Using Blended Technology as a tool to enhance entrepreneur's creativity and innovation within SMMEs

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PREFACE AND ACKNOWLEDGEMENTS

Thanks and honour go to my Lord and Saviour, Jesus Christ for making it possible for me to complete this program in a very special way. I pledge allegiance to Him.

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DECLARATION

I Sello Matima, declare that this research dissertation titled: **Using Blended Technology as a tool to enhance entrepreneur's creativity and innovation within SMMEs** and the work presented in this research dissertation is both my own and generated by me as a result of my original research. It is submitted in partial fulfilment of the requirements of the degree of Master of Business Administration at the Business School, North-West University. To the best of my knowledge and belief, no material previously published or written by another person except where due references in made is contained in this mini-dissertation.

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Sello Matima. February 2022.

ABSTRACT

Key terms: Creativity, innovation, SMMEs, Blended Technology, entrepreneur.

The unemployment rate in South Africa was over 34% during the fourth quarter of 2020, leaving the government with many challenges in dealing with high levels of poverty and crime. The government, therefore, targets the Small, Medium and Micro Enterprises (SMME) sector as an economic empowerment vehicle for previously disadvantaged people. The high unemployment rate might require an increased focus on entrepreneurship.

Blended Technology is the thoughtful combination of face-to-face education with access to online learning tools. By implementing the Blended Technology approach in the learning systems of South African SMMEs, the research aims to enhance creativity and innovation within the sector.Hybrid Learning is based on a similar philosophy but Blended Technology is more complex since it is characterised by a fundamental reconceptualisation and restructuring of the teaching and learning dynamics.

To design a method for the adoption of Blended Technology learning in SMMEs, a three-pronged approach was used. . It involved 1) a structured literature review, 2) a quantitative questionnaire to individuals in the circle of acquaintances of the researcher and 3) sound recommendations based on the outcomes of the research. and

The thoughtful implementation of a blend of online and face-to-face training of entrepreneurs enriches their learning experiences by designing more engaging, interactive, student-centred instructional practices that boost students' motivation and learning outcomes. The distance learning modalities in Blended Technology have proved to be influential in the development of critical skills of entrepreneurship in SMMEs, specifically creativity and innovation.

A quantitative research methodology wherein a SurveyMonkey was designed to measure 1) the intent of entrepreneurs in South African SMMEs to adopt Blended Technology in their learning systems, 2) level of comprehension on the nature and advantages of Blended Technology, 3) the suitability of Blended Technology to teach entrepreneurial skills to employees in South African SMMEs and 4) the perceptions of entrepreneurs of the impact of the adoption of Blended Technology on the productivity and working systems of the enterprise.

A Snowball sampling technique was chosen to distribute the survey to South African SMMEs. It generates biased samples because respondents who have a significant number of social connections can provide the researcher with a higher proportion of other respondents who have characteristics similar to that of the entrepreneurs in the circle of acquaintances of the

researcher. Nevertheless, Snowball sampling is not negative because it allows the researcher to make asymptotically unbiased estimates from Snowball samples under some conditions. Snowball sampling was chosen because entrepreneurs in SMMEs are hard to reach, and the failure rate of SMMEs in South Africa is high. In the study, the Snowball sampling technique proved to be very effective in obtaining several statistically significant responses. A response rate of 81.6% was realised, which is acceptable in statistical terms (Baruch & Holtom, 2018:1149). This was achieved within a week when the questionnaire was distributed to the researcher's circle of acquaintances. The questionnaire was distributed to managers of the SMMEs. Some of these were also the founders of the SMMEs.

The statistical analysis of the data employed descriptive statistics of the constructs and the composite variables, comparative analysis using independent t-tests and one-way ANOVA and correlation analysis between constructs. It showed that 1) there was a strong intent and willingness by entrepreneurs in some South African SMMEs to adopt the Blended Technology approach in their learning systems, 2) entrepreneurs are aware of the enrichment of the product development with creativity and innovation upon adoption of Blended Technology and 3) entrepreneurial skills are improved if the Blended Technology approach is adopted in SMMEs.

The following issues were considered in designing a Blended Technology approach in SMMEs:

- Guidelines were formulated.
- Recommendations were made on how to combine creativity and innovation with entrepreneurial skills.
- Employment of the IT platform to collaborate with outside SMMEs through Blended Technology.
- Porter's five forces model.

The research is limited to samples within the geographical area where the researcher resides. Future research should be conducted to identify the appropriate teaching methods for entrepreneurs in different unique SMMEs over a wider geographical area. The effectiveness of the Blended Technology approach for entrepreneurial skills development in SMMEs can be assessed by analysing and comparing the study results with other SMMEs in South Africa. Further research is also needed to provide guidelines and recommendations for successfully adopting Blended Technology in entrepreneurship education.

It was established that the training curriculum should include the following topics:

- Principles of the Blended Technology teaching philosophy
- Devising a method to employ Blended Technology in SMMEs.
- Upskilling managers.
- Customer service.

Failure of the SMME during the initial years of operation could partially be avoided by enhancing entrepreneurial capacity, adopting Blended Technology to improve creativity and innovation, establishing networks and financing and investing in R&D and IT

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ABBREVIATIONS

ANOVA: Analysis of variance

NDP: National Development Plan

OECD: Organisation for Economic Co-operation and Development.

SMME. Small, Medium and Micro Enterprise.

SMP: Small and medium practices.

SPSS: Statistical Package for the Social Sciences

LIST OF DEFINITIONS

Construct: A concept or characteristic that cannot be directly observed but can be measured by observing other associated indicators.

Creativity: It concerns the transformation of original ideas into reality (Naiman, 2014). It involves out of the box thinking to conceptualize new designs, lateral thinking skills, and problemsolving skills. According to Anderson *et al*. (2014:1298), creativity is the process, outcome, and product of developing and introducing new and better ways of creating products. During the creativity stage of this process, ideas are formulated and then implemented to improve procedures, practices, or products. There will always be tangible benefits from creativity on one or more of these levels.

Crowdfunding: It is raising money by having many people contribute relatively small amounts.

Descriptive statistics: They summarise a given data set, which can either represent the entire population or a sample of the population.

Eigenvalue: The sum of the squared factor loadings for all the variables.

E-learning: A learning system based on formalised teaching but with the help of electronic resources.

Games-Howell post-hoc: It is an approach to perform multiple comparisons for two or more sample populations based on nonparametric post-hoc analysis.

Independent t-test for variables: Compares the means between two unrelated groups on the same continuous, dependent variable.

Inferential statistics: Inferential statistics involve drawing conclusions based on data that extends beyond the immediate context.

Innovation: The introduction of new products, services, or processes that increase value for businesses, governments, or society (Naiman, 2014)**.** Innovation is the practical implementation of ideas that result in introducing new goods or services or improvement in offering goods or services. Blended Technology comes into play when entrepreneurs seek to implement advancements made due to creativity during product development. Business innovation is the process of translating an idea or invention into goods or services that creates value for which customers will pay (Teece, 2010:173*).* These definitions of innovation imply superior product development due to creativity and innovation.

Intrapreneurship: A culture that promotes entrepreneurship within the company.

Kaiser-Meyer-Olkin: A statistical measure to determine how data is suited for factor analysis.

Levene’s test: It is an inferential statistic that assesses the equality of variances for two or more groups. Levene's test assesses this assumption

Likert scale: A type of rating scale used to measure attitudes or opinions**.**

Netnography: It is an ethnographic study of online cultures and life.

Secondary circle of acquaintances: The circle of acquaintances of the circle of acquaintances of the researcher.

