective.* **Journal of Asia Business Studies,** *14*(1), 2020. 109-138, https://doi.org/10.1108/jabs-10-2017-0176,

17. S. W., Bradley, P. H., Kim, P. G., Klein, J. S., McMullen, & K., Wennberg, *Policy for Innovative Entrepreneurship: Institutions, Interventions, and Societal Challenges.* **Strategic Entrepreneurship Journal,** *15*(2), 2021. 167-184, https://doi.org/10.1002/sej.1395**.**

18. O. A., Abisuga-Oyekunle, S. K., Patra, & M., Muchie, *SMEs in Sustainable Development: Their Role in Poverty Reduction and Employment Generation in Sub-Saharan Africa.* **African Journal of Science, Technology, Innovation and Development,** *12*(4), 2020. 405-419, https://doi.org/10.1080/20421338.2019.1656428.

19. V., Ndou, *Social Entrepreneurship Education: A Combination of Knowledge Exploitation and Exploration Processes.* **Administrative Sciences,** *11*(4), 2021. 112.https://doi.org/10.3390/admsci11040112.

20. S., Hartmann, J., Backmann, A., Newman, K. M., Brykman, & R. J., Pidduck, *Psychological Resilience of Entrepreneurs: A Review and Agenda for Future Research.* **Journal of Small Business Management,** *60*(5), 2022. 1041-1079, https://doi.org/10.1080/00472778.2021.2024216,

21. M., Tanveer, H., Ali, & I. U., Haq, *Educational Entrepreneurship Policy Challenges and Recommendations for Pakistani Universities.* **Academy of Strategic Management Journal,***20*(2), 2021. 1-15, https://doi.org/10.1108/s2040-724620210000011001.

22. N., Towers, A. S., Santoso, N., Sulkowski, & J., Jameson, *Entrepreneurial capacity-Building in HEIs for Embedding Entrepreneurship and Enterprise Creation–a Tripartite Approach.* **International Journal of Retail & Distribution Management,** *48*(8), 2020. 881-899, https://doi.org/10.1108/ijrdm-06-2019-0185.

23. C. G., Iwu, P. A., Opute, R., Nchu, C., Eresia-Eke, R. K., Tengeh, O., Jaiyeoba, & O. A., Aliyu, *Entrepreneurship Education, Curriculum and Lecturer-competency as Antecedents of Student Entrepreneurial Intention.* **The International Journal of Management Education,** *19*(1), 2021. 100295, https://doi.org/10.1016/j.ijme.2019.03.007.

24. J. A., Black, L. G., Perry III, & R. J., Lahm Jr, *Experiential Learning as a Development Tool for Entrepreneurial Mindsets: The Case for Stimulation Assignment.* **Global Journal of Business Pedagogy,** *7*(1), 2023. 125, https://doi.org/10.1057/9781137467720.0039.

25. R., Bell, & H., Bell, *Applying Educational Theory to Develop a Framework to Support the Delivery of Experiential Entrepreneurship Education.* **Journal of Small Business and Enterprise Development,** *27*(6), 2020. 987-1004, https://doi.org/10.1108/jsbed-01-2020-0012.

26. A. J., Hobson, & B., Maxwell, *Mentoring Substructures and Superstructures: An Extension and Reconceptualisation of the Architecture for Teacher Mentoring.* **Journal of Education for Teaching,** *46*(2), 2020. 184-206, https://doi.org/10.1080/02607476.2020.1724653.

27. S., Sutrisno, *The Role of Business Mentors in Assisting the Growth of Education-Supported MSMEs.* **Indo-MathEdu Intellectuals Journal,** *4*(2), 2023. 332-346, https://doi.org/10.54373/imeij.v4i2.201.

28. A., Hassan, I., Anwar, I., Saleem, K. B., Islam, & S. A., Hussain, *Individual Entrepreneurial Orientation, Entrepreneurship Education and Entrepreneurial Intention: The mediating Role of Entrepreneurial Motivations.* **Industry and Higher,** *35*(4), 2021. 403-418, https://doi.org/10.1177/09504222211007051.

29. C. D., Duong, *Exploring the Link between Entrepreneurship Education and Entrepreneurial Intentions: The Moderating Role of Educational Fields.* **Education+ Training,** https://doi.org/10.1108/et-05-2021-0173, *64*(7), 2022. 869-891.

30. C., Păunescu, & E., Molnar, *Country's Entrepreneurial Environment Predictors for Starting a new venture—evidence for Romania.* **Sustainability,** *12*(18), 2020. 7794, https://doi.org/10.3390/su12187794.

31. S., Matos, & J., Hall, *An Exploratory Study of Entrepreneurs in Impoverished Communities: When Institutional Factors and Individual Characteristics Result in Non-productive Entrepreneurship.* **Entrepreneurship & Regional Development,** *32*(1-2), 2020. 134-155, https://doi.org/10.1080/08985626.2019.1640476.

[32] R. J., Pidduck, D. R., Clark, & G. T., Lumpkin, *Entrepreneurial Mindset: Dispositional Beliefs, Opportunity Beliefs, and Entrepreneurial Eehavior.* **Journal of Small Business Management,** *61*(1), 2023. 45-79, https://doi.org/10.1080/00472778.2021.1907582.

[33] M. I. S., Ahmad, M. I., Idrus, & S., Rijal, *The Role of Education in Fostering Entrepreneurial Spirit in the Young Generation.* **Journal of Contemporary Administration and Management (ADMAN),** *1*(2), 2023. 93-100, https://doi.org/10.61100/adman.v1i2.28.

[34] G., Boldureanu, A. M., Ionescu, A. M., Bercu, M. V., Bedrule-Grigoruță, & D., Boldureanu, *Entrepreneurship Education through Successful Entrepreneurial Models in Higher Education Institutions.* **Sustainability,** *12*(3), 2020. 1267, https://doi.org/10.3390/su12031267.

[35] D., Audretsch, A., Colombelli, L., Grilli, T., Minola, & E., Rasmussen, *Innovative Start-ups and Policy Initiatives*. **Research Policy,** *49*(10), 2020. 104027, https://doi.org/10.1016/j.respol.2020.104027.

[36] A., Cavallo, A., Ghezzi, A., Colombelli, & G. L., Casali, *Agglomeration Dynamics of Innovative Start-ups in Italy beyond the Industrial District Era.* **International Entrepreneurship and Management Journal,** *16*, 2020. 239-262, https://doi.org/10.1007/s11365-018-0521-8

[37] B., Rok, & M., Kulik, *Circular Start-up Development: The Case of Positive Impact Entrepreneurship in Poland.* **Corporate Governance: The International Journal of Business in Society,** *21*(2), 2021. 339-358, https://doi.org/10.1108/cg-01-2020-0043.

[38] Li, C., Ahmed, N., Qalati, S. A. A., Khan, & S., Naz, *Role of Business Incubators as a Tool for Entrepreneurship Development: The Mediating and Moderating Role of Business Start-up and Government Regulations.* **Sustainability,** *12*(5), 2020. 1822, https://doi.org/10.3390/su12051822.

[39] P., McConnell, *The Strategic Risks Facing Start-ups in the Financial Sector.* **Journal of Risk Management in Financial Institutions,** *15*(2), 2022. 114-141, https://doi.org/10.5040/9781472920416.0006.

[40] G., Falloon, *From Digital Literacy to Digital Competence: The Teacher Digital Competency (TDC) Framework*. **Educational Technology Research and Development,** *68*, 2020. 2449-2472, https://doi.org/10.1007/s11423-020-09767-4.

[41] T., Mehmood, *Does Information Technology Competencies and Fleet Management Practices Lead to Effective Service Delivery? Empirical Evidence from E-commerce Industry.* **International Journal of Technology, Innovation and Management (IJTIM),** *1*(2), 2021. 14-41, https://doi.org/10.54489/ijtim.v1i2.26.

42. D., Radovanović, C., Holst, S. B., Belur, R., Srivastava, G. V., Houngbonon, E., Le Quentrec, & J., Noll, *Digital Literacy Key Performance Indicators for Sustainable Development.* **Social Inclusion,** *8*(2), 2020. 151-167, https://doi.org/10.17645/si.v8i2.2587.

43. A. B., Rinekso, R. S., Rodliyah, & I., Pertiwi, *Digital Literacy Practices in Tertiary Education: A Case of EFL Postgraduate Students.* **Studies in English Language and Education,** *8*(2), 2021. 622-641, https://doi.org/10.24815/siele.v8i2.18863.

44. G., Öncül, *Defining the Need: Digital LiteracySskills for First-year University Students.* **Journal of Applied Research in Higher Education,** *13*(4), 2021. 925-943, https://doi.org/10.1108/jarhe-06-2020-0179.

45. A., Morgan, R., Sibson, & D., Jackson, *Digital Demand and Digital Deficit: Conceptualising Digital Literacy and Gauging Proficiency among Higher Education Students.* **Journal of Higher Education Policy and Management,** *44*(3), 2022. 258-275, https://doi.org/10.1080/1360080x.2022.2030275.

46. C. C., Okeji, E. C., Tralagba, & I. C., Obi, *An Investigation of the Digital Literacy Skills and Knowledge-based Competencies among Librarians Working in University Libraries in Nigeria.* **Global Knowledge, Memory and Communication,** *69*(4/5), 2020. 311-330, https://doi.org/10.1108/gkmc-05-2019-0054.

47. A. B., Rinekso, R. S., Rodliyah, & I., Pertiwi, *Digital Literacy Practices in Tertiary Education: A Case of EFL Postgraduate Students.* **Studies in English Language and Education,** *8*(2), 2021. 622-641, https://doi.org/10.24815/siele.v8i2.18863.

48. N., Alfia, S., Sumardi, & D., Kristina, *Survival Skills in Digital Era: an Integration of Digital Literacy into EFL Classroom.* **Indonesian Journal of EFL and Linguistics,** *5*(2), 2020. 435, https://doi.org/10.21462/ijefl.v5i2.307.

49. M., Ashiq, M. H., Usmani, & M., Naeem, *A Systematic Literature Review on Research Data Management Practices and Services*. **Global Knowledge, Memory and Communication,** *71*(8/9), 2022. 649-671, https://doi.org/10.1108/gkmc-07-2020-0103.

50. M. F., Manesh, M. M., Pellegrini, G., Marzi, & , M., Dabic *Knowledge Management in the Fourth Industrial Revolution: Mapping the Literature and Scoping Future Avenues.* **IEEE Transactions on Engineering Management,** *68*(1), 2020. 289-300, https://doi.org/10.1109/tem.2019.2963489.

51. K., Swart, T., Bond-Barnard, & R., Chugh, *Challenges and Critical Success Factors of Digital Communication, Collaboration and Knowledge Sharing in Project Management Virtual Teams: A Review.* **International Journal of Information Systems and Project Management,** *10*(4), 2022. 84-103, https://doi.org/10.12821/ijispm100404.

52. S., Gupta, V. A., Drave, Y. K., Dwivedi, A. M., Baabdullah, & E., Ismagilova, *Achieving Superior Organizational Performance Via big Data Predictive Analytics: A Dynamic Capability View.* **Industrial Marketing Management,** *90*, 2020.581-592, https://doi.org/10.1016/j.indmarman.2019.11.009.

53. S., Franzò, A., Urbinati, D., Chiaroni, & V., Chiesa, *Unravelling the Design Process of Business Models from Linear to Circular: An Empirical Investigation.* **Business Strategy and the Environment,** *30*(6), 2021. 2758-2772, https://doi.org/10.1002/bse.2892.

54. B., Venesz, T., Dőry, & A. G., Raišienė, *Characteristics of Lead Users in Different Stages of the New Product Development Process: A Systematic Review in the Context of Open Innovation.* **Journal of Open Innovation: Technology, Market, and Complexity,** *8*(1), 2022. 24, https://doi.org/10.3390/joitmc8010024.

55. S. M., Chege, D., Wang, & S., L.Suntu, *Impact of Information Technology innovation on Firm Performance in Kenya.* **Information Technology for Development,** *26*(2), 2020. 316-345, https://doi.org/10.1080/02681102.2019.1573717.

56. M., Tajpour, E., Hosseini, & A., Salamzadeh, *The Effect of Innovation Components on Organisational Performance: Case of the Governorate of Golestan Province***. International Journal of Public Sector Performance Management,** *6*(6), 2020. 817-830, https://doi.org/10.1504/ijpspm.2020.110987.

Chapter Two

Literature Review

This chapter offers a survey of the literature by different researchers on distinct ideas that helped readers grasp this particular study more fully. The following topics were covered in the chapter:

2.1. **Conceptual Review**

2.1.2 Entrepreneurship Education

2.1.3 ICT Competencies

2.1.3 Small and Medium-sized Enterprises (SMEs)

2.1.4 Curriculum Relevance

2.1.5 Access to Resources

2.1.6 Entrepreneurial Intentions

2.1.7 Business Start-Up

2.1.8 SMEs Development Skills

2.1.9 Innovation

2.1.10 Technology Adoption

2.2 **Theoretical Framework**

2.2.1 Human Capital Theory

2.2.2 Innovation Diffusion Theory

2.2.3 Self-Determination Theory

2.3 **Review of Empirical Studies**

2.3.1 Entrepreneurship Education and SMEs Development among Business Education students.

2.3.2 ICT competencies and SMEs Development among Business Education students.

2.4 **Conceptual Model**

2.5 Summary of Literature Reviewed

2.1 Conceptual Review

2.1.1 Concept of Entrepreneurship Education

Entrepreneurship education is a dynamic and multifaceted concept that plays a pivotal role in preparing individuals for the challenges and opportunities of entrepreneurship. At its core, it is an educational approach that goes beyond traditional business instruction and empowers learners to think creatively, embrace risk, and develop the knowledge and skills needed to identify and capitalize on entrepreneurial opportunities[1]. This educational paradigm recognizes that entrepreneurship is not solely about starting a new business but encompasses a broader set of competencies and attitudes essential for success in a rapidly changing and competitive world.

One fundamental aspect of entrepreneurship education is the transfer of knowledge. This encompasses both theoretical and practical knowledge related to entrepreneurship, including concepts such as market analysis, financial management, business planning, and marketing strategies[2,3]. Students are exposed to the principles that underpin business development, equipping them with a solid foundation of business acumen. Moreover, it fosters an understanding of the entrepreneurial process, from idea generation and opportunity recognition to feasibility assessment and business model design.

Entrepreneurship education also places significant emphasis on skill development. In addition to theoretical knowledge, it offers experiential learning opportunities, including hands-on activities, case studies, role-playing, and real-world projects. These activities hone essential skills such as critical thinking, problem-solving, decision-making, communication, and leadership. Practical application of knowledge allows students to apply what they have learned to real entrepreneurial scenarios, preparing them to address the challenges of starting and running a business[4]. Furthermore, it encourages learners to develop a proactive and

innovative mindset, embracing change and adapting to unforeseen circumstances. This mindset, known as an entrepreneurial attitude, includes attributes like creativity, resilience, adaptability, and a willingness to take calculated risks[5].

Entrepreneurship education is not limited to formal classroom settings, it extends to a variety of educational platforms, from K-12 programs to higher education, vocational training, and lifelong learning initiatives[6]. It is also adaptable to different cultural, economic, and contextual settings, recognizing that entrepreneurship is influenced by cultural norms, societal values, and local opportunities. The aim is to foster a culture of innovation, problem-solving, and entrepreneurial action, whether it leads to the creation of new businesses, the introduction of innovative products and services, or the pursuit of social entrepreneurship endeavors. In an interconnected world, entrepreneurship education often includes a global perspective, preparing individuals to identify international business opportunities and navigate the complexities of global markets. Ultimately, entrepreneurship education empowers individuals to recognize and capitalize on entrepreneurial opportunities and contributes to economic development, job creation, and innovation within societies[7].

Entrepreneurship education can take various forms, tailored to the specific needs and aspirations of learners. It's a flexible concept that can be adapted to diverse audiences, ranging from students in formal educational institutions to adults seeking to enhance their entrepreneurial capabilities. The diverse educational pathways encompass:

- **K-12 Entrepreneurship Education:** Many educational systems introduce entrepreneurship education at the K-12 level, recognizing the value of nurturing entrepreneurial thinking and skills from an early age[6]. In these settings, activities and curricula are often designed to be age-appropriate, including creative problem-solving exercises, small business simulations, and opportunities for students to explore entrepreneurial concepts in practical ways.

- **Higher Education:** Colleges and universities frequently offer formal degree programs in entrepreneurship or business, including undergraduate and graduate degrees. These programs provide in-depth knowledge, experiential learning opportunities, and access to entrepreneurial resources such as incubators and mentorship networks[8].
- **Vocational and Technical Training:** Vocational and technical institutions recognize the importance of equipping individuals with practical skills and knowledge to pursue self-employment or small business ownership[9]. Entrepreneurship education in these study focuses on hands-on learning, relevant to specific industries or trades.
- **Continuing Education:** Entrepreneurship education extends beyond formal degrees. Many institutions and organizations offer continuing education courses, workshops, and online resources, making it accessible to individuals seeking to start or expand their businesses. This mode of education caters to a wide range of learners, including those with full-time jobs or other commitments.
- **Community and Nonprofit Initiatives:** In many communities, non-profit organizations, local governments, and business incubators offer free or low-cost entrepreneurship education and mentorship programs. These initiatives aim to make entrepreneurship accessible to individuals from diverse backgrounds, including those facing economic challenges.

Entrepreneurship education acknowledges that entrepreneurship is not confined to launching new ventures but also extends to corporate entrepreneurship (intrapreneurship), social entrepreneurship, and innovation within existing organizations. It recognizes the importance of adaptability and an entrepreneurial mindset across various career paths and industries. Furthermore, entrepreneurship education fosters a culture of innovation and problem-solving, encouraging individuals to explore and seize opportunities, ultimately contributing to the vitality and resilience of economies. It empowers learners to recognize and

capitalize on entrepreneurial opportunities, creating a ripple effect that can lead to economic growth, job creation, and societal progress. In a world characterized by change and uncertainty, entrepreneurship education is a valuable educational paradigm that equips individuals to thrive in a complex and rapidly evolving landscape[10, 11].

2.1.2 ICT Competencies

ICT (Information and Communication Technology) competencies have become indispensable in the contemporary world, playing a fundamental role in various aspects of daily life, education, and the workforce. These competencies encompass a broad spectrum of skills and knowledge related to the use of digital technologies and their applications[12]. In an increasingly interconnected and digitalized society, ICT competencies are vital for individuals to navigate the complexities of the modern world effectively.

ICT competencies have evolved into an essential set of skills and knowledge that empower individuals to thrive in the digital age. From basic digital literacy to advanced data analysis and coding skills, these competencies are invaluable for personal growth, academic success, and career advancement. They enable individuals to engage with technology effectively, protect themselves online, collaborate across borders, analyze data, and adapt to an ever-changing technological landscape. Embracing ICT competencies is not only a practical necessity but also a pathway to becoming informed, empowered, and responsible digital citizens in the 21st century[13].

2.1.2.1 Digital Literacy

At the core of ICT competencies lies digital literacy, which is the foundation for all other skills in this domain. Digital literacy involves the ability to operate digital devices, navigate software applications, and utilize online resources[14]. Individuals proficient in digital literacy can perform tasks like word processing, creating spreadsheets, managing files, and

using email. This foundational competency enables them to engage in a wide range of personal, academic, and professional activities.

Digital literacy is a fundamental skill in today's increasingly digitized world. It refers to the ability to effectively use digital devices, software applications, and online platforms for various purposes[14,15,16]. At its core, digital literacy involves a combination of technical skills and critical thinking. These skills enable individuals to navigate the digital landscape with confidence and make informed decisions in both their personal and professional lives.

Digital literacy encompasses several key components. It includes proficiency in using common software tools such as word processors, spreadsheets, and email clients. It involves the ability to manage files and folders efficiently, ensuring that digital content is organized and accessible. Moreover, digital literacy extends to understanding the basics of online communication and the responsible use of digital resources[17]. In a broader sense, it encompasses the capacity to evaluate the credibility and reliability of information encountered on the internet, an essential skill in the age of digital information overload[18].

The significance of digital literacy is underscored by its relevance in virtually all aspects of modern life. In education, digital literacy is indispensable for students, enabling them to conduct research, collaborate on projects, and access educational resources online[19]. In the professional world, digital literacy is a fundamental requirement, as it supports tasks ranging from creating digital presentations to managing data and conducting online meetings. Digital literacy is not only a practical necessity but also an empowerment tool, allowing individuals to harness the benefits of the digital age while being discerning and responsible digital citizens[20].

2.1.2.2 Cybersecurity Awareness and Skills

In an era where the digital landscape is an integral part of daily life, cybersecurity awareness and skills are of paramount importance. Cybersecurity refers to the practice of protecting digital systems, networks, and data from threats, vulnerabilities, and unauthorized access[21]. Cybersecurity awareness is the foundational understanding of the risks and vulnerabilities in the digital environment, while cybersecurity skills encompass the ability to apply protective measures to safeguard digital assets[22].

Cybersecurity awareness involves recognizing the diverse threats and risks present in the digital world. It includes an understanding of common cybersecurity threats, such as malware, phishing attacks, and data breaches. Individuals with cybersecurity awareness are equipped to identify suspicious online behavior and potential security breaches[23]. They grasp the importance of strong and unique passwords, data encryption, and the significance of regularly updating software and systems to patch vulnerabilities.

Cybersecurity skills extend beyond awareness to the practical implementation of protective measures. Proficient individuals are capable of applying cybersecurity best practices to secure their digital presence. These skills encompass setting up firewalls, using antivirus software, and configuring secure network settings. They also involve recognizing and responding to cybersecurity incidents, from detecting and removing malware to addressing data breaches[24,25]. Cybersecurity skills enable individuals to protect not only their personal information but also the digital systems and networks within their professional and educational environments. Cybersecurity skills are particularly crucial in today's interconnected world, where the consequences of cybersecurity breaches can be severe, including financial loss, identity theft, and damage to reputation[23]. As the digital landscape continues to evolve, cybersecurity awareness and skills are indispensable for individuals to safeguard their digital identities and data, thereby contributing to a safer and more secure online environment.

2.1.2.3 Information Management

Effective information management is a critical component of ICT competencies. This skill set involves the ability to organize, store, retrieve, and manage digital information efficiently. Individuals with information management competencies can structure data, use databases, and employ information management systems to access and utilize information effectively, whether for personal use or in a professional context.

Information management is a critical practice in the digital age, focused on the efficient and effective organization, storage, retrieval, and utilization of data and information[26]. In a world inundated with data, information management is essential for individuals, organizations, and institutions to harness the power of information for informed decision-making, problem-solving, and productivity.

One core aspect of information management involves structuring and categorizing data for easy access and retrieval. This includes the development of standardized naming conventions, file organization, and metadata tagging[27]. Effective information management ensures that data is well-organized and can be located promptly when needed. This is particularly significant in business settings where quick access to relevant data can be a competitive advantage.

The use of databases and information management systems is another central component. Databases facilitate the structured storage and retrieval of data, offering features like search capabilities, data validation, and data integrity checks[26]. These systems are widely used in various fields, from finance and healthcare to research and education, to ensure that data is not only well-organized but also accurate and secure. Furthermore, information management involves the development of policies and procedures for data governance and stewardship. These policies guide how data is collected, stored, shared, and maintained, and they often include measures for data security, privacy, and compliance with relevant

regulations[28]. Effective data governance ensures that information is protected, used ethically, and aligns with an organization's strategic goals.

In personal information management settings, individuals are encouraged to adopt practices that enhance their ability to organize and retrieve information efficiently. This can involve using tools such as digital note-taking applications, task management software, and cloud-based storage solutions to store, categorize, and access their information. In conclusion, information management is a critical discipline that empowers individuals and organizations to make the most of the vast amount of data and information available to them. Effective information management practices ensure that data is well-organized, accurate, secure, and readily accessible, enhancing decision-making, productivity, and overall efficiency. Whether in a personal, professional, or organizational context, the ability to manage information effectively is indispensable in today's information-driven world.

2.1.2.4 Digital Collaboration

The digital landscape has redefined collaboration, making it a global and digital endeavor. ICT competencies related to digital collaboration encompass the ability to work seamlessly with others across geographical boundaries[29]. Proficiency in digital communication and collaboration tools, such as video conferencing, cloud-based document sharing, and project management software, empowers individuals to collaborate effectively in diverse contexts.

Digital collaboration is a fundamental component of today's interconnected world, where geographic boundaries no longer serve as barriers to working together. It refers to the use of digital tools and technologies to facilitate and enhance collaboration among individuals or groups, regardless of their physical location[30,31]. Digital collaboration leverages various communication and project management platforms to enable real-time interactions, information sharing, and collective problem-solving.

One key aspect of digital collaboration is the use of communication tools that support remote interaction. Video conferencing, instant messaging, and email are just a few examples of digital tools that enable individuals to engage in virtual face-to-face meetings, exchange messages, and share files and information in real-time[32]. These tools have become particularly crucial in the context of remote work and distributed teams, as they foster seamless communication and maintain a sense of connectedness.

Another facet of digital collaboration involves the use of cloud-based document sharing and collaborative editing platforms. These tools allow multiple users to access, edit, and collaborate on documents and projects simultaneously. Cloud-based collaboration platforms, such as Google Workspace and Microsoft 365, have transformed the way teams work together, enabling them to collaborate on documents, spreadsheets, and presentations from virtually anywhere with an internet connection[33]. Furthermore, project management and workflow automation tools play a vital role in digital collaboration. These platforms streamline project planning, task assignment, progress tracking, and deadline management. They provide a centralized space for teams to coordinate their efforts, assign responsibilities, and monitor project status, leading to increased productivity and efficiency in achieving project goals[34&35].

Digital collaboration has broken down the barriers of time and space, empowering individuals and organizations to collaborate across diverse geographical locations seamlessly[33]. It has revolutionized the way teams work together, offering real-time communication, shared document editing, and efficient project management. In an increasingly globalized and interconnected world, digital collaboration is an essential enabler of productivity and innovation, fostering the exchange of ideas, expertise, and creativity among individuals and teams, regardless of their physical proximity[36,37].

2.1.2.5 Data Analysis

Data analysis is a fundamental process that involves examining, cleaning, transforming, and interpreting data to discover meaningful insights, patterns, and trends[38]. In today's data-driven world, data analysis plays a central role in decision-making, problem-solving, and the pursuit of knowledge in various domains, including business, science, healthcare, and social sciences. One of the primary objectives of data analysis is to convert raw data into actionable information. This process typically begins with data collection, where relevant information is gathered from various sources. Once data is collected, it needs to be cleaned and pre-processed to remove errors, inconsistencies, and irrelevant data. Data cleaning is followed by data transformation, where data is structured and prepared for analysis. This may involve tasks such as data normalization, aggregation, and the creation of new variables[39,40].

Data analysis encompasses various techniques and methods for extracting insights from data. Descriptive statistics provide a summary of data, including measures such as mean, median, and standard deviation[41]. Inferential statistics are used to make inferences about a population based on a sample, and hypothesis testing assesses the significance of observed differences or relationships. Exploratory data analysis involves visually exploring data through charts, graphs, and visualization tools. Machine learning and data mining techniques are also used to build predictive models and uncover complex patterns in large datasets[42,43].

The interpretation of data analysis results is a critical aspect of the process. The insights derived from data analysis are used to make informed decisions, solve problems, and support research objectives. In business management, data analysis can inform marketing strategies, customer segmentation, and resource allocation. In scientific research, data analysis helps validate hypotheses and draw conclusions from experimental or observational data. In healthcare, data analysis can lead to improved patient care, disease detection, and the development of treatment protocols.

The role of data analysis in contemporary society is immense. It empowers individuals, organizations, and institutions to extract valuable insights from the vast amounts of data generated daily[44]. Whether it's making financial investments, predicting market trends, developing personalized healthcare treatments, or understanding social phenomena, data analysis is a cornerstone of informed decision-making and knowledge discovery[45]. With the ever-increasing volume and complexity of data, the ability to conduct effective data analysis is a highly sought-after skill in a wide range of fields.

2.1.2.6 Adaptability to Technological Changes

Adaptability to technological changes is a critical skill and mindset in the modern world, where technology is evolving at an unprecedented pace. It refers to the ability to embrace and effectively respond to shifts in technology, tools, and digital environments[46]. In an era where digital transformation is constant, individuals and organizations that can adapt to new technologies and harness their potential are better positioned for success and innovation.

1. Continuous Learning: Adaptability to technological changes begins with a commitment to lifelong learning. Individuals who are open to acquiring new skills and knowledge in response to technological advancements are better prepared to thrive in dynamic digital landscapes. This might involve taking courses, attending workshops, or engaging in self-directed learning to stay current with emerging technologies.

2. Flexibility and Open-Mindedness: An adaptable mindset is characterized by flexibility and open-mindedness. It involves a willingness to explore new technologies, tools, and platforms, even if they are unfamiliar. An open mind allows individuals to consider how new technologies might be integrated into their personal and professional lives for enhanced efficiency, productivity, and creativity.

3. Experimentation and Risk-Taking: Adaptability often requires experimentation and a willingness to take calculated risks. Trying out new technologies or approaches, even if they have not been widely adopted, can lead to discoveries and innovations. Individuals who are comfortable with experimentation are more likely to identify novel solutions to problems and opportunities for improvement.

4. Problem-Solving Skills: The ability to adapt to technological changes also involves strong problem-solving skills. When confronted with new technologies or challenges related to their use, individuals who excel in problem-solving can quickly identify issues, devise solutions, and troubleshoot effectively.

5. Networking and Collaboration: Collaborative skills are valuable in the context of technological adaptability. By connecting with others who possess different expertise or experiences, individuals can learn from their peers and collaborate to address technological challenges or opportunities collectively.

6. Anticipating Trends: Staying adaptable often means anticipating technological trends before they become mainstream. By keeping an eye on emerging technologies and understanding their potential impact, individuals can position themselves as early adopters and innovators, gaining a competitive edge in their field.

7. Agility in Decision-Making: The ability to make decisions swiftly and adapt to new technological realities is crucial. Being able to pivot, modify strategies, and change course in response to new information or developments is a hallmark of adaptability in the face of technological changes.

8. Resilience and Persistence: Adaptability does not always guarantee immediate success. Resilience and persistence are essential qualities when dealing with technological changes, as they allow individuals to learn from setbacks and keep moving forward.

Adaptability to technological changes is a defining feature of success in the digital age. Individuals who cultivate this skill and mindset are well-equipped to navigate the ever-evolving landscape of technology, harness its potential, and remain relevant and competitive in their personal and professional lives. In an era of constant innovation, adaptability is not just a valuable trait—it is a necessity for thriving in an increasingly dynamic and tech-driven world.

2.1.3 Small and Medium-sized Enterprises (SMEs)

Small and Medium-sized Enterprises (SMEs) are a cornerstone of the global business landscape, encompassing a diverse array of companies with limited scale compared to large corporations[47]. Although the specific criteria for categorizing businesses as SMEs can vary by country and industry, common parameters include factors such as the number of employees, annual revenue, and total assets. SMEs play a crucial role in the global economy, contributing to job creation, economic growth, and innovation.

One of the defining features of SMEs is their relatively smaller size compared to large corporations. SMEs are often characterized by a limited number of employees, ranging from just a handful to a few hundred, and annual revenues that fall below certain thresholds[48&49]. These thresholds can differ from one country to another and across industries, reflecting the variations in the business environment. A significant role of SMEs is their capacity to generate employment opportunities. SMEs are known for their ability to create jobs and often employ a substantial portion of the workforce in many countries. This makes them a vital driver of job creation and labor market participation. They are often particularly important in providing employment opportunities to young professionals, women, and disadvantaged groups who may face barriers in accessing employment in larger corporations[50].

SMEs contribute significantly to economic growth and development. They stimulate economic activity by generating income, providing goods and services, and supporting local

and regional economies. The agility and innovative spirit of SMEs make them dynamic contributors to a nation's Gross Domestic Product (GDP)[51]. Moreover, they are vital in fostering competition in the market, which ultimately benefits consumers by offering a wider choice of products and services. Innovation is a hallmark of SMEs. Their smaller size and flexibility often enable them to adapt more quickly to changing market conditions and embrace innovation. Many SMEs are at the forefront of introducing new products, services, and business models. This drive for innovation contributes to technological advancements and competitive diversity in the business landscape[52].

Entrepreneurship plays a fundamental role in the creation and growth of SMEs. Many SMEs are founded by entrepreneurs who possess a vision, drive, and willingness to take calculated risks. These entrepreneurial ventures bring fresh ideas, creativity, and a competitive spirit to the business world. The entrepreneurial spirit can be seen as the engine driving the growth and sustainability of SMEs.

SMEs often have a significant local and regional impact. They frequently support local suppliers and create networks within their communities. These businesses contribute to the development of infrastructure, social programs, and community well-being. They may also play a role in shaping the character of a particular region, preserving local traditions, and promoting cultural identity. Despite the numerous advantages and opportunities presented by SMEs, they also face challenges. Access to financing is often a significant hurdle for many SMEs, as traditional lenders may be more cautious about lending to smaller entities[53]. Competition in the market can be fierce, and compliance with regulations and standards can be costly and complex. Nevertheless, with the right support and resources, SMEs have the potential to thrive and overcome these challenges.

With the advent of e-commerce, digital platforms, and global supply chains, many SMEs have expanded their reach beyond national borders. They can now access international

markets and connect with customers around the world. This global presence has opened new avenues for growth and prosperity for SMEs. SMEs form a diverse and dynamic segment of the business world, fostering economic development, job creation, and innovation[54,55]. Their significance is recognized by governments, organizations, and stakeholders who aim to promote entrepreneurship and sustainable economic development. SMEs contribute not only to economic growth but also to social well-being, diversity, and regional development, making them integral to the fabric of local and global economies[56].

2.1.4 SME Development Skills

Small and Medium Enterprise (SME) development skills refers to the deliberate efforts and initiatives aimed at promoting the growth and sustainability of small and medium-sized businesses[57]. These businesses, often characterized by their limited scale and resources, play a significant role in the global economy and are critical drivers of innovation, employment, and economic development.

SMEs are the lifeblood of many economies, contributing substantially to job creation and economic output. They are known for their ability to adapt quickly to changing market conditions and are often a source of innovation and entrepreneurship. In many developing countries, SMEs are the primary source of employment, offering opportunities to a diverse workforce. To foster SME development skills, governments, financial institutions, and support organizations implement various strategies and policies[58]. Access to finance is a fundamental challenge for SMEs, and addressing this issue is crucial. Providing affordable loans, grants, or venture capital can give these businesses the financial resources they need to expand, invest in new technologies, or hire more employees[56].

Capacity-building programs are another essential component of SME development. Training and mentorship initiatives can help SMEs owners and their staff acquire the skills

and knowledge necessary to manage and grow their businesses effectively[59]. This training can cover various aspects of business management, including financial literacy, marketing, and digital transformation. Furthermore, creating a conducive regulatory and business environment is essential. Simplifying bureaucratic processes, reducing red tape, and minimizing regulatory burdens can save SMEs time and money. A streamlined administrative framework allows SMEs to focus on their core activities and long-term growth rather than being bogged down by excessive paperwork[59,60].

Access to markets is also critical for SME development skills. Facilitating market access, both domestically and internationally, can provide these businesses with opportunities to expand their customer base and reach new markets. Export promotion initiatives, trade agreements, and e-commerce platforms can be instrumental in this regard[61]. In conclusion, SME development skills is an integral part of economic growth and sustainability. By supporting the growth and resilience of small and medium-sized enterprises, countries can foster job creation, innovation, and community development. This requires a combination of financial support, capacity-building programs, an enabling regulatory environment, and initiatives to broaden market access for SMEs to thrive and contribute to the broader economy.

2.1.5 Curriculum Relevance

The relevance of the curriculum in educational systems is of paramount importance, as it directly impacts the quality of education and the preparedness of students for their future roles in society. A curriculum defines what students learn, how they learn, and the knowledge and skills they acquire during their educational journey. Its relevance is crucial for several reasons[62,63,64,65]:

1. Alignment with Contemporary Needs: A relevant curriculum should align with the current needs of society. This includes addressing the demands of the job market, technological advancements, and societal challenges. When the curriculum reflects the

realities of the world students will enter, it enhances their preparedness for success in their future careers and endeavors.

2. Preparation for the Future: The curriculum should not only focus on short-term goals but also prepare students for the long term. It must equip them with the skills and knowledge needed to adapt to changing circumstances, engage in lifelong learning, and thrive in a world marked by ongoing transformation and uncertainty.

3. Incorporation of 21st-Century Skills: In today's digital age, curriculum relevance is closely tied to the integration of 21st-century skills, such as critical thinking, problem-solving, creativity, digital literacy, and adaptability. These skills are essential for students to succeed in the modern world and must be embedded in the curriculum.

4. Cultural and Social Relevance: A curriculum should reflect the cultural, social, and economic diversity of the student population. It should be inclusive and sensitive to the backgrounds and experiences of all students, promoting social equity and cultural understanding.

5. Real-World Applications: A relevant curriculum incorporates real-world applications of knowledge and skills. It should enable students to connect what they learn in the classroom to practical, everyday situations. This approach enhances students' ability to transfer their learning to real-life challenges and opportunities.

6. Interdisciplinary Learning: The curriculum should encourage interdisciplinary learning, recognizing that many real-world issues and problems are multifaceted and require a holistic approach. By breaking down the silos between subjects, students can develop a more comprehensive understanding of complex issues.

7. Sustainability and Environmental Awareness: In an era marked by environmental challenges and climate change, a relevant curriculum should include topics related to

sustainability, environmental stewardship, and responsible citizenship. It equips students to contribute to a more sustainable and environmentally conscious world.

8. Feedback and Adaptation: Curriculum development should be an ongoing, iterative process. Schools and educational institutions should gather feedback from students, educators, employers, and other stakeholders to assess the curriculum's effectiveness and relevance. Regular updates and adjustments should be made to ensure that the curriculum remains aligned with evolving needs and expectations.

Curriculum relevance is essential to ensure that education equips students with the knowledge and skills they need to succeed in the contemporary world and face future challenges. A relevant curriculum not only imparts subject-specific knowledge but also fosters critical thinking, adaptability, and a deep understanding of real-world issues. Continuous evaluation and adaptation of the curriculum based on feedback and changing circumstances are vital to maintaining its relevance and effectiveness in an ever-evolving educational landscape[66].

2.1.6 Access to Resources

Access to resources is a critical aspect of education, personal development, and socio-economic progress. It refers to the ability of individuals and communities to obtain and utilize essential resources, which can vary widely but often include financial, educational, technological, and social assets[67]. Ensuring equitable access to resources is vital for promoting equal opportunities, reducing disparities, and fostering overall well-being .

1. Educational Resources: Educational resources are fundamental for personal and societal growth. These resources include access to quality schools, well-trained teachers, textbooks, and learning materials. Ensuring equitable access to these resources is crucial for promoting equal educational opportunities and improving academic outcomes.

2. Financial Resources: Financial resources encompass income, savings, and access to credit and loans. Adequate financial resources are essential for covering basic needs, pursuing higher education, starting a business, and investing in personal and professional development. Limited access to financial resources can perpetuate poverty and inequality.

3. Technological Resources: In the digital age, access to technology is essential for educational and economic advancement. This includes access to computers, the internet, and digital devices. Digital literacy and access to technological resources empower individuals to participate in the modern workforce, access information, and engage in online learning.

4. Healthcare Resources: Access to healthcare resources, including healthcare facilities, medical professionals, and affordable healthcare services, is crucial for maintaining physical and mental well-being. Limited access to healthcare resources can lead to disparities in health outcomes and reduce overall quality of life.

5. Cultural and Recreational Resources: Cultural and recreational resources encompass access to libraries, museums, parks, and other cultural and leisure facilities. These resources contribute to personal enrichment, community engagement, and cultural diversity.

6. Social Capital: Social capital refers to the social networks, relationships, and support systems that individuals can access. It plays a significant role in personal and professional success. Those with strong social capital often have access to valuable information, opportunities, and support networks.

7. Legal and Justice Resources: Access to legal and justice resources, including legal representation and fair judicial systems, is essential for protecting individual rights and ensuring access to justice. It is particularly important for marginalized communities who may face legal challenges and discrimination.

8. Environmental Resources: Access to clean air, water, and natural resources is essential for overall well-being and environmental sustainability. Inadequate access to environmental resources can have detrimental effects on health and quality of life.

9. Employment Opportunities: Access to employment opportunities is critical for financial independence and personal growth. Employment resources include job listings, vocational training, and support in finding and securing employment.

Ensuring equitable access to resources is a complex and multifaceted challenge. Governments, organizations, and communities often work to address disparities and create policies and initiatives aimed at improving access to essential resources. Recognizing and addressing these disparities is vital for creating a more equitable and inclusive society where individuals have the opportunities and resources they need to thrive and reach their full potential.

2.1.7 Entrepreneurial Intentions

Entrepreneurial intentions refer to an individual's deliberate decision and commitment to pursue entrepreneurial activities[68]. These intentions are the precursor to actual entrepreneurial actions, representing the initial step in the entrepreneurial process. Understanding and examining entrepreneurial intentions is crucial because they play a significant role in shaping entrepreneurial behaviors and the creation of new businesses. Here are key insights into entrepreneurial intentions[69,70]:

1. Personal Motivation: At the heart of entrepreneurial intentions is personal motivation. Individuals who express entrepreneurial intentions are often driven by a desire for autonomy, the opportunity to pursue their passions, and the potential for financial success. Entrepreneurship offers a path to translate personal aspirations and goals into tangible business ventures.

2. Perceived Opportunities: Entrepreneurs typically identify perceived opportunities within the market or society that align with their entrepreneurial intentions. These opportunities can be driven by changes in technology, consumer needs, or market gaps. Individuals with entrepreneurial intentions are more likely to recognize and act upon these opportunities.

3. Self-Efficacy: Self-efficacy, or an individual's belief in their ability to successfully perform entrepreneurial tasks, strongly influences their entrepreneurial intentions. Those with higher self-efficacy are more likely to have the confidence to act on their intentions and venture into entrepreneurship.

4. Risk Perception: Entrepreneurship often involves risk, and an individual's perception of the associated risks can affect their entrepreneurial intentions. Those with a higher tolerance for risk may be more inclined to act on their intentions, while risk-averse individuals might struggle to move from intentions to actions.

5. Social Norms and Support: Social norms and support systems also play a role in shaping entrepreneurial intentions. Encouragement from family, peers, mentors, and society at large can enhance an individual's intention to become an entrepreneur. In contrast, negative attitudes or lack of support can deter individuals from pursuing their entrepreneurial aspirations.

6. Educational Background: Education can impact entrepreneurial intentions. Exposure to entrepreneurship education and training programs can equip individuals with the knowledge and skills to transform their intentions into viable business plans. Educational institutions often play a vital role in nurturing entrepreneurial intentions.

7. Experience and Role Models: Prior experience in entrepreneurship and exposure to successful entrepreneurs can inspire and influence entrepreneurial intentions. Observing others who have turned their intentions into successful ventures can serve as a catalyst for aspiring entrepreneurs.

8. Environmental Factors: Environmental factors, including economic conditions, regulatory environments, and market dynamics, can influence entrepreneurial intentions. Favorable conditions, such as a thriving startup ecosystem or economic incentives, can encourage individuals to act on their intentions.

9. Timing and Readiness: An individual's readiness to become an entrepreneur also affects their intentions. Timing plays a significant role, as individuals may have intentions but delay acting on them until they feel prepared, both personally and professionally.

Entrepreneurial intentions are the driving force behind new business creation and innovation. Understanding the factors that influence these intentions is crucial for policymakers, educators, and support organizations looking to foster entrepreneurship and economic growth. By nurturing and supporting entrepreneurial intentions, societies can tap into a valuable source of innovation, job creation, and economic development, ultimately shaping a more entrepreneurial and dynamic future.

2.1.8 Business Start-ups

Business start-ups, also known as startups, are newly established entrepreneurial ventures with the primary goal of introducing innovative products, services, or business models to the market[71]. These ventures often begin as small-scale enterprises and have the potential to grow rapidly. Start-ups are typically characterized by a dynamic and risk-taking approach to business, with a focus on innovation and growth. Here are key insights into business start-ups:

1. Innovation and Uniqueness: Start-ups are known for their commitment to innovation and uniqueness. They often aim to disrupt existing markets by introducing novel solutions to problems or by providing a new and improved experience for consumers. This innovation can take various forms, from groundbreaking technologies to innovative business models.

2. High-Growth Potential: Start-ups are distinguished by their potential for rapid growth and scalability. Unlike traditional small businesses, which may have modest growth objectives, start-ups often seek to capture a significant share of their target markets and scale their operations quickly.

3. Entrepreneurial Mindset: An entrepreneurial mindset is a defining characteristic of those involved in start-ups. Entrepreneurs leading start-ups are typically risk-takers who are willing to challenge the status quo, explore uncharted territory, and embrace uncertainty in pursuit of their business goals[72].

4. Access to Capital: Start-ups often require significant financial investments to fund their growth. Entrepreneurs typically seek various sources of capital, including venture capital, angel investors, crowdfunding, and sometimes loans. Access to capital is crucial for covering operational expenses and fueling expansion.

5. Market Disruption: Many successful start-ups focus on market disruption. They identify inefficiencies or unmet needs in existing markets and introduce innovative solutions that can transform industries or create entirely new ones. This focus on disruption often brings significant competitive advantages.

6. Adaptability and Flexibility: Start-ups operate in dynamic environments that require adaptability and flexibility. Entrepreneurs are prepared to pivot or change course if market conditions or customer preferences shift. This adaptability is a key factor in surviving and thriving in the early stages of a start-up.

7. Risk Management: While start-ups are inherently risk-taking ventures, effective risk management is essential. Entrepreneurs need to identify, assess, and mitigate risks to safeguard their businesses[73]. This can involve careful planning, market research, and a willingness to learn from failures and setbacks.

8. Digital and Technology Focus: Many start-ups leverage digital technologies and platforms to reach customers and streamline operations. The digital landscape offers opportunities for cost-effective marketing, global reach, and data-driven decision-making, making it a natural fit for many start-ups.

9. Ecosystem and Support: Start-ups often thrive in ecosystems that provide resources, mentorship, and networking opportunities. These ecosystems can include co-working spaces, accelerators, and incubators, as well as support from industry associations and government initiatives.

10. Exit Strategies: Start-ups often have exit strategies in mind, such as acquisition by a larger company or going public through an initial public offering (IPO). These exit strategies provide opportunities for founders and investors to realize the value created by the start-up.

Business start-ups are a vital engine of innovation, economic growth, and job creation. They bring fresh ideas, challenge the status quo, and often lead to the development of disruptive technologies and business models. Start-ups require a unique blend of entrepreneurship, innovation, adaptability, and access to capital to succeed in competitive and dynamic markets. While the path to success is often challenging, the potential rewards for both founders and society can be substantial.

2.1.9 Innovation

Innovation is the process of creating, developing, and implementing new ideas, products, services, or processes that result in significant improvements, novel solutions, or a positive impact on individuals, organizations, and society at large[74,75]. It is a fundamental driver of progress, economic growth, and competitiveness in a rapidly changing world. At its core, innovation is about thinking outside the box and challenging the status quo. It involves creativity and problem-solving, often stemming from a deep understanding of existing challenges and a desire to find better, more efficient, or more sustainable solutions. Innovators

may draw from a wide range of sources, including technology, design, science, and social insights, to bring about change and create value[74].

Innovation can take many forms, from incremental improvements to radical breakthroughs. Incremental innovation involves small, gradual enhancements to existing products or processes, while radical innovation introduces entirely new concepts or disruptive technologies that can reshape entire industries[76]. For example, the development of the smartphone represents a radical innovation that transformed how people communicate, access information, and conduct business.

Innovation is not limited to the tech sector; it permeates all aspects of life. In business, innovative companies are often more competitive, adaptable, and resilient. They have the capacity to meet changing customer needs and outpace competitors. In healthcare, innovation leads to new treatments and medical technologies, improving patient outcomes and quality of life. In education, innovative teaching methods and technologies enhance learning experiences. Moreover, governments and policymakers recognize the importance of fostering innovation ecosystems to drive economic growth and address societal challenges. Innovation is a dynamic and multifaceted process that propels societies forward by fostering creativity, embracing change, and tackling pressing issues. It is a force for progress that drives economic growth, enhances quality of life, and continually shapes the future by turning ideas into reality. Encouraging and supporting innovation in various sectors is critical for addressing the complex challenges of the modern world and seizing new opportunities for advancement.

Innovation is a multifaceted concept that encompasses the creation, development, and implementation of new or significantly improved ideas, products, processes, or practices. It is a driving force behind progress and economic growth, fueling advancements in various fields and industries. The following are key insights into innovation[77,78,79]:

1. Diverse Forms of Innovation: Innovation takes on various forms, including product innovation (developing new or improved goods or services), process innovation (enhancing the methods of production or delivery), organizational innovation (improving internal structures and management practices), and marketing innovation (finding new ways to promote and distribute products).

2. Creativity as a Precursor: Creativity is often the starting point of innovation. It involves generating novel ideas or concepts, while innovation involves translating these ideas into tangible and valuable outcomes.

3. Problem Solving: Innovation is frequently driven by the need to solve problems or address challenges. Whether it's finding more efficient ways to produce goods, improving healthcare outcomes, or enhancing environmental sustainability, innovation aims to find solutions to complex issues.

4. Market Orientation: Many innovations are market-oriented, meaning they are designed to meet specific consumer or business needs. Market research and understanding customer preferences play a crucial role in shaping innovation.

5. Technological Advancements: Technology often plays a central role in innovation. Technological innovations can transform industries, drive economic growth, and improve the quality of life. Technologies like the internet, smartphones, and artificial intelligence have had profound impacts on society.

6. Open Innovation: Open innovation is a concept that emphasizes collaboration and knowledge sharing. It involves seeking external sources of ideas, expertise, and technology to drive innovation. Organizations often collaborate with other companies, research institutions, or customers to harness innovative ideas.

7. Continuous Improvement: Innovation is not limited to groundbreaking discoveries; it also encompasses incremental improvements. Continuous improvement or "kaizen" is a

fundamental aspect of innovation in which small, ongoing changes contribute to overall progress and excellence.

8. Cultural and Organizational Factors: An innovation-friendly culture and organizational environment are crucial for fostering creativity and innovation. These factors include leadership support, risk tolerance, diversity, and an atmosphere that encourages experimentation and learning from failure.

9. Economic and Social Impact: Innovation has a profound impact on economic and social development. It drives economic growth by creating new industries and jobs, and it can also address societal challenges, such as healthcare access, environmental sustainability, and poverty reduction.

10. Globalization: In an interconnected world, innovation often transcends national boundaries. Companies and individuals from different parts of the world collaborate and compete in a global innovation ecosystem, leading to cross-border knowledge exchange and the development of global solutions.

11. Sustainability: Sustainable innovation focuses on creating solutions that address environmental and social challenges while delivering economic value. This form of innovation seeks to balance profit with long-term environmental and societal well-being.

Innovation is a dynamic and transformative force that drives progress and shapes the future[80]. It is not limited to specific sectors but is a fundamental aspect of human endeavors, from science and technology to business, healthcare, and the arts. Nurturing a culture of innovation and embracing its potential for change is essential for organizations and societies seeking to thrive in an ever-evolving world.

2.1.10 Technology adoption

Technology adoption refers to the process by which individuals, businesses, or societies integrate and use new technological innovations and tools in their operations, daily life, or within a broader sense[81]. This adoption is a critical driver of progress and can lead to increased efficiency, productivity, and competitiveness. The key aspects of technology adoption are[81,82,83,84]:

1. Innovation Diffusion: Technology adoption is a part of the broader process of innovation diffusion, where new ideas, products, or services spread through a population. It involves the stages of awareness, interest, evaluation, trial, and finally, adoption.