SMME: In South Africa, the National Small Business Act, 1996 defines SMMEs as distinct business enterprises, including cooperative enterprises and non-governmental organisations, managed by one or more than one owner. To qualify as an SMME, a business must have fewer than 200 employees, a turnover of less than R64 million, capital assets of less than R10 million, and the owners must engage in direct management (Kavese, 2021).

Statistical analysis: It is the science of gathering, analysing, and presenting large amounts of data to identify patterns and trends.

Sustainability: It means meeting your own needs without compromising the ability of future generations to meet their own needs.

Tukey HSD: The Tukey's honestly significant difference (HSD) test is used to test differences among sample means for significance.

Virtual learning environment (VLE): It is an online-based platform that offers learners and tutors digital solutions that enhance the learning experience. It harnesses technology to supplement an in-class experience such as digital communication, interaction and quizzes or polls run through the VLE.

CHAPTER ONE: INTRODUCTION TO RESEARCH

1.1. INTRODUCTION

1.1.1 Fourth industrial revolution

This study examines the challenges faced by the fourth industrial revolution, a new era in which digitisation is expanded in new and unexpected ways (Nagy *et al*., 2018:2). The fourth industrial revolution can be defined as the revolutionary change when IT thrives in primary, secondary, and tertiary industries (Lee *et al*., 2018:3). All businesses dependent on IT need to rethink their business models in light of the fourth industrial revolution, which focuses on the creative and innovative relationship between the market and technology (Lee *et al*., 2018:3). The contemporary trend is to merge artificial intelligence and robotics that afford radically new production processes in manufacturing and services with lower resource intensity (Kearny, 2017:19). These changes' range and rapid speed should be adopted to respond to the fourth industrial revolution effectively.

The fourth industrial revolution might benefit the competitiveness and sustainability of Small, Medium and Micro Enterprises (SMMEs) due to their unique structure and positioning in the marketplace (OECD, 2017:18). They are flexible enterprises and are optimally positioned to deliver products and services that are not produced by bigger businesses (OECD, 2017:10). Therefore, entrepreneurs in SMMEs should be up-skilled to become proficient in the modern technologies that the fourth industrial revolution demands. It is essential that training is effective, cost-effective, of high quality and aligned with the challenges created by the fourth industrial revolution.

1.1.2 Entrepreneur

An entrepreneur is a person who takes the initiative to start a business enterprise, makes decisions and carries risks (Burns, 2016:7). Duermyer (2020) brings innovation into this definition and defines an entrepreneur by the personal risk they take to pursue a new business, innovation, or other enterprise. In general, the entrepreneur is the owner and the manager is the employee of the company. Despite being employees of the company, managers can exercise entrepreneurial traits. A study (Hosseini et al., 2020:369) shows that entrepreneurial skills improve management performance. An organization must also have entrepreneurial minds at all levels if it is to be sustainable (Ikupolati *et al*., 2017:6). Cooney (2012:2) and Duermyer (2020) established that the entrepreneur skills mentioned above are required to develop a growth-orientated business.

It follows that managers of businesses need entrepreneurial skills to ensure sustainable growth. Korpysa (2020:3474) established that SMME management is integrated into the SMME's strategy, knowledge management, and innovation processes. Entrepreneurship and innovation have also been identified as success factors of SMMEs in Portugal (Rodrigues *et al*., 2021:10). SMME entrepreneurs/managers who achieve superior growth may be attributable to closely aligning their operational strategy with their entrepreneurial behaviours (Emerald, 2017:14).

Entrepreneurship is an essential aspect of the economy because it instigates growth through innovation in operational, supporting, and management processes (Kritikos, 2014:1). Entrepreneurs help ensure growth by taking risks by turning innovative ideas into profitable businesses. The prospects for success may not be particularly promising, but many entrepreneurial ventures drive the industry intensely forward. An entrepreneur is widely recognised as a driving force in economic development (Egedy *et al*., 2015:121; United Nations Conference on Trade and Development, 2005:4; Oko, 2015:115). Governments initiate entrepreneurial programs to raise and support promising business ventures (Burns, 2016:20).

There are various characteristics and skills of entrepreneurs. These include; accomplishment motivation, internal locus of control, opportunity recognition, commitment to, and involvement in the enterprise, planning, perseverance, sound human relations, positive attitude and approach, the use of experts, market focus, client service, quality work, financial knowledge, creativity and innovation (Kruger, 2004:2).

Economic growth is sustained by innovation. It is widely accepted that it drives growth in output per unit of labour and capital invested and is an important basis for developing solutions to economic and social challenges such as climate change, ageing societies and poverty (OECD, 2010:15). New entrepreneurial ventures and SMMEs have an important role in fostering innovation, promoting inclusive and sustainable economic growth and industrialisation, providing real job opportunities and reducing income inequalities (OECD, 2010:5). Therefore, entrepreneurs are widely recognised as driving forces in economic development. Consequently, governments initiate entrepreneurial programs to raise and support promising business ventures (Burns, 2016:20).

The preceding discussion implies that entrepreneurship is setting up a business, taking on financial risks in the hope of profit. According to Brännback and Carsrud (2016:17),

entrepreneurship involves risk-taking because product and service offerings by the business might not address customers' preferences and needs, or the demand for them is low. It implies that entrepreneurship is initiated with action and creating a new organisation that is not necessarily profitable. Profitability and the net value and growth of the venture are influenced mainly by creativity and innovation in strategic planning, resource configuration, marketing and production (Kruger, 2004:203; Canh *et al*., 2019:11). The sustainability of companies is supported by product and process innovations because they assist companies to maintain a competitive edge in the fourth industrial revolution environment (Canh *et al*., 2019:11).

1.1.3 Blended Technology

Blended Technology is the thoughtful combination of face-to-face education with access to online learning tools (Hrastinski, 2019:565; Kilfoil, 2015:11). Both conventional classroom and VLEs are combined to capitalize on each's strengths to reach the course objectives ultimately. Although the concept of Blended Technology may be plausible and straightforward, the practical application is more complicated. Bocalid (2018:18) explained that since Blended Technology has come to signify specific ideas and practices, it can be described in terms of a range, along with a series of variations in practice and thinking. Blended Technology ensures flexibility in SMMEs and is used to avoid short-term focus on learning only. Although Blended Technology and Hybrid Learning are based on the same teaching pedagogies, Blended Technology is more complex since it is characterised by a fundamental reconceptualisation and restructuring of the teaching and learning dynamics (Gil *et al*., 2021:5).

Modern technologies create many opportunities for entrepreneurs, such as agility and innovations in production and business processes. Based on the unique approach of Blended Technology (see further on) and the favourable capability of SMMEs to be agile, they can utilise Blended Technology as a very effective avenue to teach entrepreneurs how to be innovative, creative, and constructively exploit the opportunities that the fourth industrial revolution brings about. A Blended Technology approach where online learning and physical participation are blended is more effective than either approach alone (Watson, 2008:5).

The central theme of the current study is the employment of Blended Technology to teach entrepreneurial skills in SMMEs, keeping the influence of the fourth industrial revolution on the management of the business in mind. The new business opportunities that the fourth industrial revolution brought about have spurred entrepreneurial ventures on a grand scale (Kunene, 2008:50). To be competitive and sustainable, SMMEs should learn what these opportunities entail and profit from them.

In online learning, the emphasis should be on the entrepreneur's learning and the interaction between peers and educators to attain the learning outcomes (Simarmata *et al*., 2018:954). New technologies can be employed to develop learners on entrepreneurship in SMMEs. The current research aims to overcome most challenges within different spheres of technology. Automation and robotics, artificial intelligence and machine learning, information security and cloud computing are typical challenges that the entrepreneur needs to cope with in the fourth industrial revolution era (TechCrunch Brand Studio, 2020). However, new technologies may be detrimental to the profitability of the SMME because it may be too expensive to sustain them over the long term. Nevertheless, according to constructive learning theories, the learning environment must offer tools to improve learners' communication and collaboration skills (Alzahrani & Woolard, 2013:3).

This study will explore Blended Technology as an important tool to prepare learners for entrepreneurship in SMMEs which have overcome, embraced and capitalised on the demands of the fourth industrial revolution. It is, therefore, important that the learners realise the growing potential of Blended Technology once it has been implemented in the training and development program of an SMME. Although most entrepreneurs have a short-term focus on maximising profit (Nikolić *et al*., 2019:13), they often ignore the business's long-term prospects. The implementation of Blended Technology in SMMEs could enhance their sustainability over the long term. To this end, various open literature papers report that Blended Technology is considered one solution to the problem of delivering entrepreneurial training in SMMEs (Tupe, 2018:34; Maritz & Donovan, 2015:84; Burgess *et al*., 2018:23). A Blended Technology approach in an SMME’s training and development program stimulates innovation and creativity in business processes (Seechaliao, 2017:207; Nauri *et al*., 2018:83). Thus, to effectively design and implement technology solutions that will successfully engage creativity and innovation, the SMME sector should consider investigating and adopting informal learning infused with Blended Technology.

Bushe (2019:20) reported that SMMEs are plagued with underskilled entrepreneurs, dire environmental policies, and enterprise ineffectiveness. At the root of these problems is a lack of understanding of the diverse needs of SMMEs at different stages of their growth cycle, leading to dismissals, diminishing profits, and poverty (Bushe, 2019:1). To this end, Blended Technology has proven to be an effective vehicle to solve typical problems (lack of marketing skills, lack of presentation skills, weak business plan, government-imposed administrative matters) commonly experienced in the SMME sector (Ngcobo & Sukdeo, 2015:509; Cant, 2012:1109; European Commission, 2018).

For SMMEs to adopt Blended Technology effectively, they must become upskilled on all aspects of it. (FAO eLearning ACADEMY, 2021:14). A Blended Technology approach reduces the classroom teaching period by digitising the expertise of instructors that are skilled in their field of expertise, and more entrepreneurs can be reached with high-quality content at much lower costs (Patterson, 2016). This approach has the additional advantage that knowledgeable instructors are more freely available for many classes.

A Blended Technology approach ensures that apprentices are engaged and driving their own learning experience personally. This approach also provides the unique needs of the individual learner, which is not always possible with traditional classroom teaching (Adel & Dayan, 2021:2). In addition to providing access to present-day technologies and resources that tailor the learning experience for each student, Blended Technology breaks down the notions of traditional training, which is not suited for all students (Marshall-Stuart, 2018:8). In addition to flexible time frames, Blended Technology can be tailored to fit the needs of each individual, enabling them to learn at their own pace. (Adel & Dayan, 2021:4).

Lastly, entrepreneurs who are skilled in technology are more likely to be attracted by, committed to, and passionate about creativity and innovation when it comes to product development (Wahid *et al*., 2015:14). In addition, entrepreneurs will become more willing to learn subjects perceived to be monotonous, like mathematics and science, and information retention will increase. Entrepreneurs can stay focused on developing and adding value for more extended periods by engaging and interacting with various resources such as business angels and crowdfunding.

It can be concluded that knowledge of Blended Technology equips entrepreneurs to develop new products within the company. Although the fourth industrial revolution has taken global SMMEs by storm, adopting a Blended Technology learning approach can overcome and capitalise on these industries' challenges to entrepreneurs.

1.2. BACKGROUND TO STUDY

Despite 27 years of democracy, South Africa remains a society dominated by inequalities (Hakizimana & Geyer, 2014:22), where the unemployment rate was a staggering 34.4% in the fourth quarter of 2020 (Staff Writer, 2021), resulting in high levels of poverty and income disparities (Stats SA; 2018). This situation has a detrimental effect on economic prosperity because the elevated unemployment rate imposes high costs on the individual, the society, and the country (National Treasury, 2011). The government aspires to change this situation by transforming the economy and dedicated initiatives to develop core competencies that

widen the country's capabilities. In the National Development Plan (NDP) (National Planning Commission, 2011:24), the government expressed a vision to eliminate poverty and reduce inequality by combining a fast-growing economy, increasing employment, higher incomes and productivity growth. Innovation is acknowledged as one of the significant drivers of productivity growth in a country (Economic Policy Division, 2019:59; OECD, 2007:26; Hall, 2011:4). Productivity growth is defined as an increase in the rate of production divided by the growth rate of input (Diewert, 2004:1; Productivity Commission, 2009:11).

The relationship between productivity growth and innovation is complex because the effect of innovation is related to various aspects such as increased revenue productivity, product innovation, process innovation and lower production costs (Hall, 2011:16; Mohnen & Hall, 2013:5). These aspects are crucial for improving competitiveness and inclusive growth in companies. Productivity growth invariably leads to economic growth in a country (Productivity Commission, 2009:14). The economy's growth is expected to create equal opportunities for all and provide the resources necessary to improve education.

In developing countries such as South Africa, SMMEs are seen as important vehicles for creating jobs, fair allocation of income and the overall stimulus of economic prosperity by procuring modern products and services (Olawale, 2014a:922; Jili *et al*., 2017:1). In South Africa, the SMME sector is essential for recognising social and economic development and stimulating the improvement of the standard of living of the rural population, where food insecurity and starvation are often encountered (Jili *et al*., 2017:2).

The objectives of job creation, stimulation of economic development, sustainable economic growth and improving the standard of living can be reached if new SMMEs are created on a significant scale in South Africa. Unfortunately, the number of SMMEs in South Africa is too low to fulfil these ambitions because the rate of increase in new SMMEs was lower than the economic growth rate over the past two decades in this country (BER, 2016:32). This situation is exacerbated by the high failure rate of SMMEs in South Africa (Bushe, 2019:7). Adopting a Blended Technology approach in South African SMMEs are key to reversing this situation (Laister, 2012:2).

The exponential growth in various technologies over the past decades affected the launching of an increasing amount of new businesses. As a result of groundbreaking technologies and business models, the fourth industrial revolution will profoundly impact economic growth in first and third world countries alike. The high-pace development of these technologies will result in an era of technology-driven change (UNCTAD, 2021). These technologies will mature,mature, and synergies between them will be exploited, transforming industries and

markets, disrupting incumbent technologies and business models while generating opportunities for new entrants (Combes *et al*., 2017:3). These technologies will also support business expansion (Susan & Novianti, 2019:1). SMMEs need to be proficient in these technologies and employ them in their business processes to survive in the marketplace.

Technology utilisation, creativity and innovation within SMMEs are three important pillars toward success within the spheres of businesses. Innovation and creation in the business processes of SMMEs are vital because it instils a culture of creating something new, which can be a new product or service, production process, structure or administrative system (Rahman *et al*., 2016:509; Obiwulu *et al*., 2019:2). The first and second industrial revolutions learned that products and services remain competitive if they are subjected to consistent evolution (Vickers & Ziebarth, 2019:3). Therefore, to stay competitive, SMMEs should be sufficiently vibrant to employ state-of-the-art technologies to achieve their goals, maintain existing customers' loyalty, and continuously attract new ones. It follows that the high failure rate of SMMEs in South Africa can be addressed with continuous innovation in their business processes (Rahman *et al*., 2016:509). Unfortunately, entrepreneurs in SMMEs focus primarily on profit-making and innovation in business processes is neglected (Durán & Amandi, 2011:143).