2. Drivers of Technology Adoption: Several factors influence the adoption of technology. These include perceived benefits, ease of use, cost, compatibility with existing systems, and the social and cultural context in which the technology is introduced. Innovators and early adopters are often more willing to take risks and embrace new technologies.

3. Innovation S-Curve: The adoption of technology often follows an S-curve, which illustrates the slow initial adoption, a rapid growth phase, and eventual saturation. This model shows that technology adoption is not linear but accelerates as more people or organizations adopt it.

4. Crossing the Chasm: Geoffrey Moore's "Crossing the Chasm" theory describes the challenges of moving from early adopters to mainstream adoption. This is a critical phase in which marketing, messaging, and product positioning become essential to attract a broader user base.

5. Technology Adoption Life Cycle: Everett Rogers' technology adoption life cycle theory categorizes adopters into different groups, including innovators, early adopters, early majority, late majority, and laggards. Understanding these groups helps in targeting the right audience with appropriate strategies.

6. Disruption: Innovations can disrupt existing industries and markets. Disruptive technologies often face resistance from established players, but their adoption can lead to significant changes in business models and consumer behavior.

7. Institutional Adoption: In addition to individuals and businesses, technology adoption also occurs at the institutional or government level. Governments often adopt new technologies for public services, defense, and infrastructure development.

8. Societal Impact: Technology adoption has far-reaching societal implications. It can change the way people work, communicate, access information, and interact with each other. It can also lead to ethical and regulatory challenges, such as privacy concerns and cybersecurity issues.

9. Digital Divide: Disparities in technology adoption can create a digital divide, where certain groups or regions lack access to or the ability to adopt new technologies. Bridging this divide is a critical policy goal in many countries.

Technology adoption is a vital aspect of how societies and organizations integrate new technological advancements into their operations, daily lives, and broader systems[83]. It is a complex process influenced by a variety of factors, and its successful implementation can result in significant benefits and transformations. At the core of technology adoption is the recognition that innovation is a constant force, with new tools, systems, and technologies continually emerging and evolving[85].

The process of technology adoption typically follows a well-documented path, often represented by an S-curve. Initially, there is slow adoption as early innovators and tech enthusiasts experiment with new technologies. As the technology proves its worth and gains traction, it enters a phase of rapid growth, attracting early adopters who see its potential. This phase is followed by the early and late majority, and eventually, saturation. This adoption

curve highlights the importance of understanding and targeting different segments of the population or market at various stages of technology adoption[86,87].

Crossing the chasm, as described in Geoffrey Moore's theory, is a pivotal challenge in technology adoption. It refers to the transition from early adopters to mainstream adoption[88]. It's a phase where technology developers must bridge the gap between tech-savvy enthusiasts and the broader, more risk-averse market. Effective marketing, messaging, and addressing the concerns of this larger audience become paramount during this stage[89].

Technology adoption is not limited to individual consumers but also extends to businesses and government institutions. Companies often adopt new technologies to enhance their operations, gain a competitive edge, or streamline processes. Government institutions may adopt technology for various purposes, including public services, defense, and infrastructure development[90]. The adoption of technology at these levels can have far-reaching impacts on economies and societies.

In today's rapidly evolving technological landscape, staying up-to-date with the latest innovations and adapting to them is essential for remaining competitive and relevant. Furthermore, addressing the digital divide, which results from disparities in technology adoption, is a global priority. Bridging this divide is crucial to ensuring that everyone has equitable access to the benefits of technology and innovation. Technology adoption is a multifaceted process that reflects the constant evolution of technology in our world. Understanding the dynamics of adoption, recognizing the challenges like crossing the chasm, and promoting equitable access are all crucial in leveraging the potential of technology for the benefit of individuals, businesses, and society as a whole.

2.2 Theoretical Framework

1. Human Capital Theory

2. Innovation Diffusion Theory

3. Self-Determination Theory

2.2.1 Human Capital Theory

Human Capital Theory is an economic and sociological concept that emphasizes the role of education, training, and skills development as a form of investment in individuals' human capital[91,92]. It was first developed by economist Theodore W. Schultz in the 1960s and later expanded upon by Gary Becker[93]. Human Capital Theory suggests that individuals' knowledge, skills, and abilities are valuable assets, similar to physical capital (for instance, machinery) or financial capital (for instance, money), and that investment in human capital can lead to increased productivity and economic growth[92]. However, Human Capital Theory can be applied to examine how entrepreneurship education and ICT competencies contribute to the development of students' human capital, ultimately impacting their ability to contribute to SME development skills.

Key Concepts of Human Capital Theory:

a. **Human Capital Investment:** The theory posits that individuals, firms, and governments invest in education, training, and skill development to enhance the productivity and employability of individuals[94]. This investment is expected to yield returns in the form of increased income and economic growth.

b. **Accumulation and Enhancement:** Human capital is not fixed; it can be accumulated and enhanced over time. This includes formal education, on-the-job training, and experience gained through work and other activities. For students in colleges of education, their participation in entrepreneurship education and the development of ICT competencies represent investments in human capital.

c. **Increased Earnings:** One of the central propositions of Human Capital Theory is that individuals with higher levels of human capital, such as more education and skills, are likely to earn higher incomes. This can be applied to students studying business

education, where the acquisition of entrepreneurship-related knowledge and ICT skills may enhance their future earnings potential.

d. **Productivity and Economic Growth:** From a societal perspective, Human Capital Theory argues that a well-educated and skilled workforce can lead to higher levels of productivity and, consequently, economic growth[95]. This is particularly relevant to understanding how entrepreneurship education and ICT competencies may contribute to SME development in Southwest Nigeria.

e. **Decision-Making:** The theory considers individuals as rational decision-makers who assess the costs and benefits of investing in their own human capital. This concept is essential when studying how students decide to pursue entrepreneurship education and develop ICT competencies, which can be seen as investments in their future human capital.

Application to the Study

Human Capital Theory can be applied to explore how entrepreneurship education and the development of ICT competencies contribute to the human capital development of students in colleges of education. It can help answer questions such as how these investments in human capital affect students' future employability, income potential, and their ability to contribute to the development of SMEs in Southwest Nigeria. Additionally, the theory can shed light on the motivations and decision-making processes of students when choosing to invest in entrepreneurship education and ICT competencies, as well as the potential benefits to themselves and society as a whole.

Relevance of the Study

The Human Capital Theory is highly relevant to the study, "Entrepreneurship Education and ICT Competencies as Determinants of SMEs Development among Students of

Business Education in Colleges of Education, Southwest, Nigeria." Human Capital Theory is relevant to the study in some ways:

i. **Human Capital Development:** The Human Capital Theory focuses on the idea that individuals' education and skills are valuable forms of capital that enhance their productivity. In the context of the study, entrepreneurship education and the development of ICT competencies are forms of human capital development. The theory can be applied to understand how these investments in human capital improve students' skills and knowledge, making them more productive and valuable contributors to SME development.

ii. **Economic Contribution:** The theory suggests that individuals with higher human capital earn higher incomes and make more significant economic contributions. By applying the theory, the study can assess whether students who have received entrepreneurship education and developed ICT competencies are more likely to play an active role in SME development, thereby contributing to economic growth in the Southwest region of Nigeria.

iii. **Motivation for Education:** Human Capital Theory can help in understanding students' motivation for pursuing entrepreneurship education and acquiring ICT competencies. It can provide insights into whether students view these educational investments as a means to enhance their future income and economic prospects, aligning with the theory's focus on the economic returns of education.

iv. **Return on Investment:** The theory's concept of investment in human capital and the expectation of future returns is relevant to the study's focus on the potential returns of entrepreneurship education and ICT competency development. Researchers can explore whether these investments yield positive outcomes in terms of SME development and economic well-being.

v. **Policy Implications:** Insights from Human Capital Theory can inform policies and strategies related to entrepreneurship education and ICT competencies in colleges of education. Policymakers can use the theory to design programs and initiatives that optimize human capital development among students, leading to a more skilled and productive workforce.

vi. **Labor Market Outcomes:** The theory suggests that individuals with higher human capital are better positioned in the labor market. In the study, researchers can examine whether students with entrepreneurship education and ICT competencies have better access to job opportunities and whether these competencies are valued by employers.

vii. **Economic Growth:** Human Capital Theory underscores the role of human capital in fostering economic growth. By applying the theory, the study can assess how human capital development, through entrepreneurship education and ICT competencies, contributes to SME development, innovation, and economic growth in the Southwest region of Nigeria.

Human Capital Theory is highly relevant to the study as it provides a framework for understanding the economic implications of entrepreneurship education and ICT competencies among students. It offers a lens through which to analyze the impact of these educational investments on students' productivity, income, and contributions to SME development and the regional economy.

2.2.2 Innovation Diffusion Theory

The Innovation Diffusion Theory, developed by Everett Rogers in the 1960s, is a social science theory that explains how new innovations, ideas, technologies, or practices spread through a social system or population over time[96,97]. This theory provides valuable insights into the process of adoption, acceptance, and integration of innovations within a given context. In this study, the Innovation Diffusion Theory can be applied to understand how

entrepreneurship education and ICT competencies are disseminated among students and subsequently influence their involvement in SME development.

Key Concepts of Innovation Diffusion Theory[98,99,100]:

a. **Innovation:** An innovation is the idea, practice, or technology that is perceived as new or novel by potential adopters. In this study, entrepreneurship education and ICT competencies can be considered innovations, especially if they are introduced in a context where they are not yet widespread.

b. **Adopters:** The theory categorizes potential adopters into different groups based on their readiness to accept and implement innovations. These groups include innovators, early adopters, early majority, late majority, and laggards. Understanding the characteristics and behaviors of these adopter categories is crucial.

c. **Diffusion Process:** The diffusion process outlines the stages through which an innovation passes as it spreads through a population. These stages include knowledge, persuasion, decision, implementation, and confirmation. Researchers can assess where students fall within this diffusion process regarding entrepreneurship education and ICT competencies.

d. **Communication Channels:** The theory emphasizes the importance of communication channels in the diffusion of innovations. Different channels, such as mass media, social networks, and interpersonal communication, play essential roles in disseminating information about innovations.

e. **Social Systems:** The diffusion of innovations occurs within the context of social systems, which can be organizations, communities, or societies. The characteristics and norms of these systems influence the rate and extent of adoption.

f. **Relative Advantage:** The perceived relative advantage of an innovation compared to existing alternatives significantly influences its adoption. Students' perceptions of the

advantages of entrepreneurship education and ICT competencies may determine their willingness to adopt these innovations.

Application to the Study

In the study, the Innovation Diffusion Theory can be applied to examine how entrepreneurship education and ICT competencies are disseminated and adopted by students in colleges of education in Southwest Nigeria. Researchers can investigate:

- Which categories of adopters (innovators, early adopters, etc.) are more likely to embrace entrepreneurship education and ICT competencies?
- What are the communication channels and sources of information that influence students' awareness and perceptions of these innovations?
- How do students progress through the stages of knowledge, persuasion, decision, implementation, and confirmation in relation to entrepreneurship education and ICT competencies?
- What role do peer networks, educators, and institutional norms play in the diffusion of these innovations among students?
- Are there perceived relative advantages of entrepreneurship education and ICT competencies that drive students' adoption and continued use?

By applying the Innovation Diffusion Theory, the study can gain a better understanding of the adoption dynamics of entrepreneurship education and ICT competencies among students, which is essential for designing effective interventions and strategies to promote their engagement in SME development.

2.2.3 Self-Determination Theory

Self-Determination Theory (SDT), developed by Deci and Ryan in the 1980s, is a motivational psychological theory that focuses on the innate psychological needs that drive human behavior[101,102,103]. According to SDT, individuals have three fundamental psychological needs: autonomy, competence, and relatedness[104]. These needs are crucial for fostering intrinsic motivation, which leads to more self-determined and sustained engagement in activities. SDT can be applied to understand how the fulfillment of these psychological needs influences students' intrinsic motivation to engage in entrepreneurship education and develop ICT competencies, ultimately impacting their involvement in SME development.

Key Concepts of Self-Determination Theory[102,104,105]:

- **Autonomy:** Autonomy is the need to feel in control of one's own actions and choices. Individuals with a high sense of autonomy are more likely to engage in activities willingly and with a sense of ownership. In the study, understanding how entrepreneurship education and ICT competencies support students' autonomy is essential.
- **Competence:** Competence is the need to feel effective and capable in one's actions. When individuals perceive themselves as competent in a particular area, they are more likely to be motivated to engage in related activities. Assessing how entrepreneurship education and ICT competencies contribute to students' feelings of competence is relevant.
- **Relatedness:** Relatedness refers to the need to feel connected to and supported by others. Social relationships and a sense of belonging play a significant role in motivation. The study can explore how entrepreneurship education and the development of ICT competencies promote relatedness among students.

- **Intrinsic Motivation:** Intrinsic motivation is the internal drive to engage in activities for the inherent satisfaction or interest they provide. SDT posits that fostering intrinsic motivation is key to achieving sustained engagement and positive outcomes.
- **Extrinsic Motivation:** Extrinsic motivation, on the other hand, involves engaging in activities for external rewards or to avoid negative consequences. SDT distinguishes between autonomous forms of extrinsic motivation (e.g., doing something because it aligns with personal values) and controlled forms (e.g., doing something due to external pressure).
- **Amotivation:** Amotivation represents a lack of motivation or the perception that activities are meaningless. Understanding factors that contribute to amotivation among students in the context of entrepreneurship education and ICT competencies is important.

Application to the Study:

In the study, Self-Determination Theory can be applied to examine how entrepreneurship education and ICT competencies influence students' motivation and engagement. Researchers can explore:

- How the fulfilment of autonomy, competence, and relatedness needs within the context of entrepreneurship education and ICT competency development affects students' intrinsic motivation.
- The role of extrinsic motivation, especially autonomous forms, in driving students' involvement in these activities.
- The impact of social support, peer networks, and interactions with educators on students' relatedness and motivation.
- Whether students' perceived competence in entrepreneurship and ICT influences their engagement and persistence in SME development initiatives.

By applying Self-Determination Theory, the study can gain insights into how the satisfaction of basic psychological needs and the promotion of intrinsic motivation contribute to students' willingness to engage in entrepreneurship education and ICT competencies, ultimately affecting their involvement in SME development. This understanding can inform the design of more effective educational programs and interventions.

The relevance of Self-Determination Theory (SDT)

The relevance of Self-Determination Theory (SDT) to the study, is significant in several ways:

i. **Motivation for Entrepreneurship Education and ICT Competencies:** SDT provides a valuable framework for understanding the motivational factors that drive students' engagement in entrepreneurship education and the development of ICT competencies[106]. It helps explore why students choose to participate in these activities and how their intrinsic motivation, driven by their psychological needs for autonomy, competence, and relatedness, influences their decisions.

ii. **Intrinsic vs. Extrinsic Motivation:** SDT allows researchers to differentiate between intrinsic and extrinsic motivation. Understanding whether students are intrinsically motivated, meaning they engage in entrepreneurship education and ICT competency development out of personal interest and satisfaction, or extrinsically motivated, possibly due to external pressures or rewards, can shed light on the authenticity and sustainability of their involvement[107].

iii. **Impact on Engagement and Persistence:** The theory helps assess the impact of motivation on students' engagement and persistence in entrepreneurship education and ICT competency development. It provides a lens through which researchers can examine the role of motivation in driving long-term commitment to these activities, which, in turn, can affect SME development.

iv. **Psychological Needs Fulfillment:** SDT highlights the importance of fulfilling psychological needs, such as autonomy, competence, and relatedness. The study can explore how entrepreneurship education and ICT competency development programs address these needs and how the satisfaction of these needs' influences students' motivation and participation[108].

v. **Interventions and Program Design:** Understanding the relevance of SDT can inform the design of effective interventions and programs aimed at promoting entrepreneurship education and ICT competencies. By aligning program elements with the principles of SDT, educators and policymakers can create environments that support students' autonomy, competence, and relatedness, thereby enhancing their motivation and participation.

vi. **Measuring Outcomes:** Researchers can use SDT to guide the development of measurement instruments that assess motivation and its impact on outcomes related to entrepreneurship education and ICT competency development. These outcomes may include students' SME development initiatives, innovative projects, and overall contributions to economic development.

vii. **Policy Implications:** The study's findings, guided by SDT, can have policy implications. Policymakers can use insights into students' motivation and engagement to design policies and initiatives that promote entrepreneurship education and ICT competencies, ultimately fostering a culture of entrepreneurship and technological innovation.

In summary, Self-Determination Theory is highly relevant to the study as it provides a comprehensive framework for understanding the motivational factors influencing students' engagement in entrepreneurship education and the development of ICT competencies. By considering the principles of SDT, the study can gain valuable insights into how to promote

and sustain students' active involvement in activities that contribute to SME development and economic growth in the Southwest region of Nigeria.

2.3 Review of Empirical Studies

2.3.1 Entrepreneurship education (Curriculum Relevance, Access to Resources, Entrepreneurial Intensions and Attitude, and Start Creation and Success Rate) and SMEs Development among Students

A study examined the entrepreneurial networking and resilience of SMES in Abia State, Nigeria. The study studied the relationship between skills and adaptability of SMEs in Abia State also to study the relationship between Coordination and agility of SMEs in Abia. A Cross-sectional survey was used; a sample of 291 was drawn from a population of 1240 small and medium enterprises in Abia State using the Krejcie Morgan 1970 table in which structured questionnaire was used to collect the data. In order to determine the relationship between entrepreneurial networking and resilience. Spearman rank correlation was used in the analysis. The findings show that entrepreneurial networking is related to the resilience of SMEs in Abia State, Nigeria[109].

Another study investigates the entrepreneurial self-efficacy for entrepreneurial readiness in a developing context using a survey of exit level students at TVET institutions in Nigeria. The study aimed to develop entrepreneurial readiness through the ESE task phases process. A convenience sampling technique were used while the quantitative data was analyzed using Pearson Product Moment Correlation to test the relationships among variables, and regression analysis was conducted to determine the level of influence between ESE and entrepreneurial readiness. The study found that, while other components of ESE positively impact students' entrepreneurial readiness, ESE marshaling does not have a significant impact[110].

A study explored the factors mitigating the challenges of small and medium enterprises in Nigeria. The purpose of the study was to provide the necessary information about the challenges facing small businesses in Nigeria and present the possible tools, policies, and strategies to mitigate them. Multi-case qualitative study were used. The interview technique of collecting data was employed, and data was collected using a semi-structured questionnaire during a scheduled interview session with each of the twelve small business managers. The questionnaire was developed based on small businesses challenges as documented by various researchers in their articles published in peer-reviewed journal articles. The findings identified continuous government intervention and support to small businesses as a major tool that reduced the challenges facing the sector[111].

A study probed the influence of resilience on survival of Small and Medium Enterprises which aim to assessed the influence of resilience skill for the survival of SMEs. A descriptive survey was used. A reliability coefficient of 0.77 was obtained with the use of Cronbach alpha formula. Data were obtained with the aid of a questionnaire. The research question was answered with mean, while t-test for the hypothesis. From the result, it was discovered that resilience skill influences SMEs survival. The two groups of entrepreneurs used for the study did not show any significant difference in possession of resilience skill for SMEs survival[112].

A closely related study investigates the effect of demographic factors on employees' performance, using a case study of an owner manager manufacturing firm. The goal of the study is to look into how demographic factors influence employee performance in an owner-manager Manufacturing firm. Quantitative approach and a Correlational study design an interview schedule, multiple linear regression, and the Statistical Package for Social Sciences (SPSS) 20.0 Versions were used. Result shows that age, education, and tenure respectively Influences employees' output. However, some demographic factors have no relationship with employees' performance, absenteeism, or output[113].

A research studied the entrepreneurship education, a challenging learning process towards entrepreneurial competence in education. It was aimed to promoting the development of personal qualities such as creativity, spirit of initiative, Risk-taking and responsibility that are relevant to entrepreneurship. The survey was designed to analyze the development of entrepreneurial competence of teachers, and their entrepreneurship education and training. The study collected data through a questionnaire designed to measure the level of recognition of entrepreneurial competence by the teaching staff of the Albanian education system[114]. The questionnaire was administered online using Google Forms and the teachers' answers are recorded. The questionnaire was organized with 21multiple choice questions, four of which were open-ended questions. The questionnaire was sent in the form of a link to the heads of 30 pre-university education schools, who were invited to cooperate in completing the survey together with their teachers. Results from the questionnaire highlighted the teachers' need for the acquisition of entrepreneurial competence at every Professional level, starting from initial teacher education[115].

A study articulates the effect of entrepreneurship education on entrepreneurial intention amongst students and graduates from two higher education institutions in conflict-torn northern Nigeria[116]. Semi-structured interviews were used. The findings showed that newly acquired knowledge and skills in use of market intelligence, business plan writing and record-keeping were not only linked with entrepreneurial intentions, but it also emerged that the volatile context of the business environment influenced strategic decisions related to new business growth and survival[117].

A study reviewed then entrepreneurial development and employment creation, with a focus on education and financial aid as a sustainable option for youths in Nigeria. The main objective lays bare the value of entrepreneurial development as a plausible option in the creation of employment for youths in Nigeria. The inquiry investigated how entrepreneurial

training and financial empowerment boost employment creation and sustainability for Nigerian youths. The study righty adopts Econometrics analysis while using a time series data from 1992 to 2015 retrieved from the Bureau of Statistics and Central Bank of Nigeria statistical bulletin. The variables stipulated in the inquiry were analyzed using E-views computational software while inculcating the unit root/ Augmented Dickey Fuller test etc for the statistical analysis. The findings divulged that entrepreneurial education triggers the desire for financial freedom in Nigerian youths[118].

A study investigates the assessment of entrepreneurship education and entrepreneurial skills on unemployment reduction among young Nigerian graduates. The Study aim to investigate on how entrepreneurship education and entrepreneurial skills required for self-employment among graduates can reduce the unemployment rate in Nigeria. In which paper surveys self-employed graduates of selected Higher Institutions in Nigeria, using a snowball/chain referral technique to collect data. The study reveals a significant positive relationship between entrepreneurship education and entrepreneurial skills required for self-employment. Empirical validation further shows that an increase in the effectiveness of entrepreneurship education and entrepreneurial skills and its delivery in our institutions will, all things being equal, reduce graduates' unemployment[119].

A study identifies the barriers that are preventing small businesses from accessing financial institutions funding in Nigeria. Quantitative self-administered survey (semi-structured interview) Regression Analysis were used. The mixed research method revealed four barriers to accessing financial institutions funding to Nigerian SMEs: inadequate access to financial institutions; inadequate education, skills, and experience of owners/managers; exorbitant interest rates; and gender discrimination[120].

A study aimed to examine the relationship between psychological mentoring support and SMEs performance. It investigates the relationship between career mentoring support and

SMEs performance and to determine the relationship between role modeling support and SMEs performance. Descriptive survey design (Questionnaire) was adopted. Data collected were analyzed and hypotheses were tested using Analysis of Variance (ANOVA) at 5% level of significance. Findings revealed that psychosocial mentoring support, career mentoring support and role modelling mentoring support all had significant relationship with SMEs performance as all their respective p values were less than 0.05 alpha values[121].

A closely related study investigates business climate factors affecting economic growth of small scale construpreneurs in Nigeria. The aim of the study was to critically examine the business climate factors (BCFs) affecting economic growth of small scale construpreneurs (SSCs) with a view of proffering recommendations that engenders growth and sustainability of the SSCs. The study engaged a survey research technique of 80 construpreneurs using a quota-purposive sampling method in Lagos and Ogun State; major economic hubs in Nigeria, through a questionnaire instrument. The data was analyzed using SPSS through principal factor analysis to elicit the crucial business climate factors affecting economic growth of SSCs. The result revealed three main categories of business climate factors which are Finance, Job Availability and Weak Policies as major business climate factors affecting the economic growth of small scale construpreneurs[122].

A study examined the assessment of the moderating effects of Nigerian market environment on the relationship between management success determinants and SMEs performance". It aims to assess the moderating effects of the Nigerian market environment on the relationship between management success determinants and SMEs' performance. The study employed a survey research design, the population of the study comprised chief executive officers (CEOs) of registered SMEs, and a sample size of 1,102 was used. Probability sampling methods of stratified, proportionate, and random sampling were adopted. Responses were collected through a predetermined set of questions and a self-administered questionnaire. Data were

analyzed using descriptive and inferential statistics. The study found that the Nigerian market environment had moderating effects on the relationship between management success determinants and SMEs' performance (R = 0.817, R2 adjusted = 0.664, R2 change = 0.041, and Fchange = 19.694 at ρ = 0.000), most of the Nigerian market environment's components have significant moderating effects on all the management success determinants relationship with SMEs' performance; management skills (β = 0.220, 0.182; ρ < 0.05), innovation (β = 0.147, 0.135; ρ < 0.05), operating system (β = 0.083, 0.061; ρ < 0.05), organizational structure (β = 0.290, 0.303; ρ < 0.05), business reporting system (β = 0.142, 0.137; ρ < 0.05), system flexibility (β = 0.110, 0.107; ρ < 0.05), environmental scanning (β = 0.091, 0.062; ρ < 0.05).decision-making is not statistically significant (β = 0.037, 0.004; ρ > 0.05). These imply that Nigerian SMEs' decisions under intense environmental turbulence are mostly ineffective, and the effects of management success determinants in facilitating performance were also drastically reduced as well as firms' system flexibility[123].

Another study determine the contributory factors to successful succession and post-succession performance of family-owned SMEs in South Eastern Nigeria. It seeks to determine the contributory factors to successful succession and post-succession performance. And the role of these factors in the post-succession financial and non-financial performance of family-owned SMEs in South Eastern Nigeria. The adopted quantitative methodology is interview. In each of the purposively selected 25 family-owned SMEs, the incumbent, a sibling of the incumbent and a top-level manager were interviewed. In all, 75 respondents were interviewed. The transcribed interviews were subjected to thematic content analysis. The contributory factors to successful succession are the characteristics of succession planning, the incumbent, the potential successor, and the family-owned SME. The factors that contribute to the post-succession performance are the culture of making succession planning a continuous process, and the characteristics of the incumbent and the family-owned SME. These factors ensure that

children of the incumbent in the SME become more active so as to be selected as potential successors[124].

A work analyses entrepreneurial education and big-five personality traits predict entrepreneurial intention among universities students. The objective of the research was to examine the relationship between big-five personality traits, Entrepreneurial education with entrepreneurial intention. In addition, this study also used attitudes toward entrepreneurship as mediator in the relationship between big-five personality traits, Entrepreneurial education, and entrepreneurial intention among university students. Quantitative approach (Questionnaire). Structural equation modeling (SEM) and path analysis were conducted using AMOS 24 software. Study findings revealed that attitude toward entrepreneurship mediates the relationship of entrepreneurial education and big-five personality traits with entrepreneurial Intention[125].

A research determined the Dynamic Capabilities for SME Participation in Public Procurement. It aims to explore how dynamic capabilities theory can improve SME participation in public procurement. A quantitative methodhas been widely used to test hypotheses about relationships between relational capability, procedural capability, tendering capability and SME participation in public procurement. Theoretical analysis was conducted in order to identify possible relationships between the factors reported in the literature as barriers to SME participation in public procurement and different components of the dynamic capabilities of firms (i.e., sensing, seizing, reconfiguring and learning). Seven key propositions were generated to guide future research[126].

Another study described the entrepreneurship education as a vital tool for wealth creation and unemployment reduction in Nigeria. Primary objective of the study is to provide meaningful education for youth which could make them self-reliance and subsequently encourage them to drive profit and be self-independent. A qualitative survey design was used. The findings

shows that this could only be possible when government educational policies are geared towards a functional education that can lead to job creation and also self-reliance. Entrepreneurship education is a means through which government could attain such development in the society[127].

A study examined the impact of Entrepreneurship Education on the Development of Small and Medium Enterprise in Nigeria. The study aim to examine the impact of entrepreneurship education on the development of small and medium enterprises in Nigeria. A Survey Design that implored the used of questionnaire, Data were presented on frequency distribution tables and analyzed descriptively using percentage ratio. The Study revealed that entrepreneurship education has positive impacts on the profitability of small and medium enterprises and at the same time empowers small business owners with the ability to translate their profits into business expansion[128].

A study explores the influence of entrepreneurial education and attitude on entrepreneurial intention of graduating students in a Nigerian University. The main objective of the EE adoption in the university curriculum is to arm the students with the necessary entrepreneurial skills to run a successful business, and to improve their entrepreneurial aptitude. Descriptive quantitative methods, (questionnaires). To test the proposed hypotheses, the Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed. The results showed that EE and EA have strong influence on the EI of the graduating students. Similarly, the measurement model confirmed reliability and validity of all indicators using the convergent and discriminated validity using 5000 bootstrapping algorithm re-sampling technique[129].

A work studied the effect of organizational capability on firms' growth: implications on SMEs in Anambra State, Nigeria. The study examines the effect of research and development capability on firm's growth of selected SMEs in Anambra State Nigeria. The research employed a descriptive research design. Reliability of the instrument was done with Cronbach

Alpha indicates high internal consistency. Data collected was analyzed using correlation analysis. Findings from the study indicated that research and development capability have no significant positive relationship on firm's growth, while human resource capability has a significant positive relationship on firm's growth[130].

Another work probed the perceived influence of business environment on small and medium scale enterprises success in Nigeria. The main purpose of the study is to determine the influence of business Environment on the success of small and medium-scale enterprises (SMEs). Descriptive survey research design was adopted. A reliability co-efficient of 0.70 was obtained using Cronbach Alpha. Mean and standard deviation was used to answer the research questions while hypotheses were tested using analysis of variance (ANOVA) at 0.05 level of significance. Findings of the study revealed that business environment influenced the success of SMES to a high extent. Also, the study revealed that no significant difference existed in the influence of business environment on SMEs success in term of their Location[131].

A study inquired the effect of contextual factors on entrepreneurship success in South Africa: Application of two-way analysis of variance design. The article examined the effects of the twin contextual factors on the success of South African SMEs. It was examined using Analysis of Variance technique (two-way design). Findings suggest the absence of a significant variance in the influence of Capital-Startup on Entrepreneurship Success for different levels of Entrepreneurship Skills. In-addition, results suggest, that there is a difference in Entrepreneurship Success scores for different levels of Capital-Startup and Entrepreneurship Skills, when the later and former are combined[132].

A study investigates the effect of entrepreneurship development on women graduates of the national centre for women development, Abuja. The objectives were to assess the effect of vocational training on women who were trained by NCWD, investigate the relationship between the business knowledge that was gained from NCWD and the sustainability of the

businesses and to determine the extent of influence of government's financial support on the performance of female entrepreneurship in alleviating poverty in FCT. A stratified random technique was used for the study: (questionnaire). Statistical Package for Social Sciences (SPSS 25) was used in the analysis of data. Findings indicated that the women received training on various skills which they could establish; that the women were empowered to run their businesses through the knowledge gained; that this led to the sustainability of their businesses[133].

A study examined an uncovering relationship between entrepreneurship training and business growth among SMEs in Southeast Nigeria. The objective of the study was to examine the relationship between entrepreneurship training and business growth among SMEs in Southeast, Nigeria. A survey procedure was accepted for the study and the study was based on both secondary and primary data. Data were collected using questionnaire and analyzed using Ordinary Least Square Regression. The findings revealed that entrepreneurship training has a positive impact on the business growth of the SMEs in Southeast Nigeria[134].

Another study explored the entrepreneur skills as determinants to job opportunities among LIS postgraduate students in University of Ilorin. The study tries to identify entrepreneurship skills for job opportunities among LIS postgraduate in university of Ilorin also to establish impact of entrepreneurship skills on job opportunities among LIS postgraduate in university of Ilorin. Descriptive survey method was adopted using the simple percentage, table and frequency as Methods of data analysis. However, the null hypothesis for the study was tested with Pearson's product moment correlation (PPMC). The study found out that communication skills, Technological/technical skills, marketing/saleable skills, management skills and financial risk skills as entrepreneurship skills on job opportunities. The study also found out that inadequate funding, poor infrastructural support, and poor policy formulation, fear of

failing and lack of willingness to take risk as challenges associated with entrepreneurship skills on job opportunities[135].

A work examined the Entrepreneurial Characteristics and Performance of Small and Medium Scale Enterprises in Port Harcourt Metropolis. The main purpose of the study was to find out how entrepreneurial characteristics affect performance of small and medium scale Businesses. A survey research design was adopted (Questionnaires were instruments for data collection). Mean and Standard Deviation were used to answer the research questions while the null hypotheses were tested using Pearson Product Moment coefficient. The four hypotheses accepted the alternate that there is significant relationship between the independent variables: entrepreneur risk taking, innovativeness, competitive aggressiveness and competency, and the dependent variables profitability, market share, growth and customer satisfaction[136].

A study inquired the entrepreneurial competencies, entrepreneurial orientation, entrepreneurial network, government business support and SMEs performance. The moderating role of the external environment. The purpose of this study is to examine the moderating influence of the external environment on the relationship between entrepreneurial competencies, entrepreneurial orientation, entrepreneurial network, government business support and SMEs performance. The survey method of research was used by personally administering questionnaires to the respondents. Multistage sampling techniques are used in selecting 470 SMEs owners/managers that participated in the survey. SPSS 24 and PLS-SEM 3.0 were used in the analysis of the data. In the Nigerian context, the findings indicated that EC, EO and GBS directly influence the SMEs performance. Surprisingly, SMEs performance is not influenced by EN. Similarly, EE significantly moderated the relationship between EC, GBS and SMEs performance. On the contrary, EE does not have any moderating influence on the relationship between EO, EN and SMEs performance[137].

A study explores the Entrepreneurial competencies as a required skill for business Performance. It aims to evaluate the relationship between owners' innovation skills and entrepreneurial Performance, also to Investigate how business passion contribute to the performance of entrepreneurs. Desk research, internet, data from secondary sources and other qualitative methods were used. Finding shows that engaging in entrepreneurial core competencies, personal traits and learners' skills are positively related to business success. Engaging in managerial role, entrepreneurs require organizing and relationship competencies which are positively related to business success[138].

Some researchers studied the Entrepreneurship Education and venture intention of female engineering students in a Nigerian University. The study investigated the impact of entrepreneurship education and venture intention of female engineering students in Nigeria. A descriptive research design was used. Regression analysis was used to analyse the stated hypotheses through a statistical package for social science (SPSS). Findings revealed that effective implementation of entrepreneurship education elements stimulate students' entrepreneurial activities, particularly among female engineering students[139].

A study investigates the Entrepreneurship education and performance of small and medium enterprises (SMEs) in Enugu state. The study aimed to examine the relationship between training workshops and problem-solving skills; evaluate the relationship between mentorship and reduction of unemployment and ascertain the relationship between opportunity evaluation and the number of business start-ups by SMEs in Enugu State. A Descriptive survey design is used. Data were presented and analyzed by mean score and standard deviation using Sprint Likert Scale. The hypotheses were analyzed using Pearson correlation coefficient (r) statistical tool. The findings indicated that training workshops had direct positive relationship with problem solving skills, $r (95, n = 282) = .484 <.782, p < 0.05.$; mentorship had direct positive relationship with the reduction of unemployment $r (95, n = 282) = .511 <.730, p < 0.05.$ and

opportunity evaluation had direct positive relationship with the number of business startups by SMEs in Enugu State, Nigeria r (95, n = 282) = .515 <.760, p < 0.05[140].

A research analyzed the Entrepreneurship Education and Business Success of Women Entrepreneurs in Awka, Anambra State, Nigeria. The objective of the study is to determine the effect of entrepreneurship education on the business success of women entrepreneurs in Awka. A survey research design was employed. A questionnaire was used to source data. Regression was used in analyzing the ormulated hypothesis. It was publicized that entrepreneurship education has a positive and major effect on the business success of women entrepreneurs in Awka[141].

A research work probed the environmental impacts and organization business survival on SMEs. The study seeks to ascertain the nature of the relationship between environmental impacts and organization business survival on SMEs. Survey research design was adopted, The Findings shows that it is imperative to realize that performance goals and targets, set in production and low costs for the SME can only be achieved when SMEs are provided with good SME friendly policies, conducive operating environment, improvements in infrastructure, peace and security; and have the right type of personnel, that have cooperative attitudes and spirit, good teamwork, high morals, high motivation, high-performance goals, have the desire to achieve the company's goals and objectives and are served with good communication[142].

A researchers studied the SMEs growth in the greater Banjul area of The Gambia. The study aims to exploring SMEs growth in the greater Banjul area of The Gambia. A qualitative analysis was adopted for the research work. Results revealed that there is a significant contribution to innovation, and enable regional development and social cohesion. Moreover, SMEs contributes over 55% to the Growth Domestic Product and in excess of 65% of overall

employment in high-income nations. Additionally, the informal enterprises contribute 45% to GDP and approximately over 41% of total employment, in the lower-income countries[143].

A study determined how to start African informal entrepreneurial revolution. The main objective of the study is to examine how to start African Informal entrepreneurial Revolution. A Qualitative analysis was used in the research work. It is generally agreed that conducive EE policies support necessary resources that promote innovations and productive start-ups[144].

A study investigates the failure and success of entrepreneurs in Nigeria using an empirical review. The purpose of the study is to identify the main causes of business failure based on an empirical study in Nigeria. A Qualitative analysis (interview) was used. The thematic analysis of the interview notes revealed that the largest proportion of mature business failure. Reliability or internal consistency of the items within the structure of this study was assessed by indication of Cronbach's alpha. The result indicates that difference in the causes of business failure is significant for two of the business failures, which are "lack of financial support from banks and financial institutions" and "problem of partnership and team work"[145].

A study examined the Effects of infrastructure on growth of small and medium enterprises in Kenya using a case study of clothing and textile businesses in Nairobi central business district. The specific objectives of this study were to determine the effects of infrastructure on growth of SMEs in clothing and textile businesses in Nairobi County CBD. The study adopted descriptive research design. (Questionnaire). The gathered data was analyzed using multiple Regression analysis. The findings were then shown through tables, charts and graphs. The respondents' overall opinions were that infrastructure has insignificantly affected the growth of SMEs in the textile and clothing businesses in Nairobi County CBD[146].

A schorlar carried out research on the factors limiting knowledge management among construction Small and Medium Enterprises. The study aims to assess the factors limiting a full-scale implementation of effective KM practices among construction SMEs, especially on

construction projects in the south-south region of Nigeria. The collected data were analysed using factor analysis and the Mann-Whitney U test. The study found that technology-related barriers, cultural and management barriers, motivation and time barriers, awareness and communication barriers, and insecurity barriers, were the major cluster of factors limiting effective KM implementation by SMEs. Furthermore, no significant statistical difference in the perception of the small and medium-sized organisations was also found[147].

A study probed the factors affecting SMES' internationalization process in the Southwest Nigeria. The study aims to examine the influence of firm owners'/managers' characteristics on SMEs 'internationalization process in the Southwest Nigeria. The quantitative data collected through a cross-sectional, multi-stage and purposive sample survey of 279 SME firms in Lagos state were analyzed with binary logistic regression and descriptive statistical methods. The study revealed that SMEs' capacity to export in the Southwest Nigeria is more likely to be influenced by factors including: SME owners'/managers' age group, level of education and previous exporting experience, along with firms' attributes including business registration status, source of raw materials, access to bank loans, government incentive supports and collaboration with foreign partners. Consequently, the two null hypotheses tested in the study were rejected[148].

A study investigated the assessment of accounting competencies possessed by Business Education graduates for handling entrepreneurship challenges In Abia State, Nigeria. The purpose of the study was to ascertain the extent by which business education graduates possess competencies in management and cost accounting. The study adopted descriptive survey design. A structural equation modeling (SEM) analysis was employed using the Smart partialleast squares (PLS) software. The Findings of the study showed that the extent of possession of management accounting competencies for handling entrepreneurship challenges by Business education graduates is moderate[149].

A closely related work investigated modelling key predictors that stimulate the entrepreneurial performance of small and medium-sized enterprises (SMEs) and poverty reduction: Perspectives from SME managers in an emerging economy. The purpose of the study was to examine the effect of entrepreneurship education, budgeting financial literacy and access to credit facilities on entrepreneurial performance and poverty reduction. The study adopted a quantitative approach. The Cronbach Alpha model was used. The findings uncovered that entrepreneurship education, budgeting financial literacy and access to credit facilities positively impact entrepreneurial performance of SMEs and reduce poverty[150].

A work investigated the effect of entrepreneurship education on the determinants of entrepreneurial behaviour among higher education students: A multi-group analysis. The aim study was to understand how entrepreneurship education impacts the development of entrepreneurialskills and behaviors in students. The study adopted descriptive survey design and the Kolmogorov-Smirnov test and absolute values of skewness and kurtosis were used to test data normality. The findings showed that students enrolled in entrepreneurship education are more likely to use prior knowledge and alertness to recognize new business opportunities and align their motivations toward starting a new venture than other students[151].

A research analysed the factors affect the Entrepreneurial intention to Start-Ups and the role of entrepreneurial skills, propensity to take risks and innovativeness in open business models. The purpose of the study was to determine the effect of self-motivation, family support, peer influence, and institutional support on entrepreneurial intention through entrepreneurial skills, propensity to take risks, and innovativeness. The study adopted descriptive survey design was used. T-test and Wilcoxon tests were also conducted to compare the effect of grouping variables on entrepreneurial intention. The results revealed that self-motivation, family support, peer influence, and institutional support positively and significantly affected

entrepreneurial intention. The mediating role of entrepreneurial skills, a propensity to take risks, and innovativeness also enhances entrepreneurial intention among young graduates[152].

A study investigated entrepreneurship development and employment generation: A micro, small and Medium Enterprises Perspective in Nigeria. The study examined the effect of entrepreneurship development on employment generation in Nigeria, using selected MSMEs in Anambra State The study adopted descriptive survey design. Summary statistics, Pearson Correlation and Multiple regression analysis were used. The study concluded that development of entrepreneurial skills and creation of enabling business environment will enhance the employment generation capacity of the MSMEs sector in Nigeria[153].

A research work examined entrepreneurs' rating of entrepreneurship skills needed by business education graduates for effective management of small-scale businesses in Anambra State. The study determined entrepreneurs' ratings of entrepreneurship skills needed by business education graduates for effective management of small-scale businesses in Anambra State. The study adopted descriptive survey design. Cronbach alpha formula, Mean and standard deviation, t-test were used to analysis and test the reliability of the instrument. Findings revealed that entrepreneurs in Anambra State strongly agree that self- motivation skills are needed by business education graduates for effective management of small-scale businesses while they agree that innovative and financial management skills are needed by business education graduate. The findings also showed that years of experience did not significantly influence entrepreneurs' ratings on the three skills covered[154].

A study examined Entrepreneurial Competencies In Higher Education. The purpose of the research was to reveal the deficiencies of educational programs that can result in the students' lack of readiness for entrepreneurial activity. The study adopted descriptive survey design. A Thematic Analysis model was used. The results of the research pointed to the students' general lack of readiness for entrepreneurial activity. The results of the research pointed to the

students' general lack of readiness for entrepreneurial activity. the research allowed to identify a low effectiveness level of education programs as the reason of this situation[155].

A study investigated Marketing Mix as Determinant of Sustainability of Small-Scale Business in Alkaleri, Bauchi State, Nigeria. The purpose of the study was to reveal the deficiencies of educational programs that can result in the students' lack of readiness for entrepreneurial activity. The study adopted descriptive survey design. Statistical Package for Social Science (SPSS) was used. The results of the research pointed to the students' general lack of readiness for entrepreneurial activity and identified a low effectiveness level of education programs as the reason of this situation[156].

A research work examined Accounting and Managerial Skills: Factors for Success of Small and Medium Scale Enterprises (SMEs) in North-West Nigeria. This study examined accounting and managerial skills: factors for success of SMEs in North-West Nigeria. The study adopted descriptive survey design. Mean and percentage scores were used to analysis the data collected. The findings of the study revealed that accounting and managerial skills have significant relationships with the success of SMEs in North-West Nigeria. It is also revealed that effective and efficient application of both accounting and managerial skills could make SMEs to perform very well and last long[157].

A study predicted critical success factors of business intelligence implementation for improving SMEs' performances, a Case Study of Lagos State, Nigeria. This study investigated the impact of success factors on the implementation of business intelligence in SMEs. The study adopted descriptive survey design. A partial least squares-structural equation modeling was used. The findings study concluded that entrepreneurs and academicians to construct a business intelligence system that can improve overall organizational efficiency in an ever-changing economic environment[158].

A study examined the barriers constraining the growth of and potential solutions for emerging entrepreneurial SMEs. The study investigated barriers constraining the growth of and potential solutions for emerging entrepreneurial SMEs. The study adopted descriptive survey design. Statistical Package for Social Science SPSS was used. The findings showed that factors affecting entrepreneurial SMEs' performance in Pakistan are lack of finance and infrastructure as well as economic barriers, corruption and management issues. These obstacles are positively and significantly associated with entrepreneurial SMEs' failure[159].

Another study investigated the social support and risk-taking propensity as predictors of intention among undergraduates in Nigeria. This research examined the determinants of entrepreneurial intention among students of a university in Nigeria. The study adopted a descriptive cross-sectional survey research design and regression statistical analysis were used to estimate and test the relationship among entrepreneurial intention and social support, risk-taking propensity and demographic variables. The results showed that there was high entrepreneurial intention among the students. The push factors, such as perceived social support from families, risk-taking propensity and previous engagement in business, are key determinants of entrepreneurship intention among the students[160].

The Influence of Managerial Competencies on Small and Medium Enterprise Performance was studied. The study investigated the impact of technical skills, generic skills and conceptual skills on the performance of SMEs operating in the Federal Capital Territory (FCT), Abuja, Nigeria. The study adopted descriptive survey design. The findings revealed that generic skills and conceptual skills have positive critical effect on the performance of SMEs in the FCT[161].

A closely related study, investigated Perceived Entrepreneurship Competencies Required by Business Education Students in Establishing Small Scale Ventures in Kwara State. The study investigated Perceived Entrepreneurship Competencies Required by Business Education. A

descriptive survey research design was employed for the survey. It was concluded that entrepreneurial skills are highly required for establishing small-scale ventures. The result of the revealed that there is a significance difference in the rating of lecturers and entrepreneurs[162].

A study investigated skills and knowledge required by Business Education Graduates for Entrepreneurship survival. The study examined the crucial skills and requisite knowledge required by Business Education graduates for entrepreneurship survival. Qualitative resign design. This paper concludes that human relations, innovative, communication, and marketing skills, are needed by business education graduates for entrepreneurship survival if Nigeria really wants to encourage entrepreneurship, reduce unemployment and ensure that business ventures continue to be in operation, Business education should be taken very seriously[163].

Research investigated impact of entrepreneurial competencies on the performance of small and medium sized enterprises in North-East Region of Nigeria. The study examined the competencies required for SME performance, as influenced by strategic, organizing and opportunity competency. The paper adopted a cross sectional approach and gathered quantitative data. The PLS-SEM path modeling measurement model was used. Finding showed that engaging in core competencies of strategic thinking, strategic actions and visionary leadership by the entrepreneur are positively related to SME performance. Engaging in organizing competencies, entrepreneurs require organizing and leading competencies which are positively related to SME performance. Findings also revealed that there is a positive impact of opportunity competencies in identifying and taking advantage of business opportunity[164].

A study investigates Governmental and Managerial Factors Hampering the Growth of Small Scale Enterprises in Enugu, Nigeria. The study to determine governmental and managerial factors hampering the growth of small-scale enterprises in Enugu State. The research design

was descriptive survey. Cronbach's alpha, Descriptive statistics of mean and standard deviation and t-test were used. Findings from the study revealed among others that governmental and managerial factors hamper the growth of small-scale enterprises in Enugu State[165].

A study investigates the effect of entrepreneurial mindset and entrepreneurial competence on performance of small and medium enterprise, evidence from literature review. This study investigated the impact of entrepreneurial mindset and entrepreneurial competence on performance of small and medium enterprises (SMEs). Qualitative resign design was used. This review evidenced that entrepreneurial mindset and entrepreneurial competence have positive and significant effect on the performance of SMEs in addition both themes help firms to survive and compete in better way[166].

A study analyzed the different entrepreneurship education initiatives for the development of a conducive and motivating entrepreneurial ecosystem in Mauritius. The study analyzed the different entrepreneurship education initiatives being undertaken to promote the right entrepreneurial culture both at secondary and tertiary level of education. A qualitative research design was used to understand the different initiatives to inculcate entrepreneurship education in the Mauritian context[167].

A closely related work, investigated business education as a tool for poverty alleviation. The study examined the impact of Business Education in alleviating poverty among graduates of business education. A qualitative was used. It was concluded that business education is a practical oriented programme and it is a tool for poverty alleviation[168].

A study examined strategic leadership and performance of small and medium enterprises, and the role of strategic interventions. The study examined how strategic interventions mediate in the relationship between strategic leadership behaviors and firm performance of SMEs in Nigeria. A descriptive survey research design was employed. Mediation analysis through

structural equation modeling and regression were used. The results showed that strategic leadership influence performance through strategic interventions decomposed into organizational learning and cultural values. It showed that the mediator exerts stronger effect on performance than the independent variable[169].

Some scholars investigated poverty reduction in Awka Metropolis, looking into the role of Entrepreneurship productivity. The study examined the contribution of entrepreneurship productivity towards poverty reduction using trading SMEs in Awka South as cases of reference. A descriptive survey research design was deployed in the study. Cronbach alpha statistic and Spearman Ranked Order Correlation were used. It was revealed that entrepreneurial education significantly contributes to poverty reduction among selected SMEs in Awka South[170].

A research investigated managerial competencies and growth of small and medium enterprise (SMEs) in Abuja Metropolis, Nigeria. This study aimed at investigating the effect of managerial competencies on the growth of SMEs in Abuja Metropolis, Nigeria. Descriptive survey research design was deployed. Regression was used for data analysis. It was found that both technical and personal competencies have a positive and strong effect on the growth of SMEs, while conceptual skills recorded a negative and insignificant effect on the growth of SMEs in the Abuja Metropolis[171].

A study examined the relationship between entrepreneurial team and growth of small and medium manufacturing enterprises in Kenya. The study examined the relationship between entrepreneurial team and growth of small and medium manufacturing enterprises in Kenya. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS) Version 25 software through descriptive statistics. The study found out that the there was a significant positive relationship between entrepreneurial team and growth of small and medium enterprises[172].

A study examined the dimensions of entrepreneurial orientation and its relevance to student's entrepreneurial intention among Federal University Dutse final year students as at 2017/2018 academic session. The study adopted a cross- sectional research design using quantitative questionnaire approach to collect the data. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used. The results revealed that dimensions of innovativeness, pro-activeness and risk-taking are significantly and positively relevance to student entrepreneurial intention[173].

A study examined the major support systems, entrepreneurship education and the challenges of start-ups in developing economies. The research was carried out through review of various conceptual and empirical. The results revealed that the major challenges emerged from the entrepreneurship education in developing countries and have also contributed to the failure of start-ups in these economies[174].

A study examined the major The Challenges/Barriers Preventing the South African Youth in Becoming Entrepreneurs: South African Overview. A qualitative research approach was adopted. The research methodology was undertaken by systematically reviewing and contextualizing the literature regarding the challenges preventing the youth from participating in entrepreneurship activities. The data was analyzed using thematic content analysis. The results showed that the lack of education, society's attitude towards youth entrepreneurship, lack of access to finance and a poor entrepreneurship culture are the barriers that prevent youth from engaging in entrepreneurial activities[175].

Another study examined the determinants Of SME Success or Failure in Frontier Markets. A qualitative and quantitative research approaches were adopted Logistic regression was employed to assess the model based on a dummy dependent variable. It was shown that his is the result of the significant role of SMEs in overall economic development and sustainability[176].

In a research work, the relationship of perception and awareness towards utilization of Government Business Support Services (GBSS) in Malaysian SMEs Perspective was investigated. The examined the level of perception and awareness Malaysian SMEs in determining the utilization on Government Business Support Service (GBSS). A descriptive survey was used. The result was obtained after analyzing the data using SPSS 22 software. The result reveals that the perception of SMEs is positively associated with the utilization of GBSS[177].