A Blended Technology method of teaching is an avenue to instil innovation and creativity in the business processes of SMMEs (EAOEA, 2013:7; Laister, 2012:3). It is also effective in infusing entrepreneurial skills and behaviour among entrepreneurs (Gachanja *et al*., 2016:22). A Blended Technology approach is well suited for entrepreneurship training because it broadens the vision of learners and develops the entrepreneurial skills required to run an SMME in such a way that it significantly improves the probability of success of the enterprise (Maritz *et al*., 2010:83). However, entrepreneurs in SMMEs are largely ignorant of these advantages because it is not within their realm (Suharsono *et al*., 2019:224). Furthermore, most entrepreneurs in SMMEs do not have the required skills in this educational approach. This poses a challenge to run the business efficiently and effectively if their training and development program is not supported by other modern pedagogies where the digital platform is central to the learning strategy (Moebs & Weibelzahl, 2007). As a result, a Blended Technology learning approach is scarce in SMMEs (Maritz *et al*., 2010:83).

As already noted (section 1.1), this study seeks to address or test if Blended Technology can be beneficial to the creativity and innovation of the entrepreneur within SMMEs in South Africa. The study will also address issues around the fourth industrial revolution technologies within SMMEs as a direction and pillar to strengthen the motivation of young and upcoming entrepreneurs. According to Brown (2020), Africa is far from ready to meet this challenge

because automation on this continent does not meet the challenges posed by the fourth industrial revolution.

It can be concluded that the SMME sector in South Africa is not growing satisfactorily and many businesses fail. Therefore, it does not fulfil the government's hopes to boost an ailing South African economy by creating new jobs. Existing SMMEs can become more successful and survive in the harsh South African economic climate by harnessing the new technologies of the fourth industrial revolution. This entails up-skilling entrepreneurs in SMMEs with the entrepreneurial skills required to employ the Blended Technology approach in their enterprises effectively.

1.3. PROBLEM STATEMENT

Growth in the SMME sector in South Africa is important for growth in the national economy because it can supply job opportunities in various disciplines such as financing, marketing and production. South Africa's high unemployment rate (Stats SA, 2018:3) suggests that the SMME sector does not provide enough job opportunities to alleviate this problem. It implies that South Africa's unemployment rate is mainly a structural- mismatch between the available jobs and the available skills. This can partly be attributed to the high number of failures of SMMEs in South Africa (Olawale, 2014a:922). Most SMMEs fail within the first year. The remaining SMMEs do not survive for more than five years. About a third of SMMEs survive their first four years and only 9% survive their first ten years (Economic Policy Division, National Treasury, 2019:11). This unfavourable situation can be partly attributed to a lack of trained entrepreneurs in South Africa (SME South Africa, 2018; Olawale & Garwe, 2010:731; Pasanen, 2003:16).

SMMEs in South Africa suffer from a lack of creativity and innovation, which severely hampers their profitability and, therefore, their long-term viability (Maladzhi, 2012:76,77; Cassim, 2018:9; Olawale & Garwe, 2010:729; Gherghina et al., 2020:2).The lack of innovation and creativity causes South African SMMEs to struggle to survive and lag behind SMMEs in other countries as far as growth, sustainability and job creation are concerned (Bushe, 2019:12). Few SMMEs survive, and growth in this sector is slow, making it difficult for them to fulfil the government's ambitions to alleviate high unemployment rates by leveraging the SMME sector for job creation. Thus, SMMEs' economic systems should be upgraded with a teaching pedagogy that promotes innovation in business processes to ensure business sustainability (Druhmann & Hohenberg, 2014:70)..

An entrepreneurship education program that addresses the development of entrepreneurial capacities and mindsets benefits economies by fostering creativity, innovation, and self-employment (Cooney, 2012:1). To this end, Blended Technology is an appropriate approach for the training of entrepreneurs (Maritz *et al*., 2010:91). When teaching voluminous courses, Blended Technology improves students' participation, preparation, and understanding and promotes interaction. (Kenney & Newcombe, 2011:45; Dewi *et al*., 2018:274; Istance & Paniagua, 2019:16). Through active participation, the student is encouraged to formulate a hypothesis by developing their thinking and reasoning skills (Nauri *et al*., 2018:83). In addition, students have some control over the content, pace, timing, and location of their learning, allowing teachers to differentiate further on instruction based on varied student progress. In these ways, Blended Technology successfully improves entrepreneurs' creative and innovative skills (Roqobih *et al*., 2019:6).

Blended Technology also can promote lifelong learning in the training and development of entrepreneurs in SMMEs. Employing Blended Technology allows entrepreneurs to become self-directed, develop critical thinking skills, become independent thinkers, and develop lifelong entrepreneurial skills, such as creativity and innovation.

There are many other learning pedagogies that an SMME can employ to train entrepreneurs, but a Blended Technology approach is well suited for entrepreneurship education (Maritz *et al*., 2010:88). Lectures, seminars, workshops, and case studies are more traditional teaching methods. They provide information consistently and predictably, and a broad audience can be reached quickly (Maritz *et al*., 2010:88). However, the flow of communication in these methods is mostly one way, from the teacher to the program respondent, as opposed to two-way, as a dialogue between teacher and respondent, or multi-way between all respondents (Maritz *et al*., 2010:85). In the absence of interaction, there is little feedback from respondents and minimal discussion. As outlined above, Blended Technology encourages students to broaden their perspectives and develop entrepreneurial skills and behaviour by interacting with their peers, the tutor and an expert that is accessible online.

Despite these advantages, tertiary institutions and SMMEs face difficulties in incorporating entrepreneurship and innovation in their curricula (OECD, 2010:18). Managers in SMMEs are reluctant to invest the time and resources needed to implement Blended Technology in their training and development programs because it is expensive (Caskey & Subirana, 2007:670). Furthermore, Blended Technology teaching practices are complex undertakings. Using technology together with face-to-face teaching requires significant course redesign, usually involving the creation of new learning activities and reconsideration of assessment methods. The potential of the Blended Technology approach can be fully exploited if tutors possess the

knowledge and skills related to the fourth industrial revolution. Therefore, it is evident that appropriate professional support should be provided to the tutor to facilitate effective Blended Technology approaches.

1.4. PARADIGMATIC PERSPECTIVE

1.4.1 Meta-theoretic assumptions

As already noted, the implementation of Blended Technology will result in enhanced creativity and innovation within SMMEs (section 1.2). If senior managers are open to implementing Blended Technology in their organisations, these objectives can be realised. Employees should also be informed of the advantages of Blended Technology so that there is a bottom-up push towards the adoption of Blended Technology in the organisation. Before those mentioned above can be done, the level of understanding of entrepreneurs on the advantages of Blended Technology should be gauged by rolling out questionnaires to managers within the organisation. Benchmarking with other local and global organisations that have implemented Blended Technology as part of their learning systems and subsequently experienced enhanced innovation and creativity in technology development and other fields such as accounting could stimulate the adoption of Blended Technology in South African organisations. To this end, a thorough literature study will greatly benefit learning the positive impact of Blended Technology on the creativity and innovation of other organisations that have adopted this technology in their training and development programs.

1.4.2 Theoretical assumptions

If Blended Technology is implemented in SMMEs, the achievement of business objectives becomes more successful (Marshall-Stuart, 2018:102). The type of Blended Technology that organisations wish to use should match the personal learning style of the individual (Cleveland-Innes & Wilton, 2018).

Blended Technology has mainly three characteristics (Mirzoyan, 2021). Firstly, it is flexible in providing learning resources. To this end, access to VLEs is crucial for the successful implementation of Blended Technology in an organisation because it affords sustainable tutoring and online communication between the instructor and the student (Alhogail & Mirza, 2011:42). VLEs are online platforms that provide students and tutors with digital solutions that enhance their understanding of course material. In the second place, it is well-suited to educate a diversity of people. People differ in terms of their way of learning, ability to grasp complex concepts, and comprehension of standard learning techniques. To this end, the tutor can employ various techniques via the VLE platform to provide for a diversity of students'

unique needs. In the third place, Blended Technology improves an organisation's training and development practices. One example is that once students have submitted their tasks by e-mail, their e-Portfolios can be used to evaluate the student's performance. In this way, a substantial amount of paperwork is replaced by limited e-work.

The goal of Blended Technology is to enhance the effectiveness of learning because effective instruction is used in the learning process (Marshal-Stuart, 2019:19). To this end, students are given practical problems in their organisations and methods on how to solve these problems. Furthermore, Blended Technology allows the students to learn skills by observing and interacting with more experienced workers. It also enables students to learn in a variety of ways, such as activity-based learning.

The education of large groups using subjects with diverse content becomes effortless if the Blended Technology learning approach is adopted in an SMME (Atef & Medhat, 2015:360). Due to the exponential growth in the global population, student group sizes have grown over the past decade. In this context, Blended Technology plays a vital role to maintain and increasing tutor effectiveness, efficiency and quality of the education of learner groups.

Blended Technology effectively advances students' competencies by blending classroom learning with online learning (Terblanche, 2017:168). Blended Technology is well suited to design tasks that address complex topics, design follow-up tasks and provide feedback channels (Terblanche, 2017:168). Blended Technology also affords a subject design that enables support to the students when little contact between the tutor and learner is possible (Adel & Dayan, 2021). Covid-19 protocols showed that this is common with the pandemic currently being experienced worldwide (Lockee, 2021; Ferlazzo, 2020). Typically this situation can be addressed via discussion groups on the virtual space where ideas can be shared on the subject topics and working through questions that appeared in historic exam papers as well as other questions that may be asked by the lecturer in forthcoming exams (Adel & Dayan, 2021).

Blended Technology affords the learning of company-relevant skills, which enhances employee efficiency (Parker, 2021). South African companies compete in global markets and through the teaching of advanced skills by using Blended Technology, the South African companies can compete effectively locally and globally. To this end, using state-of-the-art IT technologies is crucial (Adel & Dayan, 2021).

1.4.3 Methodological assumptions

The following methodological assumptions have been identified for this study:

- The research's planning and design will be conducted assuming that the SMME's creativity and innovation need improvement.
- Improvement of creativity and innovation can be achieved by implementing Blended Technology in the enterprises' training and development program.
- The willingness of managers to implement Blended Technology in the company will be assessed by a questionnaire followed by statistical manipulation of the data.
- The data sample will be large enough to reflect the potential of adopting Blended Technology in an SMME.
- The accuracy and quality of the data will be indisputable because statistical analysis accepted by renowned scholars will be employed for data analysis.
- Project governance of the MBA research will be the responsibility of the researcher, supervisor and co-supervisor.
- The Statistical Consultation Services of UNISA is available to the researcher.
- A Snowball sampling strategy will be adopted in the study (section 1.6.2.3). It is believed that the circle of acquaintances of the researcher will allow for an adequate sample to be applicable for the statistical analysis of the survey data.

1.5 RESEARCH OBJECTIVES

1.5.1. Primary objective

The study's primary objective is the adoption of Blended Technology as a tool to enhance entrepreneur's creativity and innovation within South Africa SMMEs.

1.5.2. Secondary objectives

In order to achieve the primary objective, the following secondary objectives are set:

- To perform a literature study on entrepreneurship in SMMEs and how Blended Technology can enhance creativity and innovation during the development of products and services.

- To conduct a quantitative study of the inclination of South African SMMEs to use Blended Technology as a means of enhancing entrepreneurs' creativity and innovation.
- To use the literature study and the results from the empirical study to draw conclusions and make recommendations for the adoption of Blended Technology in South African SMMEs.

1.5.3 Study design

Study design is the framework of the chosen methods and techniques employed to perform the research (McCombes, 2021). The design allows the refinement of suitable research methods to study the subject matter, which increases the chances of success of the research. A research design is a method for recruiting research respondents and collecting data from them (Ibezim and Obi, 2013:785). As part of a data collection plan, the researcher typically includes what instruments to use, how to use them, and how to analyse data after it has been collected. A quantitative research design involving three parts of questionnaires to measure independent and dependent variables was ideal in this study. The correlation design will be used since trends and patterns will be investigated, but causes will not be determined.

1.6 HYPOTHESES

There is a significant relationship between the use of Blended Technology and the creativity and innovation of South African SMMEs.

1.7 RESEARCH METHODOLOGY

1.7.1 Research approach

Snowball sampling analysis is conducted once the respondents have submitted their feedback (section 1.6.2.3). The data collected can be qualitative or quantitative and can be manipulated and represented in conventional statistical graphs and charts. This study will adopt a quantitative methodology because it affords statistical analysis of the data gathered via a questionnaire. Using quantitative techniques, data is collected from polls, questionnaires, and surveys and by modifying existing statistics using computational techniques (Bhandari, 2021). Data collection in this research is facilitated by the quantitative method.

A definition of the quantitative research methodology is deliberated from various literature perspectives in section 3.2. It suggests that quantitative research methodology can be used to test theories, establish facts, demonstrate relationships between variables, and predict outcomes when it is based on experiments, observations, and structured interviews.

Williams (2007) describes quantitative research as framing a problem statement, developing a theory or research question, reviewing relevant literature, and then analysing data quantitatively. Powoh (2016:2) defines quantitative research as an investigative strategy that involves conducting experiments, surveys, and gathering data with predetermined instruments that provide statistical data.

1.7.2 Research methodology

1.7.2.1 Literature review

In the literature review, various theories of entrepreneurship are discussed. The status quo of SMMEs in South Africa are then described in detail. The open literature showed that SMMEs in South Africa are not prosperous. Reasons for this are discussed. This information is then used, to devise options for the enhancement of the success of SMMEs in South Africa.

In the next section, the reader is orientated towards Blended Technology. Here, Blended Technology and its role in enhancing the creativity and innovativeness of entrepreneurs in SMMEs are described in detail.

In the following section, methods for adopting Blended Technology by SMMEs are discussed.

Textbooks, relevant scientific articles from journals, magazines and the Internet were employed for the literature review.

1.7.2.2 Research procedure

The topic of Blended Technology is topical in the researcher's organisation. He is also very knowledgeable on entrepreneurship in SMMEs, and due to the negative growth rate of SMMEs in South Africa (PWC, 2021), the strategy of teaching entrepreneurial skills in SMMEs by Blended Technology became obvious. Furthermore, many studies conducted in the open literature presented evidence that Blended Technology is an effective vehicle to upskill entrepreneurs in SMMEs (Tupe, 2018:34; Atef & Medhat, 2015:364; Frederick, 2007:1). The inclusion of entrepreneurs in the subject of the study is justified because they are important for the economy of South Africa. Entrepreneurs create profitable businesses and hence job opportunities.