A study investigated Entrepreneurship Educations of Prison Inmates in Nigeria: Effects on Skills Acquisition for Self-Reliance. The study examined the relationship between entrepreneurship educations and skills acquisition for self-reliance among Prison Inmates in Akwa Ibom State Survey design was adopted in the study. Data collected were processed using the Statistical Package for Social Science (SPS). It was revealed that relationship between entrepreneurship educations and skills acquisition for self-reliance among Prison Inmates in Akwa-Ibom State has a proportional effect on their skills acquisitions[178].

A study investigates the determinants of access to finance among manufacturing micro, small and medium enterprises in Nigeria (MSMEs). Descriptive and inferential statistical methods were used in the analysis of the data collected for this study. The logistic regression model was used. The results indicate that access to finance is largely influenced by owner/managers' experience and owner/managers' skills. By implication, owners'/managers' experience and skills are the driving force for manufacturing MSMEs' probability of having access to finance in Nigeria[179].

A study examined the influence of entrepreneurial orientation and management skills on the Evaluating the Effects of Entrepreneurial Orientation and Managerial Skills on Small and Medium Enterprises Performance in Lagos State. The study adopted quantitative survey research design. A multiple regression method was used. The result revealed that

entrepreneurial orientation and managerial ability have a major impact on the success of SMEs in Lagos State, Nigeria[180].

A study investigated the impact of rehabilitation counseling on drug abuse and addiction; an aftermath of strategic review perspective. The study examined the impact of drug abuse and addiction among the youth has been a stigma for decade's violence, thugery, assault, madness and murder. A qualitative research design was used. It was concluded that drugs abuse and addiction is a problem that is causing serious concern to both individual and government all over the world[181].

A related study examined students as a young generation and their intention to start their own business by analysing the internal and external factors of entrepreneurial intentions in Indonesia. A quantitative survey was employed. Partial least square-structural equation modelling (PLS-SEM) was used. The results indicated from the structural model that entrepreneurial self-efficacy has no significant results on entrepreneurial intention[182].

Another study examined the direct or indirect effect of the entrepreneurship education variable towards the vocational high school students' entrepreneurship competence. A quantitative survey was used. A five-point Likert scale and path analysis were used. The results revealed that entrepreneurship education had a significant effect on entrepreneurial intentions, both directly and indirect. It also showed that entrepreneurship education had a significant direct effect on student entrepreneurial competencies. It was also revealed that students' entrepreneurial competencies had a significant influence on entrepreneurial intentions[183].

A work investigated the role of the entrepreneurial leader, a study of Nigerian SMEs. The study examined the role of entrepreneurial leadership within fashion SMEs. This study adopted King and Horrocks' (2012) three stage process for thematic data analysis namely: descriptive coding, interpretive coding and defining overarching themes. The central

proposition of this research is that entrepreneurial leadership skills and attributes support business outcomes[184].

Another study explored entrepreneurial competencies and the performance of informal SMEs as the contingent role of business environment. This study examined entrepreneurial competencies as a viable pathway for improving the innovative performance of SMEs in Nigeria's informal sector and the contingent roles of the business environment. A survey research design was used. The Barlett, Kotrlik, and Higgins (2001) formula and Smart PLS were used. The findings from the SEM-PLS multivariate analysis, the study concluded that entrepreneurial competencies, especially organizing, conceptual, learning, strategic, opportunity and risk-taking competencies, are essential for achieving higher innovation performance[185].

A research explore the impact of government policies on business growth of SMEs in South Western Nigeria. The purpose was to evaluate the impact of government policies on business growth of SMEs in South Western Nigeria. The descriptive and inferential analytical techniques of the SPSS packaged were used to analyze the data obtained from the respondents. Indicate the need for the Nigeria government to formulate and implement policies that will help ensure the optimal performance and subsequent survival of small-scale businesses in the country[186].

Another scholar studied the impact of entrepreneurial orientation dimensions on performance of Small Enterprises. The study also examines the role of entrepreneurial orientation (EO) in determining the enterprise performance (EP) during Covid-19. Moreover, in context of this relationship, the mediating role of entrepreneurial competencies (EC) has also been investigated in influencing the EO and EP connection. The Quantitative study employs techniques for operationalizing and quantifying the variables under consideration followed by various statistical operations using SPSS and AMOS in order to test and explore

the relationship as proposed in the conceptual framework, using data from 386 small enterprises as sample identified through Systematic random sampling. The analysis revealed that a positive relationship exists among all the constructs directly as well as through the mediator (EC)[187].

In a recent work, some researcher studies the Innovative Marketing Skills and Business Performance of Small and Medium Scale Enterprises (SMEs) in Akwa Ibom State, Nigeria. They examine the effect of innovative marketing skills and business performance of small and medium scale enterprises (SMEs) in Akwa Ibom State, Nigeria. The survey research design as its approach. The population for the study was 576 SMEs in Akwa Ibom State as obtained from the Ministry of Industry and the Association of Entrepreneurs and Artisan in Akwa Ibom State. The Taro Yamene's formula was used in determining the sample size of 236. it was recommended that owners of small and medium scale enterprises in Akwa Ibom State should offer products whose quality satisfies various needs of the consumer, engage a strong market orientation through the adoption of attractive pricing strategies (such as, conducting market research, and understanding their unique selling proposition) and adopt integrated marketing communication in the promotion of their production[188].

A study investigated the potential of a higher education entrepreneurship education programme to expand the number of entrepreneurs in Oman, as one element of the government's skill formation strategy, and thereby contribute to economic diversification. Also, to explore Omani HE student, faculty/staff, policymaker, and entrepreneur perceptions and understandings of entrepreneurialism. A mixed method approach was adopted, comprising a small-scale survey and semi structured interviews, to generate data on stakeholder understandings of entrepreneurialism and their perceptions of the programme. The findings draw attention to the limitations of education and skill policies based on Human Capital Theory (HCT) and guided by 'supply side' imperatives. Instead, the thesis emphasises

the importance of considering contextual specificities when designing and implementing national educational policies. It encourages, moreover, further research to improve policy and practice with regard to the implementation of entrepreneurship education programmes[189].

Another study examines the effects of entrepreneurial orientation and external business environment on entrepreneurial intentions of STEM students in Nigeria. The study the investigates the effects of entrepreneurial orientation, entrepreneurship education, and external business environment on entrepreneurial intention of Science, Technology, Engineering, and Mathematics (STEM) students attending a federal university in southwestern Nigeria. This inquiry was conducted by exploring the one hundred and fifty students selected from six relevant faculties in the university. The main research instrument was a set questionnaire designed to elicit entrepreneurial orientation, entrepreneurship education, entrepreneurship infrastructure, and entrepreneurial intention. Descriptive and inferential statistics (partial regression) were used to determine the relationship between entrepreneurial intention and the other variables. The findings identified that while entrepreneurship orientation and entrepreneurship education are more closely associated with entrepreneurship intentions, and entrepreneurship education was the most important driver of entrepreneurship intentions among STEM students. The study also established that the entrepreneurial ecosystem of the STEM students is somewhat weak thus having little of no influence on driving entrepreneurial interest among the STEM students[190].

This study analyses of entrepreneurship education on entrepreneurial intention among undergraduate's students in Nigeria. To investigated the analysis of entrepreneurship education on entrepreneurial intention among undergraduate students in Nigerian universities. A sample of 469 undergraduates was investigated in Nigeria through a cross-sectional survey. A structured questionnaire was distributed online to respondents. Analysis was carried out using simple and multiple regression analysis. The findings from this study and the data

analysis outcomes indicated that there is a positive significant relationship between entrepreneurship education and entrepreneurial intention among undergraduate students in Nigeria[191].

A study examines the analysis of factors affecting implementation banking intermediation function. To analyze the factors that affect the implementation of intermediation include Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), the ratio of operating expenses to operating income (BOPO), Non-Performing Loan (NPL), and Return on Assets (ROA). The method used is descriptive and verification method, with secondary data from financial statements 26 all over Indonesian Regional Development Bank as a research object unit. Data analysis technique is the multiple linear regression, hypothesis testing while using t - test to examine the effect of partial variables and test- F to examine the effect of variables simultaneously with a significance level of 5 %. It is concluded that partial CAR, NIM, BOPO and ROA positive and significant effect on LDR. While the NPL but no significant negative effect on LDR. Simultaneously CAR, NIM, BOPO, NPL and ROA significantly influence the level of influence of LDR with 55.7 % and the rest is influenced by other factors not examined[192].

A research study on the Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies was examined. They analyze the effects of entrepreneurial education on the development of entrepreneurial competencies on small and medium enterprises' performance. It also aims to identify the factors that influence the performance of small businesses and to study the impact of entrepreneurial education and entrepreneurial competencies on small and medium enterprises' performance. The resource-based view, a constantly applied approach to the small business context to utilize strengths and weaknesses to achieve sustainable competitive advantage. The paper provides valuable insights into the entrepreneurial factors that businesses can consider when enhancing their performance[193].

A study also examines the Encouraging SMEs performance through entrepreneurial intentions, competencies, and leadership: serial mediation model. To investigate the effect of entrepreneurial leadership (EL), competencies (ECs) and intentions (EIs) on enterprise performance (EP) via entrepreneurial resilience (ER) and risk-taking propensity (RTP). Data were collected from 403 early-stage small and medium enterprise (SME) owners in Pakistan at two-time intervals and were analyzed using AMOS 22. All predictors (i.e. EIs, EL and ECs) positively affected EP and ER, except for EL and ER. Furthermore, RTP and ER were serially mediated in linking EIs and ECs with EP but could not establish a link between EL and EP[194].

A study examines the role of small and medium enterprises on poverty eradication in Nigeria. One hundred and forty-two (142) questionnaires were administered randomly to the entire employee population of the SME companies that are registered with SMEDAN in Lagos Nigeria. The sample size was determined using Yamane formula. The data was analyzed using manual and electronic based methods with the aid of data preparation grid and statistical package for the social sciences, (SPSS) statistical package version 21.0. The study made use of statistical tools which include: analysis of variance (ANOVA), correlation efficient and regression analysis in testing hypotheses where applicable. The study found out that SME development affects poverty alleviation and also Training organized by SMEDAN affects SMEs employment creation. It was discovered that the small and medium enterprises provided employment opportunities, training ground, harnesses utilization of local resources and also acts as a pillar hold of a nation, Nigeria inclusive[195].

A study examines the factors determining the growth of youth owned small and medium enterprises in Nigeria: a study of Abubakar Tafawa Balewa University, Bauchi. To explore factor, determine the elements affecting SMEs' growth at Abubakar Tafawa Balewa University, Bauchi in order to improve their chances of growth. The study was directed by four research questions. The factors considered were market access, legal and regulatory

environment, capital access, and technological adoption. The primary source of information was a self-administered questionnaire. SMEs operating within Abubakar Tafawa Balewa University in Bauchi, Bauchi State, made up the target population. The population of the study was 150 SMEs registered with Hostel Allocation Committee of the Student Affairs Division of the University, and a sample size of 119 was obtained including 10% non-response or error in filling questionnaires. Simple random sampling was used to administer questionnaires to youth owned SMEs. The study utilized Statistical Package for Social Science to perform multiple regression (SPSS). Inferential statistical techniques were used to interpret and present the data. The study revealed that, consumer access, legal and regulatory environment, capital access, and technological adoption all have a major impact on technological adoption. Thus, financial and other lending institutions should be aware of the costly and difficult lending conditions that youth-owned SMEs face in the country[196].

A study examined the determinants of small and medium enterprises' performance: a case of ilala district in dares salaam, Tanzania. He assesses the determinants of SMEs' performance in Ilala district, Tanzania. Specifically, the study aimed to; determine the effect of financial factors on SMEs' performance; determine the effect of human factors on SMEs' performance; determine the effect of governmental factors on SMEs' performance. The descriptive research design with the quantitative approach was used to assess the determinants of SMEs' performance in Tanzania. The judgmental sampling technique was used to select 96 respondents from the selected SMEs. The study used descriptive analysis, where the data was analyzed presented in frequencies and percentages in bar graphs and tables. Findings show that financial factors determine the SMEs' performance through financial literacy, managerial experience, and easy accessibility of capital from financial institutions where most SMEs fail to access capital due to the lack of collateral and higher interest rate. Moreover, findings show that human factors determine the SMEs' performance through owners' age where the

working-age group tends to perform well in the business, education level, and the business training and seminars they acquired. Furthermore, findings show that government factors such as tax rates are high which increases production costs, government policies and regulations are not supportive of SMEs, and most SMEs miss marketing support for their products from the government[197].

A study explored the Mobile marketing technology adoption in service SMEs: a multi-perspective framework. To examined the popularity and use of mobile marketing technologies or devices have led to significant interest from researchers and practitioners, particularly in small- and medium-sized enterprises (SMEs), where these technologies offer significant benefits to SMEs given the poor human capital and financial constraints encountered. The study is qualitative and used both unstructured and semi structured interviews with a total of 26 participants drawn purposively from NIJA database in Nigeria. Thematic analysis was deployed in analyzing the data. The study developed an extended technology organization environment (TOE) framework by incorporating the value anticipation context which helped to unveil 16 key factors influencing mobile marketing technology adoption in service SMEs in Nigeria. The finding revealed that factors associated with the extended TOE framework have an impact on SMEs mobile le marketing technology adoption but at different levels[198].

A study examines the factors affecting small and medium enterprises' financial sustainability in South Africa. The study examined the factors affecting the financial sustainability of small and medium-sized enterprises in South Africa. Using purposive sampling, data were collected from 310 respondents, however six were incorrectly completed. The analysis was based on data collected from 304 respondents which cut across owners and/or managers from small and medium construction, manufacturing, retail, and agricultural enterprises. A quantitative research design that falls under the positivist paradigm was used. It was found that financial awareness, budgeting, accounting skills, and access to finance have

positive and significant effects on the financial sustainability of SMEs with all the variables, having 0.005 probability values, respectively[199].

A study investigates the financial accounting literacy and growth of small and medium scale enterprises (SMES) in Ondo state. To examined the effect of financial accounting literacy and growth of small and medium scale enterprises. Descriptive research design and obtained data from structured questionnaire, the respondents targeted were Small and Medium Enterprises (SMEs). Data were analyzed using percentages, frequencies, means and ANOVA. The study recommends that the ministry or agency responsible for SMEs in the state should initiate accounting training programs for entrepreneurs running small businesses, since keeping proper accounts enhances profitability and growth of small-scale enterprises, also, emphasis should be stressed on the teaching of basic accounting concepts and skills to all students so as to enhance their entrepreneurial skills in every sector[200].

A recent work studies the entrepreneurial attributes responsible for small and medium enterprise growth in South Africa, based on Small and Medium Enterprise owners' perspectives. It examines the attributes embedded in small business owners that are responsible for the growth of SMEs in South Africa. Correlative analyses were used to test the two objectives, that is, to examine if creativity and the entrepreneurial skills of small business owners have an influence on SME growth. SME success depends on the proper use of entrepreneurial skills for starting and growing the businesses in the early years of establishment[201].

Another study examines the effectiveness of entrepreneurship policy implementation in Malawi. He examines the effectiveness of the entrepreneurship policy in promoting entrepreneurship education and training and small business development in Malawi. Also, he identifies the gaps in the entrepreneurship policy currently being used in Malawi and to assess the effectiveness of the implementation of the entrepreneurship policy in the country. The

quantitative research methodology used a survey questionnaire. A total of two hundred and sixty participants were purposively sampled for the study. A response rate of 59% was achieved in the study. In total 75% of the respondents indicated that they had been involved in an entrepreneurial activity while 64% of the respondents showed that their organizations offered entrepreneurship or other related services. The study results revealed that 20% of the funds used in small and medium-sized enterprises (SMEs) were internally generated and 13% were loans from a government agency among others. 20% of the funds used in small and medium-sized enterprises (SMEs) were internally generated and 13% were loans from a government agency among others. A total of 58% of the respondents indicated that the most common business support services available to entrepreneurs in Malawi is Entrepreneurship Development while the remainder indicated that entrepreneurs in the country have access to Business Counselling and Mentoring[202].

A study examines the Public–private entrepreneurial financing partnership model in Nigeria. He explored suitable entrepreneurial financing model for SMEs. Thus, it extends the understanding of combinations of entrepreneurial finance and funding in the African context. A qualitative approach, this study draws on evidence from Nigerian digital firms, public, and private financers to explore suitable entrepreneurial financing model for SMEs. The study offers fresh and rare illustrative insights on how public–private entrepreneurial finance partnership will provide affordable and adequate access to entrepreneurial finance[203].

2.3.2 ICT competencies (Digital Literacy, Cybersecurity Awareness and skills, and Information management and Digital Collaboration) and SMEs development among students

A study investigated the prospects limitations and challenges in the concept and application of ICT on SMEs in Rivers State. It examines challenges, limitations and prospects of SMEs adoption of ICTs in doing businesses in which in which descriptive design were

used. The study found that relative advantages, top management support, culture, regulatory environment, owner/manager innovativeness and ICT knowledge had a significant relationship with ICT adoption among SMEs in Rivers State, Nigeria[204].

A study investigated the factors affecting SME owners in adopting ICT inbusiness using thematic analysis. The study adopted. The study examined the factors affecting SME owners in adopting ICT in their business by using the Thematic Analysis method. The study adopted descriptive survey design. The study adopted summary statistics, Pearson Correlation and Multiple regression analysis. The outcome showed that there are two central themes that affect ICT usage in SME which are the (1) Internal Factor and (2) External Factor. Further, we identified two (2) components that effect the Internal Factor, namely Company (capital, company's age, less skilled workers and family business) and SME Owners (time, education, perceptions and experiences) and another two (2) components that affect the External Factor, namely Technology (high cost, complicated, system's security and stability) and Regulators (government's initiatives, training skills and no urgency)[205].

A study examined the impact of information and communication technology in Nigerian small-to medium-sized enterprises The purpose of this study was to explore how SME leaders in Lagos, Nigeria, use ICT adoption as a business strategy to increase profitability and compete globally. The study adopted a qualitative research design an an oral interviews was conducted. The result revealed that adoption of ICT has positive effect on the success and growth of SMEs, social change by creating jobs, alleviating poverty and developing the local economy[206].

A work investigated information technology and E-accounting, with some determinants among SMEs. The study examined the importance of E-accounting. The purpose of this study is to investigate the determinants influencing information technology and E-accounting among small and medium-sized enterprises (SMEs). The study adopted

descriptive survey design. The findings revealed that except information technology (IT) cost, all other possible determinants (IT risk, employee IT skills and employee theoretical knowledge) has a significant influence on E-accounting practice among SMEs[207].

A research studied accounting, management and technological innovation skills as impediments for Small and Medium Scale Enterprises (SMES) sustainability in Ogun State, Nigeria. The study examined accounting, management and technological innovation skills as impediments for small and medium scale enterprises (SMES) sustainability in Ogun State, Nigeria The study adopted descriptive survey design and Pearson Product Moment Correlation (PPMC) formula was used. The findings of the study revealed that accounting, management and technological innovation skills are impediments towards SMEs sustainability[208].

A research investigated the success stories of ICT adoption by Nigerian SMES during the Covid-19 pandemic. The study examined the success stories of the use of technological tools by Small and Medium Scale Enterprises in Nigeria during the pandemic. This study employed a qualitative research method that involved collecting and analyzing qualitative data from purposively selected businesses owners. The study found out that despite the many challenges faced, SMEs were adopting ICTs, such as social media, e-Commerce, AI chat, mobile technology, telecommuting, etc. This study also discovered that the use of ICT by SMEs helped improve communications and increase efficiency and product, leading to added business value and customer satisfaction during the COVID-19 pandemic[209].

The new technologies for entrepreneurial competencies of small and medium enterprises in Nigeria was investigated. The study examined new technologies for entrepreneurial competencies of Small and Medium Enterprises (SMEs). This study deploys a quantitative research method was employed and t-test was used. The study found out that new technology

in the market enhance entrepreneurial competency, new technology increase the speed and reliability of business transactions of small and medium enterprise[210].

A study investigated the critical review on the adoption of ICT in the small and medium enterprises (SMEs) in the Developing Countries. The study analyzed the critical success factors on the ICTs adoption in the SMEs globally focusing on Oman. Questionnaire survey was conducted among the managers of the SMEs. It is found that the effective adoption of ICTs in the SMEs is caused by a number of success factors including among others limited access to markets and, finance, lack of awareness to global markets, unfriendly business environment, poor management skills and lack of updated technology, complication of the bureaucracy process, as well as lack of training relating to basic business[211].

An Investigation on the impact of technological enablement on the success of entrepreneurial adoption among higher education students with a comparative study was carried out. The objectives was to study the higher education institutions' students, rely on technological support and university assistance for their studies during the COVID-19 pandemic. This study conducted a self-administered questionnaire to collect topic-related information from higher education institutions in Malaysia and the Philippines. A formative-receptive model, PLS-MGA, was used to analyses the direct and indirect impacts alongside the mediating factor, technological enablement. The results showed that entrepreneurial competencies, Entrepreneurial Education System, Entrepreneurial Education Mechanism, and Entrepreneurial Intention positively and significantly impact entrepreneurial success in both regions. However, result also demonstrated that the impact of technological enablement on entrepreneurial success is more Signiant in Malaysia than in the Philippines[212].

A study investigates the innovative leadership in South African manufacturing small medium enterprises within KwaZulu-Natal. They Identify and discuss the characteristics of innovative leadership in the KZN manufacturing sector SMEs. Also, discuss the implications

of those characteristics on innovative leadership in the KZN SMEs in the manufacturing industry. A quantitative research approach was adopted, while using a non-probability convenience sampling technique to achieve a sample size of 384. Data were collected using a self-administered, closed-ended questionnaire, with predetermined answers scaled using a 5-point Likert scale, while factor analysis was conducted using SPSS (version 23.0). Innovation in leadership at SMEs in the KZN manufacturing sector hampered by business characteristics and leadership abilities, identifying critical factors that interfere with leadership being innovative, in so far as technical skills, lack of government financial assistance, educated employees, and government barriers, as well as ICT advancement costs, are concerned[213].

2.4 Conceptual Model

Conceptual model consists of concepts that are placed within a logical and sequential design. It is a model that explores the use of drawings and diagrams to explain the interrelationships between variables. Figure 2.1 shows the conceptual model for the study:

Independent Variable

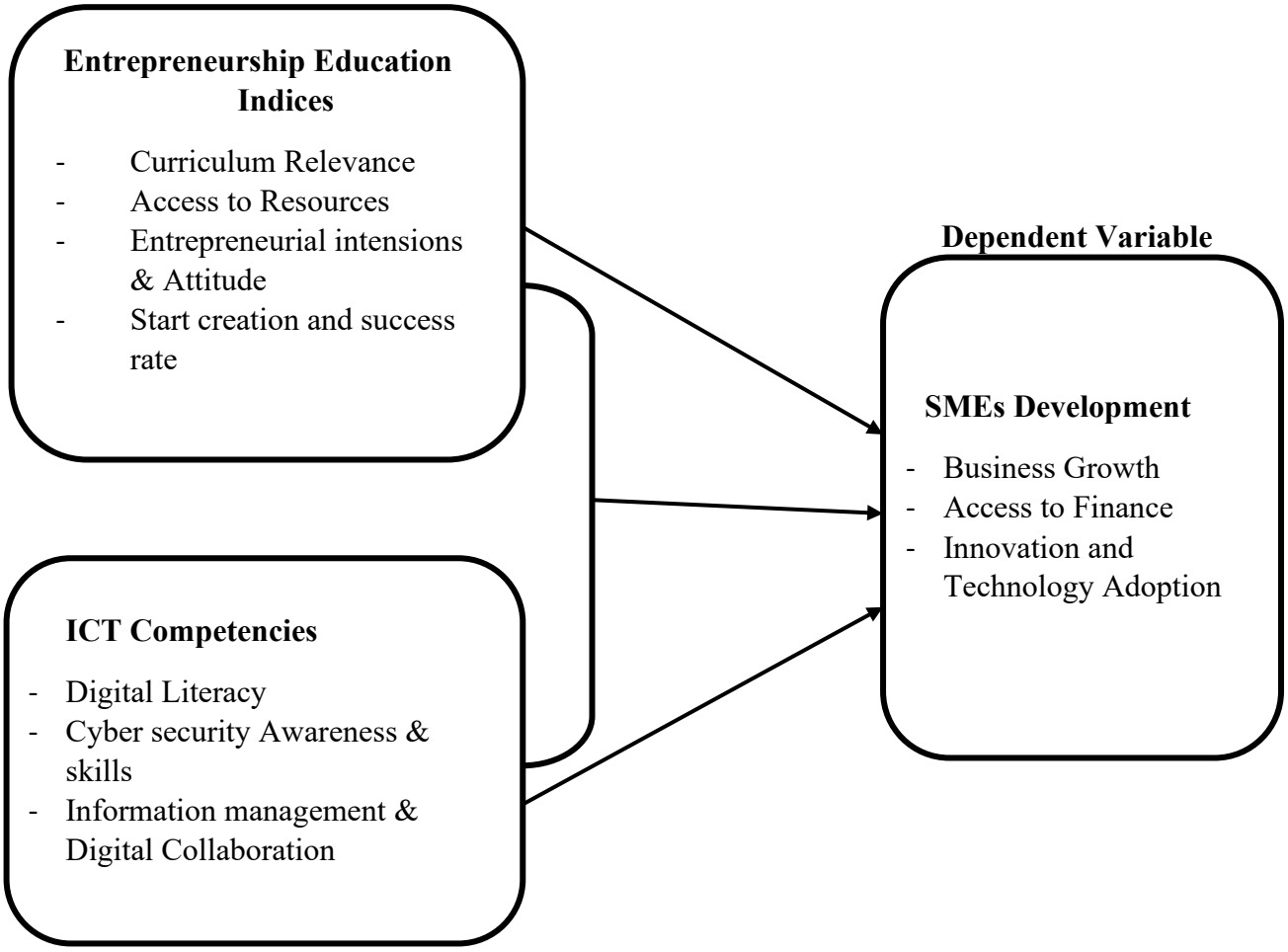


Figure 2.1: Conceptual Model Showing Entrepreneurship Education and ICT Competencies as Determinants of SMEs Development Skills among Students of Business Education in Colleges of Education, Southwest, Nigeria.
Source: Researcher, 2024.

The diagram in figure 2.1 showed the joint contribution of the independent variables (Entrepreneurship Education and ICT Competencies) on the dependent variable (SME Development) for the study. SME development among student of Business Education was studied in the areas of their business growth, access to finance and innovation and technology adoption. Entrepreneurship Education were examined in four areas: - Curriculum relevance, Access to resources, Entrepreneurial Intentions and Attitudes, and Start creation and success rates, while ICT Competencies were examined using three indices: - Digital literacy, Cybersecurity awareness and skills, and Information management and digital collaboration. Demographic characteristics of students such as age, gender, educational status and years of experience which have the capacity to influence the result of the study were considered.

2.5 Summary of Literature Reviewed

The literature review for the study, "Entrepreneurship Education and ICT Competencies as Determinants of SMEs development skills among Students of Business Education in Colleges of Education, Southwest, Nigeria," provides a comprehensive overview of key themes and concepts that underpin the study's research framework. Entrepreneurship education and ICT competencies emerge as crucial factors in shaping the entrepreneurial landscape and the development of small and medium-sized enterprises (SMEs) in the Southwest region of Nigeria. Entrepreneurship education equips students with the knowledge and skills necessary for successful entrepreneurship, including business planning, opportunity recognition, and risk management. Additionally, ICT competencies are increasingly recognized as essential in enhancing productivity, innovation, and competitiveness, especially within SMEs development skills. The literature underscores the relevance of these competencies in preparing students for active participation in SME development, making the study's focus on these factors highly pertinent.

A critical theme that emerges from the literature is the importance of a relevant curriculum. An up-to-date and well-structured curriculum is crucial in ensuring that students are exposed to the latest trends and tools in entrepreneurship and ICT. Curriculum alignment with industry demands and market needs is necessary for preparing students effectively. Furthermore, the literature highlights the significance of access to resources, such as funding, facilities, and mentorship, in enabling students to apply their entrepreneurship education and ICT competencies practically. Limited access to resources can act as a barrier to students' ability to initiate and grow their businesses, emphasizing the need for supportive policies and programs to enhance resource accessibility.

Entrepreneurial intentions are identified as a critical precursor to actual entrepreneurial actions, with students exhibiting strong entrepreneurial intentions being more likely to engage in entrepreneurship. Entrepreneurship education is found to be influential in shaping students' intentions to become entrepreneurs, while ICT competencies are noted for enhancing their capabilities. Moreover, the literature emphasizes that entrepreneurship education and ICT competencies significantly contribute to the success of start-ups, and the success rate of these ventures is influenced by factors such as access to finance, mentorship, and market conditions. Overall, the literature review highlights the complex interplay between entrepreneurship education, ICT competencies, and SME development, underscoring the multi-dimensional factors that influence students' entrepreneurial initiatives and their potential to contribute to economic growth in the Southwest region of Nigeria.

Endnotes

1. S., Archino, M., Lanier, & R., McClain, *Reframing the Arts within the Liberal Arts Community: Teaching an Arts Entrepreneurial Mindset to Achieve Transdisciplinary Outcomes.* **Artivate,** *9*(2), 2020. 5-18, https://doi.org/10.1353/artv.2020.0011.

2. K., Moustaghfir, S., El Fatihi, & M., Benouarrek, *Human Resource Management Practices, Entrepreneurial Orientation and Firm Performance: What is the Link?.* **Measuring Business Excellence,** https://doi.org/10.1108/mbe-12-2019-0119, *24*(2), 2020. 267-283.

3. M., Rezvani, & Z., Fathollahzadeh, *The Impact of Entrepreneurial Marketing on Innovative Marketing Performance in Small-and Medium-sized Companies.* **Journal of Strategic Marketing,** *28*(2), 2020. 136-148, https://doi.org/10.1080/0965254x.2018.1488762.

4. D., Bolzani, & E., Luppi, *Assessing Entrepreneurial Competences: Insights From a Business Model Challenge*. ***Education+ Training***, *63*(2), 2021. 214-238, https://doi.org/10.1108/et-04-2020-0072.

5. M., Portuguez Castro, & M. G., Gomez Zermeno, *Challenge based Bearning: Innovative Pedagogy for Sustainability through e-learning in Higher Education.* **Sustainability,** *12*(10), 2020.4063, https://doi.org/10.3390/su12104063.

6. T., Li, & Z., Zhan, *A Systematic Review on Design Thinking Integrated Learning in K-12 Education.* **Applied Sciences,** *12*(16), 2022. 8077, https://doi.org/10.3390/app12168077.

7. A. M., Ahmad, K., Hussain, E., Ekiz, & T., Tang, *Work-based Learning: an Approach towards Entrepreneurial Advancement.* **Worldwide Hospitality and Tourism Themes,** *12*(2), 2020. 127-135, https://doi.org/10.1108/whatt-12-2019-0076.

8. D. N., Clark, S., Reboud, O., Toutain, V., Ballereau, & T., Mazzarol, *Entrepreneurial Education: An Entrepreneurial Ecosystem Approach.* **Journal of Management & Organization,** *27*(4), 2021. 694-714, https://doi.org/10.1017/jmo.2020.26.

9. D., Melak, & B., Derso, *Training of Youths for Effective Self-employment Practices.* **Education+ Training,** *65*(3), 2023. 382-402, https://doi.org/10.1108/et-10-2021-0395.

10. M. I. S., Ahmad, M. I., Idrus, & S., Rijal, *The Role of Education in Fostering Entrepreneurial Spirit in the Young Generation.* **Journal of Contemporary Administration and Management (ADMAN),** *1*(2), 2023. 93-100, https://doi.org/10.61100/adman.v1i2.28.

11. P. P., Rahayu, I., Mayasari, Q., Fitriyatinur, & M. T., Agustina, *Entrepreneurship Education and the Role of Technology in Driving Business Innovation.* **Indo-MathEdu Intellectuals Journal,** *4*(2), 2023. 714-727, https://doi.org/10.54373/imeij.v4i2.268.

12. E., Dias Canedo, A. P., Morais do Vale, R. L., Patrão, L., Camargo de Souza, R., Machado Gravina, V., Eloy dos Reis,... & R., T. de Sousa Jr, *Information and Communication Technology (ICT) Governance Processes: A Case Study.* **Information,** *11*(10), 2020. 462, https://doi.org/10.3390/info11100462.

13. P., Ndibalema, *Unlocking the Potential of ICT for Transformative Learning among Youth: A Path to 21st Century Competencies.* **Journal of Educational Technology and Online Learning,** *3*(3), 2020. 245-271, https://doi.org/10.31681/jetol.777647.

14. P., Reddy, B., Sharma, & K., Chaudhary, *Digital Literacy: A Review in the South Pacific.* **Journal of Computing in Higher Education,** *34*(1), 2022. 83-108, https://doi.org/10.1007/s12528-021-09280-4.

15. F. M., Amin, & H., Sundari, *E FL Students' Preferences on Digital Platforms during Emergency Remote Teaching: Video Conference, LMS, or Messenger Application?.* **Studies in English Language and Education,** *7*(2), 2020. 362-378, https://doi.org/10.24815/siele.v7i2.16929.

16. F. M., Amin, & H., Sundari, *EFL Students' Preferences on Digital Platforms During Emergency Remote Teaching: Video Conference, LMS, or Messenger Application?.* **Studies in English Language and Education,** *7*(2), 2020. 362-378, https://doi.org/10.24815/siele.v7i2.16929.

17. V., Milenkova, & V., Lendzhova, *Digital Citizenship and Digital Literacy in the Conditions of Social Crisis.* **Computers,** *10*(4), 2021. 40, https://doi.org/10.3390/computers10040040.

18. K., Potyrała, & Ł., Tomczyk, *Teachers in the Lifelong Learning Process: Examples of Digital Literacy.* **Journal of Education for Teaching,** *47*(2), 2021. 255-273, https://doi.org/10.1080/02607476.2021.1876499.

19. G. P., Yustika, & S., Iswati, *Digital Literacy in Formal Online Education: A Short Review.* **Dinamika Pendidikan,** *15*(1), 2020. 66-76, https://doi.org/10.15294/dp.v15i1.23779.

20. N., Churchill, *Development of Students' Digital Literacy Skills through Digital Storytelling with Mobile Devices.* **Educational Media International,** *57*(3), 2020.271-284, https://doi.org/10.1080/09523987.2020.1833680.

21. M., Mijwil, O. J., Unogwu, Y., Filali, I., Bala, & H., Al-Shahwani, *Exploring the Top Five Evolving Threats in Cybersecurity: An In-Depth Overview.* **Mesopotamian Journal of Cybersecurity,** *2023*, 2023. 57-63, https://doi.org/10.58496/mjcs/2023/010.

22. M., Humayun, M., Niazi, N. Z., Jhanjhi, M., Alshayeb, & S., Mahmood, *Cyber Security Threats and Vulnerabilities: A Systematic Mapping Study.* **Arabian Journal for Science and Engineering,** *45*, 2020. 3171-3189, https://doi.org/10.1007/s13369-019-04319-2.

23. L., Hadlington, & S., Chivers, *Segmentation Analysis of Susceptibility to Cybercrime: Exploring Individual Differences in Information Security Awareness and Personality Factors.* **Policing: A Journal of Policy and Practice,**14(2), 2020. 479-492, https://doi.org/10.1093/police/pay027.

24. F. S., Alharbi, *Dealing with Data Breaches Amidst Changes In Technology.* **International Journal of Computer Science and Security (IJCSS),** *14*(3), 2020. 108-115, https://doi.org/10.1201/9780203488690.ch6.

25. S. T., Argaw, J. R., Troncoso-Pastoriza, D., Lacey, M. V., Florin, F., Calcavecchia, D., Anderson,... & A., Flahault, *Cybersecurity of Hospitals: Discussing the Challenges and Working towards Mitigating the Risks.* **BMC Medical Informatics and Decision Making,** *20*, 2020. 1-10, https://doi.org/10.1186/s12911-020-01161-7.

26. M. F., Manesh, M. M., Pellegrini, G., Marzi, & M., Dabic, *Knowledge management in the Fourth Industrial Revolution: Mapping the Literature and Scoping Future Dvenues.* **IEEE Transactions on Engineering Management,** *68*(1), 2020. 289-300, https://doi.org/10.1109/tem.2019.2963489.

27. M. P., Satija, M., Bagchi, & D., Martínez-Ávila, *Metadata Management and Application.* **Library Herald,** *58*(4), 2020. 84-107, https://doi.org/10.5958/0976-2469.2020.00030.2.

28. C., Thapa, & S., Camtepe, *Precision Health Data: Requirements, Challenges and Existing Techniques for Data Security and Privacy.* **Computers in biology and medicine,** *129*, 2021. 104130, https://doi.org/10.1016/j.compbiomed.2020.104130.

29. Y. A., Ajani, R. T., Enakrire, B. D., Oladokun, & M. T., Bashorun, *Reincarnation of Libraries via Metaverse: A Pathway for a Sustainable Knowledge System in the Digital Age.* **Business Information Review,**02663821231208044, 2023, https://doi.org/10.1177/02663821231208044.

30. M. P., Gupta, A., Sanvalia, & D. S., Bamniya, *Use of E-Library and E-Resources by Staffs and Students in the Colleges.* **Importance of Libraries in Accessing e-contents Related to Law,** 45, 2023, https://doi.org/10.1016/j.compbiomed.2020.104130.

31. Z., Bahroun, C., Anane, V., Ahmed, & A., Zacca, *Transforming Education: A Comprehensive Review of Generative Artificial Intelligence in Educational Settings through Bibliometric and Content Analysis.* **Sustainability,** *15*(17), 2023. 12983, https://doi.org/10.3390/su151712983.

[32] E. J., Hurst, *Web Conferencing and Collaboration Tools and Trends.* **Journal of Hospital Librarianship,** *20*(3), 2020. 266-279, https://doi.org/10.1080/15323269.2020.1780079.

[33] T. J., Marion, & S. K., Fixson, *The Transformation of the Innovation Process: How Digital Tools are Changing Work, Collaboration, and Organizations in New Product Development.* **Journal of Product Innovation Management,** *38*(1), 2021. 192-215, https://doi.org/10.1111/jpim.12547.

[34] M., Bikmohammadi, *Incorporation of Google Docs in Composition Classes to Foster Collaboration: An Analysis of Google Docs' Affordances* **(Doctoral dissertation, University of Dayton),** 2023, https://doi.org/10.59948/osou4.2023.02.

[35] L. C., Ninye-Ranor, V. I., Igbinedion, & C. O., Nwadiani, *Office Managers' Utilization Of Digital Communication Tools For Effective Dissemination Of Information In The 21st Century Business Organisations.* **Technical and Vocational Education Journal (TAVEJ),** *8*, 2022. 176-184, https://doi.org/10.1037/e370782004-005.

[36] R., Valk, & G., Planojevic, *Addressing the Knowledge Divide: Digital Knowledge Sharing and Social Learning of Geographically Dispersed Employees during the COVID-19 Pandemic.* **Journal of Global Mobility: The Home of Expatriate Management Research,** *9*(4), 2021. 591-621, https://doi.org/10.1108/jgm-02-2021-0019.

[37] G., Conaldi, R., De Vita, S., Ghinoi, & D. M., Foster, *Virtual Collaborative Spaces: A Case study on the Antecedents of Collaboration in an Open Source Software Community.* **R&D Management,** 2023, https://doi.org/10.1111/radm.12599.

[38] J. P., Bharadiya, *Leveraging Machine Learning for Enhanced Business Intelligence.* **International Journal of Computer Science and Technology,** *7*(1), 2023. 1-19, https://doi.org/10.33545/27076571.2023.v4.i1a.60.

[39] K., Maharana, S., Mondal, & B., Nemade, *A Review: Data Pre-processing and Data Augmentation Techniques.* **Global Transitions Proceedings,** *3*(1), 2022. 91-99, https://doi.org/10.1016/j.gltp.2022.04.020.

[40] N., Shehab, M., Badawy, & H., Arafat, *Big Data Analytics and Preprocessing.* **Machine Learning and Big Data Analytics Paradigms: Analysis, Applications and Challenges,** 25-43, 2021, https://doi.org/10.1007/978-3-030-59338-4_2.

[41] R. W., Cooksey, & R. W., Cooksey, *Descriptive Statistics for Summarising Data.* **Illustrating Statistical Procedures: Finding Meaning in Quantitative Data,**61-139, 2020, https://doi.org/10.1007/978-981-15-2537-7_5.

42. W. T., Wu, Y. J., Li, A. Z., Feng, L., Li, T., Huang, A. D., Xu, & J., Lyu, *Data Mining in Clinical Big Data: the Frequently Used Databases, Steps, and Methodological Models.* **Military Medical Research,** *8*, 2021. 1-12, https://doi.org/10.1186/s40779-021-00338-z.

43. A., Zia, M., Aziz, I., Popa, S. A., Khan, A. F., Hamedani & A. R., Asif, *Artificial Intelligence-based Medical Data Mining*, **Journal of Personalized Medicine,** *12*(9), 2022, 1359, https://doi.org/10.3390/jpm12091359.

44. A., Adikari, D., Burnett, D., Sedera, D., De Silva, & D., Alahakoon, *Value Co-Creation for Open Innovation: An Evidence-based Study of the Data Driven Paradigm of Social Media Using Machine Learning.* **International Journal of Information Management Data Insights,** *1*(2), 2021. 100022, https://doi.org/10.1016/j.jjimei.2021.100022.

45. A., Rehman, S., Naz, & I., Razzak*, Leveraging Big Data Analytics in Healthcare Enhancement: Trends, Challenges and Opportunities.* **Multimedia Systems,** *28*(4), 2022. 1339-1371, https://doi.org/10.1007/s00530-020-00736-8.

46. M., Del Giudice, V., Scuotto, A., Papa, S. Y., Tarba, S., Bresciani, & M., Warkentin, *A Self-tuning Model for Smart Manufacturing SMEs: Effects on Digital Innovation.* **Journal of Product Innovation Management,** *38*(1), 2021. 68-89, https://doi.org/10.1111/jpim.12560.

47. M. D. P., Casado-Belmonte, G. M., Marín-Carrillo, E., Terán-Yépez, & M. D. L. M., Capobianco-Uriarte, *What is Going on with the Research into the Internationalization of mall and Medium-sized Enterprises (SMEs)? An Intellectual Structure Analysis into the State-of-the-art (1990–2018).* **Publications,** *8*(1), 2020. 11, https://doi.org/10.3390/publications8010011.

48. W. Y., Chong, P. H. K., Hong, & T. S., Teck, *Small and Medium-Sized Businesses in Malaysia Can Look Forward to the Future of Co-Creation, a Literature Review.* **International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.,** *7*(6), 2022. 25, https://doi.org/10.26668/businessreview/2022.v7i6.e583.

49. Y., Amornkitvikai, S. Y., Tham, C., Harvie, & W. W., Buachoom, *Barriers and Factors Affecting the e-commerce Sustainability of Thai Micro-, Small-and Medium-Sized Enterprises (MSMEs).* **Sustainability,** *14*(14), 2022. 8476, https://doi.org/10.3390/su14148476.

50. M., Mansouri, C., Malainine, H., Souti, & I., Cadimi, *Dynamic Capabilities, Competitiveness and Performance of Small and Medium-sized Enterprises: A Systematic Literature Review.* **International Journal of Accounting, Finance, Auditing, Management and Economics,** *3*(5-1), 2022. 1-22, https://doi.org/10.7862/rz.2023.mmr.08.

[51] Ș. C., Gherghina, M. A., Botezatu, A., Hosszu, & L. N., Simionescu, *Small and Medium-sized Enterprises (SMEs): The Engine of Economic Growth through Investments and Innovation.* **Sustainability,** *12*(1), 2020. 347.https://doi.org/10.3390/su12010347.

[52] C., Erdin, & G., Ozkaya, *Contribution of Small and Medium Enterprises to Economic Development and Quality of Life in Turkey.* **Heliyon,** *6*(2), 2020 https://doi.org/10.1016/j.heliyon.2020.e03215.

[53] V., Glonti, R., Manvelidze, & I., Surmanidze,. *The Contribution of SME to Regional Economic Development: On Example of Adjara Autonomous Republic.* **European Journal of Sustainable Development,** *10*(1), 2021. 513-513, https://doi.org/10.14207/ejsd.2021.v10n1p513.

[54] B., Surya, F., Menne, H., Sabhan, S., Suriani, H., Abubakar, & M., Idris, *Economic Growth, Increasing Productivity of SMEs, and Open Innovation.* **Journal of Open Innovation: Technology, Market, and Complexity,** *7*(1), 2021. 20, https://doi.org/10.3390/joitmc7010020.

[55] B. M., Pulka, & M. S., Gawuna, *Contributions of SMEs to Employment, Gross Domestic Product, Economic Growth and Development.* **Jalingo Journal of Social and Management Sciences,** *4*(1), 2022. 1-18, https://doi.org/10.1787/73ac1b14-en.

[56] T. V., Pham, V. L., Nguyen, T. L., Nguyen, & T. T., Phan, *The Contribution of Small and Medium-sized Enterprises in the Economic Growth of the Southeast Region of Vietnam.* **The Journal of Asian Finance, Economics and Business,** *8*(9), 2021. 155-163, https://doi.org/10.13106/jafeb.2020.vol7.no5.041.

[57] A., Prashar, *A Bibliometric and Content Analysis of Sustainable Development in Small and Medium-sized Enterprises.* **Journal of cleaner production,** *245*, 2020. 118665, https://doi.org/10.1016/j.jclepro.2019.118665.

[58] A., Islam, S. A., Wahab, & A. S. A., Latiff, *Annexing a Smart Sustainable Business Growth Model for Small and Medium Enterprises (SMEs).* **World Journal of Entrepreneurship, Management and Sustainable Development,** *18*(2), 2022.1-24, https://doi.org/10.47556/j.wjemsd.18.2.2022.2.

[59] F., Chien, Q. T., Ngo, C. C., Hsu, K. Y., Chau, & R., Iram, *Assessing the Mechanism of Barriers towards Green Finance and Public Spending in Small and Medium Enterprises From Developed Countries.* **Environmental Science and Pollution Research,** *28*(43), 2021. 60495-60510, https://doi.org/10.1007/s11356-021-14907-1.

[60] R. M., Crossley, M. H., Elmagrhi, & C. G., Ntim, *Sustainability and Legitimacy Theory: The Case of Sustainable Social and Environmental Practices of Small and Medium-sized Enterprises.* **Business Strategy and the Environment,** *30*(8), 2021. 3740-3762, https://doi.org/10.1002/bse.2837.

61. S. O., Okafor, H. O., Ejelonu, & C. G., Onyekwere, *Financial Inclusion And Micro, Small And Medium Enterprises (Msmes) Development In Nigeria.* **International Journal of Innovation in Engineering,** *2*(2), 2022. 42-53, https://doi.org/10.59615/ijie.2.2.42.

62. A., Patiar, S., Kensbock, P., Benckendorff, R., Robinson, S., Richardson, Y., Wang, & A., Lee, *Hospitality Students' Acquisition of Knowledge and Skills through a Virtual Field Trip Experience.* **Journal of Hospitality & Tourism Education,** *33*(1), 2021. 14-28, https://doi.org/10.1080/10963758.2020.1726768.

63. L., Mann, R., Chang, S.,Chandrasekaran, A., Coddington, S., Daniel, E., Cook, & T. D., Smith, *From Problem-based Learning to Practice-based Education: A Framework for Shaping Future Engineers.* **European Journal of Engineering Education,** *46*(1), 2021. 27-47, https://doi.org/10.1080/03043797.2019.1708867.

64. G., McPhail, *The Search for Deep Learning: A Curriculum Coherence Model.* **Journal of Curriculum Studies,** *53*(4), 2021.420-434, https://doi.org/10.1080/00220272.2020.1748231.

65. Y., Karyanto, R., Asmaul, Z. F. M. R., Fath, A., Junaidi, & F., Sabur, *Evaluating The Dynamic Alignment of Higher Education Curriculum with the Evolving Industry Landscape: A Multi-Dimensional Analysis in the Context of Indonesia*. **International Journal of Teaching and Learning**, *1*(3), 2023. 208-220, https://doi.org/10.1108/s2055-364120230000050007.

66. Y., Chen, E. K., Kumara, & V., Sivakumar, *Investigation of Finance Industry on Risk Awareness Model and Digital Economic Growth.* **Annals of Operations Research,** 2021.1-22, https://doi.org/10.1007/s10479-021-04287-7.

67. A., Reissová, J., Šimsová, R., Sonntag, & K., Kučerová, *The Influence of Personal Characteristics on Entrepreneurial Intentions: International Comparison.* **Entrepreneurial Business and Economics Review,** *8*(4), 2020. 29-46, https://doi.org/10.15678/eber.2020.080402.

68. M. S., Abdullahi, N., Khalid, U., Ahmed, E. M., Ahmed, & A. M., Gumawa, *Effect of Entrepreneurship Education on Entrepreneurial Intention among University Students.* **Journal of Technical Education and Training,** *13*(3), 2021. 40-53, https://doi.org/10.30880/jtet.2021.13.03.005.

69. S., Tomy, & E., Pardede, *An Entrepreneurial Intention Model Focussing on Higher Education.* **International Journal of Entrepreneurial Behavior & Research,** *26*(7), 2020.1423-1447, https://doi.org/10.1108/ijebr-06-2019-0370.

70. M., Henry, T., Bauwens, M., Hekkert, & J., Kirchherr, *A Typology of Circular Start-ups: An Analysis of 128 Circular Business Models.* **Journal of Cleaner Production,** *245*, 2020. 118528, https://doi.org/10.1016/j.jclepro.2019.118528.

[71] D., Audretsch, A., Colombelli, L., Grilli, T., Minola, & E., Rasmussen, *Innovative Start-ups and Policy Initiatives.* **Research Policy,** *49*(10), 2020. 104027, https://doi.org/10.1016/j.respol.2020.104027.

[72] N., Nigam, S., Mbarek, & A., Boughanmi, *Impact of Intellectual Capital on the Financing of Startups with New Business Models.* **Journal of Knowledge Management,** *25*(1), 2021. 227-250, https://doi.org/10.1108/jkm-11-2019-0657.

[73] P. F., Borowski, *Innovation Strategy on the Example of Companies Using Bamboo.* **Journal of Innovation and Entrepreneurship,** *10*(1), 2021. 1-17, https://doi.org/10.1186/s13731-020-00144-2.

[74] L., Agostini, F., Galati, & L., Gastaldi, *The Digitalization of the Innovation Process: Challenges and Opportunities from a Management Perspective.* **European Journal of Innovation Management,** *23*(1), 2020. 1-12, https://doi.org/10.1108/ejim-11-2019-0330.

[75] E., Moradi, S. M., Jafari, Z. M., Doorbash, & A., Mirzaei, *Impact of Organizational Inertia on Business Model Innovation, Open Innovation and Corporate Performance.* **Asia Pacific Management Review,** *26*(4), 2021.171-179, https://doi.org/10.1016/j.apmrv.2021.01.003.

[76] S., Magistretti, M., Bianchi, G., Calabretta, M., Candi, C., Dell'Era, I., Stigliani, & R., Verganti, *Framing the Multifaceted Nature of Design Thinking in Addressing Different Innovation Purposes.* **Long Range Planning,** *55*(5), 2022. 102163, https://doi.org/10.1016/j.lrp.2021.102163.

[77] S., Areed, S. A., Salloum, & K., Shaalan, The R*ole of Knowledge Management Processes for Enhancing and Supporting Innovative Organizations: A Systematic Review.* **Recent Advances in Intelligent Systems and Smart Applications,** 2020.143-161, https://doi.org/10.1007/978-3-030-47411-9_8.

[78] L., Agostini, F., Galati, & L., Gastaldi, *The Digitalization of the Innovation Process: Challenges and Opportunities from a Management Perspective.* **European Journal of Innovation Management,** *23*(1), 1-12, https://doi.org/10.1108/ejim-11-2019-0330.