The questionnaire (section 1.6.2.4) was designed to reach the following main objectives:

- Solicit respondents' opinions towards Blended Technology as a tool to enhance entrepreneur creativity and innovation through technology learning.

- Solicit respondents' opinions towards the effects of change and their perception about what the change will bring about. Here change refers to the change that comes about from implementing technological creativity and innovation.

Self-reported measures are thus used, which means that respondents' opinions of themselves will be measured.

These objectives relate to the primary objective of the study in the following ways:

- If the respondents know the Blended Technology philosophy, entrepreneurs in SMMEs will be more receptive tomethods to implement it in SMMEs. In this case, the main barrier to rolling out a Blended Technology program in SMMEs will probably be affordability.
- If the respondents are not knowledgeable about the Blended Technology philosophy rolling out of a Blended Technology program in SMMEs will have to be preceded by information sessions to highlight the suitability of Blended Technology to enhance creativity and innovation in SMMEs.
- Rolling out a Blended Technology teaching approach in the training and development program of an SMME necessitates profound changes to the enterprise's infrastructure. The Blended Technology teaching approach can only succeed if entrepreneurs are open to technological changes in their SMMEs. If this is not the case, sound management of change programs should accompany the implementation of Blended Technology in the SMME.

Google Form software, free online software for creating surveys and questionnaires, was employed in this study as application software to send a survey questionnaire.

1.7.2.3 Study population/sampling

This study focuses on technology and innovation within South African SMMEs. The study seeks to determine if manager/entrepreneurs within SMMEs educate themselves with technology (Blended Technology) relevant to their businesses. The open literature indicated that previously entrepreneurs did not consider technology largely as the tool to be used in up-skilling themselves and increasing the quality of the product within the business (Cooney, 2012:13).

The study had two main themes: Firstly, the willingness and readiness of managers/entrepreneurs in SMMEs to adopt a Blended Technology learning approach in their teachings were gauged. Secondly, it investigated the availability of conventional technology

devices and compared it with modern technology to determine what type of innovation would ensure the sustainability of SMMEs. This study also makes recommendations for the sustainability of SMMEs.

According to the sampling strategy of the study, the questionnaire was distributed to managers in the researcher's circle of acquaintances with direct experience in SMMEs. All the acquaintances are managers in their respective SMMEs and some of them are also the founders of the SMMEs. It is more commonly known as snowball sampling, which entails sending the measuring instrument to a member of a population of interest (Kabir, 2016:175). This person is then requested to send the measuring instrument to individuals in his or her circle of acquaintances and so on. Snowball sampling is a non-probability technique used when the samples have rare characteristics. Snowball sampling has the advantages of being an inexpensive and small sample size, but it is biased. Referral names may be similar to those obtained in the initial sampling. Therefore, the sample may not be characteristic of the entire population.

Another seeming drawback of the Snowball sampling approach is that the specific population cannot be defined. However, the population can be described as who should be part of the study. The respondents that will be part of the research will be selected from the different managerial levels in a typical organisational structure of an SMME. According to this structure, the questionnaire will be distributed to the CEO, the directors and managers.

1.7.2.4 Measuring instrument

Data was collected using the quantitative method. To this end, a SurveyMonkey was distributed according to the Snowball sampling method (section 1.6.2.3). A Google Form was used to send the survey questionnaire to the circle of acquaintances in this study, with no contact between researchers and respondents. The completed questionnaires were then sent back to the researcher.

In developing the questionnaire, the author ensured that the questions adhered to the following criteria (Bhattacherjee, 2012:75):

- They are clear and understandable.
- They do not contain any negative inclinations towards race, gender, age or political groups.
- They are not phrased negatively.
- They are not ambiguous.
- They are not biased and do not contain value-laden words.

- They do not have a double purpose.
- They are not too general.
- They are not too detailed.
- They are not imaginary.
- They are aligned with the respondents' knowledge sphere.

The questionnaire consisted of three sections:

In the first section, the respondents' demographic information was requested. The demographic data of interest were gender, age, marital status, educational background, number of years of working experience, managerial level and number of employees. Motivations for the need for this data are given in Appendix 1.

The second section solicited the respondents' opinion towards Blended Technology as a tool to enhance an entrepreneur's creativity and innovation through technology learning. The purpose was to gauge if entrepreneurs in SMMEs are open to implementing Blended Technology in their training and development programs.

The third section enquired the respondents' opinion towards the effects of change and their perception about what the change will bring about. All questions in this section referred to the change emanating from implementing technological creativity and innovation. Preliminary findings were fed into the quantitative part of the study for further investigation. This section in the questionnaire is essential because it gauges if entrepreneurs in SMMEs are willing to convert their IT environment to contain the infrastructure needed for Blended Technology.

1.7.2.5 Data/sample integrity

According to Ahmad *et al*. (2019a:306), data integrity means maintaining and ensuring the accuracy and consistency of data throughout its lifecycle. In a similar vein, Nikam *et al*. (2020:38762) maintained that data integrity guarantees the accuracy and consistency of data throughout its life. According to Takahashi (2016:2), data integrity refers to data's completeness, consistency, and accuracy. It follows that consistency, accuracy and completeness are vital concepts defining data integrity.

Accuracy relates to a measuring instrument's ability to provide results close to the real value of the quantity being measured (NLC Marketing, 2020; Arumugham, 2012).

Kalton (2001:2) identified the dimensions of accuracy as sampling error, nonresponse, noncoverage, measurement error, processing error, and computational error. Groves and

Lyberg (2010:850) concluded that cognisance should be taken of these origins of errors because accuracy is an important component of the overall quality when surveys are designed. According to Stratton (2015:225), a survey is accurate if the respondents represent the entire study population in all aspects relevant to the study objective. Also, and more importantly to this study, a survey is accurate if the questionnaire reflects the attributes being measured in a large percentage of the population (Survey Anywhere, 2020). It can be concluded that a survey questionnaire is accurate if the sample represents the group of interest or population and the errors listed above in sampling are minimised. These questions give accurate results preferences on specific characteristics of Blended Technology (Vos, 2018).

A key aspect of accuracy is to ensure that the data source is secure. Regardless of when the information is stored or accessed, the goal is to ensure that the data stored in the database is accurate, complete, and reliable. In order to ensure that data integrity is maintained, outside intruders are not allowed access to it.

The internal consistency of the questionnaire can be determined according to Cronbach's alpha (section 1.8). It measures how closely related a group of items are to one another.

Completeness is an essential aspect of a questionnaire because it ensures minimised survey scope error. The error occurs when the survey does not include all the elements necessary to answer all the research questions. If the researcher fails to include important questions in the questionnaire, answers to the survey questions will be incomplete or inaccurate.

Another important aspect of completeness is to check if all survey data has been collected. The probability of flawed reports and skewed conclusions increases if the data is incomplete (Kim, 2020). Therefore, the completeness and accuracy of data are essential factors of data quality. Missing data makes it impossible to validate the information and cannot be deemed accurate (Kim, 2020).

Data integrity in this study was ensured both on the individual and collective levels. In the former case, the researcher ensured that the data was complete, verified, and undistorted. The data was stored in the researcher’s databases to ensure it would not be compromised. On the collective level, the results and data obtained from the questionnaire were first scrutinised by the Statistical Consultation Services of UNISA and supervisor before it was published in this mini-dissertation.

According to Lawal (2010), it is possible to establish and confirm data integrity by examining the procedures used to produce data and the conclusions drawn from such data. As a result,

it is possible to assess the validity of the data and results and decide whether to accept or reject scientific contributions. The collective scrutiny of research results does not guarantee that they will be free of error or bias. Still, it helps minimise the error and bias inherent in individual perspectives.