[79] B., Pel, A., Haxeltine, F., Avelino, A., Dumitru, R., Kemp, T., Bauler, & M. S., Jørgensen, *Towards a Theory of Transformative Social Innovation: A Relational Framework and 12 Propositions.* **Research Policy,** *49*(8), 2020. 104080, https://doi.org/10.1016/j.respol.2020.104080.

[80] G., Elia, A., Margherita, & G., Passiante, *Digital Entrepreneurship Ecosystem: How Digital Technologies and Collective Intelligence are Reshaping the Entrepreneurial Process.* **Technological Forecasting and Social Change,** *150*, 2020.119791, https://doi.org/10.1016/j.techfore.2019.119791.

81. M., Javaid, A., Haleem, R. P., Singh, R., Suman, & E. S., Gonzalez, *Understanding the adoption of Industry 4.0 Technologies in Improving Environmental Sustainability.* **Sustainable Operations and Computers,** *3*, 2022. 203-217, https://doi.org/10.1016/j.susoc.2022.01.008.

82. E. G., Carayannis, & J., Morawska-Jancelewicz, *The Futures of Europe: Society 5.0 and Industry 5.0 as Driving Forces of Future Universities.* **Journal of the Knowledge Economy,** *13*(4), 2022. 3445-3471, https://doi.org/10.1007/s13132-021-00854-2.

83. X., Neumeyer, S. C., Santos, & M. H., Morris, *Overcoming Barriers to Technology Adoption when Fostering Entrepreneurship among the Poor: The Role of Technology and Digital Literacy.* **IEEE Transactions on Engineering Management,** *68*(6), 2020. 1605-1618, https://doi.org/10.1109/tem.2020.2989740.

84. F., Almeida, J. D., Santos, & J. A., Monteiro, *The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World.* **IEEE Engineering Management Review,** *48*(3), 2020. 97-103, https://doi.org/10.1109/emr.2020.3013206.

85. R., Bunn, E., Burman, J., Warne, J., Bull, & J., Field, *Tracking Building Operational Energy and Carbon Emissions Using S-curve Trajectories – A Prototype Tool.* **Building Services Engineering Research and Technology,** *44*(2), 2023. 135-154, https://doi.org/10.1177/01436244221145392.

86. R., Way, M. C., Ives, P., Mealy, & J. D., Farmer, *Empirically Grounded Technology Forecasts and the Energy Transition.* **Joule,** *6*(9), 2022. 2057-2082, https://doi.org/10.1016/j.joule.2022.08.009.

87. M., Lockwood, *Exploring Value Propositions to Drive Self-sovereign Identity Adoption.* **Frontiers in Blockchain,** *4*, 2021. 611945, https://doi.org/10.3389/fbloc.2021.611945.

88. E., Kemp, E., Briggs, & N. A., Anaza, *The Emotional Side of Organizational Decision-making: Examining the Influence of Messaging in Fostering Positive Outcomes for the Brand.* **European Journal of Marketing,** *54*(7), 2020. 1609-1640, https://doi.org/10.1108/ejm-09-2018-0653.

89. E., Toufaily, T., Zalan, & S. B., Dhaou, *A Framework of Blockchain Technology Adoption: An Investigation of Challenges and Expected Value.* **Information & Management,** *58*(3), 2021. 103444, https://doi.org/10.1016/j.im.2021.103444.

90. M. M., Sodirjonov, *Education as the Most Important Factor of Human Capital Development.* **Theoretical & Applied Science,** (4), 2020. 901-905, https://doi.org/10.15863/tas.2020.04.84.161.

[91] N., Aboobaker, *Human Capital and Entrepreneurial Intentions: Do Entrepreneurship Education and Training Provided by Universities Add Value?.* **On the Horizon,** *28*(2), 2020. 73-83, https://doi.org/10.1108/oth-11-2019-0077.

[92] G. S., Becker, *The Economic Approach: Unpublished Writings of Gary S. Becker*. **University of Chicago Press.** 2023, https://doi.org/10.7208/chicago/9780226827216.001.0001.

[93] D. J. Deming, *Four Facts about Human Capital.* **Journal of Economic Perspectives,** *36*(3), 2022. 75-102, https://doi.org/10.1257/jep.36.3.75.

[94] K., Soyer, H., Ozgit, & H., Rjoub, *Applying an Evolutionary Growth Theory for Sustainable Economic Development: The Effect of International Students as Tourists.* **Sustainability,** *12*(1), 2020. 418, https://doi.org/10.3390/su12010418.

[95] A., Sani, *The Role of Information and Interaction Processes and Participatory Rural Communication Appraisal in Enhancing the Acceptance of Diffusion of Innovation Theory.*2022, https://doi.org/10.4135/9788132108382.n5.

[96] M., Guidolin, & P., Manfredi, *Innovation Diffusion Processes: Concepts, Models, and Predictions.* **Annual Review of Statistics and Its Application,** *10*, 2023. 451-473, https://doi.org/10.1146/annurev-statistics-040220-091526.

[97] S. F., Everton, & S., Pfaff, *Historical and Comparative Research on Social Diffusion: Mechanisms, Methods, and Data.* **Social Science History,** *46*(2), 2022.431-472, https://doi.org/10.1017/ssh.2021.46.

[98] D., De Zayas, & J., Matusitz, *Understanding the Dissemination of ISIS Beheading Videos through the Diffusion of Innovations (DoI) Theory.* **Journal of Policing, Intelligence and Counter Terrorism,** *16*(3), 2021. 205-222, https://doi.org/10.1080/18335330.2021.1892168.

[99] A., Fernández-Zubieta, *Diffusion of Innovation, Innovation Studies, and Innovation Policies: Cross-fertilisation to Improve Smart Specialisation Strategies (S3).* **Innovation: The European Journal of Social Science Research,** 2023.1-30, https://doi.org/10.1080/13511610.2023.2208295.

[100] M., Standage, & R. M., Ryan, *Self-determination Theory in Sport and Exercise.* **Handbook of Sport Psychology,** 37-56, 2020, https://doi.org/10.1002/9781119568124.ch3.

[101] Y., Luo, J., Lin, & Y., Yang, *Students' Motivation and Continued Intention with Online Self-regulated Learning: A Self-determination Theory Perspective.* **Zeitschrift für Erziehungswissenschaft,** *24*(6), 2021. 1379-1399, https://doi.org/10.1007/s11618-021-01042-3.

[102] M., Brière, J., Le Roy, & O., Meier, *Linking Servant Leadership to Positive Deviant Behavior: The Mediating Role of Self-determination Theory.* **Journal of Applied Social Psychology,** *51*(2), 2021. 65-78, https://doi.org/10.1111/jasp.12716.

[103] M., Tang, D., Wang, & A., Guerrien, *A Systematic Review and Meta-analysis on Basic Psychological Need Satisfaction, Motivation, and Well-being in Later Life: Contributions of Self-determination Theory.* **PsyCh Journal,** *9*(1), 2020. 5-33, https://doi.org/10.1002/pchj.293.

[104] B., Orazbayeva, P., van der Sijde, & T., Baaken, *Autonomy, Competence and Relatedness–the Facilitators of Academic Engagement in Education-driven University-Business Cooperation.* **Studies in Higher Education,** *46*(7), 2021. 1406-1420, https://doi.org/10.1080/03075079.2019.1679764.

[105] I., Karsten, K., Steenekamp, & M., Van der Merwe, *Empowering Accounting Students to Enhance the Self-determination Skills Demanded by the Fourth Industrial Revolution.* **South African Journal of Higher Education,** *34*(2), 2020. 36-58, https://doi.org/10.20853/34-2-3487.

[106] J., Ferrer, A., Ringer, K., Saville, M., A Parris, & K., Kashi, *Students' Motivation and Engagement in Higher Education: The Importance of Attitude to Online Learning.* **Higher Education,**1-22, 2020, https://doi.org/10.1007/s10734-020-00657-5.

[107] A., Kaur, & M., Noman, *Investigating Students' Experiences of Students as Partners (SaP) for Basic Need Fulfilment: A Self-determination Theory Perspective.* **Journal of University Teaching & Learning Practice,** *17*(1), 2020. 8, https://doi.org/10.53761/1.17.1.8.

[108] A. A., Iyke, & B. C., Onuoha, *Entrepreneurial Networking and Resilience of SMES in Abia State, Nigeria.* **International Academic Journal of Business School Research,** *8*(7), 2023. 32-49, **https://doi.org/10.6007/ijarbss/v13-i3/16218.**

[109] A. O., Adeniyi, E., Derera, & V., Gamede, *Entrepreneurial self-efficacy for Entrepreneurial Readiness in a Developing Context: A Survey of Exit Level Students at TVET Institutions in Nigeria.* **SAGE Open,** *12*(2), 2022. 21582440221095059, https://doi.org/10.1177/21582440221095059.

[110] B. I., Gumel, *Mitigating the Challenges of Small and Medium Enterprises in Nigeria. Gumel, BI (2019). Mitigating the Challenges of Small and Medium Enterprises in Nigeria.* **SEISENSE Journal of Management,** *2*(3), 2019. 82-99, https://doi.org/10.33215/sjom.v2i3.129.

[111] R. O., Owenvbiugie, *Influence of Resilience on Survival of Small and Medium Enterprises.* **International Business Education Journal,** *13*(1), 2020. 127-132, https://doi.org/10.37134/ibej.vol13.1.10.2020.

[112] G. K.., Amegayibor, *The Effect of Demographic Factors on Employees' Performance: A Case of an Owner-manager Manufacturing Firm.* **Annals of Human Resource Management Research,** *1*(2), 2021. 127-143, https://doi.org/10.35912/ahrmr.v1i2.853.

[113] H., Miço, & J., Cungu, *Entrepreneurship Education, a Challenging Learning Process towards Entrepreneurial Competence in Education.* **Administrative Sciences,** *13*(1), 2023. 22, **https://doi.org/10.3390/admsci13010022.**

[114] C. A., Stella, *Perceived Influence of Drug Abuse on Undergraduates' Suicidal Tendencies in the University of Lagos.* **International Journal of Educational Research,** *10*(1), 2022. 131-138, https://doi.org/10.48028/iiprds/ijarssest.v7.i1.05.

[115] C., Akwei, & C., Nwachukwu, *An Exploration of Contextual Factors Affecting the Nexus of Competitive Strategy and Human Resource Management Practices in Nigeria Emerging Economy Context.* **The International Journal of Human Resource Management,** *34*(16), 2023. 3079-3122, https://doi.org/10.1080/09585192.2022.2104128.

[116] P., Anosike, & S., Oluwatobi, *Higher Education Contexts of Entrepreneurship Education Outcomes in Sub-Saharan Africa.*2021, https://doi.org/10.33423/jhetp.v21i3.4151.

[117] A. N., Ngele, *Entrepreneurial Development and Employment Creation: A Focus on Education and Financial Aid as a Sustainable Option for Youths in Nigeria.* **Journal of Global Economics and Business,** *1*(3), 2020. 19-39, **https://doi.org/10.31039/jgeb.v1i3.84.**

[118] D. B. P., Ilori, & T. A., Ayedun, *Assessment of Entrepreneurship Education and Entrepreneurial Skills on Unemployment Reduction among Young Nigerian Graduates.* **education,** *1*(2), 2022, https://doi.org/10.14293/s2199-1006.1.sor-.ppb7v8t.v1.

[119] B. I., Gumel, & B. B., Bardai, *Barriers to accessing financial institutions funding for Nigerian SMEs. Babandi Ibrahim Gumel, Barjoyal Bin Bardai. Barriers to Accessing Financial Institutions Funding for Nigerian SMEs.* **International Journal of Business and Economics Research,** *10*(6), 2021. 219-226, **https://doi.org/10.11648/j.ijber.20211006.12.**

[120] B. A., Brimah, R. O., Rabiu, A. G., Bamidele, & M. O., Sheu, *Fostering Entrepreneurial Mentoring Culture for Sustainable Leadership Performance in Nigeria: Evidence from Selected SMEs in Ilorin Metropolis.* 2020, *https://doi.org/10.21272/bel.4(3).73-80.2020.*

[121] A., Adedeji, O., Opeyemi, & O., Rapheal, *Business Climate Factors affecting Economic Growth of Small Scale Construpreneurs in Nigeria.* **International Journal of Innovative Technology and Exploring Engineering,** *9*(4), 2020.1597-1606, **https://doi.org/10.35940/ijitee.a4635.029420.**

[122] O., Asikhia, & V., Naidoo, *Assessment of the Moderating Effects of Nigerian Market Environment on the Relationship between Management Success Determinants and SMEs'*

Performance. **Problems and Perspectives in Management,** *18*(4), 2021. 388, **https://doi.org/10.21511/ppm.18(4).2020.31.**

[123.] K. C., Agbim, *Determining the Contributory Factors to Successful Succession and Post-succession Performance of Family-owned SMEs in South Eastern Nigeria.* **International Entrepreneurship Review,** *5*(2), 2019. 53, https://doi.org/10.15678/ier.2019.0502.04.

[124.] H. A., Bazkiaei, L. H., Heng, N. U., Khan, R. B. A.,Saufi, & R. S. R.,Kasim, *Do Entrepreneurial Education and Big-five Personality Traits Predict Entrepreneurial Intention among Universities Students?.* **Cogent business & management,** *7*(1), 2020. 1801217, https://doi.org/10.1080/23311975.2020.1801217.

[125.] T. O., Akenroye, J. D., Owens, J.,Elbaz, & O. A., Durowoju, *Dynamic Capabilities for SME Participation in Public Procurement.* **Business Process Management Journal,** *26*(4), 2020. 857-888, https://doi.org/10.1108/bpmj-10-2019-0447.

[126.] T. S., Ternenge, O. M., Uchejeso, & G. L., Philemon, *Entrepreneurship Education as a Vital Tool for Wealth Creation and Unemployment Reduction in Nigeria.* **East African Scholars Journal of Economics, Business and Management** *3*(11), 2020. 891-898, **https://doi.org/10.36349/easjebm.2020.v03i11.005.**

[127.] O., Joseph, & A., Adewunmi, *Impact of Entrepreneurship Education on the Development of Small and Medium Enterprise in Nigeria.* 2020https://doi.org/10.22617/tcs200311-2.

[128.] S. A., Bayero, *Influence of Entrepreneurial Education and Attitude on Entrepreneurial Intention of Graduating Students in a Nigerian University.* **Online Submission,** *1*(2), 2020. 26-55, https://doi.org/10.53378/345654.

[129.] S. A., Bayero*, Influence of Entrepreneurial Education and Attitude on Entrepreneurial Intention of Graduating Students in a Nigerian University.* **Online Submission,** *1*(2), 2020. 26-55, https://doi.org/10.53378/345654.

[130.] E. G., Adewole, & T. A., Umoru, *Perceived Influence of Business Environment on Small and Medium Scale Enterprises Success in Nigeria.* **European Journal of Business and Management Research,***6*(6), 2021. 195-200, **https://doi.org/10.53378/345654.**

[131.] K. K., Ogujiuba, & E. G., Olamide, *Effect of contextual factors on entrepreneurship success in South Africa: Application of Two-way Analysis of Variance Design.* **Academy of Entrepreneurship Journal,** 2021, **https://doi.org/10.3390/admsci13050127.**

[132.] Y. A., Roseline, R. R., Ibrahim, & O. A., Opeyemi, *Effect of Entrepreneurship Development on Women Graduates of the National Centre for Women Development,*

Abuja. **International Journal of Multidisciplinary Research and Technology,** *1*(3), 2020. 1-15, https://doi.org/10.31305/rrijm.2020.v06.i02.010.

[133.] O. I. E., Nuel, & A. C., Chika, *Uncovering the Relationship between Entrepreneurship Training on Business Growth among SMEs in Southeast Nigeria.* **European Journal of Business and Management Research,** *7*(1), 2022. 224-228, https://doi.org/10.24018/ejbmr.2022.7.1.1278**.**

[134.] S., Nuhu, N., Abddulraheem, H., Abubakar, A., Abdurauf, & K., Sulaiman, *Entrepreneur Skills as Determinants to Job Opportunities among LIS Postgraduate Students in University of Ilorin.*2021, *https://doi.org/10.47191/ijsshr/v5-i9-28.*

[135.] J. I. G., Yakubu, & B. C., Onuoha, *Entrepreneurial Personality and Performance of Small and Medium Enterprises in Rivers State.* **African Journal of Business and Economic Development|ISSN,** 2022. *2782*, 7658, **https://doi.org/10.47191/ijsshr/v5-i9-28.**

[136.] B. M., Pulka, A., Ramli, & A., Mohamad, *Entrepreneurial competencies, Entrepreneurial Orientation, Entrepreneurial Network, Government Business Support and SMEs Performance. The Moderating Role of the External Environment.* **Journal of Small Business and Enterprise Development,** *28*(4), 2021. 586-618, **https://doi.org/10.1108/jsbed-12-2018-0390.**

[137.] G. J., Pepple, & R. O., Enuoh, *Entrepreneurial Competencies: A Required Skill for Business Performance.* **European Journal of Business and Innovation Research,***8*(3), 2020. 50-61, **https://doi.org/10.37745/ejbir/vol8.no3.pp50-61.**

[138.] F., Peter, S. C., Eze, M., Adeyeye, K., Osigwe, A., Peter, E., Adeyemi, & T., Asiyanbola, *Entrepreneurship Education and Venture Intention of Female Engineering Students in a Nigerian University.* **International Journal of Higher Education,** *10*(4), 2021. 9-20, https://doi.org/10.5430/ijhe.v10n4p9.

[139.] C. C., Orga, V. C., Aniezue, N. N., Unaogu, B. O., Emehelu, C. H., Ugwa, & M., Udeagha, *Entrepreneurship Education and Performance of Small and Medium Enterprises (SMES) in Enugu State.* **Interdisciplinary Research Journal of Management and Social Sciences (IRJMSS),***10*(3), 2023. 38-60, **https://doi.org/10.47191/jefms/v6-i6-56.**

[140.] A. A., Fabian, O. F., Chinedu, & N. H., Ngozi, *Entrepreneurship Education and Business Success of Women Entrepreneurs in Awka, Anambra State, Nigeria.* **International Journal of Academic Research in Business and Social Sciences,** *12*(5), 2022, **https://doi.org/10.6007/ijarbss/v12-i5/13203.**

[141.] A. C., Gandolph, O. E. A. F. L., Kolawole, O. O., Joshua, & A. A., Gbolahan, *Environmental Impacts and Organization Business Survival on SMEs.* **Glob. Sci. J,***9*. 2021, **https://doi.org/10.4324/9781003216483-19.**

[142.] M., Krubally, H., Singh, N., Balder, H., Ullah, & A., Maaodhah, *Exploring SMEs Growth in the Greater Banjul Area of The Gambia.* **International Journal of Advanced and Applied Sciences,** *6*(8), 2019. 82-89, **https://doi.org/10.21833/ijaas.2019.08.012.**

[143.] P., Agu Igwe, & C., Ochinanwata, *How to Start African Informal Entrepreneurial Revolution?.* **Journal of African Business,** *22*(4), 2021. 514-531, **https://doi.org/10.1080/15228916.2021.1954447.**

[144.] C. B., Okoro, E. B., Ewah, & S. C., Ndema, *Failure and Success of Entrepreneurs in Nigeria: An Empirical Review.* **International Academic Journal of Business School Research,** *8*(4), 2020. 1-21, **https://doi.org/10.6007/ijarbss/v3-i8/140.**

[145.] Mugo, Kahuthia,& Kinyua, *Examined the Effects of Infrastructure on Growth of Small and Medium Enterprises in Kenya,* 2019, *https://doi.org/10.2499/9780896294561_14.*

[146.] S. I., Egwunatum, & J. C., Oboreh, *Factors Limiting Knowledge Management among Construction Small and Medium Enterprises.* **Journal of Engineering, Project, and Production Management,** *12*(1), 2022.1, https://doi.org/10.32738/jeppm-2022-0003.

[147.] E. O., Ajibola, *Nigeria Small and Medium Enterprise Sustainability Strategies* **(Doctoral dissertation, Walden University),** 2020, **https://doi.org/10.26634/jsch.9.4.2708.**

[148.] I. K., Mong, & C. C., Okolocha, *Assessment of Accounting Competencies Possessed by Business Education Graduates for Handling Entrepreneurship Challenges in Abia State, Nigeria.* **International Journal of Accounting Research,** *4*(2), 2019. 1-11, https://doi.org/10.12816/0055274.

[149.] E. T., Maziriri, & A., Chivandi, *Modelling key Predictors that Stimulate the Entrepreneurial Performance of Small and Medium-sized Enterprises (SMEs) and Poverty Reduction: Perspectives from SME Managers in an Emerging Economy***. Acta Commercii,***20*(1), 2020. 1-15, **https://doi.org/10.4102/ac.v20i1.773.**

[150.] S., Adeel, A. D., Daniel, & A., Botelho, *The effect of Entrepreneurship Education on the Determinants of Entrepreneurial Behaviour among Higher Education Students: A multi-group analysis.* **Journal of Innovation & Knowledge,** *8*(1), 2023. 100324, https://doi.org/10.1016/j.jik.2023.100324.

[151.] M. F., Shahzad, K. I., Khan, S., Saleem, & T., Rashid, *What Factors Affect the Entrepreneurial Intention to Start-ups? The Role of Entrepreneurial Skills, Propensity to take Risks, and Innovativeness in Open Business Models.* **Journal of Open Innovation: Technology, Market, and Complexity,** *7*(3), 2021. 173, **https://doi.org/10.3390/joitmc7030173.**

[152] N. P., Onyekwelu, & O. N., Oyeogubalu, *Entrepreneurship Development and Employment Generation: A Micro, Small and Medium Enterprises Perspective in Nigeria.* **International Journal of Contemporary Applied Researches,** *7*(5), 2020. 26-40, https://doi.org/10.31142/ijtsrd14448.

[153] C. C., Okolocha, & C. L., Uzoezie, *Entrepreneurs'rating of Entrepreneurship Skills Needed by Business Education Graduates For Effective Management Of Small Scale Businesses In ANAMBRA STATE.* **Arabian Journal of Business and Management Review (Kuwait Chapter),***10*(3), 2021. 115-122, **https://doi.org/10.12816/0059658.**

[154] O., Ustyuzhina, A., Mikhaylova, & A., Abdimomynova, *Entrepreneurial competencies in higher education.* ***Journal of Entrepreneurship Education,*** *22*(1), 2019. 1-14, https://doi.org/10.12657/9788379862801-3.

[155] A. I. B., Muhammad, & I., Umar*, Artilce Marketing Mix as Determinant of Sustainability of Small-Scale Business in Alkaleri, Bauchi State, Nigeria.* **CMU Academy Journal of Management and Business Education,** *1*(1), 2022. 50-56, https://doi.org/10.47191/jefms/v6-i5-11.

[156] A., Adebayo, M. O., Nuberu, R. O., Agbonna, & C., Godwin, *Accounting, Management and Technological Innovation Skills as Impediments For Small and Medium Scale Enterprises (SMES) Sustainability in Ogun State, Nigeria.* **KWASU International Journal of Education (KIJE),** *5*(1), 2022. 67-79, https://doi.org/10.3726/978-3-653-00753-4/11.

[157] M., Lateef, & P., Keikhosrokiani, *Predicting Critical Success Factors of Business Intelligence Implementation for Improving SMEs' Performances: A Case Study of Lagos State, Nigeria.* **Journal of the Knowledge Economy,** 2022. 1-26, **https://doi.org/10.1007/s13132-022-00961-8.**

[158] M. A., Khan, *Barriers Constraining the Growth of and Potential Solutions for Emerging Entrepreneurial SMEs.* **Asia Pacific Journal of Innovation and Entrepreneurship,** *16*(1), 2022. 38-50, https://doi.org/10.1108/apjie-01-2022-0002.

[159] F. M., Ilevbare, O. E., Ilevbare, C. M., Adelowo, & F. P., Oshorenua, *Social Support and Risk-taking Propensity as Predictors of Entrepreneurial Intention among Undergraduates in Nigeria.* **Asia Pacific Journal of Innovation and Entrepreneurship,***16*(2), 2022. 90-107, **https://doi.org/10.1108/apjie-02-2022-0010.**

[160] A. M., Shika, A. M., Shomoye, & E. E., Ojarikre, *Influence of Managerial Competencies on Small and Medium Enterprise Performance.* **Advances in Accounting, Management, Business and Economics Journal,***1*(1), 2021. 26-36, **https://doi.org/10.2991/aebmr.k.220204.020.**

[161] I. S., Ogundele, *Perceived Entrepreneurship Competencies Required by Business Education Students in Establishing Small Scale Ventures in Kwara State.* **KWASU Journal of the Business of Education,***3*(1), 2022. 20-28, **https://doi.org/10.2991/aebmr.k.220204.020.**

[162] U. A., Babayayi, M., Zubairu, & A. M., Badara, *Impact of Entrepreneurial Competencies on the Performance of Small and Medium Sized Enterprises in North-East Region of Nigeria.* **Gusau International Journal of Management and Social Sciences,***4*(3), 2021. 19-19, **https://doi.org/10.4337/9781802205770.00012.**

[163] Okeke, & Ezenwafor. *Perceived Challenges of Start Up of Small and Medium Scale Enterprises Among Business Education Graduates in Federal Colleges of Education in North-East, Nigeria.* **Kashere Journal of Education,***2*(2), 2021. 143-151, **https://doi.org/10.4314/kje.v2i2.18.**

[164] S., Jemal, *Effect of Entrepreneurial Mindset and Entrepreneurial Competence on Performance of Small and Medium Enterprise, Evidence from Litrature Review.* **International Journal of Management & Entrepreneurship Research**, *2*(7), 2020. 476-491, https://doi.org/10.51594/ijmer.v2i7.197.

[165] R., Roopchund, *Analysing the Role of National Women Entrepreneurship Council in Promoting Entrepreneurial Culture in Mauritius.* **Technium Soc. Sci. J.,** *9*, 2020. 377, **https://doi.org/10.47577/tssj.v9i1.971.**

[166] E. C., Okafor, R. S., Awak, & R. K. D., Jah, *Business Education: A Tool for Poverty Alleviation.* **Nigerian Journal of Business Education (NIGJBED),** *6*(1), 2019. 117-122, https://doi.org/10.4314/njgc.v13i1.36971.

[167] N. I., Akeke, H. O., Adetayo, A. R., Akeke, & M. O., Oyebanji, *Strategic Leadership and Performance of Small and Medium Enterprises: The Role of Strategic Interventions.* **Modern Management Review,** *26*(3), 2021. 7-15, **https://doi.org/10.7862/rz.2021.mmr.13.**

[168] A., Meshack, M. G., Orji, & N. G., Ogechukwu, *Poverty Reduction in Awka Metropolis: The Role of Entrepreneurship Productivity.* **Economit Journal: Scientific Journal of Accountancy, Management and Finance,** *2*(3), 2022. 244-262, https://doi.org/10.33258/economit.v2i3.794.

[169] A. F., Anoke, A. N., Onu, & O. C., Agagbo, *Managerial Competencies and Growth of Small and Medium Enterprise (SMEs) in Abuja Metropolis, Nigeria.* **International Journal of Financial, Accounting, and Management,** *4*(3), 2022. 255-268, https://doi.org/10.35912/ijfam.v4i3.811.

[170.] Z., Mwaniki, S., Nyang'au, & P., Ngugi, *Relationship between Entrepreneurial Team and Growth of Small and Medium Manufacturing Enterprises in Kenya.* **International Journal of Entrepreneurship and Project Management,** *7*(1), 2022.1-13, **https://doi.org/10.47604/ijepm.1490.**

[171.] O. F., Bello, & Y. I., Mustapha, *Determinants of Access to Finance among Manufacturing Micro, Small and Medium Enterprises in Nigeria.* **Kelaniya Journal of Management***,* 10(1), 65. 2021, 65-79 **https://doi.org/10.4038/kjm.v10i1.7627.**

[172.] M., Ezema, O., Adegbuyi, F., Olokoyo, & C., Moses, *Support Systems, Entrepreneurship Education and the Challenges of Start-Ups in Developing Economies.* **In ICERI2020 Proceedings,** 2020, 9543-9552, **https://doi.org/10.21125/iceri.2020.2127.**

[173.] T. N., Radebe, *The Challenges/barriers Preventing the South African Youth in Becoming Entrepreneurs: South African Overview.* **Journal of Economics and Behavioral Studies,** *11*(4 (J)), 2019. 61-70, https://doi.org/10.22610/jebs.v11i4(j).2921.

[174.] M. M., Ma'aji, R. S., Shrubsall, & E. O., Anderson, *Determinants of SME Success or Failure in Frontier Markets.* **International Journal of Banking and Finance,** *18*(1), 2023.1-30, https://doi.org/10.32890/ijbf2023.18.1.1.

[175.] F. A., Zainol, M. N. H.,Yusoff, H. A., Shiyuti, R. H., Redzuan, & N. M., Said, *The Government Business Support Strategies, Micro SMEs and Covid-19 Pandemic.***In International Conference on Business and Technology** (pp. 493-509). **Cham: Springer International Publishing.** 2021, **https://doi.org/10.1007/978-3-031-08087-6_35.**

[176.] I. R., Nseobot, & A. I., Effiong, *Entrepreneurship Educations of Prison Inmatesin Nigeria: Effects on Skills Acquisition for Self Reliance.* **International Journal of Organizational Business Excellence,** *2*(2), 2019. 71-82, https://doi.org/10.21512/ijobex.v2i2.7134.

[177.] O. F., Bello, & Y. I., Mustapha, *Determinants of Access to Finance among Manufacturing Micro, Small and Medium Enterprises in Nigeria.* **Kelaniya Journal of Management,** *10*(1), 2021.65, https://doi.org/10.4038/kjm.v10i1.7627.

[178.] E. B., Ekeng, L. O., Arop, M. E., Ngwu, & S. I., Ukwekie, *Analysis of Child Right and Parental Influence on Career Choice and Development in Nigeria.* **J Adv Educ Philos,** *6*(5), 2022. 301-305, https://doi.org/10.36348/jaep.2022.v06i05.007.

[179.] N. S., Alaka, & O., Okogua, *Evaluating the Effects of Entrepreneurial Orientation and Managerial Skills on Small and Medium Enterprises Performance in Lagos State.***The Winners,**23(2), 2022. 153-160, https://doi.org/10.21512/tw.v23i2.7897.

[180.] Z., Zamrudi, & F., Yulianti, *Sculpting Factors of Entrepreneurship among University Students in Indonesia.* **Entrepreneurial Business and Economics Review,** *8*(1), 2020. 33-49, https://doi.org/10.15678/eber.2020.080102.

[181.] E., Supardi, F. J., Islamy, S. A., Muhidin, & N., Sutarni, *How to Educate Students to become Competent Entrepreneurs.* **Cakrawala Pendidikan,** *41*(1), 2022. 142-153, https://doi.org/10.21831/cp.v41i1.45912.

[182.] K. O., Omeihe, A., Simba, D., Rae, V., Gustafsson, & M. S., Khan, *Trusting in Indigenous Institutions: Exporting SMEs in Nigeria.* **Journal of Small Business and Enterprise Development,** *28*(7), 2021. 1117-1142, https://doi.org/10.1108/jsbed-03-2020-0082.

[183.] F. A., Alabi, J. O., David, & O. C., Aderinto, *The Impact of Government Policies on Business Growth of SMEs in South Western Nigeria.***International Journal of Management Studies and Social Science Research,** 1(2), 2019. 1-14, **https://doi.org/10.47191/ijmra/v5-i2-32.**

[184.] M. A., Khan, S. S., Zubair, K., Rathore, M., Ijaz, S., Khalil, & M., Khalil, *Impact of Entrepreneurial Orientation Dimensions on Performance of Small Enterprises: do Entrepreneurial Competencies Matter?*. **Cogent Business & Management,***8*(1), 2021. 1943241, https://doi.org/10.1080/23311975.2021.1943241.

[185.] J. E., Ekong, A. A., Mfon, & N. I., Ibok, *Innovative Marketing Skills and Business Performance of Small and Medium Scale Enterprises (SMEs) in Akwa Ibom State, Nigeria.* **International Journal of Business and Management Review,** *11*(3), 2023. 48-64, https://doi.org/10.37745/ijbmr.2013/vol11n34864.

[186.] I., Al Shabibi, *Planning for Entrepreneurialism in a Rentier state Economy: Entrepreneurship Education for Economic Diversification in Oman* **(Doctoral dissertation, Cardiff University).** 2020, **https://doi.org/10.2307/j.ctv86ddhv.11.**

[187.] O., Jegede, & C., Nieuwenhuizen*, Effects of Entrepreneurial Orientation and external Business Environment on Entrepreneurial Intentions of STEM Students in Nigeria.* **Journal of Contemporary Management,** *18*(2), 2021.42-66, https://doi.org/10.35683/jcm21026.119.

[188.] I., Taiwo, & A. O., Joseph, *Analyses of Entrepreneurship Education on Entrepreneurial Intention among Undergraduates Students in Nigeria.* **European Journal of Business and Innovation Research,** *8*(8), 2020. 1-18, https://doi.org/10.7176/ejbm/11-20-09.

[189.] H. A., Buchory, *Analysis Of Factors Affecting Implementation Banking Intermediation Function (Study On Regional Development Bank All Over Indonesia Year 2012).*2021, https://doi.org/10.35609/jfbr.2020.5.1(2).

[190.] J. M. A., Kanaan-Jebna, T. T. Y., Alabdullah, E. R., Ahmed, & R. K., Ayyasamy, *Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies.*2022, https://doi.org/10.21272/bel.6(2).68-77.2022.

[191.] M. A., Khan, K., Rathore, S. S., Zubair, A. T., Mukaram, & K. M., Selem, *Encouraging SMEs Performance through Entrepreneurial Intentions, Competencies, and Leadership: Serial Mediation Model.* **European Business Review,**2023, https://doi.org/10.1108/ebr-04-2023-0119.

[192.] S. A., Kowo, O. A. O., Adenuga, & O. O., Sabitu, *The Role of SMEs Development on Poverty Alleviation in Nigeria.* **Insights into Regional Development,** *1*(3), 2019. 214-226, https://doi.org/10.9770/ird.2019.1.3(3).

[193.] M. J., Mallo, *Factors Determining The Growth of Youth Owned Small and Medium Enterprises in Nigeria: A Study of Abubakar Tafawa Balewa University, Bauchi.https://doi.org/10.30880/ijie.2020.12.07.006.*

[194.] L., Raphael, *Determinants of Small and Medium Enterprises' Performance: A Case of Ilala District in Dar Es Salaam, Tanzania* **(Doctoral dissertation, Mzumbe University).** 2020, **https://doi.org/10.4018/978-1-7998-2967-6.ch002.**

[195.] S. C., Eze, V. C., Chinedu-Eze, A. O., Bello, H., Inegbedion, T., Nwanji, & F., Asamu, *Mobile Marketing Technology Adoption in Service SMEs: A Multi-perspective Framework.* **Journal of Science and Technology Policy Management,** *10*(3), 2019.569-596, https://doi.org/10.1108/jstpm-11-2018-0105.

[196.] T. S., Msomi, & O. M., Olarewaju, *Factors Affecting Small and Medium Enterprises' Financial Sustainability in South Africa.* **African Journal of Inter/Multidisciplinary Studies,** *3*(1), 2021.103-117, https://doi.org/10.51415/ajims.v3i1.893.

[197.] C. O., Gbemigun, & W. H., Agbaje, *Financial Accounting Literacy and Growth of Small and Medium Scale Enterprises (SMEs) in Ondo state.* **Nigerian Academy of Management Journal,** *17*(2), 2022. 105-114, https://doi.org/10.3726/978-3-653-00753-4/12.

[198.] T. R., Ncube, & R. W. D., Zondo, *Entrepreneurial Attributes Responsible for Small and Medium Enterprise Growth in South Africa: Small and Medium Enterprise Owners' Perspectives.* **International Journal of Special Education;** *Vol. 37,* 2022. *Issue 3*, *https://doi.org/10.5172/ser.2013.20.1.40.*

[199.] N. N., Ndala, & T., Pelser, *Examining the Effectiveness of Entrepreneurship Policy Implementation in Malawi.* **Journal of Contemporary Management,** *16*(2), 2019. 234-255, https://doi.org/10.35683/jcm19036.34.

[200] N., Ochinanwata, P. O., Ezepue, T. C., Nwankwo, C., Ochinanwata, & P. A., Igwe, *Public–private Entrepreneurial Financing Partnership Model in Nigeria.* **Thunderbird International Business Review,** *63*(3), 2021. 369-379, https://doi.org/10.1002/tie.22194.

[201] G. B. E., Obinna, *Prospects, Limitations and Challenges in the Concept and Application of ICT on SMEs in Rivers State.* **International Journal of Business Systems and Economics,** *13*(5), 2022. 117-129, https://doi.org/10.56201/ijebm.v8.no5.2022.pg76.89.

[202] A. N. A., Rozmi, P. N., Nohuddin, A., Hadi, A., Razak, A., Bakar, M., Izhar, & A. I., Nordin, *Factors Affecting SME Owners in Adopting ICT in Business Using Thematic Analysis*2020, *https://doi.org/10.14569/ijacsa.2020.0110727.*

[203] K., Okundaye, S. K., Fan, & R. J., Dwyer, *Impact of Information and Communication Technology in Nigerian Small-to Medium-sized Enterprises.* **Journal of Economics, Finance and Administrative Science,** *24*(47), 2019. 29-46, https://doi.org/10.1108/jefas-08-2018-0086.

[204] M. M., Thottoli, & E. R., Ahmed, *Information Technology and E-accounting: Some Determinants among SMEs.* **Journal of Money and Business,***2*(1), 2022. 1-15, **https://doi.org/10.1108/jmb-05-2021-0018.**

[205] A., Adebayo, M. O., Nuberu, R. O., Agbonna, & C., Godwin, *Accounting, Management and Technological Innovation Skills as Impediments for Small and Medium Scale Enterprises (Smes) Sustainability in Ogun State, Nigeria.***KWASU International Journal of Education (KIJE),** 5(1), 2022. 67-79, **https://doi.org/10.3726/978-3-653-00753-4/11,**

[206] S., Park, *Success Stories of ICT Adoption by Nigerian SMEs during the Covid-19 Pandemic.* **International Journal of Business and Management Sciences**,*3*(1), 2022.1-20, https://doi.org/10.46254/na07.20220538.

[207] V. N., Chukwurah, M. M., Isede, & N. G., Okocha, *New Technologies for Entrepreneurial Competencies of Small and Medium Enterprises in Nigeria.* **South Eastern Journal of Research and Sustainable Development (SEJRSD),** *11*(2), 2023. 69-96, https://doi.org/10.7176/jesd/14-14-06

[208] N. S., Al Busaidi, A. B., Bhuiyan, & N., Zulkifli, *Does Marketing Capabilities Mediate on The ICT'S Adoption and Business Performance of The SMES in Oman? Conceptual Review.* **American International Journal of Business and Management Studies,** *4*(1), 2022. 1-11, https://doi.org/10.46545/aijbms.v4i1.279**.**

[209] K. H., Keoy, C. L., Thong, A. K., Cherukuri, Y. J., Koh, S. M., Chit, L., Lee,... & C. L. Kwek, *An Investigation on the Impact of Technological Enablement on the Success of Entrepreneurial Adoption among Higher Education Students: A Comparative Study.* **Journal**

of Information & Knowledge Management, *22*(01), 2023. 2250060, https://doi.org/10.1142/s0219649222500605.

210. M., Ngibe, & L. M., Lekhanya, *Innovative Leadership in South African Manufacturing Small Medium Enterprises within KwaZulu-Natal.* **Journal of Contemporary Management,** *16*(2), 2019. 300-330, https://doi.org/10.35683/jcm19034.37.

211. U. S., Otika, N. J., Anene, O. B., Osuagwu & D. B., Uche, *Factors Influencing Adoption of Electronic-Marketing among Small and Medium E nterprises in Nigeria: A Quantitative Approach*. **Asian Journal of Economics, Finance and Management**, 2022, 172-181, https://doi.org/10.47191/jefms/v5-i8-18.

212. D., Maulud & A. M., Abdulazeez, *A Review on Linear Regression Comprehensive in Machine Learning*. **Journal of Applied Science and Technology Trends**, *1*(4), 2020, 140-147, https://doi.org/10.38094/jastt1457.

213. T., Mehmood, *Does Information Technology Competencies and Fleet Management Practices Lead to Effective Service Delivery? Empirical Evidence from E-commerce Industry.* **International Journal of Technology, Innovation and Management (IJTIM),** *1*(2), 2021. 14-41, https://doi.org/10.54489/ijtim.v1i2.26

Chapter Three

Methodology

This chapter focuses on the methodology of the research work. The chapter is organized under the following sub-headings: research design, population of the study, sample and sampling techniques, research instrument, validity of the instrument, reliability of the instrument, method of data collection and method of data analysis.

3.1 Research Design

This study employed a descriptive research design survey type as it sought to find out Entrepreneurship Education and ICT Competencies as Determinants of SMEs Development among Students of Business Education in Colleges of Education, Southwest, Nigeria without manipulations of the "dependent" and "independent variable". Descriptive research design was also considered necessary for this study because it simply describes the desired characteristics of the sample that is being studied without the variables of study influenced in any way[1]. A descriptive study also tries to generalize the findings from a representative sample to a larger target population[2].

3.2 Population of the Study

The population of this study comprised of all the 167 Business Education lecturers and 2980 Business Education students (NCE 1 & NCE 2) in all the public (Federal and state) colleges of education in South-West, Nigeria. As at the time of the study, there were a total of 13 colleges of education in South-West, Nigeria[3]. The colleges of education are distributed over the six states in southwest geopolitical zone in Nigeria. The six states are: Ekiti, Lagos, Ogun, Ondo, Osun and Oyo. Ekiti state comprise of only one state college of education. Lagos state comprises of one federal college of education and two state colleges of education, with a total number of three colleges of education. Ogun state has one state college of education and one federal college of education with a total number of two colleges of education. Ondo

state has only one federal college of education. Osun state comprises of one federal college of education and two state colleges of education, with a total number of three colleges of education. Lastly, Oyo state also comprises of one federal college of education and two state colleges of education, with a total number of three colleges of education. The distribution of colleges of education by state and nature is presented in the Table 3.1

Table 3.1: Population of the Study (N= 167 Lecturers and 2980 Students)

S/N	STATE	Colleges of Education	Number of Lecturers (Business Education Dept.)	Number of Business Education Students (NCE 1 & NCE 2)	Category
1	**Ekiti**	College of Education, Ikere-Ekiti	12	182	State
2	**Lagos**	Adeniran Ogunsanya College of Education, Otto/Ijanikin	10	160	State
		Micheal Otedola College of Primary Education, Lagos	11	209	State
		Federal College of Education (Technical), Akoka.	16	245	Federal
3	**Ogun**	Federal College of Education, Osiele-Abeokuta	14	320	Federal
		Tai-Solarin College of Education, Ijebu-Ode	14	224	State
4	**Ondo**	Adeyemi College of Education, Ondo	13	165	State
5	**Osun**	Federal College of Education, Iwo, Osun	11	245	Federal
		College of Education, Ila-Orangun, Osun	14	111	State
		Osun State College of Education, Ilesa	9	207	State
6	**Oyo**	College of Education, Lanlate	9	122	State
		Emmanuel Alayande College of Education, Oyo	12	230	State
		Federal College of Education (Special), Oyo	22	560	Federal
	Grand Total		**167**	**2980**	

Source[3]

3.3 Sample and Sampling Technique

Multistage sampling procedure involving several sampling methods was used to select the sample size for the study. The first type of sampling method that was used was the systematic sampling technique. Systematic sampling (also known as interval sampling) relies on arranging the study population according to some ordering scheme (in this case based on states and colleges of education as shown in table 3.1 above) and then selecting elements at

regular intervals through that ordered list. Systematic sampling involves a random start and then proceeds with the selection of every k^{th} element from then onwards.

To find an appropriate interval suppose population contains N number of elements and one needs a sample of n size. Then the researcher would choose the odd number colleges of education in each state and leave the even number, so that all the six (6) states in the southwest, Nigeria will be properly represented. For instance, if a state has one college of education, it will be automatically selected, while a state with two colleges of education will have the first one (odd) selected and the second one (even) left out. This will also applicable to a state with three colleges of education.

So, the researcher systematically chose a sample number of nine colleges of education on the list (table 3.1) on the interval (k) of every two (2) college of education (in each state) starting from a random number of one (1), the first college of education on the list. The selected number of colleges of education (with their number of lecturers and students) based on the systematic random sampling method is shown in table 3.2.

Table 3.2: Sampled Colleges of Education for the Study (n = 9)

S/N	State	Colleges of Education	Number of Lecturers (Business Education Dept.)	Number of Business Education Students (NCE 1 & NCE 2)	Category
1	**Ekiti**	College of Education, Ikere-Ekiti	12	182	State
2	**Lagos**	Adeniran Ogunsanya College of Education, Otto/Ijanikin	10	160	State
		Federal College of Education (Technical), Akoka.	16	245	Federal
3	**Ogun**	Federal College of Education, Osiele-Abeokuta	14	320	Federal
4	**Ondo**	Adeyemi College of Education, Ondo	13	165	State
5	**Osun**	Federal College of Education, Iwo, Osun	11	245	Federal
		Osun State College of Education, Ilesa	9	207	State
6	**Oyo**	College of Education, Lanlate	9	122	State
		Federal College of Education (Special), Oyo	22	560	Federal
	Grand Total		**116**	**2206**	

Source[4]

Table 3.2 shows a selected number of nine colleges of education from a total number of 13 colleges of education by "systematic random sampling technique". The number of colleges of education, Business education lecturers and students are 9, 116 and 2206 respectively.

The second type of sampling technique that was used is the "total enumeration technique". This sampling technique is a type where all the population is used as sample for research. In this case, all the 116 colleges of education were used as sampled number of lecturers as shown in table 3.3:

Table 3.3: Sampled Number of Lecturers for the Study using Total enumeration technique (n = 116)

S/N	State	Colleges of Education	Number of Lecturers
1	**Ekiti**	College of Education, Ikere-Ekiti	12
2	**Lagos**	Adeniran Ogunsanya College of Education, Otto/Ijanikin	10
		Federal College of Education (Technical), Akoka.	16
3	**Ogun**	Federal College of Education, Osiele-Abeokuta	14
4	**Ondo**	Adeyemi College of Education, Ondo	13
5	**Osun**	Federal College of Education, Iwo, Osun	11
		Osun State College of Education, Ilesa	9
6	**Oyo**	College of Education, Lanlate	9
		Federal College of Education (Special), Oyo	22
	Grand Total		**116**

Source[4]

Lastly, the "Yamane or Slovin formula" sampling technique was used. This sampling formula was used to derive a sample size of Business education students for the study. The formula is as follows:

$$n = \frac{N}{1 + N\,(e)^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{(formula 1)}$$

Where n is the sample size, N is the population size, and e is the level of precision. The level of precision is also the level of significance which is 0.05. According to the Yamane formula, the number of Business education students in the selected number of colleges of education in the six states in southwest is shown in table 3.3:

Table 3.4: Sampled Number of Students for the Study using Total Enumeration Technique (n = 1280)

S/N	State	Colleges of Education	Number of Business Education Students (NCE 1 & NCE 2)
1	**Ekiti**	College of Education, Ikere-Ekiti	106
2	**Lagos**	Adeniran Ogunsanya College of Education, Otto/Ijanikin	92
		Federal College of Education (Technical), Akoka.	142
3	**Ogun**	Federal College of Education, Osiele-Abeokuta	186
4	**Ondo**	Adeyemi College of Education, Ondo	96
5	**Osun**	Federal College of Education, Osun	142
		Osun State College of Education, Ilesa	120
6	**Oyo**	College of Education, Lanlate	71
		Federal College of Education (Special), Oyo	325
	Grand Total		1280

Source[4]

Table 3.4 shows the sampled number of students (using the Yamane's formula) in the sampled colleges of education and sampled states to be one thousand, two hundred and eighty (1, 280).

The summary of the samples and sample size for the study is presented in table 3.5

Table 3.5: Summary of the Sample and Sample size for the Study

S/N	Sampled States (Total enumeration technique)	Sampled Colleges of Education (systematic sampling technique)	Sampled lecturers of business education (Total enumeration technique)	Sampled Number of Business Education Students (NCE 1 & NCE 2) (Yamane's Formula)
	6	9	116	1280

Source: Fieldwork, 2024.

3.4 Research Instruments

The instruments used for data collection for the research were self-constructed questionnaires titled “Entrepreneurship Education and ICT Competencies Questionnaire (EEICQ)" and "Students’ SMEs Development Questionnaire (SSDQ)."

3.4.1 Entrepreneurship Education and ICT Competencies Questionnaire (EEICQ)

This questionnaire was divided into three sections.

Section A was designed to obtain demographic information of the respondents (students). This dealt with the gender, age, marital status, level, computer literacy and year of ICT experience of the respondent.

Section B dealt with the extent to which entrepreneurship education is integrated into the business education curriculum in Colleges of Education in Southwest, Nigeria. It consisted of 24 structured items. Six items for the Curriculum Relevance, six items for Access to Resources, six for Entrepreneurial Intensions and Attitude, and the remaining six for Start Creation and Success Rate relating to entrepreneurship education variables. This section answered the research question one for the study. The rating technique was based on the four-point likert type as follows:

Strongly Agree (SA) = 4;

Agree (A) = 3;

Disagree (D) = 2;

Strongly Disagree (SD) = 1.

Section C dealt with the level of ICT competencies among students of business education. It consisted of 18 structured items. Six items for digital literacy, six items for cybersecurity awareness and skills and six items for information management and Digital Collaboration. This section answered the research question two for the study. The rating technique was also based on the four-point likert type as follows:

High Level (HL) – 4 points,
Moderate Level (ML) – 3 points,
Low Level (LL) – 2 points,
Very Low Level (VLL) – 1 point

3.4.2 Students' SMEs Development Questionnaire (SSDQ)

This questionnaire was divided into two (2) sections.

Section A consisted of demographic information of the students such as gender, age, level and computer literacy.

Section B dealt with the role of ICT competencies in facilitating SMEs' development among students. It consisted of 18 structured items. Six items were used to measure their business growth, another six items were used to measure their access to finance and six were used to measure their level of innovation and technology adoption. This section answered the research question two of the study. The rating technique for section was based on the following:

High Level (HL) – 4 points,
Moderate Level (ML) – 3 points,
Low Level (LL) – 2 points,
Very Low Level (VLL) – 1 point

3.5 Validation of the Instruments

To determine whether operationalization of a construct actually measures what it tends to measure, the study instruments were validated based on face and content validity[5]. The supervisor and other specialists were shown the questionnaires in order to ascertain the instrument's face and content validity in educational management. The experts examined if the instruments were appropriate for measuring what they were intended to measure and checked to make sure the instruments contained the proper items that might genuinely elicit the desired responses on entrepreneurship education and ICT competencies as determinants of SMEs' development among Business education students in southwest, Nigeria. Based on their suggestions, modifications, and comments, necessary repairs and reorganization were done.

3.6 Reliability of the Instruments

The reliability of the instruments was determined using test–retest method. Copies of instruments were distributed to thirty (30) business education lecturers and business education students in colleges of education which were excluded from the main study from Edo state. Copies of questionnaires were collected and another set of same questionnaires were given out to the same respondents after almost two weeks. The scores from the two sets of responses were correlated using Pearson Product Moment Correlation to determine the level of reliability. The Pearson Product Moment Correlation (r) formula that was used is shown below:

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}}{\sqrt{\left[\Sigma X^2 - \frac{(\Sigma X)^2}{n}\right]\left[\Sigma Y^2 - \frac{(\Sigma Y)^2}{n}\right]}} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{(formula 2)}$$

Test–retest results of 0.89 and 0.85 (rounded) were obtained for "Entrepreneurship Education and ICT Competencies Questionnaire (EEICQ)" and "Students' SMEs Development

Questionnaire (SSDQ)" respectively. The coefficients (r) of the relationship were interpreted using the psychometric test for evaluating the magnitude of a correlation and were considered high which made them good for usage in the final study.

3.7 Administration and Methods of Collection of the Research Instrument

The researcher individually administered the devices with the assistance of five qualified research assistants. This made it easier to retrieve the questionnaires. The respondents at the chosen colleges of education were personally interact with by the researcher and trained research assistants, which improve their comprehension of the instrument's items. After completion, copies of the questionnaires were obtained from the respondents.

3.8 Method of Data Analysis

The data collect were analyse using descriptive statistical techniques like frequencies and percentage counts for demographic data, mean and standard deviation for the research questions and inferential statistics such as Multiple Regression Analysis for the hypotheses at 0.05 level of significance.

3.9 Ethical Consideration

The researcher collected an introduction letter from the Head of Department to collect data from the respondents. The consent of the respondents were put into consideration assuring them confidencially of any information.

Endnotes

1. A. Casteel & N.L. Bridier, *Describing Populations and Samples in Doctoral Student Research,* **International Journal of Doctoral Studies,** 16, 2021, 339-362, https:ordoi.org or 10.28945 or 4766.

[2] S. F., Kadasah, F. M., Abd Al Galil, B., Kolhe & S. M., Shinde, Scientific Research Methodology Principles, Methods, and Techniques, Book Rivers, 2022, https://doi.org/10.1007/978-981-19-5441-2_29.

[3.] National Commission for Colleges of Education*: NCCE Abuja*. Edu.Ng. Retrieved 25 November 2023, from http://www.ncceonline.edu.ng/colleges.php.

[4.] A. E., Berndt, *Sampling Methods*, **Journal of Human Lactation**, *36*(2), 2020, 224-226, https://doi.org/10.1177/0890334420906850.

[5.] W. S., Mohammad, F. F., Elattar, W. M., Elsais & S. O., AlDajah, *Validity and Reliability of a Smartphone and Digital Inclinometer in Measuring the Lower Extremity Joints Range of Motion*. **Montenegrin Journal of Sports Science & Medicine** *10*(2) 2021 1-12, https://doi.org/10.26773/mjssm.210907.

Chapter Four

Results and Discussion of Findings

In this chapter, the data collected from the questionnaire distributed during the study are presented. The data were analyzed using descriptive and inferential statistics at 0.05 level of significance. This chapter was presented in the following sections:

4.1 Presentation of the Bio- data Analysis of the respondents

4.2 Presentation of Results of the Research Questions

4.3 Test of Hypotheses

4.4 Discussion of Findings

4.1 Presentation of the Bio- Data Analysis of the Respondents

Table 4.1: Gender Distribution of the Lecturers (N =116)

Gender	Frequency	Percentages
Female	65	56.0%
Male	51	44.0%
Total	**116**	100%

Source: Field Survey, 2024

Table 4.1 shows an insight of gender distribution of the respondents in the study. A total 65 (56.0%) respondents were female while 51 were male which constitute (44.0%) of the total sample. This indicated that the female respondents are more that the male counterpart. The distribution shows a balanced participation of both male and female lecturers which helped to draw valuable conclusions about how these factor influences small –medium enterprise among business education students' in Colleges of Education,

Southwest, Nigeria

Table 4.2: Age Range Distribution of the Lecturers (N =116)

Age Range	Frequency	Percentages
20 -38 years	40	34.5%
39-59 years	58	50.0%
60 years and above	18	15.5%
Total	**116**	100%

Source: Field Survey, 2024

Table 4.2 provides an insight into the age range distributions of the respondents in the study. Table 4.2 shows that 40 indicating 34.5% are between 20 - 38 years of age among the respondents in the study. In addition, 58 respondents constituting 50.0% of the total samples are between 39 - 59 years of age, 18 respondents constituting 15.5% are between of 60 years and above.

Table 4.3: Highest Educational Qualification of the Lecturers (N=116)

Education Qualification	Frequency	Percentages (%)
Bachelors Degree	15	13.0%
Masters Degree	58	50.0%
Mphil or Ph.D Degree	33	28.4%
Others	10	08.6%
Total	**116**	**100**

Source: Field Survey, 2024

Table 4.3 shows the highest educational qualification of the lecturers in colleges of education. The table shows that 15 indicating 13.0% colleges of education lecturers bachelors degree as educational background. In addition, 58 respondents constituting 50.0% of the total sample of colleges of education lecturers with masters degree, 33 respondents constituting 28.4% of the total sample colleges of education lecturers had Mphil or Ph.D Degree and 10 respondents make up of 08.6% of the total samples have other degree qualification.

Table 4.4: Marital Status of the Lecturers (N= 116)

Marital Status	Frequency	Percentage (%)
Single	31	26.7%
Married	69	59.5%
Widow	14	12.1%
Separate	02	01.7%
Total	**116**	**100**

Source: Field Survey, 2024

Table 4.4 shows the marital status of the lecturers in colleges of education. The table shows that 31 indicating 26.7% colleges of education lecturers are singles. In addition, 69 respondents constituting 59.5% of the total sample of colleges of education lecturers with were married, 14 respondents constituting 12.1% of the total sample colleges of education lecturers are widow and 02 respondents make up of 01.7% of the total samples are separate by marital status.

Table 4.5: Years of Teaching Experience of the Lecturers (N = 116)

Years of Teaching Experience	Frequency	Percentages (%)
1 – 5 years	12	10.3%
6 - 10 years	30	26.0%
11 – 15 years	45	38.7%
15 years and above	29	25.0%
Total	**116**	**100**

Source: Field Survey, 2024

Table 4.5 indicates the years of teaching experience of Colleges of Education Lecturers. The table shows that 12 indicating 10.3% Colleges of Education Lecturers are between 1 – 10 years, 30 respondents constituting 26.0 % of colleges of education lecturers were between 11 – 20 years of teaching experience. In addition, 45 respondents constituting 38.7% of the colleges of education lecturers are between 11 – 20 years of teaching experience and above 15 years constitute 29 respondents with 25.0% lecturers.

Table 4.6: Position of the Lecturers (N = 116)

Position	Frequency	Percentages
Assistant Lecturer	16	13.8%
Lecturer 111	20	17.2%
Lecturer 11	25	21.6%
Lecturer 1	23	19.8%
Senior Lecturer	10	08.6%
Principal Lecturer	11	43.6%
Chief Lecturer	11	45.3%
Total	**116**	100%

Source: Field Survey, 2024

Table 4.6 above shows an insight of position of the lecturers in colleges of education in the study. A total 16 (13.8%) respondents are assistant lecturer by position in the colleges of education, 20 (17.2%) respondents are lecturer 111 by position in the colleges of education, 25 (21.6%) respondents are lecturer 11, 23 (19.8%) respondents are lecturer 1, 10 (08.6%) respondents are senior lecturer, 11 (09.5%) respondents are principal lecturer and 11 (9.5%) respondents are chief lecturer.

Table 4.7: Gender Distribution of Colleges of Education Students (N =1280)

Gender	Frequency	Percentages
Female	688	53.8%
Male	592	46.2%
Total	**1280**	100%

Source: Field Survey, 2024

Table 4.7 shows an insight of gender distribution of the respondents in the study. A total 688 (53.8%) respondents were female while 592 were male which constitute (46.2%) of the students in colleges of education, Southwest, Nigeria. This indicated that the female respondents are more that the male counterpart. The distribution shows a balanced participation of both male and female students which helped to draw valuable conclusions about how these factor influences small –medium enterprise among business education students' in Colleges of Education,

Southwest, Nigeria

Table 4.8: Age Range Distributions of Colleges of Education Students (N =1280)

Age Range Distributions	Frequency	Percentage (%)
18 - 25 years	459	35.9%
26 - 30 years	383	29.9%
31 - 35 years	274	21.4%
36 years and above	164	12.8%
Total	**1280**	**100%**

Source: Field Survey, 2024

Table 4.8 provides an insight into the age range distributions of the colleges of education showing the age ranges of the participating students in the study. Table 4.8 shows that 459 indicating 35.9% were between 18 -25 years. In addition, 383 respondents constituting 29.9% of the total samples are between 26 - 30 years of age, 274 respondents constituting 21.4% are between of 31 - 35years of age and 164 respondents make up of 12.8% who are above 36 years of age.

Table 4.9: Marital Status of Colleges of Education Students (N= 1280)

Marital Status	Frequency	Percentage (%)
Single	550	43.0%
Married	694	54.2%
Widow	30	02.3%
Separate	06	00.5%
Total	**1280**	**100**

Source: Field Survey, 2024

Table 4.9 indicates the marital status of the students in colleges of education. The table shows that 550 indicating 43.0% of the students in colleges of education are single, 694 respondents constituting 54.2% of the total of marital status of the students in colleges of education are married. 30 respondents constituting 02.3 % of the total sample number of marital status of the students in colleges of education are widow and 06 respondents make up of 00.5 % of the total samples' number of marital status of the students in colleges of education are separated by marital status.

Table 4.10: ICT/Computer Competent of Colleges of Education Students (N =1280)

ICT/Computer Competent	Frequency	Percentages
Yes	838	65.5%
No	374	29.2%
I don't Know	68	05.3%
Total	**1280**	100%

Source: Field Survey, 2024

Table 4.10 shows an insight of ICT/Computer Competent distribution of the respondents in the study. A total 838 (65.5%) respondents responded "YES" on the issues that they are ICT/computer competent, 374 (29.2%) respondents responded "NO" on the issues that they are ICT/computer competent while 68 (05.3%) respondents responded "I DON'T KNOW" on the issues that they are ICT/computer competent.

Table 4.11: Level of Computer Literacy of Colleges of Education Students (N =1280)

Level of Computer Literacy	Frequency	Percentages
Beginner	288	22.5%
Intermediate	354	27.5%
Advance	641	50.0%
Total	**1280**	100%

Source: Field Survey, 2024

Table 4.11 shows an insight of level of computer literacy distribution of the respondents in the study. A total 288 (22.5%) respondents are beginners, 354 (27.6%) are at the intermediate level of computer literacy while 641 (50.0%) respondents are at the advanced level of the computer literacy.

4.2 Answer to Research Questions

Research Question One: What is the level of SMEs' Development Skills (business growth, access to finance and innovation and technology adoption) among students of business education sin Colleges of Education, Southwest, Nigeria?

Table 4.2.1: Level of SMEs Development Skills (Business Growth) in Colleges of Education (n = 1280)

S/N	Items	HL	ML	LL	VLL	Mean $\bar{x}$	Std.Dev.
1	Students equipped with ICT competencies play a pivotal role in facilitating business	326 (25.5%)	659 (51.4%)	148 (11.5%)	147 (11.5%)	2.909	0.881
2	ICT competencies empower students to implement efficient Customer Relationship Management (CRM) systems	345 (27.0%)	564 (44.1%)	257 (20.1%)	114 (9.0%)	2.890	0.971
3	The role of ICT competencies in business growth is evident through students' proficiency in data-driven decision-making	323 (25.2%)	687 (53.7%)	201 (15.7%)	69 (5.4%)	2.987	0.901
4	Students contribute to business growth by adopting digital financial management systems	303 (23.7%)	649 (50.7%)	175 (13.6%)	153 (12.0%)	2.853	0.831
5	ICT-savvy students are catalysts for business growth	387 (30.2%)	499 (39.0%)	288 (22.5%)	106 (8.3%)	2.911	0.951
6	The integration of ICT competencies enhances business agility	362 (28.3%)	531 (41.5%)	222 (17.3%)	165 (12.9%)	2.851	0.820

Criterion Mean = 2.500; Weighted Mean = 2.900; S.D = 0.892; Overall Decision (Moderate)

Source: Field Work, 2024

KEY: – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.
***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level.

Table 4.2.1 shows the level of business growth as an aspect of SMEs Development skill among Students in Colleges of Education, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Very Low Level (1), Low Level (2), Moderate Level (3) and High Level (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the level of business growth as an aspect of SMEs Development skill among Students in Colleges of Education,

Southwest, Nigeria as responded to by the students. The findings revealed that majority of the students "agreed at a moderate level" that students equipped with ICT competencies play a pivotal role in facilitating business ($\overline{x}$ = 2.909), students contribute to business growth by adopting digital financial management system ($\overline{x}$ = 2.891), ICT-savvy students are catalysts for business growth ($\overline{x}$ = 2.987) and the integration of ICT competencies enhances business agility ($\overline{x}$ = 2.853). They however "disagreed at a lower level" that ICT competencies empower students to implement efficient Customer Relationship Management (CRM) system ($\overline{x}$ = 2.911), and the role of ICT competencies in business growth is evident through students' proficiency in data-driven decision-making ($\overline{x}$ = 2.851). The weighted mean ($\overline{x}$ = 2.900) and standard deviation (0.892) clearly indicates that the students have "moderate level" of business growth as an aspect of SMEs development skills in colleges of education, Southwest Nigeria.

Table 4.2.2: Level of SMEs Development (Access to Finance) in Colleges of Education (n = 1280)

S/N	Items	HL	ML	L	VLL	Mean $\bar{x}$	Std.Dev.
1	ICT-savvy students contribute to SMEs' development by implementing efficient financial management through digital tools	320 (25.0%)	600 (47.0%)	207 (16.0%)	153 (12.0%)	2.849	0.781
2	ICT competencies enable students to explore innovative financing methods such as blockchain technology	345 (27.0%)	578 (45.1%)	157 (12.3%)	200 (15.6%)	2.834	0.793
3	Students proficient in ICT contribute to SME development by promoting digital investment opportunities	303 (23.7%)	580 (45.3%)	207 (16.2%)	190 (14.8%)	2.778	0.616
4	The role of ICT competencies is evident in students' ability to navigate online grant application processes	300 (23.4%)	679 (53.0%)	178 (14.0%)	123 (9.6%)	2.903	0.823
5	Students with ICT competencies play a key role in the digital marketing landscape	387 (30.2%)	599 (46.8%)	232 (18.1%)	62 (4.8%)	2.996	0.801
6	Students with ICT competencies actively utilize digital financing platforms	360 (28.2%)	533 (41.5%)	282 (17.3%)	105 (13.0%)	2.943	0.820
	Criterion Mean = 2.500; Weighted Mean = 2.883; S.D = 0.772; Overall Decision = (Moderate)						

Source: Field Work, 2024

KEY: – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.
***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level.

Table 4.2.2 shows the level of access to finances as an aspect of SMEs Development skill in Colleges of Education, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Very Low Level (1), Low Level (2), Moderate Level (3) and High Level (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the level of access to finance as an aspect of SMEs Development skill among Students in Colleges of Education, Southwest, Nigeria as responded to by the students. The findings revealed that majority of the students "agreed at a moderate level" that ICT-savvy students contribute to SMEs' development by implementing efficient financial management through digital tools **($\bar{x}$ = 2.849),** ICT competencies enable

students to explore innovative financing methods such as blockchain technology ($\bar{x}$ = 2.834), students proficient in ICT contribute to SME development by promoting digital investment opportunities ($\bar{x}$ = 2.778), the role of ICT competencies is evident in students' ability to navigate online grant application processes ($\bar{x}$ = 2.903), students with ICT competencies play a key role in the digital marketing landscape ($\bar{x}$ = 2.996) and lastly, students with ICT competencies actively utilize digital financing platforms ($\bar{x}$ = 2.943) are at "moderate level". The weighted mean ($\bar{x}$ = 2.883) and standard deviation (0.772) clearly indicates that the students have moderate level of access to finance as an aspect of SMEs development skills in colleges of education, Southwest Nigeria.

.

Table 4.2.3: Level of SMEs Development Skill (Innovation and Technology Adoption) in Colleges of Education (n = 1280)

S/N	Items	HL	ML	LL	VLL	Mean $\bar{x}$	Std.Dev.
1	ICT-driven produce innovation	326 (25.5%)	639 (49.9%)	248 (19.4%)	67 (05.2%)	2.956	0.951
2	Integration of artificial intelligence (AI) and machine learning(ML) Blockchain implementation for transparency and efficient technology adoption strategies	314 (24.5%)	564 (44.1%)	297 (23.2%)	105 (08.2%)	2.849	0.891
3	Digital marketing strategies for market expansion	223 (17.4%)	487 (38.0%)	401 (31.3%)	169 (13.3%)	2.573	0.761
4	Adoption of internet of things (IoT) solutions	303 (23.6%)	449 (35.1%)	375 (29.3%)	155 (12.1%)	2.706	0.893
5	E-commerce integration for business expansion	387 (30.2%)	629 (49.1%)	183 (14.3%)	81 (06.3%)	3.032	0.998
6	The integration of ICT competencies enhances business agility	462 (36.1%)	631 (49.3%)	122 (09.5%)	65 (05.1%)	3.164	0.980

Criterion Mean = 2.500; Weighted Mean =2.880 ; S.D = 0.912; Overall Decision (Moderate)

Source: Field Work, 2024

KEY: – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.
***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level.

Table 4.2.3 shows the level of innovation and technology adoption as an aspect of SMEs Development skill in Colleges of Education, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Very Low Level (1), Low Level (2), Moderate Level (3) and High Level (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the level of innovation and technology adoption as an aspect of SMEs Development skill among Students in Colleges of Education, Southwest, Nigeria as responded to by the students. The findings revealed that majority of the students "agreed at a moderate level" that ICT-driven produce innovation ($\overline{x}$ = 2.956), integration of artificial intelligence (AI) and machine learning(ML) Blockchain implementation for transparency and efficient technology adoption strategies ($\overline{x}$ = 2.849), digital marketing strategies for market expansion ($\overline{x}$ = 2.573), adoption of internet of things (IoT) solutions ($\overline{x}$ = 2.706), E-commerce integration for business expansion ($\overline{x}$ = 3.032) and lastly, the integration of ICT competencies enhances business agility ($\overline{x}$ = 3.164) are at "moderate level". The weighted mean ($\overline{x}$ = 2.880) and standard deviation (0.912) clearly indicates that there is a moderate level of innovation and technology adoption as an aspect of SMEs development skills in colleges of education, Southwest Nigeria.

Table 4.2.4 F Overall Level of SMEs Development Skills in Colleges of Education

S/N	Items	High Level	Moderate Level	Low Level	Very Low Level	Mean $\bar{x}$	Std.Dev.
		Freq(%)	Freq(%)	Freq(%)	Freq(%)		
1	**Access to Finance**	2018 (26.3%)	3569 (46.5%)	1263 (16.4%)	833 (10.8%)	2.883	0.892
2	**Innovation and Technology Adoption**	1985 (27.0%)	3399 (46.2%)	1626 (22.1%)	642 (08.7%)	2.880	0.912
3	**Business Growth**	1773 (24.0 %)	3589 (48.5%)	1291 (17.4%)	754 (10.1%)	2.892	0.892
Criterion Mean = 2.500;	**Weighted Mean = 2.885;**	**S.D = 0.899;**					

Source: Field Work, 2024

Criterion Mean = 2.50

***Threshold:** mean value of 1.0-1.99 = Very Low Level; 2.00-2.49 = Low Level; 2.50-3.49 = Moderate Level; 3.50- 4.49 =High Level

The overall level of SMEs Development in Colleges of Education, Southwest, Nigeria, was evaluated across three categories: Access to finance, Innovation and Technology Adoption and Business Growth are presented in the table 4.2.4 F. Analysis of the data revealed varying levels of SMEs Development skills among Students in Colleges of Education, Southwest, Nigeria, across these categories. In terms of Access to finance, which encompasses aspects like students proficient in ICT contribute to SME development skills by promoting digital investment opportunities infrastructure and emergency procedures, the majority of respondents (46.5%) reported feeling "Moderate Level" about the accessibility of finance, with an additional 26.3% indicating "High Level." This indicates a moderate level of accessibility of finance, with a mean score of 2.883, above the criterion mean of 2.50. Similarly, Innovation and Technology Adoption, focusing on the Integration of artificial intelligence (AI) and machine learning(ML) Blockchain implementation for transparency and efficient technology adoption strategies emotional and social well-being of students, showed promising results and digital marketing strategies for market expansion. A significant proportion of respondents (46.2%) expressed feeling "Moderate" about innovation and

technology adoption, with a mean score of 2.880, indicating a moderate level of innovation and technology adoption. In terms of business growth, covering the ICT competencies empower students to implement efficient Customer Relationship Management (CRM) and the role of ICT competencies in business growth is evident through students' proficiency in data-driven decision-making systems, the majority of respondents (48.5%) reported feeling "Moderate" about business growth in this area. However, the mean score of 2.892, indicate a moderate level of business growth. These findings provide valuable insights for further enhancing the level of SMEs Development Skills in Colleges of Education.

Research Question Two: What is the level of ICT competencies (Digital Literacy, Cyber Security Awareness and Skills, and Information Management and Digital Collaboration) among students of business education in Colleges of Education in Southwest, Nigeria?

Table 4.2.5: Level of ICT Competencies (Digital Literacy) in Colleges of Education (n = 116)

S/N	Items	HL	ML	LL	VLL	Mean $\bar{x}$	Std.Dev.
1	Students of Business Education exhibit a high level of digital literacy	36 (31.0%)	59 (51.0%)	18 (15.5%)	03 (2.5%)	2.844	0.915
2	The level of digital literacy among students is evident in their effective navigation of the internet	25 (21.6%)	64 (55.1%)	17 (14.7%)	10 (8.6%)	2.896	0.909
3	The high level of digital literacy is characterized by students' adaptability to new and emerging technologies	48 (41.4%)	53 (45.7%)	11 (09.5%)	04 (03.4%)	3.250	0.861
4	The level of digital literacy among students is highlighted by their independent problem-solving using technology	20 (17.2%)	59 (50.9%)	19 (16.4%)	18 (15.5%)	2.698	0.823
5	Digital literacy is prominently observed in students' academic work	20 (17.2%)	65 (56.0%)	18 (16.5%)	13 (11.2%)	2.793	0.834
6	Students exhibit strong digital literacy in their communication practices	22 (19.0%)	11 (9.4%)	22 (19.0%)	61 (52.6%)	1.948	0.765
	Criterion Mean = 2.500; Weighted Mean = 2.738; S.D = 0.846; Overall Decision = Moderate						

Source: Field Work, **2024**

KEY: – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.
***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level.

Table 4.2.5 shows the level of digital literacy in Colleges of Education, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Very Low Level (1), Low Level (2), Moderate Level (3) and High Level (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain level of digital literacy **on** students in Colleges of Education, Southwest, Nigeria as perceived by the lecturers. Results showed that according to majority of the lecturers, students of Business Education exhibit a high level of digital literacy ($\bar{x}$ = 2.844), the level of digital literacy among students is evident in their effective navigation of the internet ($\bar{x}$ = 2.896), the high level of digital literacy is characterized by students' adaptability to new and emerging

technologies ($\bar{x}$ = 3.250), the level of digital literacy among students is highlighted by their independent problem-solving using technology ($\bar{x}$ = 2.698) and digital literacy is prominently observed in students' academic work ($\bar{x}$ =2.793) are “moderate level”. Lastly, the results further showed that students exhibit strong digital literacy in their communication practices ($\bar{x}$ = 1.948) is low. The weighted mean ($\bar{x}$ = 2.738) and standard deviation (0.846) clearly indicates that level of digital literacy are “moderate” to boost SMEs Development skill in Colleges of Education, Southwest, Nigeria.

Table 4.2.6: Level of ICT Competencies (Cyber Security Awareness and Skills) in Colleges of Education (n = 116)

S/N	Items	HL	ML	L	VLL	Mean $\bar{x}$	Std.Dev.
1	Students of Business Education demonstrate a high level of cyber security awareness by showcasing vigilance in recognizing and identifying various cyber threats	36 (31.0%)	39 (33.6%)	28 (24.1%)	13 (11.2%)	2.844	0.875
2	The level of ICT competencies among students is evident in their adherence to best practices in password management	25 (21.5%)	54 (47.0%)	27 (23.3%)	19 (16.2%)	2.888	0.910
3	The level of cyber security awareness is underscored by students' active engagement in cybersecurity awareness campaigns	23 (19.9%)	57 (49.1%)	21 (18.1%)	15 (12.9%)	2.758	0.876
4	The commitment to cyber security awareness is demonstrated through active participation in cyber security training programs	30 (25.9%)	49 (42.2%)	25 (21.6%)	12 (10.3%)	2.836	0.922
5	Students exhibit a proactive approach to cybersecurity by effectively using antivirus software to protect their devices from malicious software	18 (15.5%)	07 (6.0%)	32 (27.6%)	59 (50.9%)	1.862	0.905
6	Students display an awareness of social engineering techniques, recognizing and avoiding tactics used by cybercriminals to manipulate individuals.	20 (17.2%)	51 (44.0%)	32 (27.6%)	13 (11.2%)	2.672	0.820
	Criterion Mean = 2.500; Weighted Mean = 2.643; S.D = 0.885; Overall Decision = (Moderate)						

Source: Field Work, **2024**

KEY: – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.
***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level.

Table 4.2.6 showed the level of cyber security awareness and skills among students in Colleges of Education, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Very Low Level (1), Low Level (2), Moderate Level (3) and High Level (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain level of cyber security awareness and skills

among students in Colleges of Education, Southwest, Nigeria as perceived by the lecturers. Results showed that according to majority of the lecturers, students of Business Education demonstrate a high level of cyber security awareness by showcasing vigilance in recognizing and identifying various cyber threats ($\overline{x}$ = 2.844), the level of ICT competencies among students is evident in their adherence to best practices in password management ($\overline{x}$ = 2.888), the level of cyber security awareness is underscored by students' active engagement in cybersecurity awareness campaigns ($\overline{x}$ = 2.758), the commitment to cyber security awareness is demonstrated through active participation in cyber security training programs ($\overline{x}$ = 2.836) and students exhibit a proactive approach to cybersecurity by effectively using antivirus software to protect their devices from malicious software ($\overline{x}$ = 2.672) are “moderate level”. The results further showed that students display an awareness of social engineering techniques, recognizing and avoiding tactics used by cybercriminals to manipulate individuals ($\overline{x}$ = 1.862) is low. The weighted mean ($\overline{x}$ = 2.643) and standard deviation (0.885) clearly indicates that level of cyber security awareness and skills are “moderate” to boost SMEs Development skill in Colleges of Education, Southwest, Nigeria.

Table 4.2.7 Level of ICT Competencies (Information Management and Digital Collaboration) in Colleges of Education (n = 116)

S/N	Items	HL	ML	LL	VLL	Mean $\bar{x}$	Std.Dev.
1	Students of Business Education showcase a high level of ICT competencies through efficient data organization	26 (22.4%)	49 (42.2%)	28 (24.1%)	13 (11.2%)	2.758	0.758
2	The level of ICT competencies is evident in students' proficient use of digital collaboration tools	25 (21.6%)	55 (47.4%)	17 (14.6%)	19 (16.4%)	2.741	0.809
3	Students demonstrate a proactive approach to information management by adopting project management software	23 (20.0%)	48 (41.4%)	21 (18.0%)	24 (20.6%)	2.603	0.661
4	The level of ICT competencies is apparent as students seamlessly integrate information from multiple sources	12 (10.3%)	25 (21.6%)	59 (50.9%)	33 (28.4%)	2.362	0.623
5	Students actively participate in virtual collaboration sessions	15 (12.9%)	23 (19.9%)	51 (43.9%)	27 (23.3%)	2.216	0.351
6	The level of ICT competencies among students is evident in their adherence to best practices in password management	22 (19.0%)	21 (18.1%)	32 (27.6%)	41 (35.3%)	2.206	0.221
	Criterion Mean = 2.500; Weighted Mean = 2.481; S.D = 0.444; Overall Decision (Moderate)						

Source: Field Work, **2024**

KEY: – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.
***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level.

Table 4.2.7 shows the level of information management and digital collaboration in Colleges of Education, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Very Low Level (1), Low Level (2), Moderate Level (3) and High Level (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain level of information management and digital collaboration among Students in Colleges of Education, Southwest, Nigeriaas perceived by the lecturers. Results showed that according to majority of the lecturers, students of Business

Education showcase a high level of ICT competencies through efficient data organization ($\bar{x}$ = 2.758), the level of ICT competencies is evident in students' proficient use of digital collaboration tools ($\bar{x}$ = 2.741), students demonstrate a proactive approach to information management by adopting project management software ($\bar{x}$ = 2.603). The results further showed that the level of ICT competencies is apparent as students seamlessly integrate information from multiple sources ($\bar{x}$ = 2.362), students actively participate in virtual collaboration sessions ($\bar{x}$ = 2.216) and ICT competencies among students is evident in their adherence to best practices in password management ($\bar{x}$ = 2.206) are low. The weighted mean ($\bar{x}$ = 2.481) and standard deviation (0.444) clearly indicates that level of information management and digital collaboration are "low" to boost SMEs Development skill in Colleges of Education, Southwest, Nigeria.

Table 4.2.8 F Overall Level of ICT Competencies in Colleges of Education (116)

S/N	Items	High Level	Moderate Level	Low Level	Very Low Level	Mean $\bar{x}$	Std.Dev.
1	**Information Management and Digital**	123 (17.3%)	221 (31.2%)	208 (29.3%)	157 (22.1%)	2.481	0.444
2	**Cyber Security Awareness and Skills**	116 (17.3%)	257 (38.4%)	165 (24.7%)	131 (19.6%)	2.643	0.885
3	**Digital Literacy**	171 (24.6%)	311 (44.7%)	105 (15.1%)	109 (15.6%)	2.738	0.846
Criterion Mean = 2.500;	**Weighted Mean = 2.620;**	**S.D = 0.725;**					

Source: Field Work, 2024

Criterion Mean = 2.50

***Threshold:** mean value of 1.0-1.99 = Very Low Level; 2.00-2.49 = Low Level; 2.50-3.49 = Moderate Level; 3.50- 4.49 =High Level

The overall level of ICT Competencies in Colleges of Education, Southwest, Nigeria, was evaluated across three categories: Information Management and Digital, Digital Literacy and Cyber Security Awareness and Skills and presented in the table 4.9F. Analysis of the data indicates a commendable level of ICT Competencies among Students in Colleges of Education

in Southwest, Nigeria. Across various dimensions including information management and digital, cyber security awareness and skills and digital literacy, lecturers consistently demonstrate a strong dedication to their profession. In terms of digital literacy, which encompasses aspects like students of Business Education exhibit a high level of digital literacy, the level of digital literacy among students is evident in their effective navigation of the internet and the high level of digital literacy is characterized by students' adaptability to new and emerging technologies, the majority of respondents (44.7%)) reported feeling "Moderate level" about the digital literacy, with an additional (24.6%) indicating "High level." This indicates a “Moderate Level” of the digital literacy, with a mean score of 2.738, above the criterion mean of 2.50. Similarly, cyber security awareness and skills, focusing on the level of ICT competencies among students is evident in their adherence to best practices in password management and the level of cyber security awareness is underscored by students' active engagement in cybersecurity awareness campaigns. A significant proportion of respondents (38.4%) expressed feeling "Moderate" about cyber security awareness and skills, with a mean score of 2.643 indicating a Moderate Level” of cyber security awareness and skills. In terms of information management and digital, covering that the level of ICT competencies is evident in students' proficient use of digital collaboration tools, students demonstrate a proactive approach to information management by adopting project management software and the level of ICT competencies is apparent as students seamlessly integrate information from multiple sources, the majority of respondents (31.2%) reported feeling "Moderate" about information management and digital in this area with an additional (29.3%) indicating low level. However, the mean score of 2.448 indicate a “low level” of information management and digital. These findings provide valuable insights for further enhancing the level of ICT Competencies in Colleges of Education in Southwest, Nigeria.

Research Question Three: What is the status of entrepreneurship education skills (curriculum relevance, access to resources, start creation and resources rate and entrepreneurial intensions & attitude) integrated into the business education curriculum in Colleges of Education in Southwest, Nigeria?

Table 4.2.9: Status of Entrepreneurship Education (Curriculum Relevance) integration into Business Education Curriculum in Colleges of Education (n = 116)

S/N	Items	SA	A	D	SD	Mean $\bar{x}$	Std.Dev.
1	Curriculum relevance promotes collaboration with industry experts, entrepreneurs, and successful business leaders	26 (22.4%)	59 (50.9%)	20 (17.2%)	11 (9.5%)	2.862	0.865
2	The integration of entrepreneurship education into the Business Education curriculum is accompanied by robust funding opportunities	35 (30.2%)	49 (42.2%)	20 (17.2%)	12 (10.3%)	2.922	0.979
3	Entrepreneurship education prioritizes experiential learning opportunities, offering internships, apprenticeships, and entrepreneurship projects	23 (19.8%)	57 (49.1%)	25 (21.6%)	11 (9.5%)	2.793	0.721
4	Curriculum relevance in Business Education demonstrates a strong alignment with current industry demands	33 (28.4%)	49 (42.2%)	15 (13.0%)	19 (16.4%)	2.827	0.856
5	It takes a holistic approach to entrepreneurship education	21 (18.1%)	23 (19.8%)	19 (16.4%)	53 (45.7%)	2.103	0.951
6	Entrepreneurship education within the curriculum is complemented by dedicated institutional support services	22 (19.0%)	51 (43.9%)	22 (19.0%)	21 (18.1%)	2.637	0.830
Criterion Mean = 2.500; Weighted Mean = 2.691; S.D = 0.867; Overall Decision = Agree (Moderate)							

Source: Field Work, 2024

KEY: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1; S.D = Standard Deviation; $\bar{x}$ = Mean

***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level. .

Table 4.2.9 shows the status of curriculum relevance as an aspect of entrepreneurship education integration into Business education curriculum in Colleges of Education in, Southwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Strongly Disagree (1), Disagree (2), Agree (3) and

Strongly Agree (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the status of curriculum relevance as an aspect entrepreneurship education integration into Business education curriculum in Colleges of Education in Southwest, Nigeria as responded to by the lecturers. The findings revealed that majority of the lecturers "agreed" that curriculum relevance promotes collaboration with industry experts, entrepreneurs, and successful business leaders ($\overline{x}$ = 2.862), the integration of entrepreneurship education into the Business Education curriculum is accompanied by robust funding opportunities ($\overline{x}$ = 2.922), entrepreneurship education prioritizes experiential learning opportunities, offering internships, apprenticeships, and entrepreneurship project ($\overline{x}$ = 2.793), curriculum relevance in Business Education demonstrates a strong alignment with current industry demands ($\overline{x}$ = 2.827) and entrepreneurship education within the curriculum is complemented by dedicated institutional support services ($\overline{x}$ = 2.637). They however "disagreed" that it takes a holistic approach to entrepreneurship education fosters strategic partnerships with industry players ($\overline{x}$ = 2.103). The weighted mean ($\overline{x}$ = 2.691) and standard deviation (0.867) clearly indicates that the lecturers have "moderate level" of curriculum relevance as an aspect entrepreneurship education integration into Business education curriculum in Colleges of Education in, Southwest, Nigeria as generally "disagreed" by the lecturers.

Table 4.2.9: Status of Entrepreneurship Education (access to resources) Integration into Business Education Curriculum in Colleges of Education (n = 116)

S/N	Items	SA	A	D	SD	Mean $\bar{x}$	Std.Dev.
1	Entrepreneurship education is integrated with access to cutting-edge technologies and tools relevant to contemporary business practices	28 (24.1%)	51 (44.0%)	20 (17.2%)	17 (14.7%)	2.620	0.721
2	Facilitates connections with venture capital firms and angel investor networks	21 (18.1%)	54 (46.6%)	17 (14.7%)	24 (20.7%)	2.620	0.902
3	Entrepreneurship education is enriched by industry-linked research opportunities	23 (19.8%)	47 (40.5%)	31 (26.7%)	15 (13.0%)	2.672	0.716
4	Successfully raises students' awareness of entrepreneurial opportunities	23 (19.8%)	53 (45.7%)	30 (25.8%)	10 (8.6%)	2.767	0.762
5	Fosters strategic partnerships with industry players	11 (9.5%)	28 (24.1%)	49 (42.2%)	28 (24.1%)	2.189	0.835
6	Encourages community engagement and crowd funding initiatives	32 (27.6%)	31 (26.7%)	22 (19.0%)	31 (26.7%)	2.552	0.921
	Criterion Mean = 2.500; Weighted Mean = 2.570; S.D = 0.641; Overall Decision (Moderate)						

Source: Field Work, 2024

KEY: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1; S.D = Standard Deviation; $\bar{x}$ = Mean

***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level. .

Table 4.2.9 shows the status of access to resources as an aspect of entrepreneurship education integrated into Business education curriculum in Colleges of Education in, outhwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the extent of access to resources as an aspect entrepreneurship education integrated into Business education curriculum in Colleges of Education in, Southwest, Nigeria as responded to by the lecturers. The findings revealed that majority of the lecturers “agreed” that entrepreneurship education is integrated with access to cutting-edge technologies and tools relevant to contemporary business practices ($\bar{x}$ = 2.620), facilitates connections with venture capital firms

and angel investor networks ($\bar{x}$ = 2.620), entrepreneurship education is enriched by industry-linked research opportunities ($\bar{x}$ = 2.670), successfully raises students' awareness of entrepreneurial opportunities ($\bar{x}$ = 2.767) and fosters strategic partnerships with industry players encourages community engagement ($\bar{x}$ = 2.552). They however "disagreed" that fosters strategic partnerships with industry players ($\bar{x}$ = 2.189). The weighted mean ($\bar{x}$ = 2.570) and standard deviation (0.641) clearly indicates that the lecturers have moderate status of access to resources as an aspect entrepreneurship education integrated into Business education curriculum in Colleges of Education in, Southwest, Nigeria as generally "disagreed" by the lecturers.

Table 4.2.10: Status of Entrepreneurship education (Start Creation and Success Rate) integrated into Business education curriculum in Colleges of Education (n = 116)

S/N	Items	SA	A	D	SD	Mean $\bar{x}$	Std.Dev.
1	There is a notable increase in the success rates of start-ups initiated by students who have undergone entrepreneurship education	26 (22.4%)	49 (42.3%)	18 (15.5%)	23 (19.8%)	2.672	0.782
2	Entrepreneurs in the local community are providing positive feedback on the quality and impact of businesses started by graduates	45 (38.8%)	24 (20.7%)	27 (23.3%)	20 (17.2%)	2.810	0.691
3	Successful alumni are actively engaging in mentorship programs, guiding current students in their entrepreneurial endeavours	23 (20.4%)	47 (40.4%)	21 (18.1%)	25 (22.1%)	2.586	0.461
4	It has resulted in a high rate of business start-ups among students	23 (19.8%)	50 (44.2%)	30 (25.8%)	13 (11.2%)	2.715	0.632
5	It has contributed to the successful launch of innovative ventures by students	37 (31.9%)	46 (39.6%)	16 (13.8%)	17 (14.7%)	2.887	0.512
6	Entrepreneurial ventures contribute to the economy	32 (27.6%)	33 (28.4%)	31 (26.7%)	20 (17.2%)	2.734	0.503
	Criterion Mean = 2.500; Weighted Mean = 2.734; S.D = 0.595; Overall Decision = Moderate						

Source: Field Work, 2024

KEY: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1; S.D = Standard Deviation; $\bar{x}$ = Mean

***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level. .

Table 4.2.10 shows the status of start creation and success rate as an aspect of entrepreneurship education integration into Business education curriculum in Colleges of Education in, outhwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the extent of start creation and success rate as an aspect entrepreneurship education integrated into Business education curriculum in Colleges of Education in, Southwest, Nigeria as responded to by the lecturers. The findings revealed that majority of the lecturers "agreed" that there is a notable increase in the success rates of start-ups initiated by students who have undergone entrepreneurship education **($\bar{x}$ =** 2.672),

entrepreneurs in the local community are providing positive feedback on the quality and impact of businesses started by graduates ($\bar{x}$ = 2.810), successful alumni are actively engaging in mentorship programs, guiding current students in their entrepreneurial endeavours ($\bar{x}$ = 2.586), it has resulted in a high rate of business start-ups among students ($\bar{x}$ = 2.715), it has contributed to the successful launch of innovative ventures by students ($\bar{x}$ = 2.887) and entrepreneurial ventures contribute to the economy ($\bar{x}$ = 2.734), The weighted mean ($\bar{x}$ = 2.734) and standard deviation (0.595) clearly indicates that the lecturers have moderate extent level of start creation and success rate as an aspect entrepreneurship education integrated into Business education curriculum in Colleges of Education in, Southwest, Nigeria as generally "disagreed" by the lecturers.

Table 4.2.11: Status of Entrepreneurship education (Entrepreneurial intensions & Attitude) integrated into Business education curriculum in Colleges of Education (n = 116)

S/N	Items	SA	A	D	SD	Mean $\bar{x}$	Std.Dev.
1	Enhances students' self-efficacy in entrepreneurial skills	36 (31.0%)	49 (42.2%)	18 (15.5%)	13 (11.2%)	2.931	0.713
2	Entrepreneurship education has contributed to the development of a risk-taking mentality among students	37 (31.8%)	44 (37.9%)	27 (23.2%)	08 (07.1%)	2.948	0.842
3	Students' attitudes are translated into concrete actions, with a notable number expressing clear intentions to embark on entrepreneurial ventures	33 (28.4%)	37 (31.8%)	25 (21.6%)	21 (18.1%)	2.706	0.764
4	Promotes a proactive approach to problem-solving among students	35 (30.2%)	39 (33.6%)	22 (18.9%)	20 (17.2%)	2.775	0.920
5	Has led to a positive shift in students' attitudes toward entrepreneurship	37 (31.9%)	39 (33.6%)	28 (24.1%)	12 (10.3%)	2.871	0.905
6	Successfully raises students' awareness of entrepreneurial opportunities	41 (35.3%)	31 (26.7%)	22 (18.9%)	22 (18.9%)	2.784	0.912
	Criterion Mean = 2.500; Weighted Mean = 2.835; S.D =0.842 ; Overall Decision = (Moderate)						

Source: Field Work, 2024

KEY: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1; S.D = Standard Deviation; $\bar{x}$ = Mean

***** Threshold:** If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 = Moderate Level; 3.500 to 4.499 = High Level. .

Table 4.2.11 shows the status of entrepreneurial intensions and attitude as an aspect of entrepreneurship education integrated into Business education curriculum in Colleges of Education in, outhwest, Nigeria using descriptive statistics such as means, standard deviation, frequencies and percentages. The Likert rating scale of Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4) was used with the criterion mean set at 2.500. Six positive items were used to ascertain the extent of entrepreneurial intensions & attitude as an aspect entrepreneurship education integrated into Business education curriculum in Colleges of Education in, Southwest, Nigeria as responded to by the lecturers. The findings revealed that majority of the lecturers "agreed" that students enhances self-efficacy in entrepreneurial skills ($\overline{x}$ = 2.931), entrepreneurship education has contributed to the development of a risk-taking mentality among students ($\overline{x}$ = 2.948), students' attitudes are translated into concrete actions, with a notable number expressing clear intentions to embark on entrepreneurial ventures ($\overline{x}$ = 2.706), promotes a proactive approach to problem-solving among students ($\overline{x}$ = 2.775), has led to a positive shift in students' attitudes toward entrepreneurship ($\overline{x}$ =2.871) and successfully raises students' awareness of entrepreneurial opportunities ($\overline{x}$ = 2.784). The weighted mean ($\overline{x}$ = 2.835) and standard deviation (0.842) clearly indicates that the lecturers have moderate extent of entrepreneurial intensions & attitude as an aspect entrepreneurship education integrated into Business education curriculum in Colleges of Education in, Southwest, Nigeria as generally "agreed" by the lecturers.

Table 4.2.12 E Over all Status of Entrepreneurship Education Integration into Business Education Curriculum in Colleges of Education Southwest, Nigeria

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean $\bar{x}$	Std.Dev.
1	Curriculum Relevance	160 (23.3%)	288 (42.0%)	121 (17.6%)	117 (17.1%)	2.691	0.867
2	Access to Resources	138 (19.8%)	264 (38.0%)	169 (24.2%)	125 (18.0%)	2.570	0.641
3	Start Creation and Success Rate	186 (26.7%)	249 (35.8%)	143 (20.5%)	118 (17.0%)	2.734	0.595
4	Entrepreneurial intensions & Attitude	219 (31.5%)	239 (34.3%)	142 (20.4%)	96 (13.8%)	2.835	0.842

Criterion Mean = 2.500; Weighted Mean = 2.708; S.D = 0.736;

Source: Field Work, 2024

Criterion Mean = 2.50

***Threshold:** mean value of 1.0-1.99 = Very Low Level; 2.00-2.49 = Low Level; 2.50-3.49 = Moderate Level; 3.50- 4.49 = High Level

The data presented in the table 4.2.12 E indicates a commendable status of entrepreneurship education integration into Business Education Curriculum in Colleges of Education Southwest, Nigeria. Across various dimensions including start creation and success rate, entrepreneurial intensions & attitude, access to resources and curriculum relevance, lecturers consistently demonstrate a strong dedication to their profession. In terms of **curriculum relevance**, which encompasses aspects like curriculum relevance promotes collaboration with industry experts, entrepreneurs, and successful business leaders and the integration of entrepreneurship education into the Business Education curriculum is accompanied by robust funding opportunities, the majority of respondents (42.0%)) reported feeling "Agreed" about the relevance of the curriculum, with an additional 23.3% indicating "Strongly Agree." This indicates a “Moderate Level” of the relevance of the curriculum, with a mean score of **2.691,** above the criterion mean of 2.50. Similarly, **access to resources**, focusing on entrepreneurship education is integrated with access to cutting-edge technologies and tools relevant to

contemporary business practices and facilitates connections with venture capital firms and angel investor networks. A significant proportion of respondents **(57.8%)** expressed feeling "Agree" about **access to resources**, with a mean score of **2.570**, indicating a Moderate Level" of **access to resources**. In terms of **start creation and success rate**, covering that there is a notable increase in the success rates of start-ups initiated by students who have undergone entrepreneurship education and entrepreneurs in the local community are providing positive feedback on the quality and impact of businesses started by graduates, the majority of respondents (62.5%) reported feeling "Moderate" about start creation and success rate in this area. However, the mean score of **2.734** indicate a "moderate level" of start creation and success rate. These findings provide valuable insights for further enhancing the level of SMEs Development among Students in Colleges of Education. In terms of entrepreneurial intensions & attitude, which encompasses aspects like enhancing students' self-efficacy in entrepreneurial skills and entrepreneurship education has contributed to the development of a risk-taking mentality among students; the majority of respondents (34.3%) reported feeling "Agree" about the entrepreneurial intensions & attitude, with an additional (31.5%) indicating "Strongly Agree." This indicates a "moderate level" of entrepreneurial intensions & attitude, with a mean score of 2.835, above the criterion mean of 2.50. These findings provide valuable insights for further enhancing the status of entrepreneurship education integrated into business education curriculum in Colleges of Education

4.3 Test of Hypotheses

Ho1: There will be no significant joint contribution of entrepreneurship education (Curriculum Relevance, Access to Resources, Entrepreneurial Intensions and Attitude, and Start Creation and Success Rate) and ICT competencies (Digital Literacy, Cyber Security Awareness and Skills and Information Management and Digital Collaboration) on SMEs development among students of Business Education in Colleges of Education, Southwest, Nigeria

Table 4.3.1: Multiple Regression Analysis and Model Summary for the Joint Contribution of Entrepreneurship Education and ICT Competencies on SMEs Development Skills among Students of Business Education in Colleges of Education, Southwest, Nigeria

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	3314.909	8	414.36	176.54	.005	Significant
	Residual	3255.157	1387	2.347			
	Total	6570.066	1396				

Model Summary
R = .710
R Square = .642
Adjusted R Square = .644
Standard Error of the Estimate = 3.63648

Dependent Variable: Dependent Variable: SMEs Development among Business Education Students
Predictors: (Constant), curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate, digital literacy, cyber security awareness and skills, and information management and digital collaboration

NB:Anova value is significant at p<0.05

Field Work, 2024

The results of the regression analysis presented in table 4.3.1 indicates a significant combined influence of both entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate) and ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria. The regression model demonstrates a strong relationship between the predictors (entrepreneurship education and ICT Factors) and the dependent variable (SMEs development among students of Business Education in colleges of education), with an overall R value of .710. This indicates that 71.0% of the variability in SMEs development among students of Business Education in colleges of education can be explained by the combined influence of entrepreneurship education and ICT Factors. The R-squared value of .642 suggests that 64.2% of the variance in SMEs development skills among students of Business Education in colleges of education is

accounted for by the predictors included in the model. This indicates a moderate degree of predictability of SMEs development skills among students of Business Education in colleges of education based on the combination of entrepreneurship education and ICT Factors. The Adjusted R-squared value of .644 which is 64.4% confirms that the model provides an appropriate fit to the data while adjusting for the number of predictors, indicating that the predictors collectively contribute significantly to explaining the variance in SMEs development among students of Business Education in colleges of education while the remaining 35.6% could be caused by errors or predictors other than those included in the model 1.

Furthermore, the $F_{8,1387} = 176.54$ show a significant regression model, as evidenced by the low probability value (Sig.=.000), indicating that the combined influence of entrepreneurship education and ICT Factors is statistically significant in predicting SMEs development among students of Business Education in colleges of education in Southwest, Nigeria. In conclusion, the findings reject the hypothesis that there will be no significant combined influence of entrepreneurship education and ICT Factors on SMEs development among students of Business Education in colleges of education. Instead, the results suggest that both sets of factors have a substantial combined influence on SMEs development among students of Business Education in colleges of education in Southwest, Nigeria. This highlights the importance of addressing both entrepreneurship education and ICT Factors in fostering and maintaining moderate levels of SMEs development among students of Business Education in colleges of education.

$H_0$2: There will be no significant relative influence of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and Start creation and success rate) and ICT competencies (digital literacy, cyber security awareness

and skills, and information management and digital collaboration) on SMEs development among students of Business Education in colleges of education, Southwest, Nigeria.

Table 4.3.2: Coefficients of Multiple Regression Analysis for the relative influence of entrepreneurship education and ICT competencies on SMEs development among students of Business Education in colleges of education, Southwest, Nigeria

Coeff icients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Standard Error	Beta		
1	(Constant)	21.269	.354		60.008	.000
	Curriculum Relevance	.172	.084	.132	1.004	.005
	Access to Resources	.146	.074	.116	1.236	.000
	Entrepreneurial Intension and Attitude	.062	.072	.011	1.311	.005
	Start Creation and Success Rate	.081	.064	.047	1.206	.005
	Digital Literacy	.035	.152	.053	1.004	.000
	Cyber Security Awareness and Skills	.065	.132	.061	1.214	.000
	Information Management and digital collaboration	.128	.082	.062	1.693	.001
Dependent Variable: SMEs development among students of Business Education						

Source: Fieldwork, 2024;
*t-value significant at $p < 0.05$

The regression analysis in Table 4.3.2 reveals the relative influence of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate), ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development among students of Business Education in colleges of education, Southwest, Nigeria. The intercept term (Constant) indicates that when both entrepreneurship education and ICT competencies are zero, the predicted SMEs development among students of Business Education is approximately 21.269 units. This intercept provides a baseline level of SMEs development among students of Business Education in colleges of education is Zero in the absence of any influence from the predictor variables. The coefficients for Independent Variables (entrepreneurship education and ICT competencies) represent the change in the dependent variable (SMEs development skills among students of Business Education in

colleges of education) associated with a one-unit change in each predictor variable while holding the other variable constant. Table 4.3.2 shows the coefficients of multiple regression analysis for the relative influence of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate), ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development skills among students of Business Education in Colleges of Education, Southwest, Nigeria.