1.7.2.6 Data analysis

Statistical analysis is an essential research tool used by scientists, governments, businesses, and other organisations. Chapter four will present the data analysis using descriptive and inferential statistics.

Descriptive statistics comprises methods of bringing out and highlighting the hidden characteristics in a set of numerical data. It provides an understanding and systematic reporting of the data and renders it amenable to further discussion, analysis, and interpretations. To this end, descriptive statistics entail summary statistics like mean, frequencies, proportions and bar charts.

Inferential statistics use independent t-tests, the univariate analysis of variance (one-way ANOVA) and correlation analysis to draw inferences or make broad generalisations about a population based on knowledge about a sample of this population.

The study aims to determine what is paramount to employees by drawing a parallel between survey items and some indicators of willingness to adopt Blended Technology in the SMME's training and development program.

In conventional scatterplots, two quantitative variables are plotted for similar individuals. The correlation coefficients (r) will be determined from the scatter plots, ranging from -1.0 to +1.0. Numbers less than zero represent a negative relationship between variables, and numbers greater than zero represent a positive relationship. The correlation statistic affords the identification of survey questions that are most correlated with the propensity of SMME's employees and managers to adopt Blended Technology in the training and development program of the business. Based on the study, Blended Technology in an SMME is the cause, and any survey questions correlated with it is the effect. Correlation analysis cannot determine the cause and effect since it indicates only how well two survey questions relate statistically.

Statistical manipulation of the survey results implies that the p-value is also determined. It shows how likely it is that the correlations are due to chance. The study will view correlations as significant if $p < 0.05$ or 5%. It means that there is less than a 5% likelihood that the correlations result from chance.

Also important is the total number of respondents (n) because if n is large, even a negligible correlation may be statistically significant. If n is small, then statistical significance requires a much higher correlation.

1.8 IMPORTANCE AND BENEFITS OF THE PROPOSED STUDY

Blended Technology has important effects on daily business operations. Independent of the size of the enterprise, Blended Technology has both tangible and intangible benefits that assist entrepreneurs in making more profits and producing the results customers are demanding. For example, suppose entrepreneurs of SMMEs must be taught how to perform a market study and, consequently, how to orientate themselves favourably to cater to the desired market. One way to approach this assignment would be to instruct the learners to watch an online lecture to obtain information on customers' preferences in this unique netnography.

Once this phase is completed, a face-to-face training session with the entrepreneurs is conducted where the multitude of inputs from the learners are combined with the lecturer's expertise to design an effective strategy on how to reach the objectives listed above.

Before Blended Technology is adopted in an SMME, the IT infrastructure must be evaluated to ensure that it supports this unique learning approach. If the required resources and support are not available, integrating appropriate information technologies into a classroom can negatively impact teaching and learning in SMMEs (Kilfoil, 2015:11). Therefore, it is important to make sure that the uptime and support of the infrastructure are available for online learning. Two other important factors determine the success of Blended Technology initiatives in SMMEs: Upskilling tutors in the use of educational technologies in a blended environment is the first step. Secondly, tutors should carefully consider which parts of a course will be delivered face-to-face and online. In this way, a navigation structure is established that is advantageous for the culture, efficiency and productivity of SMMEs.

A quantitative method (section 3.2) was used to analyse the data because it shows if entrepreneurs use technology, creativity and innovation within the business. This assists in determining if Blended Technology provided any benefits to the business.

Analytical and statistical tools were used to evaluate the creativity and innovativeness of Entrepreneurs and show if Blended Technology will benefit the business (section 1.6.2.6). Statistical analysis of the collected data assists with the study's direction.

1.9 RIGOUR / VALIDITY & RELIABILITY

Rigorous research is research that applies the appropriate research tools (questionnaire, statistical analysis) to meet the objectives of the research. Therefore, the nature of the information obtained from the questionnaire should adhere to the following pre-requisites (Bolarinwa, 2015:196):

- The level of precision required for the analysis is appropriate.
- The maximum number of phenomena can be identified.
- It provides the level of detail needed to answer the research questions.
- It maximises the likelihood of producing data with apparent patterns.

Performance issues must be identified and resolved as soon as possible for a business's critical digital experiences to continue. Rigour assists entrepreneurs in making this a reality. Monitoring a business with sprawl created by cloud infrastructure can be complex, but being proactive is important. Thus, the rigor of this study might support entrepreneurs in implementing a comprehensive and easy-to-use monitoring solution to every aspect of their cloud infrastructure, regardless of how large or how vast it is so that entrepreneurs are always aware of how their business is faring.

According to the definition of validity, a measurement measures to a high degree what it purports to measure (Bolarinwa, 2015:195). Thus, validity can be seen as the core of any form of trustworthy and accurate assessment. There are several varieties of validity, but this study strives to accurately measure the degree to which SMMEs are willing to adopt Blended Technology in their training and development programs. The ultimate goal is to change classroom teachings based on the quantitative assessment of results, which should be correctly interpreted. The study's validity measures Blended Technology as a tool to enhance entrepreneurs' creativity and innovation.

The second measure of quality in the quantitative approach is reliability. Measures of a construct can be defined as reliable if they are consistent or dependable (Kubai, 2019:2). Taherdoost (2016:33) reported a similar definition but added that reliability is concerned with repeatability. To this end, a scale is reliable if a repeat measurement under constant conditions will give the same result. These definitions of reliability necessitate consistency in the questionnaire results if used in the same situation on repeated occasions. In the case of the chosen methodology, a lack of reliability may arise if the questionnaire lacks an explicit

purpose related to the objectives of the research. To this end, the researcher made it clear in the Letter of Consent (Appendix 3) how the findings will be used.

Cronbach's alpha is a measure of internal consistency. It shows the association between a set of items as a group. In addition, scale reliability is measured by it. Cronbach's alpha is written as a function of the number of items and their average correlation. The formula for the Cronbach's alpha (reliability coefficient) is written as:

$$\alpha = N\acute{c}/(\upsilon(1-N)\acute{c})$$

Here N is equal to the number of items, ć is the average inter-item covariance among the items and υ equals the average variance. In most social science research situations, reliability coefficients of .70 or higher are considered satisfactory. Internal consistency refers to a psychometric property (validity and reliability of the questionnaire) of a test (A) associated with inter-item correlations (the degree of correlation between the items on a test set) and general factor saturation (the extent to which all items on the test measure the same construct, (B)) independent of test length (Tang *et al*., 2014:211).

1.10 ETHICAL CONSIDERATIONS

1.10.1 Permission and informed consent

The study was ethically cleared (NWU-0094-21-A4) by the Economics and Management Sciences Ethics Committee (EMS-REC) (Appendix 2) to minimise the likelihood that the study would harm respondents. The study used the Letter of Consent to protect their anonymity and confidentiality (Appendix 3). It will also prohibit deceptive practices and give respondents the right to participate in the study.

1.10.2 Anonymity

Respondents were reassured that their identity would not be disclosed (Appendix 3). They were also not acknowledged in the dissertation. All possible identifying characteristics were omitted from the data that was published in the mini dissertation.

1.10.3 Confidentiality

Only the researcher has information on the identity of the respondents, but this information is not available to the public. When the survey results were reported, the individual results were combined and presented as a group.

1.10.4 Inclusion/exclusion

SMME entrepreneurs in South Africa were the only respondents in this study. There were no limitations placed on the type of business or success of the entrepreneurs or SMMEs.