The table shows that the beta coefficient (β) and t-values for curriculum relevance (β =.172; t = 1.007; Significance =.005), access to resources (β =.146; t = 1.236; Significance =.000), entrepreneurial intension and attitude (β =.022; t = 1.311; Significance =.005), start creation and success rate (β =.081; t = 1.206; Significance =.005), digital literacy (β =.035; t = 1.004; Significance =.005), cyber security awareness and skills (β = .135; t = 1.214; Significant = .000) and information management and digital collaboration (β = .128; t = 1.693; Significant = .001) are significant at P>0.05. Therefore, the results show that SMEs development among students of Business Education in colleges of education southwest, Nigeria can be explained by entrepreneurship education and ICT competencies, which means they are needed in the model. It means that entrepreneurship education and ICT competencies had a positive influence on SMEs development among students of Business Education in colleges of education Southwest, Nigeria. The empirical value of the F-value, which was calculated, is 3.969, which is significant at p=0.001, then we can say that the F-value is statistically significant. The independent variables (entrepreneurship education and ICT competencies) are statistically and significantly influence the dependent variable (SMEs development among students of Business Education in colleges of education Southwest, Nigeria). In summary, both entrepreneurship education and ICT competencies play important roles in influencing SMEs

development skills among students of Business Education in colleges of education Southwest, Nigeria, with entrepreneurship education and ICT competencies having a relatively greater influence.

4.4 Discussion of Findings

This research work was carried out to investigate entrepreneurship education, ICT competencies on SMEs development skills among students of Business Education in colleges of education, Southwest, Nigeria.

Entrepreneurship education was studied using three factors which are curriculum relevance, access to resources, entrepreneurial intensions and attitude, and start creation and success rate. ICT competencies examined using three indices which are digital literacy, cyber security awareness and skills, and information management and digital collaboration. SMEs development was treated using three indice relating to business education business growth, access to finance and innovation and technology adoption. In this section, previous studies related to the findings of this work were compared and contrasted.

The demographic findings of lecturers showed that majority of them, 65 (56.0%) respondents are female while 51 were male which constitute (44.0%), 40 indicating 34.5% are between 20 - 38 years of age among the respondents in the study. In addition, 58 respondents constituting 50.0% of the total samples are between 39 - 59 years of age, 18 respondents constituting 15.5% are between of 60 years and above, 28.4% of the total sample colleges of education lecturers have Mphil or Ph.D Degree as their highest academic qualification and most of them, 45 respondents constituting 38.7% of the colleges of education lecturers have within 11 – 20 years of teaching experience. The result also corroborates that of the work on “Influence of Teacher Features on Instructional Quality in Public Secondary Schools in the South-West, Nigeria” which also noted that most teachers are females, have second degree (Masters) and above 10 years of educational experience[1]. Another study on

"Teacher's Characteristics and Implementation of National Curriculum for Secondary School Biology in Southwest, Nigeria" also showed that majority of teachers are females, have Bachelor's degree, above 10 years of teaching experience and above 40 years of age[2]. These results are similar because they were probably both carried out in Southwest Nigeria.

The finding from research question one of the study (What is the level of business growth, access to finance and innovation and technology adoption of SMEs' Development in Colleges of Education, Southwest, Nigeria?) clearly indicated that there was a moderate level of bussines growth ($\overline{x}$ = 2.95), access to finance ($\overline{x}$=3.01) and innovation and technology adoption ($\overline{x}$=3.25) SMEs development skills to the colleges of education in Southwest, Nigeria. This result partially agrees with that of a study on "Factors Influencing Adoption of Electronic-Marketing among Small and Medium Enterprises in Nigeria: A Quantitative Approach." which showed moderate bussiness growth (**$\overline{x}$=** 2.62), high access to finance **($\overline{x}$=** 3.24) among students[3]. The differences observed in the result could be that this present study was conducted in the entire Southwest while the former study was carried out in Nigeria as a whole. Also, the result completely disagrees with that of a study on "Innovative leadership in South African manufacturing small medium enterprises within KwaZulu-Natal" which showed high extent of business growth, innovative adoption as well as access to finance[4]. The differences observed in the result could be that this present study was conducted in the entire Southwest while the former study was conducted in South Africa. The results also do corroborate with that of a study on "Accounting, Management and Technological Innovation Skills as Impediments for Small and Medium Scale Enterprises (SMEs) Sustainability in Ogun State, Nigeria.School" which showed high business growth, moderate access to finance and low innovation skills among students[5]. The differences observed in the result could be that this present study was conducted in the entire Southwest while the former study was carried out in only Ogun State. In addition, a result agreed with the present study on "New

Technologies for Entrepreneurial Competencies of Small and Medium Enterprises in Nigeria which showed a moderate level of business growth as well as moderate technologies level among students[6].

The findings from research question two of the study (What is the level of ICT competencies on students of business education in Colleges of Education in Southwest, Nigeria.?) clearly indicated that digital literacy ($\overline{x}$ = 3.14), cyber security awareness and skills ($\overline{x}$ = 2.98), and information management and digital collaboration ($\overline{x}$ = 2.69) are at their moderate level on the business education students in colleges of education, Southwest, Nigeria and are well perceived by the lecturers. This result does corroborate that of "Understanding the Adoption of Industry 4.0 Technologies in Improving Environmental Sustainability." which showed that digital literacy ($\overline{x}$ = 2.94) as well as cyber security awareness and skills ($\overline{x}$ = 3.02) are at a moderate level[7]. Moreover, this result does not corroborate that of "Prospects, Limitations and Challenges in the Concept and Application of ICT on SMEs in Rivers State[8]" The differences observed in the result could be that this present study was conducted in the entire Southwest while the former study was carried out in only Rivers State. The former was carried out on colleges of education students and lecturers while the latter was conducted on colleges of education lecturers' alone

The finding from research question three of the study (What is the extent of entrepreneurship education skills (curriculum relevance, access to resources, start creation and resources rate and entrepreneurial intensions & attitude) integration into the business education curriculum in Colleges of Education in Southwest, Nigeria?) clearly indicated that curriculum relevance ($\overline{x}$ = 1.884), access to resources ($\overline{x}$ = 1.907) start creation and resources rate ($\overline{x}$ = 1.884), and entrepreneurial intensions & attitude ($\overline{x}$ = 1.954) are "agreed and at a moderate level" integrated into the business education curriculum in college of education in Southwest, Nigeria. The result corroborates that of a study Evaluating the Effects of

Entrepreneurial Orientation and Managerial Skills on Small and Medium Enterprises Performance in Lagos State" which revealed moderate level entrepreneurial intention and attitude in Lagos State, Nigeria[9]. This result is also supported by that of a study Sculpting Factors of Entrepreneurship among University Students in Indonesia which revealed moderate access to resources as well as strat creation and resources rate among university students in Indonesia to boost entrepreneurship education[10]. Although both studies were conducted in various countries, they were however carried out in developing nations in Africa. Both developing nations are yet to boost the level of e entrepreneurship education in their school education. In addition, the result is supported by a study "Determinants of access to finance among manufacturing micro, small and medium enterprises in Nigeria" which revealed a moderate level of access to resource as an aspect of entrepreneurship education[11].

The test of hypothesis one clearly indicated a significant joint contribution of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and Start creation and success rate), ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development skills (business growth, access to finance and innovation and technology adoption) among students of business education in colleges of education, Southwest, Nigeria ($F_{8,1387} = 176.54$, $P<0.05$). This result corroborates that of a study which revealed significant joint contribution of Information technology and E-accounting: some determinants among SMEs[12]. The similarities observed in the result could be that both studies were carried out in Southwest, Nigeria. Another study also revealed significant joint contribution of Accounting, Management and Technological Innovation Skills as Impediments for Small and Medium Scale Enterprises (Smes) Sustainability in Ogun State[5]. Although both studies were conducted in different geopolitical zones of the nation, similarities in the result depict the effect of entrepreneurship education and ICT competencies on SMEs

development among students of business education in colleges of education, Southwest, Nigeria. A study also revealed significant joint effect of Impact of information and communication technology in Nigerian small-to medium-sized enterprises[13]. Furthermore, a study on "Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies" also revealed a significant joint influence of Entrepreneurial Education and Firm Performance on Entrepreneurial Competencies[14]. Similarities in the result could be as a result of the fact that they were both carried out in Nigeria. The finding is also in line with that of a study "Encouraging SMEs performance through entrepreneurial intentions, competencies, and leadership: serial mediation model" which showed significant joint contribution of entrepreneurial intentions, competencies, and leadership on SMEs performance[15]. Similarities in the result could be that both studies were carried out in Southwest Nigeria. The result also corroborates that of a study "The role of SMEs development on poverty alleviation in Nigeria"which revealed that poverty alleviation is associated with SMEs development[16].

The test of hypothesis two clearly indicated that the beta standardized coefficients and t-values for curriculum relevance (β =.172; t = 1.007; Sig =.005), access to resources (β =.146; t = 1.236; Significance =.000), entrepreneurial intension and attitude (β =.022; t = 1.311; Significance =.005), start creation and success rate (β =.081; t = 1.206; Significance =.005), digital literacy (β =.035; t = 1.004; Significance =.005), cyber security awareness and skills (β = .135; t = 1.214; Significant = .000) and information management and digital collaboration (β = .128; t = 1.693; Significant = .001) are significant at P>0.05. This result partially disagrees with that of a study "Managerial Competencies and Growth of Small and Medium Enterprise (SMEs) in Abuja Metropolis. Nigeria" which revealed significant relative influence of managerial competencies and growth of small and medium enterprise in Abuja Metropolis, Nigeria[17]. The differences observed in the result could be that this present study was conducted

in the entire Southwest while the former study was carried out in only in Abuja Metropolis. This result is partially supported by that of a study "Determinants of SME Success or Failure in Frontier Markets"which revealed that the SMEs success school environment is relatively significant to entrepreneurship education[18]. The findings is also partially in line with that of a study "Relationship between Entrepreneurial Team and Growth of Small and Medium Manufacturing Enterprises in Kenya"which showed significant relative influence of Entrepreneurial Team, Growth of Small and Medium on Manufacturing Enterprises in Kenya[19]. Differences observed in both results maybe because they were carried out in two entirely different zones in the nation.

Endnotes

1. O. I. Awolola & C. O. Alabi*, Influence of Teacher Features on Instructional Quality in Public Secondary Schools in the South-West, Nigeria,* **African Journal of Education and Practice,** 8(2), 2022, 1-14. ISSN 2519-0296 (Online)

2. V. Oadeuya, *Teacher's Characteristics and Implementation of National Curriculum for Secondary School Biology in Southwest, Nigeria,***Commonwealth Journal of Academic Research (CJAR.EU),** 1(9), 2020, 1-9. ISSN: 2708-4841(Print), 2708-7042 (Online)

3. U. S., Otika, N. J., Anene, O. B., Osuagwu & D. B., Uche, *Factors Influencing Adoption of Electronic-Marketing among Small and Medium Enterprises in Nigeria: A Quantitative Approach*. **Asian Journal of Economics, Finance and Management**, 2022, 172-181, https://doi.org/10.47191/jefms/v5-i8-18.

4. M., Ngibe, & L. M., Lekhanya, *Innovative Leadership in South African Manufacturing Small Medium Enterprises within KwaZulu-Natal.* **Journal of Contemporary Management,** *16*(2), 2019. 300-330, https://doi.org/10.35683/jcm19034.37

5. A., Adebayo, M. O., Nuberu, R. O., Agbonna, & C., Godwin, *Accounting, Management and Technological Innovation Skills as Impediments for Small and Medium Scale Enterprises (Smes) Sustainability in Ogun State, Nigeria.***KWASU International Journal of Education (KIJE),** 5(1), 2022. 67-79, **https://doi.org/10.3726/978-3-653-00753-4/11**

6. V. N., Chukwurah, M. M., Isede, & N. G., Okocha, *New Technologies for Entrepreneurial Competencies of Small and Medium Enterprises in Nigeria.* **South Eastern Journal of Research and Sustainable Development (SEJRSD),** *11*(2), 2023. 69-96, https://doi.org/10.7176/jesd/14-14-06

7. M., Javaid, A., Haleem, R. P., Singh, R., Suman, & E. S., Gonzalez, *Understanding the Adoption of Industry 4.0 Technologies in Improving Environmental Sustainability.* **Sustainable Operations and Computers,** *3*, 2022. 203-217, https://doi.org/10.1016/j.susoc.2022.01.008.

8. G. B. E., Obinna, *Prospects, Limitations and Challenges in the Concept and Application of ICT on SMEs in Rivers State.* **International Journal of Business Systems and Economics,** *13*(5), 2022. 117-129, https://doi.org/10.56201/ijebm.v8.no5.2022.pg76.89.

9. N. S., Alaka, & O., Okogua, *Evaluating the Effects of Entrepreneurial Orientation and Managerial Skills on Small and Medium Enterprises Performance in Lagos State.***The Winners,**23(2), 2022. 153-160, https://doi.org/10.21512/tw.v23i2.7897

10. Z., Zamrudi, & F., Yulianti, *Sculpting Factors of Entrepreneurship among University Students in Indonesia.* **Entrepreneurial Business and Economics Review,** *8*(1), 2020. 33-49, https://doi.org/10.15678/eber.2020.080102.

11. O. F., Bello, & Y. I., Mustapha, *Determinants of Access to Finance among Manufacturing Micro, Small and Medium Enterprises in Nigeria.* **Kelaniya Journal of Management,** *10*(1), 2021.65, https://doi.org/10.4038/kjm.v10i1.7627

12. M. M., Thottoli, & E. R., Ahmed, *Information Technology and E-accounting: Some Determinants among SMEs.* **Journal of Money and Business,***2*(1), 2022. 1-15, https://doi.org/10.1108/jmb-05-2021-0018

[13] K., Okundaye, S. K., Fan, & R. J., Dwyer, *Impact of Information and Communication Technology in Nigerian Small-to Medium-sized Enterprises.* **Journal of Economics, Finance and Administrative Science,** *24*(47), 2019. 29-46, https://doi.org/10.1108/jefas-08-2018-0086.

[14] J. M. A., Kanaan-Jebna, T. T. Y., Alabdullah, E. R., Ahmed, & R. K., Ayyasamy, *Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies.*2022, https://doi.org/10.21272/bel.6(2).68-77.2022.

[15] M. A., Khan, K., Rathore, S. S., Zubair, A. T., Mukaram, & K. M., Selem, *Encouraging SMEs Performance through Entrepreneurial Intentions, Competencies, and Leadership: Serial Mediation Model.* **European Business Review,**2023, https://doi.org/10.1108/ebr-04-2023-0119.

[16] S. A., Kowo, O. A. O., Adenuga, & O. O., Sabitu, *The Role of SMEs Development on Poverty Alleviation in Nigeria.* **Insights into Regional Development,***1*(3), 2019. 214-226, https://doi.org/10.9770/ird.2019.1.3(3)

[17] A. F., Anoke, A. N., Onu, & O. C., Agagbo, *Managerial Competencies and Growth of Small and Medium Enterprise (SMEs) in Abuja Metropolis, Nigeria.* **International Journal of Financial, Accounting, and Management,** *4*(3), 2022. 255-268, https://doi.org/10.35912/ijfam.v4i3.811.

[18] M. M., Ma'aji, R. S., Shrubsall, & E. O., Anderson, *Determinants of SME Success or Failure in Frontier Markets.* **International Journal of Banking and Finance,** *18*(1), 2023.1-30, https://doi.org/10.32890/ijbf2023.18.1.1.

[19] Z., Mwaniki, S., Nyang'au, & P., Ngugi, *Relationship between Entrepreneurial Team and Growth of Small and Medium Manufacturing Enterprises in Kenya.* **International Journal of Entrepreneurship and Project Management,** *7*(1), 2022.1-13, **https://doi.org/10.47604/ijepm.1490.**

Chapter Five
Conclusion

This chapter presents the summary of findings; conclusion and recommendations based on the findings, contribution to knowledge and suggested area for further research.

5.1 Summary of Findings

This research work was carried out to investigate entrepreneurship education, ICT competencies on SMEs development skills among students of business education in colleges of education, Southwest, Nigeria. The demographic findings of teachers showed that majority of them, 65 (56.0%) respondents are female while 51 were male which constitute (44.0%), 40 indicating 34.5% are between 20 - 38 years of age among the respondents in the study. In addition, 58 respondents constituting 50.0% of the total samples are between 39 - 59 years of age, 18 respondents constituting 15.5% are between of 60 years and above, 28.4% of the total sample colleges of education lecturers have Mphil or Ph.D Degree as their highest academic qualification and most of them, 45 respondents constituting 38.7% of the colleges of education lecturers have within 11 – 20 years of teaching experience.

In addition, a total of 688 (53.8%) respondents are female while 592 were male which constitute (46.2%) of the students in colleges of education, Southwest, Nigeria. 459 indicating 35.9% are between 18 -25 years. In addition, 383 respondents constituting 29.9% of the total samples are between 26 - 30 years of age, 274 respondents constituting 21.4% are between of 31 - 35years of age and 164 respondents make up of 12.8% who are above 36 years of age**.** 30 indicating 18.5% marital status of the students in colleges of education are single, 94 respondents constituting 58.0% of the total of marital status of the students in colleges of education are married. 18 respondents constituting 11.1 % of the total sample number of marital status of the students in colleges of education are widow and 20 respondents make up of 12.4 % of the total samples' number of marital status of the students in colleges of education are separated by marital status.

The finding from research question one revealed that there was a moderate level of bussines growth ($\overline{x}$ = 2.95), access to finance ($\overline{x}$=3.01) and innovation and technology adoption ($\overline{x}$=3.25) SMEs development skills to the colleges of education in Southwest,

Nigeria. The finding from research question two revealed that digital literacy ($\overline{x}$ = 3.14), cyber security awareness and skills ($\overline{x}$ = 2.98), and information management and digital collaboration ($\overline{x}$ = 2.69) are at their "moderate level" on the business education students in colleges of education, Southwest, Nigeria and are well perceived by the lecturers.

The finding from research question three showed that curriculum relevance ($\overline{x}$ = 1.884), access to resources ($\overline{x}$ = 1.907) start creation and resources rate ($\overline{x}$ = 1.884), and entrepreneurial intensions & attitude ($\overline{x}$ = 1.954) are "agreed and at a moderate level" integrated into the business education curriculum in college of education in Southwest, Nigeria.

Test of hypothesis one showed a significant joint contribution of entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and Start creation and success rate), ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) on SMEs development (business growth, access to finance and innovation and technology adoption) among students of business education in colleges of education, Southwest, Nigeria ($F_{8,1387}$ = 176.54, P<0.05).

Test of hypothesis two showed that the beta standardized coefficients and t-values for curriculum relevance (β =.172; t = 1.007; Sig =.005), access to resources (β =.146; t = 1.236; Significance =.000), entrepreneurial intension and attitude (β =.022; t = 1.311; Significance =.005), start creation and success rate (β =.081; t = 1.206; Significance =.005), digital literacy (β =.035; t = 1.004; Significance =.005), cyber security awareness and skills (β = .135; t = 1.214; Significant = .000) and information management and digital collaboration (β = .128; t = 1.693; Significant = .001) are significant at P>0.05.

5.2 Conclusion

Having successfully considered and discussed the finding of ths study, it could be concluded that entrepreneurship education (curriculum relevance, access to resources, entrepreneurial intensions and attitude, and Start creation and success rate) have tremendous positive significant impact on SMEs development among students of business education in colleges of education, Southwest, Nigeria. Similarily, the level of ICT competencies (digital literacy, cyber security awareness and skills, and information management and digital collaboration) have moderate positive impact on SMEs development skills among students of business education in colleges of education, Southwest, Nigeria. The result of the SMEs development skills among students of business education in colleges of education is moderate. This research work examined enterprenuership education, ICT Competencies and SMEs development skills among students of business education in Colleges of Education, Southwest, Nigeria.

The lecturers have a moderate level of ICT Competencies in Colleges of Education in Southwest, Nigeria. It was also revealed that there was a moderate level of entrepreneurship education integration in business education curriculum. It can be concluded that the level of SMEs Development Skills for the students in colleges of education is at a moderate level.

Findings of the study also showed joint contribution of enterprenuership education and ICT Competencies to SMEs Development Skills for the students in colleges of education Southwest, Nigeria. It can conclude that the entrprenuership education integration and the moderate level of ICT Competencies have significant contribution to the SMEs Development for students in colleges of Education. However, there was a positive significant relative influence on SMEs Development Skills for the business education students in colleges of education, Southwest, Nigeria. Based on the above findings, it can therefore be concluded that the moderate level of ICT Competencies and moderate level of entrepreneurship education

integration into the curriculum positively affected SMEs Development Skills among the business education students in the colleges of education, Southwest, Nigeria.

5.3 Recommendations

Based on the summary of findings and conclusions, the following recommendations are therefore stated:

1. Based on the findings indicating a commendable level of SMEs Development Skills for business education students in colleges of Education, Southwest, Nigeria, it is recommended that government and stakeholders in education establish a formal system for recognizing and revisit of the business education curriculum to suit the needs of the society
2. Considering the varying levels of ICT Competencies within colleges of education Southwest, Nigeria, there is a need to develop a comprehensive training programme for both lecturers and students.

3. There is a need for implementation of the Information Communication Technology (ICT) facilities to suit the SMEs Development Skills for business education students in colleges of Education, Southwest, Nigeria. The government and educational stakeholders should do all they can to ensuring that ICT competencies are adequate for lectures in the colleges of education as well as the business education students. They should allocate more funds to the provision of ICT infrastructures, instructional facilities and equipping the physical environment for competencies in colleges of education.

5.4 Contribution to Knowledge

This research has added to knowledge conceptually, theoretically and empirically as discussed below:

1. **Theoretical Contribution**

This study was anchored on three theories, namely; human capital theory and innovation diffusion theory and self determination theory. The human capital theory and innovation diffusion theory support the notion of entrepreneurship education, ICT competencies on SMEs development among students in business education in colleges of education. This study has thus contributed theoretically by providing useful and relevant application of the above theories to the study on "entrepreneurship education, ICT competencies and SMEs development among Students of Business Education in Colleges of Education, Southwest, Nigeria." other than the way they were used in previous studies. Many similar studies in the past did not use the above theories to support the influence of the independent variables on the dependent variable. Therefore, this study will contribute to the existing body of theoretical knowledge with the application of theories and can serve as a point of reference.

2. Conceptual Contribution

This study has contributed to knowledge conceptually by providing a better insights and clarification of useful concepts (such as cyber security awareness ans skills, access to resources, curriculum relevance, information management and digital collaboration, entrepreneurial intension attitude, start creation and success rate, access to finance, innovation and technology adoption) beyond that used in prior studies. Most of the above concepts were demystified and simplified better than the way they were defined in previous studies.

3. Empirical Contribution

A thorough search of literature showed a dearth of studies on the joint contribution of entrepreneurship education, ICT competencies and SMEs development among Students of Business Education in Colleges of Education, Southwest, Nigeria. This study has contributed

empirically to knowledge by establishing that there exists a joint and relative significant influence of entrepreneurship education, ICT competencies and SMEs development among Students of Business Education in Colleges of Education, Southwest, Nigeria thus closing the identified gap in knowledge. The study will continue to submissions and recommendations being previously carried out by various researchers to NCCE as a regulatory body, college administrators, lectuers students and other stakeholders in the education industry.

4. Conceptual Framework

A conceptual model was developed to indicate the relationship between the various hypotheses. The model was able to link the independent variables with the dependent variable. The model was able to reveal the significant levels of the variables and clearly showing and indicating the resultant effect of the hypotheses on the model. Significant hypotheses were shown while the hypotheses to be rejected and the ones to be accepted were indicated. Therefore, this study would contribute to various existing body of knowledge on several frameworks/models that had been developed in the time past by various researchers to teat various hypotheses, most especially on those with similar or related variables and indices.

5.5 Suggested Areas of Further Research

In subsequent studies, qualitative research approach which involve the use of in-depth interviews, case studies and focus group discussions can be adopted to provide qualitative information on the research topic. Mixed study research design can therefore be used in another study. The demographic variables of the lecturers and students and other demographic characteristics of lecturers apart from gender may be considered in subsequent studies. This would help to see if there exists significant moderating influence lecturers' age, educational

experience and qualifications on the relationship among entrepreneurship education, ICT competencies and SMEs development among Students of Business Education in Colleges of Education, Southwest, Nigeria. Other aspects of higher education such as universities can be used in subsequent studies. More indices of entrepreneurship education and ICT could be used in further studies. Other forms of SMEs development indices other than those used in this study could be assessed in further studies.

Bibliography

Book

Becker G. S.,, *The Economic Approach: Unpublished Writings of Gary S. Becker*. **University of Chicago Press** 2023, https://doi.org/10.7208/chicago/9780226827216.001.0001

Kadasah S. F., Abd Al Galil F. M., Kolhe B., & Shinde S. M., *Scientific Research Methodology Principles, Methods, and Techniques*, **Book Rivers**, 2022, https://doi.org/10.1007/978-981-19-5441-2_29.

Standage M.,, & Ryan R. M.,, *Self-determination Theory in Sport and Exercise.* **Handbook of Sport Psychology,** 2020, 37-56, https://doi.org/10.1002/9781119568124.ch3.

Zainol F. A., Yusoff M. N. H., Shiyuti H. A., Redzuan R. H., & Said N. M., *The Government Business Support Strategies, Micro SMEs and Covid-19 Pandemic.***In International Conference on Business and Technology** (pp. 493-509). **Cham: Springer International Publishing.** 2021, https://doi.org/10.1007/978-3-031-08087-6_35.

Journal

Abdullahi M. S.,, Khalid N.,, Ahmed U.,, Ahmed E. M.,, & Gumawa A. M.,, *Effect of Entrepreneurship Education on Entrepreneurial Intention among University Students.* **Journal of Technical Education and Training,** *13*(3), 2021. 40-53, https://doi.org/10.30880/jtet.2021.13.03.005.

Abisuga-Oyekunle O. A.,, Patra S. K.,, & Muchie M.,, *SMEs in Sustainable Development: Their Role in Poverty Reduction and Employment Generation in Sub-Saharan Africa.* **African Journal of Science, Technology, Innovation and Development,** *12*(4), 2020. 405-419, https://doi.org/10.1080/20421338.2019.1656428.

Aboobaker N.,, *Human Capital and Entrepreneurial Intentions: Do Entrepreneurship Education and Training Provided by Universities Add Value?.* **On the Horizon,** *28*(2), 2020. 73-83, https://doi.org/10.1108/oth-11-2019-0077.

Adebayo A., Nuberu M. O., Agbonna R. O., & Godwin C., *Accounting, Management and Technological Innovation Skills as Impediments For Small and Medium Scale Enterprises (SMES) Sustainability in Ogun State, Nigeria.* **KWASU International Journal of Education (KIJE),** *5*(1), 2022. 67-79, https://doi.org/10.3726/978-3-653-00753-4/11.

Adedeji A.,, Opeyemi O.,, & Rapheal O.,, *Business Climate Factors affecting Economic Growth of Small Scale Construpreneurs in Nigeria.* **International Journal of Innovative Technology and Exploring Engineering,** *9*(4), 2020.1597-1606, https://doi.org/10.35940/ijitee.a4635.029420**.**

Adeel S., Daniel A. D., & Botelho A., *The Effect of Entrepreneurship Education on the Determinants of Entrepreneurial Behaviour among Higher Education Students: A Multi-group Analysis.* **Journal of Innovation & Knowledge,** *8*(1), 2023. 100324, https://doi.org/10.1016/j.jik.2023.100324.

Adeniyi A. O.,, Derera E.,, & Gamede V.,, *Entrepreneurial Self-efficacy for Entrepreneurial Readiness in a Developing Context: A Survey of Exit Level Students at TVET Institutions*

in Nigeria. **SAGE Open,** *12*(2), 2022. 21582440221095059, https://doi.org/10.1177/21582440221095059.

Adewole E. G.,, & Umoru T. A.,, *Perceived Influence of Business Environment on Small and Medium Scale Enterprises Success in Nigeria.* **European Journal of Business and Management Research,***6*(6), 2021. 195-200, **https://doi.org/10.53378/345654.**

Adikari A.,, Burnett D.,, Sedera D.,, De Silva D.,, & Alahakoon D.,, *Value Co-creation for Open Innovation: An Evidence-based Study of the Data Driven Paradigm of Social Media using Machine Learning.* **International Journal of Information Management Data Insights,** *1*(2), 2021. 100022, https://doi.org/10.1016/j.jjimei.2021.100022.

Agbim K. C.,, *Determining the Contributory Factors to Successful Succession and Post-Succession Performance of Family-owned SMEs in South Eastern Nigeria.* **International Entrepreneurship Review,** *5*(2), 2019. 53, https://doi.org/10.15678/ier.2019.0502.04.

Agostini L.,, Galati F.,, & Gastaldi L.,, *The Digitalization of the Innovation Process: Challenges and Opportunities from a Management Perspective.* **European Journal of Innovation Management,** *23*(1), 2020. 1-12, https://doi.org/10.1108/ejim-11-2019-0330.

Agu Igwe P., & Ochinanwata C., *How to Start African Informal Entrepreneurial Revolution?.* **Journal of African Business,** *22*(4), 2021. 514-531, **https://doi.org/10.1080/15228916.2021.1954447.**

Ahmad M. I. S.,, M. I., Idrus, & S., Rijal, *The Role of Education in Fostering Entrepreneurial Spirit in the Young Generation.* **Journal of Contemporary Administration and Management (ADMAN),** *1*(2), 2023. 93-100, https://doi.org/10.61100/adman.v1i2.28.

Ahmad A. M.,, Hussain K.,, Ekiz E.,, & Tang T.,, *Work-based Learning: An Approach towards Entrepreneurial Advancement.* **Worldwide Hospitality and Tourism Themes,** *12*(2), 2020. 127-135, https://doi.org/10.1108/whatt-12-2019-0076.

Ahmad M. I. S.,, Idrus M. I.,, & Rijal S.,, *The Role of Education in Fostering Entrepreneurial Spirit in the Young Generation.* **Journal of Contemporary Administration and Management (ADMAN),** *1*(2), 2023. 93-100, https://doi.org/10.61100/adman.v1i2.28.

Ahmed Li, C.,, Qalati N.,, Khan S. A. A.,, & Naz S.,, *Role of Business Incubators as a Tool for Entrepreneurship Development: The Mediating and Moderating Role of Business Start-up and Government Regulations.* **Sustainability,** *12*(5), 2020. 1822, https://doi.org/10.3390/su12051822.

Ajani Y. A.,, Enakrire R. T., Oladokun, B. D.,, & Bashorun M. T.,, *Reincarnation of Libraries via Metaverse: A Pathway for a Sustainable Knowledge System in the Digital Age.* **Business Information Review,** 02663821231208044, 2023, https://doi.org/10.1177/02663821231208044.

Akeke N. I., Adetayo H. O., A. R., Akeke, & Oyebanji M. O., *Strategic Leadership and Performance of Small and Medium Enterprises: The Role of Strategic Interventions.* **Modern Management Review,** *26*(3), 2021. 7-15, **https://doi.org/10.7862/rz.2021.mmr.13.**

Akenroye T. O.,, Owens J. D.,, Elbaz J.,, & Durowoju O. A.,, *Dynamic Capabilities for SME Participation in Public Procurement.* **Business Process Management Journal,** *26*(4), 2020. 857-888, https://doi.org/10.1108/bpmj-10-2019-0447.

Akwei C.,, & Nwachukwu C.,, *An Exploration of Contextual Factors Affecting the Nexus of Competitive Strategy and Human Resource Management Practices in Nigeria Emerging Economy Context.* **The International Journal of Human Resource Management,** *34*(16), 2023. 3079-3122, https://doi.org/10.1080/09585192.2022.2104128.

Al Busaidi N. S., Bhuiyan A. B., & Zulkifli N., *Does Marketing Capabilities Mediate on The ICT'S Adoption and Business Performance of The SMES in Oman? Conceptual Review.* **American International Journal of Business and Management Studies,** *4*(1), 2022. 1-11, https://doi.org/10.46545/aijbms.v4i1.279**.**

Alabi F. A., David J. O., &Aderinto O. C., *The Impact of Government Policies on Business Growth of SMEs in South Western Nigeria.* **International Journal of Management Studies and Social Science Research,** 1(2), 2019. 1-14, **https://doi.org/10.47191/ijmra/v5-i2-32.**

Alaka N. S., & Okogua O., *Evaluating the Effects of Entrepreneurial Orientation and Managerial Skills on Small and Medium Enterprises Performance in Lagos State.***The Winners,** 23(2), 2022. 153-16 https://doi.org/10.21512/tw.v23i2.7897.

Alfia N.,, Sumardi S.,, & Kristina D.,, *Survival Skills in Digital era: An Integration of Digital Literacy into EFL Classroom.* **Indonesian Journal of EFL and Linguistics,** *5*(2), 2020. 435, https://doi.org/10.21462/ijefl.v5i2.307.

Alharbi F. S.,, *Dealing with Data Breaches Amidst Changes In Technology.* **International Journal of Computer Science and Security (IJCSS),** *14*(3), 2020. 108-115, https://doi.org/10.1201/9780203488690.ch6.

Almeida F.,, Santos J. D.,, & Monteiro J. A.,, *The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World.* **IEEE Engineering Management Review,** *48*(3), 2020. 97-103, https://doi.org/10.1109/emr.2020.3013206.

Amegayibor G. K..,, *The Effect of Demographic Factors on Employees' Performance: A Case of an Owner-manager Manufacturing Firm.* **Annals of Human Resource Management Research,** *1*(2), 2021. 127-143, https://doi.org/10.35912/ahrmr.v1i2.853.

Amin F. M.,, & Sundari H.,, *EFL Students' Preferences on Digital Platforms during Emergency Remote Teaching: Video Conference, LMS, or Messenger Application?*. **Studies in English Language and Education,** *7*(2), 2020. 362-378, https://doi.org/10.24815/siele.v7i2.16929.

Amornkitvikai Y.,, Tham S. Y.,, Harvie C.,, & Buachoom W. W.,, *Barriers and factors Affecting the e-commerce Sustainability of Thai Micro-, Small-and Medium-Sized Enterprises (MSMEs).* **Sustainability,** *14*(14), 2022. 8476, https://doi.org/10.3390/su14148476.

Anoke A. F., Onu A. N., & Agagbo O. C., *Managerial Competencies and Growth of Small and Medium Enterprise (SMEs) in Abuja Metropolis, Nigeria.* **International Journal of Financial, Accounting, and Management,** *4*(3), 2022. 255-268, https://doi.org/10.35912/ijfam.v4i3.811.

Archino S.,, Lanier M.,, & McClain R.,, *Reframing the Arts within the Liberal Arts Community: Teaching an Arts Entrepreneurial Mindset to Achieve Transdisciplinary Outcomes.* **Artivate,** *9*(2), 2020. 5-18, https://doi.org/10.1353/artv.2020.0011.

Areed S.,, Salloum S. A.,, & Shaalan K.,, The *Role of Knowledge Management Processes for Enhancing and Supporting Innovative Organizations: A Systematic Review.* **Recent Advances in Intelligent Systems and Smart Applications,** 2020.143-161, https://doi.org/10.1007/978-3-030-47411-9_8.

Argaw S. T.,, Troncoso-Pastoriza J. R.,, Lacey D.,, Florin M. V.,, Calcavecchia F.,, Anderson, D.,... & A., Flahault, *Cybersecurity of Hospitals: Discussing the Challenges and Working Towards Mitigating the Risks.* **BMC Medical Informatics and Decision Making** *20*, 2020. 1-10, https://doi.org/10.1186/s12911-020-01161-7.

Ashiq M.,, Usmani M. H.,, & Naeem M.,, *A Systematic Literature Review on Research Data Management Practices and Services*. **Global Knowledge, Memory and Communication,** *71*(8/9), 2022. 649-671, https://doi.org/10.1108/gkmc-07-2020-0103.

Asikhia O.,, & Naidoo V.,, *Assessment of the Moderating Effects of Nigerian Market Environment on the Relationship between Management Success Determinants and SMEs' Performance.* **Problems and Perspectives in Management,** *18*(4), 2021. 388, **https://doi.org/10.21511/ppm.18(4).2020.31.**

Audretsch D.,, Colombelli A.,, Grilli L.,, Minola T.,, & Rasmussen E.,, *Innovative Start-ups and Policy Initiatives.* **Research Policy,** *49*(10), 2020. 104027, https://doi.org/10.1016/j.respol.2020.104027.

Awolola O. I. & Alabi C. O., *Influence of Teacher Features on Instructional Quality in Public Secondary Schools in the South-West, Nigeria,* **African Journal of Education and Practice,** 8(2), 2022, 1-14. ISSN 2519-0296 (Online)

Babayayi U. A., Zubairu M., & Badara A. M., *Impact of Entrepreneurial Competencies on the Performance of Small and Medium Sized Enterprises in North-East Region of Nigeria.* **Gusau International Journal of Management and Social Sciences,***4*(3), 2021. 19-19, **https://doi.org/10.4337/9781802205770.00012.**

Bachnik K.,, Misiaszek T.,, & Day-Duro E.,, *Integrating Corporate Social Challenge, Learning and Innovation in Business Education.* **Journal of Business Research,** *159*,2023. 113700.

Bahroun Z.,, Anane C.,, Ahmed V.,, & Zacca A.,, *Transforming Education: A Comprehensive Review of Generative Artificial Intelligence in Educational Settings through Bibliometric and Content Analysis.* **Sustainability,** *15*(17), 2023. 12983, https://doi.org/10.3390/su151712983.

Bayero S. A., *Influence of Entrepreneurial Education and Attitude on Entrepreneurial Intention of Graduating Students in a Nigerian University.* **Online Submission,** *1*(2), 2020. 26-55, https://doi.org/10.53378/345654.

Bazkiaei H. A.,, Heng L. H.,, Khan N. U.,, Saufi R. B. A.,, & Kasim R. S. R.,, *Do Entrepreneurial Education and Big-five Personality Traits Predict Entrepreneurial Intention among Universities Students?.* **Cogent Business & Management** *7*(1), 2020. 1801217, https://doi.org/10.1080/23311975.2020.1801217..

Bell R.,, & Bell H.,, *Applying Educational Theory to Develop a Framework to Support the Delivery of Experiential Entrepreneurship Education.* **Journal of Small Business and Enterprise Development,** *27*(6), 2020. 987-1004, https://doi.org/10.1108/jsbed-01-2020-0012..

Bello O. F., & Mustapha Y. I., *Determinants of Access to Finance among Manufacturing Micro, Small and Medium Enterprises in Nigeria.* **Kelaniya Journal of Management,** *10*(1), 2021.65, https://doi.org/10.4038/kjm.v10i1.7627

Berndt A. E., *Sampling Methods*, **Journal of Human Lactation**, *36*(2), 2020, 224-226, https://doi.org/10.1177/0890334420906850.

Bharadiya J. P.,, *Leveraging Machine Learning for Enhanced Business Intelligence.* **International Journal of Computer Science and Technology,** *7*(1), 2023. 1-19, https://doi.org/10.33545/27076571.2023.v4.i1a.60.

Black J. A.,, Perry L. G., III, & R. J., Lahm Jr, *Experiential Learning as a Development Tool for Entrepreneurial Mindsets: The Case for Stimulation Assignment.* **Global Journal of Business Pedagogy,** *7*(1), 2023. 125, https://doi.org/10.1057/9781137467720.0039.

Boldureanu, A. M., Ionescu, Bercu A. M.,, Bedrule-Grigoruță M. V.,, & Boldureanu, D., *Entrepreneurship Education through Successful Entrepreneurial Models in Higher Education Institutions.* **Sustainability,** *12*(3), 2020. 1267, https://doi.org/10.3390/su12031267.

Bolzani D.,, & Luppi E.,, *Assessing Entrepreneurial Competences: Insights from a Business Model Challenge*. **Education+ Training,** *63*(2), 2021. 214-238, https://doi.org/10.1108/et-04-2020-0072.

Borowski P. F.,, *Innovation Strategy on the Example of Companies Useing Bamboo.* **Journal of Innovation and Entrepreneurship,** *10*(1), 2021. 1-17, https://doi.org/10.1186/s13731-020-00144-2.

Bradley S. W.,, Kim P. H.,, Klein P. G.,, McMullen J. S.,, & Wennberg K.,, *Policy for Innovative Entrepreneurship: Institutions, Interventions, and Societal Challenges.* **Strategic Entrepreneurship Journal,** *15*(2), 2021. 167-184, https://doi.org/10.1002/sej.1395.

Brière M.,, Le Roy J.,, & O., Meier, *Linking Servant Leadership to Positive Deviant Behavior: The Mediating Role of Self-determination Theory.* **Journal of Applied Social Psychology,** *51*(2), 2021. 65-78, https://doi.org/10.1111/jasp.12716..

Bunn R.,, Burman E.,, Warne J.,, Bull J.,, & Field J.,, *Tracking Building Operational Energy and Carbon Emissions Using S-curve Trajectories – A Prototype Tool.* **Building Services Engineering Research and Technology,** *44*(2), 2023. 135-154, https://doi.org/10.1177/01436244221145392.

Carayannis E. G.,, & Morawska-Jancelewicz J.,, *The Futures of Europe: Society 5.0 and Industry 5.0 as Driving Forces of Future Universities.* **Journal of the Knowledge Economy,** *13*(4), 2022. 3445-3471, https://doi.org/10.1007/s13132-021-00854-2.

Casado-Belmonte M. D. P.,, Marín-Carrillo G. M.,, Terán-Yépez E.,, & Capobianco-Uriarte M. D. L. M.,, *What is Going on with the Research into the Internationalization of Small and Medium-sized Enterprises (SMEs)? An Intellectual Structure Analysis into the State-of-the-art (1990–2018).* **Publications,** *8*(1), 2020. 11, https://doi.org/10.3390/publications8010011.

Casteel A. & Bridier N.L., *Describing Populations and Samples in Doctoral Student Research,* **International Journal of Doctoral Studies,** 16, 2021, 339-362, https:ordoi.org or 10.28945 or 4766.

Cavallo A.,, Ghezzi A.,, Colombelli A.,, & Casali G. L.,, *Agglomeration Dynamics of Innovative Start-ups In Italy Beyond the Industrial District Era.* **International Entrepreneurship and Management Journal,** *16*, 2020. 239-262, https://doi.org/10.1007/s11365-018-0521-8

Chege S. M.,, Wang D.,, & Suntu S., L., *Impact of Information Technology Innovation on Firm Performance in Kenya.* **Information Technology for Development,** *26*(2), 2020. 316-345, https://doi.org/10.1080/02681102.2019.1573717.

Chen Y.,, Kumara E. K.,, & Sivakumar V.,, *Investigation of Finance Industry on Risk Awareness Model and Digital Economic Growth.* **Annals of Operations Research,** 2021.1-22, https://doi.org/10.1007/s10479-021-04287-7.

Chhabra M.,, Dana L. P.,, Malik S.,, & Chaudhary N. S.,, *Entrepreneurship Education and Training in Indian Higher Education Institutions: A Suggested Framework.* **Education+ Training,** *63*(7/8), 2021. 1154-1174, https://doi.org/10.1108/et-10-2020-0310.

Chien F.,, Ngo Q. T.,, Hsu C. C.,, Chau K. Y.,, & Iram R.,, *Assessing the Mechanism of Barriers towards Green Finance and Public Spending in Small and Medium Enterprises from Developed Countries.* **Environmental Science and Pollution Research,** *28*(43), 2021. 60495-60510, https://doi.org/10.1007/s11356-021-14907-1.

Chong W. Y.,, Hong P. H. K.,, & Teck T. S.,, *Small and Medium-Sized Businesses in Malaysia Can Look Forward to the Future of Co-Creation, a Literature Review.* **International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.,** *7*(6), 2022. 25, https://doi.org/10.26668/businessreview/2022.v7i6.e583.

Chukwu E.,, Adu-Baah A.,, Niaz M.,, Nwagwu U.,, & Chukwu M. U.,, *Navigating Ethical Supply Chains: The Intersection of Diplomatic Management and Theological Ethics.* **International Journal of Multidisciplinary Sciences and Arts,** *2*(1), 2023. 127-139, https://doi.org/10.46799/ajesh.v2i9.118.

Chukwurah V. N., Isede M. M., & Okocha N. G., *New Technologies for Entrepreneurial Competencies of Small and Medium Enterprises in Nigeria.* **South Eastern Journal of Research and Sustainable Development (SEJRSD),** *11*(2), 2023. 69-96, https://doi.org/10.7176/jesd/14-14-06

Churchill N.,, *Development of Students' Digital Literacy Skills through Digital Storytelling with Mobile Devices.* **Educational Media International,** *57*(3), 2020.271-284, https://doi.org/10.1080/09523987.2020.1833680.

Clark D. N.,, Reboud S.,, Toutain O.,, V., Ballereau, & T., Mazzarol, *Entrepreneurial Education: An Entrepreneurial Ecosystem Approach.* **Journal of Management & Organization,** *27*(4), 2021. 694-714, https://doi.org/10.1017/jmo.2020.26.

Conaldi G.,, De Vita R.,, Ghinoi S.,, & Foster D. M.,, *Virtual Collaborative Spaces: A Case Study on the Antecedents of Collaboration in an Open Source Software Community.* **R&D Management,** 2023, https://doi.org/10.1111/radm.12599.

Cooksey R. W.,, & Cooksey R. W.,, *Descriptive Statistics for Summarising Data.* **Illustrating Statistical Procedures: Finding Meaning in Quantitative Data,** 61-139, 2020, https://doi.org/10.1007/978-981-15-2537-7_5.

Crossley R. M.,, Elmagrhi M. H.,, & Ntim C. G.,, *Sustainability and Legitimacy Theory: The Case of Sustainable Social and Environmental Practices of Small and Medium-sized Enterprises.* **Business Strategy and the Environment,** *30*(8), 2021. 3740-3762, https://doi.org/10.1002/bse.2837.

.

Das M.,, Rangarajan K.,, & Dutta G.,, *Corporate Sustainability in SMEs: An Asian Perspective.* **Journal of Asia Business Studies,** *14*(1), 2020. 109-138, https://doi.org/10.1108/jabs-10-2017-0176,

Dauti M. B.,, R.,Dauti, & Krasniqi M.,, *Factors Determining Success of Small and Medium Enterprises (SMEs) in Kosovo.* **KNOWLEDGE-International Journal,** *42*(1), 2020.239-244.

De Zayas D.,, & Matusitz J.,, *Understanding the Dissemination of ISIS Beheading Videos through the Diffusion of Innovations (DoI)Ttheory.* **Journal of Policing, Intelligence and Counter Terrorism,** *16*(3), 2021. 205-222, https://doi.org/10.1080/18335330.2021.1892168.

Del Giudice M.,, Scuotto V.,, Papa A.,, Tarba S. Y.,, Bresciani S.,, & Warkentin M.,, *A Self-tuning Model for Smart Manufacturing SMEs: Effects on Digital Innovation.* **Journal of Product Innovation Management,** *38*(1), 2021. 68-89, https://doi.org/10.1111/jpim.12560.

Deming D. J., *Four Facts about Human Capital.* **Journal of Economic Perspectives,** *36*(3), 2022. 75-102, https://doi.org/10.1257/jep.36.3.75.

Dias Canedo E.,, Morais do Vale A. P.,, R. L., Patrão, L., Camargo de Souza, R., Machado Gravina, V., Eloy dos Reis,... & R., T. de Sousa Jr*, Information and Communication*

Technology (ICT) Governance Processes: A Case Study. **Information,** *11*(10), 2020. 462, https://doi.org/10.3390/info11100462.

Duong C. D.,, *Exploring the Link between Entrepreneurship Education and Entrepreneurial Intentions: The Moderating Role of Educational Fields.* **Education+Training,** *64*(7), 2022. 869-891. https://doi.org/10.1108/et-05-2021-0173,

Durst S.,, & Gerstlberger W.,, *Financing Responsible Small-and Medium-sized Enterprises: An International Overview of Policies and Support Programmes.* **Journal of Risk and Financial Management,** *14*(1), 2020.10.

Egwunatum S. I., &Oboreh J. C., *Factors Limiting Knowledge Management among Construction Small and Medium Enterprises.* **Journal of Engineering, Project, and Production Management,** *12*(1), 2022.1, https://doi.org/10.32738/jeppm-2022-0003.

Ekeng E. B., Arop L. O., Ngwu M. E., & Ukwekie S. I., *Analysis of child right and parental influence on Career Choice and development in Nigeria.* **J Adv Educ Philos,** *6*(5), 2022. 301-305, https://doi.org/10.36348/jaep.2022.v06i05.007.

Ekong J. E., Mfon A. A., & Ibok N. I., *Innovative Marketing Skills and Business Performance of Small and Medium Scale Enterprises (SMEs) in Akwa Ibom State, Nigeria.* **International Journal of Business and Management Review,** *11*(3), 2023. 48-64, https://doi.org/10.37745/ijbmr.2013/vol11n34864.

Elia G.,, Margherita A.,, & Passiante G.,, *Digital Entrepreneurship Ecosystem: How Digital Technologies and Collective Intelligence are Reshaping the Entrepreneurial Process.* **Technological forecasting and social change,** *150*, 2020.119791, https://doi.org/10.1016/j.techfore.2019.119791.

Erdin C.,, & Ozkaya G.,, *Contribution of Small and Medium Enterprises to Economic Development and Quality of Life in Turkey.* **Heliyon,** *6*(2), 2020.https://doi.org/10.1016/j.heliyon.2020.e03215.

Everton S. F.,, & Pfaff S.,, *Historical and Comparative Research on Social Diffusion: Mechanisms, Methods, and Data.* **Social Science History,** *46*(2), 2022.431-472, https://doi.org/10.1017/ssh.2021.46.

Eze S. C., Chinedu-Eze V. C., Bello A. O., Inegbedion H., Nwanji T., &Asamu F., *Mobile Marketing Technology Adoption in Service SMEs: A Multi-perspective Framework.* **Journal of Science and Technology Policy Management,** *10*(3), 2019.569-596, https://doi.org/10.1108/jstpm-11-2018-0105.

Ezema M., Adegbuyi O., Olokoyo F., & Moses C., *Support Systems, Entrepreneurship Education and the Challenges of Start-Ups in Developing Economies.* **In ICERI2020 Proceedings,** 2020, 9543-9552, https://doi.org/10.21125/iceri.2020.2127.

Fabian A. A., Chinedu O. F., & Ngozi N. H., *Entrepreneurship Education and Business Success of Women Entrepreneurs in Awka, Anambra State, Nigeria.* **International Journal of Academic Research in Business and Social Sciences,** *12*(5), 2022, https://doi.org/10.6007/ijarbss/v12-i5/13203.

Falloon G.,, *From Digital Literacy to Digital Competence: The Teacher Digital Competency (TDC) Framework*. **Educational Technology Research and Development,** *68*, 2020. 2449-2472, https://doi.org/10.1007/s11423-020-09767-4.

Fernández-Zubieta A.,, *Diffusion of Innovation, Innovation Studies, and Innovation Policies: Cross-fertilisation to Improve Smart Specialisation Strategies (S3).* **Innovation: The European Journal of Social Science Research,** 2023.1-30, https://doi.org/10.1080/13511610.2023.2208295.

Ferrer J.,, Ringer A.,, Saville K.,, Parris M., A, & Kashi K.,, *Students' motivation and Engagement in Higher Education: The Importance of Attitude to Online Learning.* **Higher Education,**1-22, 2020, https://doi.org/10.1007/s10734-020-00657-5.

Franzò S.,, Urbinati A.,, Chiaroni D.,, & Chiesa V.,, *Unravelling the Design Process of Business Models from Linear to Circular: An Empirical Investigation.* **Business Strategy and the Environment,** *30*(6), 2021. 2758-2772, https://doi.org/10.1002/bse.2892.

Gandolph A. C., Kolawole O. E. A. F. L., Joshua O. O., & Gbolahan A. A., *Environmental Impacts and Organization Business Survival on SMEs.* **Glob. Sci. J,***9*. 2021, **https://doi.org/10.4324/9781003216483-19.**

Gbemigun C. O. & Agbaje W. H., *Financial Accounting Literacy and Growth of Small and Medium Scale Enterprises (SMEs) in Ondo state.* **Nigerian Academy of Management Journal,** *17*(2), 2022. 105-114, https://doi.org/10.3726/978-3-653-00753-4/12.

Gherghina Ș. C.,, Botezatu M. A.,, Hosszu A.,, & Simionescu L. N.,, *Small and Medium-sized Enterprises (SMEs): The Engine of Economic Growth through Investments and Innovation.* **Sustainability,** *12*(1), 2020. 347.https://doi.org/10.3390/su12010347.

Glonti V.,, Manvelidze R.,, & Surmanidze I.,,. *The Contribution of SME to regional Economic Development: On Example of Adjara Autonomous Republic.* **European Journal of Sustainable Development,** *10*(1), 2021. 513-513, https://doi.org/10.14207/ejsd.2021.v10n1p513.

Guidolin, & P., Manfredi, *Innovation Diffusion Processes: Concepts, Models, and Predictions.* **Annual Review of Statistics and Its Application,** *10*, 2023. 451-473, https://doi.org/10.1146/annurev-statistics-040220-091526.

Gumel B. I.,, & Bardai B. B.,, *Barriers to Accessing Financial Institutions Funding for Nigerian SMEs. Babandi Ibrahim Gumel, Barjoyal Bin Bardai. Barriers to Accessing Financial Institutions Funding for Nigerian SMEs.* **International Journal of Business and Economics Research,** *10*(6), 2021. 219-226, https://doi.org/10.11648/j.ijber.20211006.12**.**

Gumel B. I.,, *Mitigating the Challenges of Small and Medium Enterprises in Nigeria. Gumel, BI (2019). Mitigating the Challenges of Small and Medium Enterprises in Nigeria.* **SEISENSE Journal of Management,** *2*(3), 2019. 82-99, https://doi.org/10.33215/sjom.v2i3.129.

Gupta M. P.,, Sanvalia A.,, & Bamniya D. S.,, *Use of E-Library and E-Resources by Staffs and Students in the Colleges.* **Importance of Libraries in Accessing e-contents related to Law,** 45, 2023, https://doi.org/10.1016/j.compbiomed.2020.104130.

Gupta S.,, Drave V. A.,, Dwivedi Y. K.,, Baabdullah A. M.,, & Ismagilova E.,, *Achieving Superior Organizational Performance via Big Data Predictive Analytics: A Dynamic Capability View.* **Industrial Marketing Management,** *90*, 2020.581-592, https://doi.org/10.1016/j.indmarman.2019.11.009.

Hadlington L.,, & Chivers S.,, *Segmentation Analysis of Susceptibility to Cybercrime: Exploring Individual Differences in Information Security Awareness and Personality Factors.* **Policing: A Journal of Policy and Practice,**14(2), 2020. 479-492, https://doi.org/10.1093/police/pay027..

Hartmann S.,, Backmann J.,, Newman A.,, Brykman K. M.,, & Pidduck R. J.,, *Psychological Resilience of Entrepreneurs: A Review and Agenda for Future Research.* **Journal of Small Business Management,** *60* (5), 2022. 1041-1079, https://doi.org/10.1080/00472778.2021.2024216,

Hassan A., I., Anwar, Saleem I., Islam K. B.,, & Hussain S. A.,, *Individual Entrepreneurial Orientation, Entrepreneurship Education and Entrepreneurial Intention: The Mediating Role of Entrepreneurial Motivations***. Industry and Higher Education,** *35*(4), 2021. 403-418, https://doi.org/10.1177/09504222211007051.

Henry M.,, Bauwens T.,, M., Hekkert, & J., Kirchherr, *A Typology of Circular Start-ups: An Analysis of 128 Circular Business Models.* **Journal of Cleaner Production,** *245*, 2020. 118528, https://doi.org/10.1016/j.jclepro.2019.118528.

Hobson A. J.,, & Maxwell B.,, *Mentoring Substructures and Superstructures: An Extension and Reconceptualisation of the Architecture for Teacher Mentoring.* **Journal of**

Education for Teaching, *46*(2), 2020. 184-206, https://doi.org/10.1080/02607476.2020.1724653.

Humayun M.,, Niazi M.,, Jhanjhi N. Alshayeb Z.,, & Mahmood M.,, S.,, *Cyber Security Threats and Vulnerabilities: A Systematic Mapping Study.* **Arabian Journal for Science and Engineering,** *45*, 2020. 3171-3189, https://doi.org/10.1007/s13369-019-04319-2.

Hurst E. J.,, *Web Conferencing and Collaboration Tools and Trends.* **Journal of Hospital Librarianship,** *20*(3), 2020. 266-279, https://doi.org/10.1080/15323269.2020.1780079.

Ilevbare, F. M., Ilevbare O. E., C. Adelowo M., & Oshorenua F. P., *Social Support and Risk-taking Propensity as Predictors of Entrepreneurial Intention among Undergraduates in Nigeria.* **Asia Pacific Journal of Innovation and Entrepreneurship,***16*(2), 2022. 90-107, **https://doi.org/10.1108/apjie-02-2022-0010.**

Ilorin D. B. P.,, & Ayedun T. A.,, *Assessment of Entrepreneurship Education and Entrepreneurial Skills on Unemployment Reduction among Young Nigerian Graduates.* **Education,** *1*(2), 2022, https://doi.org/10.14293/s2199-1006.1.sor-.ppb7v8t.v1.

Islam A.,, Wahab S. A.,, & Latiff A. S. A.,, *Annexing a Smart Sustainable Business Growth Model for Small and Medium Enterprises (SMEs).* **World Journal of Entrepreneurship, Management and Sustainable Development,** *18*(2), 2022.1-24, https://doi.org/10.47556/j.wjemsd.18.2.2022.2

Iwu C. G.,, Opute P. A.,, Nchu R.,, Eresia-Eke C.,, Tengeh R. K.,, Jaiyeoba O.,, & Aliyu O. A.,*Entrepreneurship Education, Curriculum and Lecturer-competency as Antecedents of Student Entrepreneurial Intention.* **The International Journal of Management Education,** *19*(1), 2021. 100295, https://doi.org/10.1016/j.ijme.2019.03.007.

Iyke A. A.,, & Onuoha B. C.,, *Entrepreneurial Networking and Resilience of SMES in Abia State, Nigeria.* **International Academic Journal of Business School Research,** *8*(7), 2023. 32-49

Javaid M., Haleem A., Singh R. P., Suman R., & Gonzalez E. S., *Understanding the Adoption of Industry 4.0 Technologies in Improving Environmental Sustainability.* **Sustainable Operations and Computers,** *3*, 2022. 203-217, https://doi.org/10.1016/j.susoc.2022.01.008.

Jegede O., & Nieuwenhuizen C., *Effects of Entrepreneurial Orientation and External Business Environment on Entrepreneurial Intentions of STEM Students in Nigeria.* **Journal of Contemporary Management,** *18*(2), 2021.42-66, https://doi.org/10.35683/jcm21026.119.

Jemal S., *Effect of Entrepreneurial Mindset and Entrepreneurial Competence on Performance of Small and Medium Enterprise, Evidence from Litrature Review.* **International Journal of Management & Entrepreneurship Research**, *2*(7), 2020. 476-491, https://doi.org/10.51594/ijmer.v2i7.197.

Kajal Z. A.,, Sikder M.,, & Panhwar P.,, *The Role of Cost Management Strategies for SME Business: A Conceptual Framework.* **International Journal of Small and Medium Enterprises,** *4*(1), 2021.35-58.

Karimi A. N.,, Bamiwera B.,, & Miluwi J.,, *Financial Planning Services and Access to Credit by Micro Enterprises in the Formal Sector in Kenya.* **Journal of International Business, Innovation and Strategic Management,** *7*(2), 2023. 48-61, https://doi.org/10.61426/sjbcm.v10i4.2748.

Karsten I.,, Steenekamp K.,, & Van der Merwe M.,, *Empowering Accounting Students to Enhance the Self-determination Skills Demanded by the Fourth Industrial Revolution.* **South African Journal of Higher Education,** *34*(2), 2020. 36-58, https://doi.org/10.20853/34-2-3487.

Karyanto Y.,, Asmaul R.,, Fath Z. F. M. R.,, Junaidi A.,, & Sabur F.,, *Evaluating The Dynamic Alignment of Higher Education Curriculum with the Evolving Industry Landscape: A Multi-Dimensional Analysis in the Context of Indonesia.* **International Journal of Teaching and Learning**, *1*(3), 2023. 208-220, https://doi.org/10.1108/s2055-364120230000050007.

Kaur A.,, & Noman M.,, *Investigating Students' Experiences of Students as Partners (SaP) for Basic Need Fulfilment: A Self-determination Theory Perspective.* **Journal of University Teaching & Learning Practice,** *17*(1), 2020. 8, https://doi.org/10.53761/1.17.1.8.

Kemp E.,, Briggs E.,, & Anaza N. A.,, *The Emotional Side of Organizational Decision-making: Examining the Influence of Messaging in Fostering Positive Outcomes for the Brand.* **European journal of marketing,** *54*(7), 2020. 1609-1640, https://doi.org/10.1108/ejm-09-2018-0653.

Keoy K. H., Thong C. L., Cherukuri A. K., Koh Y. J., Chit S. M., Lee,.. L.,. & C. L. Kwek, L., *An Investigation on the Impact of Technological Enablement on the Success of Entrepreneurial Adoption among Higher Education Students: A Comparative Study.* **Journal of Information & Knowledge Management,** *22*(01), 2023. 2250060, https://doi.org/10.1142/s0219649222500605.

Khan M. A.,*Barriers Constraining the Growth of and Potential Solutions for Emerging Entrepreneurial SMEs.* **Asia Pacific Journal of Innovation and Entrepreneurship,** *16*(1), 2022. 38-50, https://doi.org/10.1108/apjie-01-2022-0002.

Khan M. A., Rathore K., Zubair S. S., Mukaram A. T., & Selem K. M., *Encouraging SMEs Performance through Entrepreneurial Intentions, Competencies, and Leadership: Serial Mediation Model.* **European Business Review,**2023, https://doi.org/10.1108/ebr-04-2023-0119.

Khan M. A., Zubair S. S. S., Rathore K., Ijaz M., Khalil & Khalil M., *Impact of Entrepreneurial Orientation Dimensions on Performance of Small Enterprises: Do Entrepreneurial Competencies Matter?.* **Cogent Business & Management,***8*(1), 2021. 1943241, https://doi.org/10.1080/23311975.2021.1943241.

Kowo S. A., Adenuga O. A. O., & Sabitu O. O., *The Role of SMEs Development on Poverty Alleviation in Nigeria.* **Insights into Regional Development,***1*(3), 2019. 214-226, https://doi.org/10.9770/ird.2019.1.3(3).

Krubally M., Singh H., Balder N., Ullah H., & Maaodhah A., *Exploring SMEs Growth in the Greater Banjul Area of The Gambia.* **International Journal of Advanced and Applied Sciences,** *6*(8), 2019. 82-89, https://doi.org/10.21833/ijaas.2019.08.012**.**

Lateef M., & Keikhosrokiani P., *Predicting Critical Success Factors of Business Intelligence Implementation for Improving SMEs' Performances: A Case Study of Lagos State, Nigeria.* **Journal of the Knowledge Economy,** 2022. 1-26, https://doi.org/10.1007/s13132-022-00961-8.

Li T.,, & Zhan Z.,, *A Systematic Review on Design Thinking Integrated Learning in K-12 Education.* **Applied Sciences,** *12*(16), 2022. 8077, https://doi.org/10.3390/app12168077.

Lockwood M.,, *Exploring Value Propositions to Drive Self-sovereign Identity Adoption.* **Frontiers in Blockchain,** *4*, 2021. 611945, https://doi.org/10.3389/fbloc.2021.611945.

Luo Y.,, Lin J.,, & Yang Y.,, *Students' Motivation and Continued Intention with Online Self-Regulated Learning: A Self-determination Theory Perspective.* **Zeitschrift für Erziehungswissenschaft,** *24*(6), 2021. 1379-1399, https://doi.org/10.1007/s11618-021-01042-3.

Ma'aji M. M., Shrubsall R. S., & Anderson E. O., *Determinants of SME Success or Failure in Frontier Markets.* **International Journal of Banking and Finance,** *18*(1), 2023.1-30, https://doi.org/10.32890/ijbf2023.18.1.1.

Magistretti S.,, Bianchi M.,, Calabretta G.,, Candi M.,, Dell'Era C.,, Stigliani I.,, & Verganti R.,, *Framing the Multifaceted Nature of Design Thinking in Addressing Different Innovation Purposes.* **Long Range Planning,** *55*(5), 2022. 102163, https://doi.org/10.1016/j.lrp.2021.102163.

Maharana K.,, Mondal S.,, & Nemade B.,, *A Review: Data Pre-processing and Data Augmentation Techniques.* **Global Transitions Proceedings,** *3*(1), 2022. 91-99, https://doi.org/10.1016/j.gltp.2022.04.020..

Manesh M. F.,, Pellegrini M. M.,, Marzi G.,, & Dabic M.,, *Knowledge Management in the Fourth Industrial Revolution: Mapping the Literature and Scoping Future Avenues.* **IEEE Transactions on Engineering Management,** *68*(1), 2020. 289-300, https://doi.org/10.1109/tem.2019.2963489.

Mann L.,, Chang R.,, Chandrasekaran S.,, Coddington A.,, Daniel S.,, Cook E.,, & Smith T. D.,, *From Problem-based Learning to Practice-based Education: A Framework for Shaping Future Engineers.* **European Journal of Engineering Education,** *46*(1), 2021. 27-47, https://doi.org/10.1080/03043797.2019.1708867.

Mansouri M.,, Malainine C.,, Souti H.,, & Cadimi I.,, *Dynamic Capabilities, Competitiveness and Performance of Small and Medium-sized Enterprises: A Systematic Literature Review.* **International Journal of Accounting, Finance, Auditing, Management and Economics,** *3*(5-1), 2022. 1-22, https://doi.org/10.7862/rz.2023.mmr.08.

Marion T. J.,, & Fixson S. K.,, *The Transformation of the Innovation Process: How Digital Tools are Changing Work, Collaboration, and Organizations in New Product Development.* **Journal of Product Innovation Management,** *38*(1), 2021. 192-215, https://doi.org/10.1111/jpim.12547.

Matić I.,, *Managerial Interpersonal Competencies-Benefiting from Learning Organization Characteristics in SMEs.* **Management dynamics in the knowledge economy,** *10*(1), 2022. 19-36, https://doi.org/10.1017/jmo.2023.32

Matos S.,, & Hall J.,, *An Exploratory Study of Entrepreneurs in Impoverished Communities: When Institutional Factors and Individual Characteristics Result in Non-productive Entrepreneurship.* **Entrepreneurship & Regional Development,** *32*(1-2), 2020. 134-155, https://doi.org/10.1080/08985626.2019.1640476.

Maulud D., & Abdulazeez A. M., *A Review on Linear Regression Comprehensive in Machine Learning*. **Journal of Applied Science and Technology Trends**, *1*(4), 2020, 140-147, https://doi.org/10.38094/jastt1457.

Maziriri E. T., & Chivandi A., *Modelling key Predictors that Stimulate the Entrepreneurial Performance of Small and Medium-sized Enterprises (SMEs) and Poverty Reduction: Perspectives from SME Managers in an Emerging Economy***. Acta Commercii,***20*(1), 2020. 1-15, **https://doi.org/10.4102/ac.v20i1.773.**

McConnell P.,, *The Strategic Risks Facing Start-ups in the Financial Sector.* **Journal of Risk Management in Financial Institutions,** *15*(2), 2022. 114-141, https://doi.org/10.5040/9781472920416.0006.

McPhail G.,, *The Search for Deep Learning: A Curriculum Coherence Model.* **Journal of Curriculum Studies,** *53*(4), 2021.420-434, https://doi.org/10.1080/00220272.2020.1748231.

Mehmood T.,, *Does Information Technology Competencies and Fleet Management Practices Lead to Effective Service Delivery? Empirical Evidence from E-commerce Industry.* **International Journal of Technology, Innovation and Management (IJTIM),** *1*(2), 2021. 14-41, https://doi.org/10.54489/ijtim.v1i2.26.

Melak D.,, & Derso B.,, *Training of Youths for Effective Self-employment Practices.* **Education+ Training,** *65*(3), 2023. 382-402, https://doi.org/10.1108/et-10-2021-0395.

Meshack A., Orji M. G., & Ogechukwu N. G., *Poverty Reduction in Awka Metropolis: The Role of Entrepreneurship Productivity.* **Economit Journal: Scientific Journal of Accountancy, Management and Finance,** *2*(3), 2022. 244-262, https://doi.org/10.33258/economit.v2i3.794.

Miço H.,, & Cungu J.,, *Entrepreneurship Education, a Challenging Learning Process towards Entrepreneurial Competence in Education.* **Administrative Sciences,** *13*(1), 2023. 22, https://doi.org/10.3390/admsci13010022.

Mijwil M.,, Unogwu O. J.,, Y., Filali, I., Bala, & H., Al-Shahwani, *Exploring the Top Five Evolving Threats in Cybersecurity: An In-Depth Overview.* **Mesopotamian journal of cybersecurity,** *2023*, 2023. 57-63, https://doi.org/10.58496/mjcs/2023/010.

Milenkova V.,, & Lendzhova V.,, *Digital Citizenship and Digital Literacy in the Conditions of Social Crisis.* **Computers,** *10*(4), 2021. 40, https://doi.org/10.3390/computers10040040.

Mohammad W. S., Elattar F. F., Elsais W. M., & AlDajah S. O., *Validity and Reliability of a Smartphone and Digital Inclinometer in Measuring the Lower Extremity Joints Range of Motion*. **Montenegrin Journal of Sports Science & Medicine**, *10*(2) 2021, 1-12, https://doi.org/10.26773/mjssm.210907.

Mong I. K., & Okolocha C. C., *Assessment of Accounting Competencies Possessed by Business Education Graduates for Handling Entrepreneurship Challenges in Abia State, Nigeria.* **International Journal of Accounting Research,** *4*(2), 2019. 1-11, https://doi.org/10.12816/0055274.

Moradi E.,, Jafari S. M.,, Doorbash Z. M.,, & Mirzaei A.,, *Impact of Organizational Inertia on Business Model Innovation, Open Innovation and Corporate Performance.* **Asia Pacific Management Review,** *26*(4), 2021.171-179, https://doi.org/10.1016/j.apmrv.2021.01.003.

Morgan A.,, Sibson R.,, & Jackson D.,, *Digital Demand and Digital Deficit: Conceptualising Digital Literacy and Gauging Proficiency among Higher Education Students.* **Journal of Higher Education Policy and Management,** *44*(3), 2022. 258-275, https://doi.org/10.1080/1360080x.2022.2030275.

Moustaghfir K.,, S., El Fatihi, &Benouarrek M.,, *Human Resource Management Practices, Entepreneurial Orientation and Firm Performance: What is the Link?.* **Measuring Business Excellence,** https://doi.org/10.1108/mbe-12-2019-0119, *24*(2), 2020. 267-283.

Msomi T. S., & Olarewaju O. M., *Factors Affecting Small and Medium Enterprises' Financial Sustainability in South Africa.* **African Journal of Inter/Multidisciplinary Studies,** *3*(1), 2021.103-117, https://doi.org/10.51415/ajims.v3i1.893.

Muhammad A. I. B.,, &Umar I., *Artilce Marketing Mix as Determinant of Sustainability of Small-Scale Business in Alkaleri, Bauchi State, Nigeria.* **CMU Academy Journal of Management and Business Education,** *1*(1), 2022. 50-56, https://doi.org/10.47191/jefms/v6-i5-11.

Munyuki T.,, & Jonah C. M. P.,, *The Nexus between Financial Literacy and Entrepreneurial Success among Young Entrepreneurs from a Low-income Community in Cape Town: A Mixed-method Analysis.* **Journal of Entrepreneurship in Emerging Economies,** *14*(1), 2022. 137-157, https://doi.org/10.1108/jeee-01-2020-0020.

Muthumeena M. P.,, & Yogeswaran D. G.,, *Entrepreneurship Education Through Successful Entrepreneurial Models in Educational Institutions.* ***Journal*** **of Development Economics and Management Research Studies,** *9*(14), 2022. 13-19.https://doi.org/10.53422/jdms.2022.91402.

Mwaniki Z., Nyang'au S., & Ngugi P., *Relationship between Entrepreneurial Team and Growth of Small and Medium Manufacturing Enterprises in Kenya.* **International Journal of Entrepreneurship and Project Management,** *7*(1), 2022.1-13, https://doi.org/10.47604/ijepm.1490.

.

Ncube T. R., & Zondo R. W. D., *Entrepreneurial Attributes Responsible for Small and Medium Enterprise Growth in South Africa: Small and Medium Enterprise owners' Perspectives.* **International Journal of Special Education;** *Vol. 37,* 2022. *Issue 3*, *https://doi.org/10.5172/ser.2013.20.1.40.*

Ndala N. N., & Pelser T., *Examining the Effectiveness of Entrepreneurship Policy Implementation in Malawi.* **Journal of Contemporary Management,** *16*(2), 2019. 234-255, https://doi.org/10.35683/jcm19036.34.

Ndibalema P.,, *Unlocking the Potential of ICT for Transformative Learning among Youth: A Path to 21st Century Competencies.* **Journal of Educational Technology and Online Learning,** *3*(3), 2020. 245-271, https://doi.org/10.31681/jetol.777647.

Ndou V., *Social Entrepreneurship Education: A Combination of Knowledge Exploitation and Exploration Processes.* **Administrative Sciences,** *11*(4), 2021. 112.https://doi.org/10.3390/admsci11040112.

Neumeyer X.,, Santos S. C.,, & Morris M. H.,, *Overcoming Barriers to Technology Adoption when Fostering Entrepreneurship among the Poor: The Role of Technology and Digital Literacy.* **IEEE Transactions on Engineering Management,** *68*(6), 2020. 1605-1618, https://doi.org/10.1109/tem.2020.2989740.

Ngele A. N.,, *Entrepreneurial Development and Employment Creation: A Focus on Education and Financial Aid as a Sustainable Option for Youths in Nigeria.* **Journal of Global Economics and Business,** *1*(3), 2020. 19-39, https://doi.org/10.31039/jgeb.v1i3.84.

Ngibe M., & Lekhanya L. M., *Innovative Leadership in South African Manufacturing Small Medium Enterprises within KwaZulu-Natal.* **Journal of Contemporary Management,** *16*(2), 2019. 300-330, https://doi.org/10.35683/jcm19034.37

Nigam N.,, Mbarek S.,, & Boughanmi A.,, *Impact of Intellectual Capital on the Financing of Startups with New Business Models.* **Journal of Knowledge Management,** *25*(1), 2021. 227-250, https://doi.org/10.1108/jkm-11-2019-0657.

Ninye-Ranor L. C.,, Igbinedion V. I.,, &Nwadiani C. O.,, *Office Managers' Utilization Of Digital Communication Tools For Effective Dissemination Of Information In The 21st Century Business Organisations.* **Technical and Vocational Education Journal (TAVEJ),** *8*, 2022. 176-184, https://doi.org/10.1037/e370782004-005.

Nseobot I. R., & Effiong A. I., *Entrepreneurship Educations of Prison Inmatesin Nigeria: Effects on Skills Acquisition for Self Reliance.* **International Journal of Organizational Business Excellence,** *2*(2), 2019. 71-82, https://doi.org/10.21512/ijobex.v2i2.7134.

Nuel O. I. E., & Chika A. C., *Uncovering the Relationship between Entrepreneurship Training on Business Growth among SMEs in Southeast Nigeria.* **European Journal of Business and Management Research,** *7*(1), 2022. 224-228, https://doi.org/10.24018/ejbmr.2022.7.1.1278.

Oadeuya V., *Teacher's Characteristics and Implementation of National Curriculum for Secondary School Biology in Southwest, Nigeria,* **Commonwealth Journal of Academic Research (CJAR.EU),** 1(9), 2020, 1-9. ISSN: 2708-4841(Print), 2708-7042 (Online)

Obinna G. B. E., *Prospects, Limitations and Challenges in the Concept and Application of ICT on SMEs in Rivers State.* **International Journal of Business Systems and Economics,** *13*(5), 2022. 117-129, https://doi.org/10.56201/ijebm.v8.no5.2022.pg76.89.

Ochinanwata N., Ezepue P. O., Nwankwo T. C., Ochinanwata C., & Igwe P. A., *Public–Private Entrepreneurial Financing Partnership model in Nigeria.* **Thunderbird International Business Review,** *63*(3), 2021. 369-379, https://doi.org/10.1002/tie.22194.

Ogujiuba K. K.,, & Olamide E. G.,, *Effect of Contextual Factors on Entrepreneurship Success in South Africa: Application of Two-way Analysis of Variance Design.* **Academy of Entrepreneurship Journal,** 2021, https://doi.org/10.3390/admsci13050127.

Ogundele I. S., *Perceived Entrepreneurship Competencies Required by Business Education Students in Establishing Small Scale Ventures in Kwara State.* **KWASU Journal of the Business of Education,** *3*(1), 2022. 20-28, **https://doi.org/10.2991/aebmr.k.220204.020.**

Okafor E. C., Awak R. S., & Jah R. K. D., *Business education: a tool for poverty alleviation.* **Nigerian Journal of Business Education (NIGJBED),** *6*(1), 2019. 117-122, https://doi.org/10.4314/njgc.v13i1.36971.

Okafor S. O.,, Ejelonu H. O.,, & Onyekwere C. G.,, *Financial Inclusion And Micro, Small And Medium Enterprises (Msmes) Development In Nigeria.* **International Journal of Innovation in Engineering,** *2*(2), 2022. 42-53, https://doi.org/10.59615/ijie.2.2.42.

Okeji C. C.,, Tralagba E. C.,, & Obi I. C.,, *An Investigation of the Digital Literacy Skills and Knowledge-based Competencies among Librarians Working in University Libraries in Nigeria.* **Global Knowledge, Memory and Communication,** *69*(4/5), 2020. 311-330, https://doi.org/10.1108/gkmc-05-2019-0054.

Okeke, & Ezenwafor. *Perceived Challenges of Start Up of Small and Medium Scale Enterprises Among Business Education Graduates in Federal Colleges of Education in North-East, Nigeria.* **Kashere Journal of Education,***2*(2), 2021. 143-151, https://doi.org/10.4314/kje.v2i2.18.

Okolocha C. C., & Uzoezie C. L., *Entrepreneurs'rating of Entrepreneurship Skills Needed by Business Education Graduates For Effective Management Of Small Scale Businesses In Anambra State.* **Arabian Journal of Business and Management Review (Kuwait Chapter),***10*(3), 2021. 115-122, https://doi.org/10.12816/0059658.

Okoro C. B., Ewah E. B., & Ndema S. C., *Failure and Success of Entrepreneurs in Nigeria: An Empirical Review.* **International Academic Journal of Business School Research,** *8*(4), 2020. 1-21, https://doi.org/10.6007/ijarbss/v3-i8/140.

Okundaye K., Fan S. K., & Dwyer R. J., *Impact of Information and Communication Technology in Nigerian Small-to Medium-sized Enterprises.* **Journal of Economics, Finance and Administrative Science,** *24*(47), 2019. 29-46, https://doi.org/10.1108/jefas-08-2018-0086.

Omeihe K. O., Simba A., Rae D., Gustafsson V., & Khan M. S., *Trusting in Indigenous Institutions: Exporting SMEs in Nigeria.* **Journal of Small Business and Enterprise Development,** *28*(7), 2021. 1117-1142, https://doi.org/10.1108/jsbed-03-2020-0082.

Öncül G.,, *Defining the Need: Digital Literacy Skills for First-year University Students.* **Journal of Applied Research in Higher Education,** *13*(4), 2021. 925-943, https://doi.org/10.1108/jarhe-06-2020-0179.

Onyekwelu N. P., & Oyeogubalu O. N., *Entrepreneurship Development and Employment Generation: A Micro, Small and Medium Enterprises Perspective in Nigeria.* **International Journal of Contemporary Applied Researches,** *7*(5), 2020. 26-40, https://doi.org/10.31142/ijtsrd14448.

Orazbayeva B.,, van der Sijde, & T., Baaken, *Autonomy, Competence and Relatedness–the Facilitators of Academic Engagement in Education-driven University-business Cooperation.* **Studies in Higher Education,** *46*(7), 2021. 1406-1420, https://doi.org/10.1080/03075079.2019.1679764.

Orga C. C., Aniezue V. C., Unaogu N. N., Emehelu B. O., Ugwa C. H., & Udeagha M.,, *Enterpreneurship Education and Performance of Small and Medium Enterprises (SMES)in Enugu State.* **Interdisciplinary Research Journal of Management and Social Sciences (IRJMSS),***10*(3), 2023. 38-60, https://doi.org/10.47191/jefms/v6-i6-56.

Otika U. S., Anene N. J., Osuagwu O. B., & Uche D. B., *Factors Influencing Adoption of Electronic-Marketing among Small and Medium Enterprises in Nigeria: A Quantitative Approach*. **Asian Journal of Economics, Finance and Management**, 2022, 172-181, https://doi.org/10.47191/jefms/v5-i8-18.

Owenvbiugie R. O.,, *Influence of Resilience on Survival of Small and Medium Enterprises.* **International Business Education Journal,** *13*(1), 2020. 127-132, https://doi.org/10.37134/ibej.vol13.1.10.2020.

Park S., *Success Stories of ICT Adoption by Nigerian SMEs during the Covid-19 Pandemic.* **International Journal of Business and Management Sciences**,*3*(1), 2022.1-20, https://doi.org/10.46254/na07.20220538.

Patiar A.,, Kensbock S.,, Benckendorff P.,, Robinson R.,, Richardson S.,, Wang Y.,, & Lee A.,, *Hospitality Students' Acquisition of Knowledge and Skills through a Virtual Field Trip Experience.* **Journal of Hospitality & Tourism Education,** *33*(1), 2021. 14-28, https://doi.org/10.1080/10963758.2020.1726768.

Păunescu C.,, & Molnar E.,, *Country's Entrepreneurial Environment Predictors for Starting a New Venture—evidence for Romania.* **Sustainability,** *12*(18), 2020. 7794, https://doi.org/10.3390/su12187794.

Pel B.,, Haxeltine A.,, Avelino F.,, Dumitru A.,, Kemp R.,, Bauler T.,, & Jørgensen M. S.,, *Towards a Theory of Transformative Social Innovation: A Relational Framework and 12 Propositions.* **Research Policy,** *49*(8), 2020. 104080, https://doi.org/10.1016/j.respol.2020.104080.

Pepple G. J., & Enuoh R. O., *Entrepreneurial Competencies: A Required Skill for Business Performance.* **European Journal of Business and Innovation Research,** *8*(3), 2020. 50-61, https://doi.org/10.37745/ejbir/vol8.no3.pp50-61.

Peter F.,, Eze S. C.,, Adeyeye M.,, Osigwe K., Peter A., Adeyemiv & Asiyanbola T., *Entrepreneurship Education and Venture Intention of Female Engineering Students in a Nigerian University.* **International Journal of Higher Education,** *10*(4), 2021. 9-20, https://doi.org/10.5430/ijhe.v10n4p9.

Pham T. V., Nguyen V. L., Nguyen T. L., & Phan T. T.,, *The Contribution of Small and Medium-sized Enterprises in the Economic Growth of the Southeast Region of Vietnam.* **The Journal of Asian Finance, Economics and Business,** *8*(9), 2021. 155-163, https://doi.org/10.13106/jafeb.2020.vol7.no5.041.

Pidduck R. J.,, Clark D. R.,, & Lumpkin G. T.,, *Entrepreneurial Mindset: Dispositional Beliefs, Opportunity Beliefs, and Entrepreneurial Behavior.* **Journal of Small Business Management,** *61*(1), 2023. 45-79, https://doi.org/10.1080/00472778.2021.1907582.

Portuguez Castro M.,, & Gomez Zermeno M. G.,, *Challenge Based Learning: Innovative Pedagogy for Sustainability Through e-learning in Higher Education.* **Sustainability,** *12*(10), 2020.4063, https://doi.org/10.3390/su12104063.

Potyrała K.,, & Tomczyk Ł.,, *Teachers in the Lifelong Learning Process: Examples of Digital Literacy.* **Journal of Education for Teaching,** *47*(2), 2021. 255-273, https://doi.org/10.1080/02607476.2021.1876499.

Prashar A.,, *A Bibliometric and Content Analysis of Sustainable Development in Small and Medium-sized Enterprises.* **Journal of Cleaner Production** *245*, 2020. 118665, https://doi.org/10.1016/j.jclepro.2019.118665.

Pulka B. M., Ramli A., & Mohamad A., *Entrepreneurial Competencies, Entrepreneurial Orientation, Entrepreneurial Network, Government Business Support and SMEs Performance. The Moderating Role of the External Environment.* **Journal of Small Business and Enterprise Development,** *28*(4), 2021. 586-618, **https://doi.org/10.1108/jsbed-12-2018-0390.**

Pulka B. M.,, & Gawuna M. S.,, *Contributions of SMEs to Employment, Gross Domestic Product, Economic Growth and Development.* **Jalingo Journal of Social and Management Sciences,** *4*(1), 2022. 1-18, https://doi.org/10.1787/73ac1b14-en.

Radebe T. N., *The Challenges/barriers Preventing the South African Youth in Becoming Entrepreneurs: South African Overview.* **Journal of Economics and Behavioral Studies,** *11*(4 (J)), 2019. 61-70, https://doi.org/10.22610/jebs.v11i4(j).2921.

Radovanović D.,, Holst C.,, Belur S. B.,, Srivastava R.,, Houngbonon G. V.,, E., Le Quentrec, & Noll J.,, *Digital Literacy Key Performance Indicators for sustainable Development.* **Social Inclusion,** *8*(2), 2020. 151-167, https://doi.org/10.17645/si.v8i2.2587.

Rahayu P. P.,, I., Mayasari, Fitriyatinur Q.,, & Agustina M. T.,, *Entrepreneurship Education and the Role of Technology in Driving Business Innovation.* **Indo-MathEdu Intellectuals Journal,** *4*(2), 2023. 714-727, https://doi.org/10.54373/imeij.v4i2.268.

. Reddy P.,, Sharma B.,, & K., Chaudhary, *Digital Literacy: A Review in the South Pacific.* **Journal of Computing in Higher Education,** *34*(1), 2022. 83-108, https://doi.org/10.1007/s12528-021-09280-4.

Rehman A.,, Naz S.,, & Razzak I.,, *Leveraging Big Data Analytics in Healthcare Enhancement: Trends, Challenges and Opportunities.* **Multimedia Systems,** *28*(4), 2022. 1339-1371, https://doi.org/10.1007/s00530-020-00736-8.

Reissová A.,, Šimsováv, Sonntag R.,, & Kučerová K.,, *The Influence of Personal Characteristics on Entrepreneurial Intentions: International comparison.* **Entrepreneurial Business and Economics Review,** *8*(4), 2020. 29-46, https://doi.org/10.15678/eber.2020.080402.

Rezvani M.,, & Fathollahzadeh Z.,, *The Impact of Entrepreneurial Marketing on Innovative Marketing Performance in Small-and Medium-sized Companies.* **Journal of Strategic Marketing,** *28*(2), 2020. 136-148, https://doi.org/10.1080/0965254x.2018.1488762.

Rinekso A. B.,, Rodliyah R. S.,, & Pertiwi I.,, *Digital Literacy Practices in Tertiary Education: A Case of EFL Postgraduate Students.* **Studies in English Language and Education,** *8*(2), 2021. 622-641, https://doi.org/10.24815/siele.v8i2.18863.

Rok B.,, & Kulik M.,, *Circular Start-up Development: The Case of Positive Impact Entrepreneurship in Poland.* **Corporate Governance: The International Journal of Business in Society,** *21*(2), 2021. 339-358, https://doi.org/10.1108/cg-01-2020-0043.

Roopchund R.,, *Analysing the Role of National Women Entrepreneurship Council in Promoting Entrepreneurial Culture in Mauritius.* **Technium Soc. Sci. J.,** *9*, 2020. 377, **https://doi.org/10.47577/tssj.v9i1.971.**

Roseline Y. A., Ibrahim R. R., & Opeyemi O. A., *Effect of Entrepreneurship Development on Women Graduates of the National Centre for Women Development, Abuja.* **International Journal of Multidisciplinary Research and Technology,** *1*(3), 2020. 1-15, https://do i.org/10.31305/rrijm.2020.v06.i02.010.

.

Satija M. P.,, Bagchi M.,, & Martínez-Ávila D.,, *Metadata Management and Application.* **Library Herald,** *58*(4), 2020. 84-107, https://doi.org/10.5958/0976-2469.2020.00030.2.

Shaher A. T. H. Q.,, & Ali K.,, *The Effect of Entrepreneurial Orientation on Innovation Performance: The Mediation Role of Learning Orientation on Kuwait SME.* **Management Science Letters,** *10*(16), 2020. 3811-3820, https://doi.org/10.5267/j.msl.2020.7.030.

Shahzad M. F., Khan K. I., Saleem S., & Rashid T., *What Factors affect the Entrepreneurial Intention to Start-ups? The Role of Entrepreneurial Skills, Propensity to Take Risks, and Innovativeness in Open Business Models* Journal **of Open Innovation: Technology, Market, and Complexity,** *7*(3), 2021. 173, **https://doi.org/10.3390/joitmc7030173.**

Shehab N.,, Badawy M.,, & Arafat H.,, *Big Data Analytics and Preprocessing.* **Machine Learning and Big Data Analytics Paradigms: Analysis, Applications and Challenges,** 25-43, 2021, https://doi.org/10.1007/978-3-030-59338-4_2.

Shika, A. M., Shomoye, & E. E., Ojarikre, *Influence of Managerial Competencies on Small and Medium Enterprise Performance.* **Advances in Accounting, Management, Business and Economics Journal,***1*(1), 2021. 26-36, **https://doi.org/10.2991/aebmr.k.220204.020.**

Sodirjonov M. M.,, *Education as the Most Important Factor of Human Capital Development.* **Theoretical & Applied Science,** (4), 2020. 901-905, https://doi.org/10.15863/tas.2020.04.84.161.

Soyer K.,, Ozgit H.,, & Rjoub H.,, *Applying an Evolutionary Growth Theory for Sustainable Economic Development: The Effect of International Students as Tourists.* **Sustainability,** *12*(1), 2020. 418, https://doi.org/10.3390/su12010418.

Stahl G. K.,, Brewster C. J.,, D. G., Collings, & A., Hajro, *Enhancing the Role of Human Resource Management in Corporate Sustainability and Social Responsibility: A Multi-stakeholder, Multidimensional Approach to HRM.* **Human Resource Management Review,** *30*(3), 2020. 100708, **https://doi.org/10.1016/j.hrmr.2019.100708.**

Stella C. A.,, *Perceived Influence of Drug Abuse on Undergraduates' Suicidal Tendencies in the University of Lagos.* **International Journal of Educational Research,** *10*(1), 2022. 131-138, https://doi.org/10.48028/iiprds/ijarssest.v7.i1.05.

Supardi E., Islamy F. J., Muhidin S. A., & Sutarni N., *How to Educate Students to Become Competent Entrepreneurs.* **Cakrawala Pendidikan,** *41*(1), 2022. 142-153, https://doi.org/10.21831/cp.v41i1.45912.

Surya B.,, Menne F.,, Sabhan H.,, Suriani S.,, Abubakar H.,, & Idris M.,, *Economic Growth, Increasing Productivity of SMEs, and Open Innovation.* **Journal of Open Innovation: Technology, Market, and Complexity,** *7*(1), 2021. 20, https://doi.org/10.3390/joitmc7010020.

Sutherland M.,, Thompson D.,, & Edirisingha P.,, *Try Before you Buy: A Small Business Employer (SME) Perspective of International Student Mobility in England.* **Studies in Higher Education,** *46*(7), 2021. 1256-1271, https://doi.org/10.1080/03075079.2019.1680965.

Sutrisno S.,, *The Role of Business Mentors in Assisting the Growth of Education-Supported MSMEs.* **Indo-MathEdu Intellectuals Journal,** *4*(2), 2023. 332-346, https://doi.org/10.54373/imeij.v4i2.201.

Swart K.,, Bond-Barnard T.,, & Chugh R.,, *Challenges and Critical Success Factors of Digital Communication, Collaboration and Knowledge Sharing in Project Management Virtual Teams: A Review.* **International Journal of Information Systems and Project Management,** *10*(4), 2022. 84-103, **https://doi.org/10.12821/ijispm100404.**

Taiwo I., & Joseph A. O., *Analyses of Entrepreneurship Education on Entrepreneurial Intention among Undergraduates Students in Nigeria.* **European Journal of Business and Innovation Research,** *8*(8), 2020. 1-18, https://doi.org/10.7176/ejbm/11-20-09.

Tajpour M.,, Hosseini E.,, &Salamzadeh A.,, *The Effect of Innovation Components on Organisational Performance: Case of the Governorate of Golestan Province*. **International Journal of Public Sector Performance Management,** *6*(6), 2020. 817-830, **https://doi.org/10.1504/ijpspm.2020.110987.**

Tang M.,, Wang D.,, & Guerrien A.,, *A Systematic Review and Meta-analysis on Basic Psychological need Satisfaction, Motivation, and Well-being in Later Life: Contributions of Self-determination Theory.* **PsyCh Journal,** *9*(1), 2020. 5-33, https://doi.org/10.1002/pchj.293.

Tanveer M.,, Ali H.,, & Haq I. U.,, *Educational Entrepreneurship Policy Challenges and Recommendations for Pakistani Universities.* **Academy of Strategic Management Journal,** *20*(2), 2021. 1-15, https://doi.org/10.1108/s2040-724620210000011001.

Ternenge T. S.,, Uchejeso O. M.,, & Philemon G. L.,, *Entrepreneurship Education as a Vital Tool for Wealth Creation and Unemployment Reduction in Nigeria.* **East African Scholars Journal of Economics, Business and Management** *3*(11), 2020. 891-898, https://doi.org/10.36349/easjebm.2020.v03i11.005.

Thapa C.,, & Camtepe S.,, *Precision Health Data: Requirements, Challenges and Existing Techniques for Data Security and Privacy.* **Computers in Biology and Medicine** *129*, 2021. 104130, https://doi.org/10.1016/j.compbiomed.2020.104130.

Thottoli M. M., & Ahmed E. R., *Information Technology and E-accounting: Some Determinants among SMEs.* **Journal of Money and Business,** *2*(1), 2022. 1-15, https://doi.org/10.1108/jmb-05-2021-0018.

Thukral E.,, *COVID-19: Small and Medium Enterprises Challenges and Responses with Creativity, Innovation, and Entrepreneurship.* **Strategic Change,** *30*(2), 2021,153-158.

Tomy S.,, & Pardede E.,, *An Entrepreneurial Intention Model Focussing on Higher Education.* **International Journal of Entrepreneurial Behavior & Research,***26*(7), 2020.1423-1447, https://doi.org/10.1108/ijebr-06-2019-0370.

Toufaily E.,, Zalan T.,, & Dhaou S. B.,, *A Framework of Blockchain Technology Adoption: An Investigation of Challenges and Expected Value.* **Information & Management,** *58*(3), 2021. 103444, https://doi.org/10.1016/j.im.2021.103444.

Towers N.,, Santoso A. S.,, Sulkowski N.,, & Jameson J.,, *Entrepreneurial Capacity-building in HEIs for Embedding Entrepreneurship and Enterprise Creation–a Tripartite approach.* **International Journal of Retail & Distribution Management,** *48*(8), 2020. 881-899, https://doi.org/10.1108/ijrdm-06-2019-0185.

Ustyuzhina O., Mikhaylova A., & Abdimomynova A., *Entrepreneurial Competencies in Higher Education.* ***Journal of Entrepreneurship Education,*** *22*(1), 2019. 1-14, https://doi.org/10.12657/9788379862801-3.

Valk R.,, & Planojevic G.,, *Addressing the Knowledge Divide: Digital Knowledge Sharing and Social Learning of Geographically Dispersed Employees during the COVID-19 Pandemic.* **Journal of Global Mobility: The Home of Expatriate Management Research,** *9*(4), 2021. 591-621, https://doi.org/10.1108/jgm-02-2021-0019.

Venesz B.,, Dőry T.,, & Raišienė A. G.,, *Characteristics of Lead Users in Different Stages of the New Product Development Process: A Systematic Review in the Context of Open Innovation.* **Journal of Open Innovation: Technology, Market, and Complexity,** *8*(1), 2022. 24, https://doi.org/10.3390/joitmc8010024**.**

Way R.,, Ives M. C.,, Mealy P.,, & Farmer J. D.,, *Empirically Grounded Technology Forecasts and the Energy Transition.* **Joule,** *6*(9), 2022. 2057-2082, https://doi.org/10.1016/j.joule.2022.08.009.

Wu W. T.,, Li Y. J.,, Feng A. Z.,, Li, L., Huang T.,, A. Xu D.,, & Lyu J.,, *Data Mining in Clinical Big Data: The Frequently Used Databases, Steps, and Methodological models.* **Military Medical Research,** *8*, 2021. 1-12, https://doi.org/10.1186/s40779-021-00338-z.

Yakubu J. I. G.,, & Onuoha B. C.,, *Entrepreneurial Personality and Performance of Small and Medium Enterprises in Rivers state.* **African Journal of Business and Economic Development|ISSN,** 2022. *2782*, 7658, **https://doi.org/10.47191/ijsshr/v5-i9-28.**

Yustika G. P.,, & Iswati S.,, *Digital Literacy in Formal Online Education: A Short Review.* **Dinamika Pendidikan,** *15*(1), 2020. 66-76, https://doi.org/10.15294/dp.v15i1.23779.

Zahay D.,, Pollitte W. A.,, Reavey B.,, & Alvarado A.,, *An Integrated Model of Digital Marketing Curriculum Design.* **Marketing Education Review,***32*(3), 2022. 205-223. https://doi.org/10.1080/10528008.2021.1947856.

Zamrudi Z., & Yulianti F., *Sculpting Factors of Entrepreneurship among University Students in Indonesia.* **Entrepreneurial Business and Economics Review,** *8*(1), 2020. 33-49, https://doi.org/10.15678/eber.2020.080102.

Zia A.,, Aziz M.,, Popa I.,, Khan S. A.,, Hamedani A. F., & Asif A. R.,, *Artificial Intelligence-based Medical Data Mining*, **Journal of Personalized Medicine,** *12*(9), 2022, 1359, https://doi.org/10.3390/jpm12091359.

Online Resource

Abdulkarim A. M., & Danagogo T. E., *Business Education Students' Developed Entrepreneurial Competencies and Intention to be Self-employed after Graduation from Degree Awarding Institutions in Rivers State https://doi.org/10.52589/ijebi-avlpnxbo*

Anosike P., &., Oluwatobi S, *Higher Education Contexts of Entrepreneurship Education Outcomes in Sub-Saharan Africa.*2021, https://doi.org/10.33423/jhetp.v21i3.4151.

Brimah B. A.,, Rabiu R. O.,, Bamidele A. G.,, & Sheu M. O.,, *Fostering Entrepreneurial Mentoring Culture for Sustainable Leadership Performance in Nigeria: Evidence from Selected SMEs in Ilorin Metropolis.* 2020, *https://doi.org/10.21272/bel.4(3).73-80.2020*

Buchory H. A., *Analysis Of Factors Affecting Implementation Banking Intermediation Function (Study On Regional Development Bank All Over Indonesia Year 2012).*2021, https://doi.org/10.35609/jfbr.2020.5.1(2).

Joseph O.,, & Adewunmi A.,, *Impact of Entrepreneurship Education on the Development of Small and Medium Enterprise in Nigeria.* 2020 https://doi.org/10.22617/tcs200311-2.

Kanaan-Jebna J. M. A., Alabdullah T. T. Y., Ahmed E. R., & Ayyasamy R. K., *Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies.*2022, https://doi.org/10.21272/bel. 6(2), 2022, 68-77.

Mallo M. J., *Factors Determining The Growth of Youth Owned Small and Medium Enterprises in Nigeria: A Study of Abubakar Tafawa Balewa University, Bauchi.https://doi.org/10.30880/ijie.2020.12.07.006*

Mugo, Kahuthia,& Kinyua, *Examined the Effects of Infrastructure on Growth of Small and MediumEenterprises in Kenya,* 2019, *https://doi.org/10.2499/9780896294561_14*

Nuhu S., Abddulraheem N., Abubakar H., Abdurauf A., & Sulaiman K., *Entrepreneur Skills as Determinants to Job Opportunities among LIS Postgraduate Students in University of Ilorin.*2021, *https://doi.org/10.47191/ijsshr/v5-i9-28*

Rozmi A. N. A., Nohuddin P. N., Hadi A., Razak A., Bakar A., Izhar M., & Nordin A. I., *Factors Affecting SME Owners in Adopting ICT in Business Using Thematic Analysis* 2020, *https://doi.org/10.14569/ijacsa.2020.0110727*

Sani A.,, *The Role of Information and Interaction Processes and Participatory Rural Communication Appraisal in Enhancing the Acceptance of Diffusion of Innovation Theory.*2022, https://doi.org/10.4135/9788132108382.n5.

Thesis and Dissertation

Al Shabibi I., *Planning for Entrepreneurialism in a Rentier State Economy: Entrepreneurship Education for Economic Diversification in Oman* **(Doctoral Dissertation, Cardiff University).** 2020, https://doi.org/10.2307/j.ctv86ddhv.11.

Ajibola E. O., *Nigeria Small and Medium Enterprise Sustainability Strategies* **(Doctoral Dissertation, Walden University),** 2020, **https://doi.org/10.26634/jsch.9.4.2708.**

Bikmohammadi M.,, *Incorporation of Google Docs in Composition Classes to Foster Collaboration: An Analysis of Google Docs' Affordances* **(Doctoral dissertation, University of Dayton),** 2023, https://doi.org/10.59948/osou4.2023.02.

Raphael L., *Determinants of Small and Medium Enterprises' Performance: A Case of Ilala District in Dar Es Salaam, Tanznia* **(Doctoral dissertation, Mzumbe University).** 2020, https://doi.org/10.4018/978-1-7998-2967-6.ch002

Statistical Report

National Commission for Colleges of Education*: NCCE Abuja*. Edu.Ng. Retrieved 25 November 2023, from http://www.ncceonline.edu.ng/colleges.php

Appendix 1

Research Questionnaire I

Entrepreneurship Education and ICT Competencies Questionnaire (EEICQ) (Business Education Lecturer)

Dept. of Arts and Social Science Education, Faculty of Arts and Education, Lead City University, Ibadan, Oyo State

Dear Sir or Ma,

Request to Participate in a Research

I am a Doctorate Degree Student in the Department of Business Education and I am carrying out a research study on how entrepreneurship education and ICT competencies affects SMEs development among Students of Business Education in Colleges of Education. Your responses and cooperation are highly needed. Confidentiality to your responses will strictly be adhered to. Your cooperation is highly solicited.

Yours Faithfully,

The Researcher

Section A: Demographic Information of Lecturers

Instruction: Please indicate your opinion about the following statements by checking the scale below. Place an (√) mark in the box of your answer.

1. **Gender:** Male ( ) Female ( )
2. **Age:** 20-38 years ( ) 39-59 years ( ) 60 years and above ( )
3. **Marital Status:** Single ( )Married ( ) Divorced ( ) Separated ( )

4. **Highest Educational Qualifications:** Bachelors degree ( ) Masters Degree ( ) Mphil or PhD Degree ( ) Others (please specify)_____
5. **Position:** Assistant Lecturer ( ) Lecturer III ( ) Lecturer II ( ) Lecturer I ( ) Senior Lecturer ( ) Principal Lecturer ( ) Chief Lecturer ( )
6. **Years of Teaching Experience:** 1-5 years ( ) 6-10 years ( ) 10-15 years 15 years and above ( )

Section B: Entrepreneurship Education Integrated into the Business Education Curriculum (to be answered by the Business education lecturers to avoid biasness in responses)

Instruction: Kindly indicate the extent of Entrepreneurship Education Integration into the Business Education Curriculum with each of these statements. Put an ('X') mark in the box of your answer.
Key: Strongly Agree (ST) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (DS) = 1 point

		4	3	2	1
S/N	**Items ("The curriculum Relevance)**	**SA**	**A**	**D**	**SD**
1.	Curriculum relevance promotes collaboration with industry experts, entrepreneurs, and successful business leaders				
2.	The integration of entrepreneurship education into the Business Education curriculum is accompanied by robust funding opportunities				
3.	Entrepreneurship education prioritizes experiential learning opportunities, offering internships, apprenticeships, and entrepreneurship projects				
4.	takes a holistic approach to entrepreneurship education				
5.	Curriculum relevance in Business Education demonstrates a strong alignment with current industry demands				
6.	Entrepreneurship education within the curriculum is complemented by dedicated institutional support services				
	Access to Resources				
7.	Entrepreneurship education is integrated with access to cutting-edge technologies and tools relevant to contemporary business practices				

8.	The integration of entrepreneurship education into the Business Education curriculum is accompanied by robust funding opportunities				
9.	Facilitates connections with venture capital firms and angel investor networks				
10.	Entrepreneurship education is enriched by industry-linked research opportunities				
11.	fosters strategic partnerships with industry players				
12.	Successfully raises students' awareness of entrepreneurial opportunities				
	Start Creation and Success Rate				
13.	There is a notable increase in the success rates of start-ups initiated by students who have undergone entrepreneurship education				
14.	Entrepreneurs in the local community are providing positive feedback on the quality and impact of businesses started by graduates				
15.	Successful alumni are actively engaging in mentorship programs, guiding current students in their entrepreneurial endeavours				
16.	Entrepreneurial ventures contribute to the economy				
17.	It has resulted in a high rate of business start-ups among students				
18.	It has contributed to the successful launch of innovative ventures by students				
	Entrepreneurial Intension and Attitude				
19.	Enhances students' self-efficacy in entrepreneurial skills				
20.	Entrepreneurship education has contributed to the development of a risk-taking mentality among students				
21.	Students' attitudes are translated into concrete actions, with a notable number expressing clear intentions to embark on entrepreneurial ventures				
22.	Promotes a proactive approach to problem-solving among students				
23	Successfully raises students' awareness of entrepreneurial opportunities				
24.	Has led to a positive shift in students' attitudes toward entrepreneurship				

Threshold: mean value of 0.000-1.499 = Strongly Disagree; 1.500-2.499 = Disagree; 2.500-3.499 = Agree; 3.500 to 4.500 = Strongly Agree

Session C: ICT Competency Questionnaire (ICTCQ)

Instruction: Please answer these questions by putting an (√) mark in the appropriate box for each item.
Key – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.

		4	3	2	1
S/N	**Items**	**HL**	**ML**	**LL**	**VLL**
	Digital Literacy				
1.	Students of Business Education exhibit a high level of digital literacy				
2.	The level of digital literacy among students is evident in their effective navigation of the internet				
3.	The level of digital literacy among students is highlighted by their independent problem-solving using technology				
4.	The high level of digital literacy is characterized by students' adaptability to new and emerging technologies				
5.	Students exhibit strong digital literacy in their communication practices				
6.	Digital literacy is prominently observed in students' academic work				
	Cyber Security Awareness and Skills				
8.	Students of Business Education demonstrate a high level of cybersecurity awareness by showcasing vigilance in recognizing and identifying various cyber threats				
9.	The level of ICT competencies among students is evident in their adherence to best practices in password management				
10.	The commitment to cyber security awareness is demonstrated through active participation in cyber security training programs				

11.	Students exhibit a proactive approach to cybersecurity by effectively using antivirus software to protect their devices from malicious software				
12.	The level of ICT competencies is reflected in students' secure handling of sensitive information Students display an awareness of social engineering techniques, recognizing and avoiding tactics used by cybercriminals to manipulate individuals				
	Information Management and Digital Collaboration				
13.	The level of ICT competencies among students is evident in their adherence to best practices in password management				
14.	Students of Business Education showcase a high level of ICT competencies through efficient data organization				
15.	The level of ICT competencies is evident in students' proficient use of digital collaboration tools				
16.	Students demonstrate a proactive approach to information management by adopting project management software				
17.	Students actively participate in virtual collaboration sessions				
18.	The level of ICT competencies is apparent as students seamlessly integrate information from multiple sources				

Threshold: mean value of 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 =Moderate Levell; 3.500 to 4.499 = High Level.

Appendix 2

Research Questionnaire II

Students' SMEs Development Questionnaire (SSDQ)

Dept. of Arts and Social Science Education, Faculty of Arts and Education, Lead City University, Ibadan, Oyo State. (Business Education Students)

Dear Students,

Request to Participate in a Research

I am a Doctorate Degree Student in the Department of Business Education and I am carrying out a research study on how entrepreneurship education and ICT competencies affects SMEs development among Students of Business Education in Colleges of Education. Your responses and cooperation are highly needed. Confidentiality to your responses will strictly be adhered to. Your cooperation is highly solicited.

Yours Faithfully,

The Researcher

Section A: Bio-data Information of Students

Instruction: Please indicate your opinion about the following statements by checking the scale below. Place an (√) mark in the box of your answer.

1. **Gender:** Male ( ) Female ( )

2. **Age:** 18-25 years ( ) 26-36 years ( ) 36 years and above ( )

3. **Marital Status:** Single ( )Married ( ) Divorced ( ) Separated ( )

4. **ICT/Computer Competent:** Yes ( ) No ( ) I don't know ( )

5. **Level of Computer Literacy:** Beginner ( ) Intermediate ( ) Advance ( )

Instruction: Please answer these questions by putting an (√) mark in the appropriate box for each item.
Key – High Level (HL) – 4 points, Moderate Level (ML) – 3 points, Low Level (LL) – 2points, Very Low Level (VLL) – 1 points.

SME Development		**4**	**3**	**2**	**1**
S/N	**Items (Business Growth)**	**HL**	**ML**	**LL**	**VLL**
1.	Students equipped with ICT competencies play a pivotal role in facilitating business				
2.	ICT competencies empower students to implement efficient Customer Relationship Management (CRM) systems				
3.	The role of ICT competencies in business growth is evident through students' proficiency in data-driven decision-making				
4.	Students contribute to business growth by adopting digital financial management systems				
5.	ICT-savvy students are catalysts for business growth				
6.	The integration of ICT competencies enhances business agility				
	Access to Finances				
7.	ICT-savvy students contribute to SMEs' development by implementing efficient financial management through digital tools				
8.	Students proficient in ICT contribute to SME development by promoting digital investment opportunities				
9.	ICT competencies enable students to explore innovative financing methods such as blockchain technology				
10.	The role of ICT competencies is evident in students' ability to navigate online grant application processes				
11.	Students with ICT competencies actively utilize digital financing platforms				

12.	Students with ICT competencies play a key role in the digital marketing landscape				
	Innovation & Technology Adoption				
13.	ICT-driven product innovation				
14.	Integration of artificial intelligence (AI) and machine learning (MLBlockchain implementation for transparency and efficient technology adoption strategies				
15.	Digital marketing strategies for market expansion				
16.	Adoption of internet of things (IoT) solutions				
17.	The integration of ICT competencies enhances business agility				
18.	E-commerce integration for business expansion				

Threshold: If the mean is 0.000-1.999 = Very Low Level; 2.000-2.499 = Low Level; 2.500-3.499 =Moderate Levell; 3.500 to 4.499 = High Level.

Appendix II
Computation Results from SPSS Analysis

Gender Distribution of the Lecturers					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Male	51	44.0	44.0	
	Female	65	56.0	56.0	
	Total	**116**	**100**	**100**	

Age Range Distribution of the Lecturers					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	20 – 38 years	40	34.5	34.5	
	39 – 59 years	58	50.0	50.0	
	60 years and above	18	15.5	15,5	
	Total	**116**	**100**	**100**	

Highest Educational Qualification of the Lecturers					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Bachelors Degree	15	13.0%	13.0	
	Masters Degree	58	50.0	50.0	
	Mphil or Ph.D Degree	33	28.4	28.4	
	Others	10	8.6	8.6	
	Total	**116**	**100**	**100**	

Marital Status of the Lecturers				
	Frequency	Percent	Valid percent	Cumulative percent

Valid	Single	31	26.7	26.7
	Married	69	59.5	59.5
	Widow	14	12.1	12.1
	Separate	02	01.7	01.7
	Total	**116**	**100**	**100**

Years of Teaching Experience of the Lecturers

		Frequency	Percent	Valid percent	Cumulative percent
Valid	1 – 5 years	12	10.3	10.3	
	6– 10 years	30	26.0	26.0	
	11-15 years	45	38.7	38.7	
	15years and above	29	25.0	25.0	
	Total	**116**	**100**	**100**	

Position of the Lecturers

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Assistant	16	13.8	13.8	
	Lecturer	20	17.2	17.2	
	Lecturer	25	21.6	21.6	
	III	23	19.8	19.8	
	Lecturer II	10	08.6	08.6	
	Lecturer I	11	43.6	43.6	
	Senior Lecturer	11	45.3	45.3	
	Total	**116**	**100**	**100**	

Gender Distribution of Colleges of Education Students

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Male	688	53.8	53.8	
	Female	592	46.2	46.2	
	Total	**1280**	**100**	**100**	

Age Range Distributions of Colleges of Education Students					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	18 – 25 years	459	35.9	35.9	
	26 – 30 years	383	29.9	29.9	
	31 – 35 years	274	21.4	21.4	
	36years and above	164	12.8	12.8	
	Total	**1280**	**100**	**100**	

Marital Status of Colleges of Education Students					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Single	550	43.0	43.0	
	Married	694	54.2	54.2	
	Widow	30	02.3	02.3	
	Separate	06	00.5	00.5	
	Total	**1280**	**100**	**100**	

ICT/Computer Competent of Colleges of Education Students					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	838	65.5	65.5	
	No	374	29.2	29.2	
	I don't Know	68	05.3	05.3	
	Total	1280	100	100	

ICT/Computer Competent of Colleges of Education Students					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Beginner	288	22.5	22.5	
	Intermediate	354	27.5	27.5	
	Advance	641	50.0	50.0	
	Total	1280	100	100	

Students equipped with ICT competencies play a pivotal role in facilitating business					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	326	25.5	25.5	
	Moderate	659	51.4	51.4	

	Low Level	148	11.5	11.5
	Very Low Level	147	11.5	11.5
	Total	1280	100	100

ICT competencies empower students to implement efficient Customer Relationship Management (CRM) systems

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	345	27.0	27.0	
	Moderate	564	44.1	44.1	
	Low Level	257	20.1	20.1	
	Very Low Level	114	9.0	9.0	
	Total	1280	100	100	

The role of ICT competencies in business growth is evident through students' proficiency in data-driven decision-making

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	323	25.2	25.2	
	Moderate	687	53.7	53.7	
	Low Level	201	15.7	15.7	
	Very Low Level	69	5.4	5.4	
	Total	1280	100	100	

Students contribute to business growth by adopting digital financial management systems

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	303	23.7	23.7	
	Moderate	649	50.7	50.7	
	Low Level	175	13.6	13.6	
	Very Low Level	153	12.0	12.0	
	Total	1280	100	100	

ICT-savvy students are catalysts for business growth

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	387	30.2	30.2	
	Moderate	499	39.0	39.0	
	Low Level	288	22.5	22.5	
	Very Low Level	106	8.3	8.3	
	Total	1280	100	100	

The integration of ICT competencies enhances business agility					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	362	28.3	28.3	
	Moderate	531	41.5	41.5	
	Low Level	222	17.3	17.3	
	Very Low Level	165	12.9	12.9	
	Total	1280	100	100	

ICT-savvy students contribute to SMEs' development by implementing efficient financial management through digital tools					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	320	25.0	25.0	
	Moderate	600	47.0	47.0	
	Low Level	207	16.0	16.0	
	Very Low Level	153	12.0	12.0	
	Total	1280	100	100	

ICT competencies enable students to explore innovative financing methods such as blockchain technology					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	345	27.0	27.0	
	Moderate	578	45.1	45.1	
	Low Level	157	12.3	12.3	
	Very Low Level	200	15.6	15.6	
	Total	1280	100	100	

Students proficient in ICT contribute to SME development by promoting digital investment opportunities					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	303	23.7	23.7	
	Moderate	580	45.3	45.3	
	Low Level	207	16.2	16.2	
	Very Low Level	190	14.8	14.8	
	Total	1280	100	100	

The role of ICT competencies is evident in students' ability to navigate online grant application processes					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	300	23.4	23.4	
	Moderate	679	53.0	53.0	
	Low Level	178	14.0	14.0	
	Very Low Level	123	9.6	9.6	
	Total	1280	100	100	

Students with ICT competencies play a key role in the digital marketing landscape					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	387	30.2	30.2	
	Moderate	599	46.8	46.8	
	Low Level	232	18.1	18.1	
	Very Low Level	62	4.8	4.8	
	Total	1280	100	100	

Students with ICT competencies actively utilize digital financing platforms					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	360	28.2	28.2	
	Moderate	533	41.5	41.5	
	Low Level	282	17.3	17.3	
	Very Low Level	105	13.0	13.0	
	Total	1280	100	100	

ICT-driven produce innovation

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	326	25.5	25.5	
	Moderate	639	49.9	49.9	
	Low Level	248	19.4	19.4	
	Very Low Level	67	05.2	05.2	
	Total	1280	100	100	

Integration of artificial intelligence (AI) and machine learning(ML) Blockchain implementation for transparency and efficient technology adoption strategies

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	314	24.5	24.5	
	Moderate	564	44.1	44.1	
	Low Level	297	23.2	23.2	
	Very Low Level	105	08.0	08.0	
	Total	1280	100	100	

Digital marketing strategies for market expansion

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	223	17.4	17.4	
	Moderate	487	38.0	38.0	
	Low Level	401	31.3	31.3	
	Very Low Level	169	13.3	13.3	
	Total	1280	100	100	

Adoption of internet of things (IoT) solutions

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	303	23.6	23.6	
	Moderate	449	35.1	35.1	
	Low Level	375	29.3	29.3	
	Very Low Level	155	12.1	12.1	
	Total	1280	100	100	

E-commerce integration for business expansion

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	387	30.2	30.2	
	Moderate	629	49.1	49.1	

	Low Level	183	14.3	14.3
	Very Low Level	81	06.3	06.3
	Total	1280	100	100

The integration of ICT competencies enhances business agility					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	462	36.1	36.1	
	Moderate	631	49.3	493	
	Low Level	122	09.5	09.5	
	Very Low Level	65	05.1	05.1	
	Total	1280	100	100	

Access to Finance					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	2018	26.3	26.3	
	Moderate	3569	46.5	46.5	
	Low Level	1263	16.4	16.4	
	Very Low Level	833	10.8	10.8	
	Total	7683	100	100	

Innovation and Technology Adoption					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	1985	27.0	27.0	
	Moderate	3399	46.2	46.2	
	Low Level	1626	22.1	22.1	
	Very Low Level	642	08.7	08.7	
	Total	7683	100	100	

Business Growth					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	1773	24.0	24.0	
	Moderate	3589	48.5	48.5	
	Low Level	1291	17.4	17.4	
	Very Low Level	754	10.1	10.1	
	Total	7683	100	100	

Students of Business Education exhibit a high level of digital literacy					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	36	31.0	31.0	
	Moderate	59	51.0	51.0	

	Low Level	18	15.5	15.5
	Very Low Level	03	2.5	2.5
	Total	116	100	100

The level of digital literacy among students is evident in their effective navigation of the internet					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	25	21.6	21.6	
	Moderate	64	55.1	55.1	
	Low Level	17	14.7	14.7	
	Very Low Level	10	8.6	8.6	
	Total	116	100	100	

The high level of digital literacy is characterized by students' adaptability to new and emerging technologies					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	48	41.4	41.4	
	Moderate	53	45.7	45.7	
	Low Level	11	09.5	09.5	
	Very Low Level	04	03.4	03.4	
	Total	116	100	100	

The level of digital literacy among students is highlighted by their independent problem-solving using technology					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	20	17.2	17.2	
	Moderate	59	50.9	50.9	
	Low Level	19	16.4	16.4	
	Very Low Level	18	15.5	15.5	
	Total	116	100	100	

Digital literacy is prominently observed in students' academic work					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	20	17.2	17.2	
	Moderate	65	56.0	56.0	
	Low Level	18	16.5	16.5	
	Very Low Level	13	11.2	11.2	
	Total	116	100	100	

Students exhibit strong digital literacy in their communication practices					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	22	19.0	19.0	
	Moderate	11	9.4	9.4	
	Low Level	22	19.0	19.0	
	Very Low Level	61	52.6	52.6	
	Total	116	100	100	

Students of Business Education demonstrate a high level of cyber security awareness by showcasing vigilance in recognizing and identifying various cyber threats					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	36	31.0	31.0	
	Moderate	39	33.6	33.6	
	Low Level	28	24.1	24.1	
	Very Low Level	13	11.2	11.2	
	Total	116	100	100	

The level of ICT competencies among students is evident in their adherence to best practices in password management					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	25	21.5	21.5	
	Moderate	54	47.0	47.0	
	Low Level	27	23.3	23.3	
	Very Low Level	19	16.2	16.2	
	Total	116	100	100	

The level of cyber security awareness is underscored by students' active engagement in cybersecurity awareness campaigns					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	23	19.9	19.9	
	Moderate	57	49.1	49.1	
	Low Level	21	18.1	18.1	
	Very Low Level	15	12.9	12.9	
	Total	116	100	100	

The commitment to cyber security awareness is demonstrated through active participation in cyber security training programs

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	30	25.9	25.9	
	Moderate	49	42.2	42.2	
	Low Level	25	21.6	21.6	
	Very Low Level	12	10.3	10.3	
	Total	116	100	100	

Students exhibit a proactive approach to cybersecurity by effectively using antivirus software to protect their devices from malicious software

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	18	15.5	15.5	
	Moderate	07	6.0	6.0	
	Low Level	32	27.6	27.6	
	Very Low Level	59	50.9	50.9	
	Total	116	100	100	

Students display an awareness of social engineering techniques, recognizing and avoiding tactics used by cybercriminals to manipulate individuals.

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	20	17.2	17.2	
	Moderate	51	44.0	44.0	
	Low Level	32	27.6	27.6	
	Very Low Level	13	11.2	11.2	
	Total	116	100	100	

Students of Business Education showcase a high level of ICT competencies through efficient data organization

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	26	22.4	22.4	
	Moderate	49	42.2	42.2	
	Low Level	28	24.1	24.1	
	Very Low Level	13	11.2	11.2	
	Total	116	100	100	

The level of ICT competencies is evident in students' proficient use of digital collaboration tools					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	25	21.6	21.6	
	Moderate	55	47.4	47.4	
	Low Level	17	14.6	14.6	
	Very Low Level	19	16.4	16.4	
	Total	116	100	100	

Students demonstrate a proactive approach to information management by adopting project management software					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	23	20.0	20.0	
	Moderate	48	41.4	41.4	
	Low Level	21	18.0	18.0	
	Very Low Level	24	20.6	20.0	
	Total	116	100	100	

The level of ICT competencies is apparent as students seamlessly integrate information from multiple sources					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	12	10.3	10.3	
	Moderate	25	21.6	21.6	
	Low Level	59	50.9	50.9	
	Very Low Level	33	28.4	28.4	
	Total	116	100	100	

Students actively participate in virtual collaboration sessions					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	15	12.9	12.9	
	Moderate	23	19.9	19.9	
	Low Level	51	43.9	43.9	
	Very Low Level	27	23.3	23.3	
	Total	116	100	100	

The level of ICT competencies among students is evident in their adherence to best practices in password management					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	22	19.0	19.0	
	Moderate	21	18.1	18.1	
	Low Level	32	27.6	27.6	
	Very Low Level	41	35.3	35.3	
	Total	116	100	100	

Information Management and Digital					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	123	17.3	17.1	
	Moderate	221	31.2	31.2	
	Low Level	208	29.3	29.3	
	Very Low Level	157	22.1	22.1	
	Total	709	100	100	

Cyber Security Awareness and Skills					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	116	17.3	17.3	
	Moderate	257	38.4	38.4	
	Low Level	165	24.7	24.7	
	Very Low Level	131	19.6	19.6	
	Total	709	100	100	

Digital Literacy					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	High Level	171	24.6	24.6	
	Moderate	311	44.7	44.7	
	Low Level	105	15.1	15.1	
	Very Low Level	109	15.6	15.6	
	Total	709	100	100	

Curriculum relevance promotes collaboration with industry experts, entrepreneurs, and successful business leaders

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	26	22.4	22.4	
	Agree	59	50.9	50.9	
	Disagree	20	17.2	17.2	
	Strongly Disagree	11	19.5	19.5	
	Total	116	100	100	

The integration of entrepreneurship education into the Business Education curriculum is accompanied by robust funding opportunities					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	35	30.2	30.2	
	Agree	49	42.2	42.2	
	Disagree	20	17.2	17/2	
	Strongly Disagree	12	10.3	10.3	
	Total	116	100	100	

Entrepreneurship education prioritizes experiential learning opportunities, offering internships, apprenticeships, and entrepreneurship projects					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	23	19.8	19.8	
	Agree	57	49.1	49.1	
	Disagree	25	21.6	21.6	
	Strongly Disagree	11	9.5	9.5	
	Total	116	100	100	

Curriculum relevance in Business Education demonstrates a strong alignment with current industry demands					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	33	28.4	28.4	
	Agree	49	42.2	42.2	
	Disagree	15	13.0	13.0	
	Strongly Disagree	19	16.4	16.4	
	Total	116	100	100	

It takes a holistic approach to entrepreneurship education					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	21	18.1	18.1	
	Agree	23	19.8	19.8	
	Disagree	19	16.4	16.4	
	Strongly Disagree	53	45.7	45.7	
	Total	116	100	100	

Entrepreneurship education within the curriculum is complemented by dedicated institutional support services					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	22	19.0	19.0	
	Agree	51	43.9	43.9	
	Disagree	22	19.0\	19.0	
	Strongly Disagree	21	18.1	18.1	
	Total	116	100	100	

Entrepreneurship education is integrated with access to cutting-edge technologies and tools relevant to contemporary business practices					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	28	24.1	24.1	
	Agree	51	44.0	44.0	
	Disagree	20	17.2	17.2	
	Strongly Disagree	17	14.7	14.7	
	Total	116	100	100	

Entrepreneurship education is integrated with access to cutting-edge technologies and tools relevant to contemporary business practices					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	21	18.1	18.1	
	Agree	54	46.6	46.6	
	Disagree	17	14.7	14.7	
	Strongly Disagree	24	20.7	20.7	
	Total	116	100	100	

Entrepreneurship education is enriched by industry-linked research opportunities					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Strongly Agree	23	19.8	19.8	
	Agree	47	40.5	40.5	
	Disagree	31	26.7	26.7	
	Strongly Disagree	15	13.0	13.0	
	Total	116	100	100	

Successfully raises students' awareness of entrepreneurial opportunities				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	23	19.8	19.8
	Agree	53	45.7	45.7
	Disagree	30	25.8	25.8
	Strongly Disagree	10	8.6	8.6
	Total	116	100	100

Fosters strategic partnerships with industry players				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	11	9.5	9.5
	Agree	28	24.1	24.1
	Disagree	49	42.2	42.2
	Strongly Disagree	28	24.1	24.1
	Total	116	100	100

Encourages community engagement and crowd funding initiatives				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	32	27.6	27.6
	Agree	31	26.7	26.7
	Disagree	22	19.0	19.0
	Strongly Disagree	31	26.7	26.7
	Total	116	100	100

There is a notable increase in the success rates of start-ups initiated by students who have undergone entrepreneurship education				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	26	22.4	22.4
	Agree	49	42.3	42.3
	Disagree	18	15.5	15.5
	Strongly Disagree	23	19.8	19.8
	Total	116	100	100

Entrepreneurs in the local community are providing positive feedback on the quality and impact of businesses started by graduates				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	45	38.8	38.8
	Agree	24	20.7	20.7
	Disagree	27	23.3	23.3
	Strongly Disagree	20	17.2	17.2
	Total	116	100	100

Successful alumni are actively engaging in mentorship programs, guiding current students in their entrepreneurial endeavours				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	23	20.4	20.4
	Agree	47	40.1	40.1
	Disagree	21	18.1	18.1
	Strongly Disagree	25	22.1	22.1
	Total	116	100	100

It has resulted in a high rate of business start-ups among students				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	23	19.8	19.8
	Agree	50	44.2	44.2
	Disagree	30	25.8	25.8
	Strongly Disagree	13	11.2	11.2
	Total	116	100	100

It has contributed to the successful launch of innovative ventures by students				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	37	19.8	19.8
	Agree	46	44.2	44.2
	Disagree	16	25.8	25.8
	Strongly Disagree	17	11.2	11.2
	Total	116	100	100

Entrepreneurial ventures contribute to the economy				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	32	27.6	27.6
	Agree	33	28.4	28.4
	Disagree	31	26.7	26.7
	Strongly Disagree	20	17.2	17.2
	Total	116	100	100

Enhances students' self-efficacy in entrepreneurial skills				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	36	31.0	31.0
	Agree	49	42.2	42.2
	Disagree	18	15.5	15.5
	Strongly Disagree	13	11.2	11.2
	Total	116	100	100

Entrepreneurship education has contributed to the development of a risk-taking mentality among students				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	37	31.8	31.8
	Agree	44	37.9	37.9
	Disagree	27	23.2	23.2
	Strongly Disagree	08	07.1	07.1
	Total	116	100	100

Students' attitudes are translated into concrete actions, with a notable number expressing clear intentions to embark on entrepreneurial ventures				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	33	28.4	28.4
	Agree	37	31.8	31.8
	Disagree	25	21.6	21.6
	Strongly Disagree	21	18.1	18.1
	Total	116	100	100

Has led to a positive shift in students' attitudes toward entrepreneurship				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	37	31.9	31.9
	Agree	39	33.6	33.6
	Disagree	28	24.1	24.1
	Strongly Disagree	12	10.3	10.3

	Total	116	100	100

Successfully raises students' awareness of entrepreneurial opportunities				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	41	35.3	35.3
	Agree	31	26.7	26.7
	Disagree	22	18.9	18.9
	Strongly Disagree	22	18.9	18.9
	Total	116	100	100

Curriculum Relevance				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	160	23.3	23.3
	Agree	288	42.0	42.0
	Disagree	121	17.6	17.6
	Strongly Disagree	117	17.1	17.1
	Total	686	100	100

Curriculum Relevance				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	160	23.3	23.3
	Agree	288	42.0	42.0
	Disagree	121	17.6	17.6
	Strongly Disagree	117	17.1	17.1
	Total	686	100	100

Access to Resources				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	138	19.8	19.8
	Agree	264	38.0	38.0
	Disagree	169	24.2	24.2
	Strongly Disagree	125	18.0	18.0
	Total	686	100	100

Start Creation and Success Rate

		Frequency	Percent	Valid percent
Valid	Strongly Agree	186	26.7	26.7
	Agree	249	35.8	35.8
	Disagree	143	20.5	20.5
	Strongly Disagree	118	17.0	17.0
	Total	686	100	100

Entrepreneurial intensions & Attitude				
		Frequency	Percent	Valid percent
Valid	Strongly Agree	219	31.5	31.5
	Agree	239	34.3	34.3
	Disagree	142	20.4	20.4
	Strongly Disagree	96	13.8	13.8
	Total	686	100	100

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	3314.909	8	414.36	176.54	.005	Significant
	Residual	3255.157	1387	2.347			
	Total	6570.066	1396				

Model Summary

R = .710

R Square = .642

Adjusted R Square = .644

Standard Error of the Estimate = 3.63648

Coeff icients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Standard Error	Beta		
1	(Constant)	21.269	.354		60.008	.000
	Curriculum Relevance	.172	.084	.132	1.004	.005
	Access to Resources	.146	.074	.116	1.236	.000
	Entrepreneurial Intension and Attitude	.062	.072	.011	1.311	.005
	Start Creation and Success Rate	.081	.064	.047	1.206	.005
	Digital Literacy	.035	.152	.053	1.004	.000
	Cyber Security Awareness and Skills	.065	.132	.061	1.214	.000
	Information Management and digital collaboration	.128	.082	.062	1.693	.001

Dependent Variable: SMEs development skills among students of Business Education

Source: Fieldwork, 2024;

*t-value significant at p<0.05

RESEARCH WORK



Research work





Research work



Research work

Research work



Research work

Research work



Research work

Research work



Research work Bio-data

A. Personal data

1. F

H

E-

Ph

2. Da

3. Na

4. Na Auditor

Ge

B. Ed

In **ate**

1. Un 015

2. Al 995

3. Le 024

C. W

W **ate**

1. Fede **2004**

2. Federal College of Education (Special) Oyo 2005 -till date



D. Awards and Fellowships (If any):

1. Scholarship Award by Federal Ministry of Education

E. Membership of Academic Professional Bodies:

1. Member, Nigerian Institute of Management
2. Member, Institute of Strategic Management, Nigeria
3. Member, Association of Business Educators of Nigeria (MABEN)
4. Member, Teacher Registration Council of Nigeria (TRCN)(OY/S/06817)
5. Member, National Research and Development Network of Child and Youth in Agricultural Programme in Nigeria (CYIAP)
6. Member, The Nigeria Association of Special Education Teachers (NASET)
7. Member, Association of Women in Colleges of Education (WICE), Federal College of Education (Special) Oyo Chapter

F. Publications:

Articles in Learned Journals:

1. **Abiola, F.R**. (2007). Obstacles and Challenges to Women Health and Development in Africa *Journal of Women in Colleges of Education* (Special) Oyo, 1(1). 123-130.
2. **Abiola, F.R**. (2007). Business Education and People Empowerment. *SPED Journal of Vocational & Technical Education Oyo,* 1(1), 225 – 232.
3. **Abiola F.R. & Adebayo, T. O.** (2010). Everyday Business Education Connections for Sustainable Development. *SPED Journal of Vocational & Technical Education Oyo*, 1(2). 55 – 63.
4. **Abiola, F.R.** (2011). Universal Basic Education: Objectives, Problems and Strategies for Effective Implementation. *SPED Journal of the Educator, School of Education, Federal College of Education (Special), Oyo,* 8(1), 81 – 91.
5. **Abiola, F.R.** (2012). Comparative Analysis of the Role of Business trades on Entrepreneurial Competency of Business Students in Secondary Schools in Oyo State. *Journal of Nigeria Association of Teachers in Technology (NATT),* 3 (2), 88 – 94
6. **Adeleye, S. T. & Abiola, F. R.** (2013). Vocational and Technical Education for Self Reliance in Nigeria. A *fiction or a Reality*, 8 (2), 52-59
7. **Abiola, F. R. & & Babalola, Y.A.** (2013). The Importance of Mathematics in the Recording and Interpretation of Accounting. *International Institute for Science technology and Education, (IISTE) Research Journal of Finance and Accounting,*103-107.
8. **Abiola, F. R. & Babalola, Y. A.** (2013). Financial Ratio Analysis of Firms: A tool for Decision making. *The International Institute for Science, Technology and Education (IISTE) European Journal of Business and Management,* 132-137.

9. **Adebayo, 'T. O. & Abiola, F. R.** (2013). Comparative Analysis of Government Funding and the Alternative Sources of funding Vocational Technical Education in tertiary Institution in Nigeria. *SPED Journal of Vocational & Technical* Education, Oyo, 2(1), 63-75.

10. **Abiola, F. R.** (2016). Business Education in Information and Communication Technology Era. *Journal of Business and Vocational Education JBVE, Federal College of Education (T) Asaba,* 234-243.

11. **Abiola, F. R.** (2017). Enhancing the Achievement of the Sustainable Development Goals through Improved Vocational Education. *A Journal* of *Colleges* of *Education Academic Staff Union (COEASU) (Zuba- Abuja Chapter), Aso Journal of Educational Studies,* 165-169.

12. **Adebayo, T. O. & Abiola, F. R.** (2017). Influence of Mother Tongue on The Academic Performance of Students with Learning disabilities in Business Studies in Junior Secondary Schools in Oyo State. *Journal of Issues in Special Education.* 21-27.

13. **Abiola, F. R. & Ibitoye, O.** (2013). Enhancing Diversification of the Economy through Business Education for Special Need Persons. *Journal of Issues* in *Special Education. Federal College of Education (Special) Oyo,* 115-120.

14. **Abiola, F. R.** (2018). Business Education in a Recessed Economy: The Way Forward. *SPED Journal of Vocational and Technical Education (SPEJOVTED),* 303-311.

15. **Abiola, F.R.** (2019). The Technological Changes in Business Education: Issues and Challenges. *Journal Colleges of Education Academic Staff Union (COEASU) (Southwest Zone)*, 369 – 376.

16. **Abiola, F. R.** (2019). Disability Bill: The Role of Nigeria Government. *International Journal of Issues on Disabilities (IJID), Federal College of Education Special,* Oyo, 79 – 87.

17. **Abiola, F. R.** (2019). Curriculum Development in Business Education: Issues and Challenges. *Journal of Association of Business Educators of Nigeria* (*ABEN*), 6(1), 915 – 921.

18. **Abiola, F. R.** (2019). Business Education as a Strategical Tools for Job Creations and Economic Empowerments in Nigeria. *International Journal of Early Childhood Care, Primary, Adult and Non-Formal Education (IJECPAE),* 158-165.

19. **Abiola, F. R.** (2019). The Relevance of Business Education on the Productivity of Special Needs Individual in the Society. *International Journal of Special and General Education* (IJSGE; National Association for Academic Excellence and Development, 133-136.

20. **Abiola, F.R.** (2019). Business Education for Self-Reliance of the Physically Challenged in Nigeria. *SPED International Journal. Federal College of Education (Special), Oyo,* 411 – 419.

21. **Babalola, D., Adebayo, S., Abiola F., & Adebayo, T.** (2019). *Principles and Practices of Human Capital Management,* Osogbo Ajidex Publishers Ltd.

22. **Abiola, F. R.** (2014). Work Etates and Office Code if Conduct: In Tiamiyu R., Lawal I.O.B. Adebao T.O. (Eds). *Business Education Practicum.* Lagos F. C. Publishing Ventures.

23. **Abiola, F. R.** (2014). Principle of Accounting in S.O. Agbato (Ed). *Essential of Business Studies. Sped Study Series, Oyo.* Odumatt Press and Pbulisher.

24. **Abiola, F.R**. (2016). Components and Techniques for Effective Teaching in P. O. Akingbile (Ed). *Critical Elements for Enhancing Perspectives in Teacher Education.* Abeokuta Abundance Technical Services, pp. 170-183.

25. **Abiola, F. R.** (2019). Restructuring Vocational and Technical Education for Economic Recovery and National Development. In S.A Bappah, J.M Mafwalai, S.A Adebayo, R. Ager & P. S. Williams (Ed). *Proceedings of the 32nd Annual National Conference and Annual General Meeting of Technology Education Practitioners Association of Nigeria*. Lagos: Technology Education Practitioners Association of Nigeria (TEPAN), pp. 41-46.

26. **Abiola, F. R. & Ibitoye, O.** (2020). Entrepreneurial Education in Politics and Management for Sustainable Development in Nigeria. In Usman K.O., Abimbola M. A., Agbato S. O., Ogunkunle S. J. (Ed). A Book of Readings in Honour of Dr. Theophilus Adebose Ajobiewe, [*Achieving Sustainable Development in Nigeria through Innovation, Creativity and Entrepreneurial Education*]. pp. 198-205

27. **Abiola, F. R. & Adebayo, T. G.** (2019). The Role of Quality Assurance in Business Education Delivery in Nigeria. In Durosara D. O, Ijaiya Y. S., Oyedeji N. B., Abdulkareem A. Y., Alabi A. T., Sofoluwe A. O., Etejere P.A.O. (Ed). A book of Readings in Honour of Ijaya, N. Y. Ilorin, Alubar'kah Graphics Production 18(2), pp.150-159.

28. **Abiola, F. R.** (2020). Gender Equality and Leadership: Policies, Politics, Women's Participations, Myth or Reality. In Bello R. O., Ibitoye Adebola O., Muhammed A.A.(Ed). A Book of Reading in Honour of Dr. (Mrs) G. O. Akinrinade, Mrs. B.O. Akanbi, and Mrs. A M. Olaniran Ibadan, Gravicpea Concepts, pp. 317-326.

29 **Abiola, F.R. & Olayanju, M.A.** (2021). Curriculum Development in Business Education: Issues and Challenges. SPED *Journal* of *Science* in Education. 427-434.

30. **Abiola, F.R.** (2021). Achieving Sustainable Economic Recovery and Peaceful Co-existence in Nigeria through Business Education, Erudite Journal (3) 1 143-150.

31. **Babalola, Y.A., Tiamiyu, R., Abiola, F.R., Adewole, E.G. & Ayoola, O.O.** (2021). Determinant of Financial Information Disclosure in Nigeria Manufacturing Firms. International Journal *of Educational Foundations and* Management. (15) 1,44-54.

32. **David, S. & Abiola, F.R.** (2022). Business Education Curriculum and Skills Acquisition in Digital Marketing Era. Nigerian *Journal* of *Business* Education (9)3 145-154.

33. **David, S. & Abiola, F.R.** (2022). Implication of Covid-19 Pandemic for Sustainable National Development as it concerns Business Education Journal of Arts and *Social Science Education (JASSE)* (1)1 109-117.

34. **Abiola, F.R., Obisanya, A.A. & Olatoye A.O.,** (2022). Entrepreneurship Skill Acquisition and Youth Empowerment: A Panacea for Reducing Unemployment in Nigeria. Al-Hikmah *Journal of Business Education.* (2)2 58-64.

35. **Abiola F.R.** (2022). Re-engineering Vocational Business Education as Panacea for Poverty Alleviation and National Development. *SPED Journal of Vocational and Technical Education (SPEJOVTED),* 205-215.

36. **Adebayo, S.A. & Abiola, F.R.** (2023). Industrial Conflict and Resolution Management in Federal Colleges of *Education, Bichi Journal of Vocational Education (BIJOVE), 378-385.*

4. Notable scholarly or Professional Accomplishments: Nil

1. Monitoring Officer for National Examination Council (NECO)

5. Major Conferences:

1. Abiola, F. R. (2007). A place of Vocational Education in Achieving the Millennium Development Goal (MDG). *A paper presented at the 1" National Conference of the School of Languages, Federal College of Education, Zubu – Abuja from 16th to 19th July.*

2. **Abiola, F. R.** (2007). Business Education Entrepreneurship: A tool for Achieving Millennium Development Goal (MDG). A *paper presented at the 3rd National Conference of School of Vocational & Technical Education, Federal College of Education (Special) Oyo from* 10th – 14th *Sept.*

3. **Abiola, F.R.** (2008). Vocational and Technical Education, A factor in the Millennium Development Goals (MDG). *A paper presented at the Second National Conference of the School of Vocational and Technical Education, Federal College of Education, Kontagora from 28th – 31st May.*

4. **Abiola, F. R. & Adebayo, T. O**. (2009). Global Economic Melt Down: Its Implication on Women. *A paper presented at the 14th National Conference of Association of Women in Colleges of Education (WICE) Zaria 10th - 13th November.*

5. **Abiola, F. R.** (2010). Quality of Vocational Technical Education: Problems and prospects. *A paper presented at the 1st COEASU National Conference, Federal College of Education, Katsina from 17th – 21st May.*

6. **Abiola, F. R.** (2010). Climate change and impact on Business Survival. A *paper presented at the 4" Annual Conference of School of Vocational and Technical Education (Special), Oyo from 14th - 17th June.*

7. **Abiola, F.R. & Adebayo, T. C.** (2010). Actualizing Vision 20 – 20 – 20 through Business Education. *A paper presented at the 15th National Conference of Association of Women in Colleges of Education (WICE) Federal College of Education (Technical) Asaba from 10th – 14th October.*

8. **Abiola, F. R.** (2010). Issues in Entrepreneurship Education. A *paper presented* at *the 22nd Annual National Conference of the Association of Business Education of Nigeria (ABEN) at Federal College of Education Osi*ele – Abeokuta 13th to 16th *October.*

9. **Abiola, F. R.** (2011). Emerging challenges for business studied teacher in the new senior secondary curriculum. *A paper presented at the 23rd Annual and 2nd International Conference Lagos 2011 of the Association of Business Educations of Nigeria (ABEN) held at the University of Lagos, Akoka, Lagos 11"- 15"October.*

10. **Abiola, F. R.** (2012). Comparative Analysis of the Role of Business trades of Entrepreneurial Competency of Business Students in Secondary Schools in Oyo State. *A paper presented at the 24th Annual National Conference of the Nigerian Association of Teachers of Technology* from 17th – 22nd October.

11. **Abiola, F.R.** (2012). The Ro of Functional Vocational Education (FVE) in security and peace in Nigeria *A paper presented at the 17th Annual National Conference of the National Association of Women in Colleges of Education Umunze, Anambra, 25th – 28th October.*

12. **Abiola, F. R.** (2012). Analysis of the standards of Business Education programme in Nigeria. *A paper presented at the 5th National Conference of the School of Vocational and Technical Education, Federal College of Education (Special) Oyo. 21st – 31st October.*

13. **Abiola, F. R.** (2012). Funding Qualitative Business Education programme in Nigeria. A *paper presented at the 24th Annual National Conference, Owerri 2012 of the Association of Business Education of Nigeria (ABEN) held at Federal Polytechnic, Nekede, Owerri from 16th – 20th October.*

14. **Abiola, F. R.** (2013). Challenges of New technology in the Teaching of Business Education Courses in tertiary institution. *A paper presented* at *the 25th Annual National Conference, Edo 2013 of the Association of Business Educators of Nigeria (ABEN) held at University of Benin, Benin City. 15th – 19th September.*

15. **Abiola, F**. **R.** (2013). Alternative sources of funding vocational and technical education in Nigeria. *A paper presented at the 6th National Conference of the School of Vocational and Technical Education, Federal College of Education (Special). Oyo from 3rd – 7th June.*

16. **Abiola, F.R**. (2015). Business Education: A veritable tool for Livelihood Sustenance. *A Paper presented at 7th Biennial National Conference, by the School of Vocational and Technical Education, Federal College of Education (Special). Oyo. 5th – 8th July.*

17. **Abiola, F. R.** (2016). Enhancing the Achievement of the Sustainable Development Goals Through Improved Vocational Education. A *paper presented in the* 2nd *Edition of National Annual Conference of Colleges of Education Academic Staff Union (COEASU), FCT College of Education, Zuba, Abuja, 21 - 25th May.*

18. **Abiola, F. R.** (2016). Ameliorating Corruption in Nigeria Through Business Education. *A paper presented at the 6th National Conference of School of Secondary Education Science Programmes. Federal College of Education (Special), Oyo*, 17th – 21st May.

19. **Abiola, F. R. & Yusuf, K. K.** (2016). Visual Arts and Business Education for National Security. *A paper presented at 8th Annual National Conference of School of Secondary Education. Vocational Programmes, Federal College of Education Kontagora.* 16th – 20th May.

20. **Abiola,** F. R. & Yusuf, K. K. (2016). Textile and Craft and Business Education for Economic Diversification in a Mono-Sector Economy. *A paper presented at the 7th Annual National Conference & Exhibition of School of Vocational & Technical Education Adeyemi College of Education, Ondo from 23rd – 27th May.*

21. **Abiola,** F. R. (2016). Philosophy of Change and Sustainable Development Goals in Entrepreneurship and Creativity. *A paper presented at 4th National Conference of School of Vocational and Technical Education held at Emmanuel Alayande College of Education, Oyo, from 6th –* 9th *June.*

22. **Abiola, F. R.** (2016). The Role of Business Education in Alleviating Unemployment and Job Creation for National Development. *A paper presented at the* 9th *Annual National Conference, School of Vocational and Technical Education, Federal College of Education, Zaria from 11 – 15 July.*

23. **Abiola, F. R.** (2016) Business Education for National Security. *A paper presented* at *6th Annual National Conference of School of Secondary Education, Vocational Programmes, Federal College of Education, Kontagora, Niger State from 16th –* 20th May.

24. **Abiola, F. R.** (2017). Business Education in a Recessed Economy – The Way Forward. *A paper presented at the 9th biennial conference and exhibition, School of*

Secondary Education, Vocational and Technical Programmes, Federal College of Education (Special), Oyo, from 10th – 14th July.

25. **Abiola, F. R.** (2018). Business Education A Pathway to Economic Recovery in Nigeria. *A paper presented at the 9th National Conference and Exhibition of School* of *Vocational and Technical Education, Ondo, from 26*th – 30*th March.*

26. **Abiola, F. R.** (2018). The Role of Vocational Education in Education and Politics. A *paper presented at the National Conference of Association of Women in Colleges of Education (WICE) Kono. 10th – 14th October*.

27. **Abiola, F. R.** (2018). Business Education at Secondary School Level – Employability Skills Development. *A paper presented at the 30th National/3rd International Conference on Business Education in the E-World, Abuja. 10th – 15th October*.

28. **Abiola, F. R.** (2019). Vocational and Technical Education, Polities and Prosperity of Nigeria. *A paper presented at the 11th National Conference of School of Secondary Arts and Social Sciences Education, Federal College of Education, Zaria,* 8th – 12th April.

29. **Abiola, F. R.** (2019). Restructuring Teacher Education Towards Professionalism in Education for 2030 Education Agenda. *A paper presented* at *the 10th National Conference of Colleges of Education Academic Staff Union (COEASU) Southwest Zone, 6th* – 10th *of May.*

30. **Abiola, F. R.** (2019). Curriculum Development in Business Education: Issues and Challenges. *A paper presented at the 31st National Conference, Delta State University, Abraka, Delta State.* 9th – 12th October.

31. **Abiola, F. R.** (2019). Restructuring Vocational and Technical Education for Economic Recovery and National Development. *A paper presented at the 32nd National Conference at Nasarawa State College of Education, Akwanga,* 14th – 18th October.

32. **Abiola, F.R.** (2019). Achieving Sustainable Economic Recovery and Peaceful Co-existence in Nigeria Through Business Education. *A paper presented at the 9th Biennial National Conference/Exhibition at School of Secondary Education (Vocational and Technical Programmes) Federal College of Education (Special), Oyo,* 10th – 14th July.

33. **Adebayo, S.A., Adebayo, T.O., Abiola, F.R.** (2021). An Evaluation on the Impact of Entrepreneurship Education on Human Capital Development in Nigeria. A paper presented at Academic Staff Union of Polytechnics (ASUP), Osun State Polytechnic, IREE Chapter, Osun State. 5th – 9th July, 2021.

34. **Abiola, F.R.** (2021). Entrepreneurial Education A Tool for Re-engineering Education for Good Governance, Security, Environmental Protection and National Development in Covid-19Era. A paper presented at the Annual National Conference of Faculty

of Education, Nnamdi Azikiwe University, Awka, held 15th and 16th September, 2021.

35. **Abiola, F.R.** (2021). Vocational Business Education: The Panacea to Re-engineering Poverty Alleviation and National Development. A paper presented at the 10" Biennial National Conference Organized by the School of Secondary Education (Vocational and Technical Programmes) Federal College of Education (Special), Oyo 5th – 8th October, 2021.

36. **Abiola, F.R.** (2021). Repositioning Entrepreneurial Education Towards National Unity. A paper presented at the 2nd National Conference of Colleges of Education Academic Staff Union (COAESUN) Osun State College of Education, Ila Orangun 11th – 14th October,2021.

37. **Abiola, F.R.** (2021). The Effects of Business Education on Managing Business Successfully amidst Insecurity Challenges in Nigeria. A paper presented at School of Business Studies, Federal Polytechnic, Ede, Osun State 12th – 14th October, 2021.

38. **Abiola, F.R.** (2021). A Gateway to Preparing Students for Working in a Changing World. A paper presented at the 33rd Annual National Conference of Association of Business Educators of Nigeria (ABEN) "Lokoja" 2021. 13th October – 15th, 2021.

39. **Abiola, F.R.** (2021). Challenges and Mitigation in the Teaching and Learning of Business Education. A paper presented at 3rd/1st International Conference of School of Business Education. Federal College of Education (Technical). Akoka, Lagos 27th – 30th October, 2021.

40. **Abiola, F.R.** (2022). Organization Behaviour and Industrial Conflict: Tool for growth and Development in Colleges of Education. A paper presented at the 3rd National Conference and Exhibition at the School of Secondary Education (Vocational), Federal College of Education (Technical), Bichi, Kano State.

41. **Abiola, F.R.** (2022). Emerging Technologies in the Teaching and Learning of Business Education Programmes in the New Normal in Tertiary Institution in Nigeria. A paper presented at the 6th S/W Biennial Conference of Association of Women in Colleges of Education (WICE)Oyo Special 8th – 11th March, 2022.

42. **Abiola, F.R.** (2022). Pragmatic Human Capital for Sustainable Development. A paper presented at Faculty of Arts and Education, Lead City, Ibadan. Faculty of Arts & Education. International Conference on Sustainable Development. 6th – 8th June, 2022.

43. **Abiola. F.R. & David S.** (2022) Business Education Curriculum and Skills Acquisition in Digital Marketing Era. A paper presented at the National Conference on Business Education, held 12th – 15th October,2022 at River State University, Port-Harcourt.

44. **Abiola, F.R.** (2023). The Role of Entrepreneurship in Management of Economics Hardship and Societal Vices. A paper presented at 1st International Conference of School of General Studies Education, Federal College of Education (Special), Oyo.13th – 17th Feb., 2023.

6. **Workshop Attended**

1. Advance Strategic Management organized by Institute of Strategic Management, Nigeria held at Kankanfo Inn, Ibadan. 21st – 22nd October, 2005.
2. Intensive training workshop on lecturing, setting and marking of examination questions, organized by the Academic Staff of the College, Federal College of Education (Special), Oyo from 7th – 21st July, 2008.
3. Institutionalization of Research Development Workshop on the Approaches to Educational Research Organized by Federal College of Education (Special) Oyo and Emmajos Integrated Consulting Services Ltd. 17th – 21st November, 2008.
4. One-Week NCCE ICT Training Programme on Computer Literacy and Use of ICT in Education, Held at Supreme Management Resource Centre, Bodija, Ibadan. 28th February – 5th March, 2011
5. Strategies for Enhancing Academic Performance in Colleges of Education, Capacity Building, Training Workshop for Academic Staff, Organized by Committee of Deans, In Conjunction with Federal College of Education (Special) Oyo from 20th – 21st June, 2012.
6. Institutionalization of Research Development Workshop on the Approaches to Educational Research. Organizesd by Federal College of Education (Special) Oyo and Emmajos Integrated Consulting Services Ltd. 12th – 13th November, 2012.
7. Capacity Building for Academic and Senior Administrative Staff. Preparing for the Next Level, Federal College of Education (Special) Oyo. In Affiliation with the University of Ibadan on 8th January, 2013.
8. Three Day Seminar/Camping Exercise on the Purposeful and Visionary Youth: As a Mechanism for Overhauling a Decadent Nation (A Nigerian Perspective) Held at Abiodun Atiba Memorial Institute, Kosobo Oyo between 31st – October 2nd November, 2014.

G. Names and Addresses of Referees

1. Professor Senimetu ILEUMA
Department of Arts and Scial Science Education
Faculty of Education
Lead City University, Ibadan
08038047958

2. Professor E. A. ERWART
Department of Management Information Communcation
Faculty of Social Management
Lead City University, Ibadan

6. **16/12/2024**

Signature Date

The University Compliance Certification

This is to certify that the thesis by **Folashade Rebecca ABIOLA** in the Department of Arts and Social Science Education, Faculty of Education, Lead City University, Ibadan, Oyo State, Nigeria is in full compliance with the approved University Format and Style.

_____ _____

Signature Date