1.10.5 Disclosure

All the respondents were made aware of this research, its purpose, and the benefits involved in the study (Appendix 3).

1.11 CHAPTER DIVISION

1.11.1 Chapter 1: Introduction to the research

Chapter 1 establishes the context of the research being conducted by summarising current understanding and background information about the topic, stating the purpose of the work, framing the research problems, briefly explaining the rationale, describing the methodological approach and highlighting the potential of the research.

1.11.2 Chapter 2: Literature review

In Chapter 2, literature relevant to this study will be discussed. Major open literature and other sources (studies by other organisations, books etc.) on Blended Technology are reviewed. Particular emphasis is placed on the potential advantages of Blended Technology, strategies to implement it in SMMEs, the theory of Blended Technology and a critical evaluation of these studies.

1.11.3 Chapter 3: Research Methodology

Chapter 3 presents a detailed discussion of the approach to the empirical research methodology. The specific procedures or methods and analysis of information of Blended Technology are outlined. The methodology section allows the reader to critically evaluate the study's overall validity and reliability. Practical aspects of the quantitative method are also described in this chapter.

1.11.4 Chapter 4: Data Analysis

In Chapter 4, the data is analysed. To this end, the data is reviewed, emptied, converted, and represented. The goal is to determine useful information, informed conclusions, and support decision-making. Meaningful results from the research will be distilled from the raw data, which will assist in making important decisions by identifying various facts and trends.

1.11.5 Chapter 5: Conclusions and recommendations

In the concluding chapter, the findings or results of the investigation are interpreted. Based on the conclusions, recommendations are made, which are opinions supported by the report's findings. Finally, the limitations of the study and managerial implications are discussed. In this chapter, the main points of evidence are summarised.

CHAPTER TWO: LITERATURE REVIEW

The literature review first provides a discussion of 14 theories of entrepreurship. This is followed by a description, summary, and critical evaluation of the prosperity of SMMEs in South Africa. The focus is on the potential enhancement of creativity and innovation in SMMEs by implementing Blended Technology in their learning programs. Historical research on the current field of research will be debated from which gaps in learning processes are identified.

A study of the existing literature should provide an understanding of the debates and research relevant to a particular area of research and present this knowledge in written form (Library Study Smart, 2017:1). Conducting a literature review facilitates building and executing the relevant research strategy deriving from the knowledge. Ramdhani *et al*. (2014:48) argue that a literature review demonstrates the author's knowledge about a segment of a field of study, including definitions, theories, key variables and phenomena, and its methods. Conducting a literature review also informs the investigator of the field's influential researchers and research groups.

The literature review detects significant thoughts and related research concerning applying Blended Technology as a tool to enhance entrepreneurs' creativity and innovation. The latter is a major topic of the study because it is important in developing competitive technologies. This chapter is a literature analysis intended to review renowned research to identify the set of Blended Technology, which stimulates creativity and innovation skills that are important for SMME's product development and growth. The chapter starts with a brief discussion of all the factors that have been identified as crucial for the SMME's success. These serve to provide a background of the importance of Blended Technology for entrepreneurs to improve the competitiveness of products and services.

The chapter also presents a model of SMME's Blended Technology fit and venture success based on the examining study. This model is then translated into the plans that this research study will confirm or fail to confirm.

Given the vast amount of literature on venture achievement, existence and disappointment (Ndofirepi, 2020:8), this chapter should not be regarded as a complete review but merely as a portion to highlight the importance of issues relating to the research topic. The focus of this literature review is to sketch the logic used to select questions and variables for the research questionnaire. To understand the concepts to be included in the theory of the study, a complete number of textbooks and articles were reviewed and studied. Leading academic

journals, annual conference reports, and books provide relevant literature in fields such as Blended Technology, entrepreneurs, SMMEs, and creativity and innovation.

This study is bound to factors specific to the features of SMMEs. It attempts to identify those factors with strong observed associations with Blended Technology to successfully enhance creativity and innovation in SMMEs. The factors identified can be divided as follows:

- Factors listed in published articles journals and books that list entrepreneurs' existing Blended Technology creativity and innovation product enhancement.
- Factors listed in published articles that show strong evidence connecting the improvement of creativity and innovation of entrepreneurs with the implementation of Blended Technology in their organisations.
- Factors listed in published articles that connect improvement of creativity and innovation by using Blended Technology.
- Factors that are cited by professionals that can be attributed to entrepreneurs' Blended Technology, creativity and innovation models.

2.1 INTRODUCTION

SMMEs and entrepreneurs have often been presented as an alternative for the unemployed, which cannot be absorbed into formal employment (Bhorat, 2018:62). As South Africa's economy and development grow, SMMEs have become increasingly important, especially since large firms have restructured and downscaled (Herrington & Kew, 2017/2018:57). For this reason, the government has made the SMME sector a prime target for the economic empowerment of previously underprivileged people (National Planning Commission, 2011:39). With the formal sector unable to absorb the high and increasing number of job seekers in the country, entrepreneurial ventures have become increasingly important for creating meaningful economic growth and jobs in the country (Ayankoya, 2016:9; Anwana, 2020:5).

In South Africa, there has been an increasing trend toward developing the SMME sector and entrepreneurship to create new job opportunities (Chimucheka, 2013:783). Entrepreneurship has made a positive contribution to South Africa's economy in recent years (Herrington & Kew, 2017/2018:31). It is part of the plan developed by the government to increase the GDP of the country (Herrington & Kew, 2017/2018:53). The plan shows some support through various initiatives, most notably the launch of the Department of Small Business Development (SBD) (SME South Africa, 2014). The government has mandated the SBD to create an atmosphere conducive to SMME growth and prosperity.

2.2 THEORIES OF ENTREPRENEURSHIP

In this section, theoretical approaches to entrepreneurship are discussed that take into account psychological traits and sociological conditions that either promote entrepreneurship or act as a deterrent. Entrepreneurship results from certain cultural and social factors that influence a person's psychological makeup. An entrepreneur is a person who is driven for higher achievement and has a high-risk tolerance.

2.2.1 M. Kirzrier's theory of Entrepreneurship (Langlois, 2002:97; Ricketts & Kirzner, 1992:67-69; Boutillier & Uzunidis, 2014:63; Yu, 2001:48-49)

Kirzner defines entrepreneurship as discovering profit opportunities that others have not previously discovered. Thus, he introduces the notion of "entrepreneurial alertness". Profits of the entrepreneur in these conditions are not only derived from chance but also from predicting the way individuals will react to change. Kirzner rejects the profit maximization hypothesis. It implies that in addition to being a calculating agent, the entrepreneur is also an economic participant who always looks for opportunities. The Kirznerian entrepreneur discovers existing opportunities and does not create any new ones.

Kirzner contends that profit opportunities are the result of imbalance, not equilibrium. Entrepreneurs must be alert to detect profit opportunities and then take advantage of them when they arise. An entrepreneur is thus a person who uses information to maximise his profits by exploiting the ignorance of others. Therefore, he demonstrates the concept of "entrepreneurial alertness", which is, the ability of entrepreneurs to acquire information spontaneously. However, it is well known that humans do not live in a world of perfect knowledge. This highlights the need for entrepreneurs to be alert to discern opportunities from new information. An entrepreneur no longer has a place in a world of perfect information, where opportunities for unused gains are excluded. Therefore, such a decision-maker has no field of action to exercise his decision-making powers. Kirzner fundamentally challenged both Schumpeter's theory (section 2.2.3) and the model of perfect competition.

The entrepreneur is still portrayed as a force of disequilibrium rather than one of equilibrium, even though every new entrepreneurial innovation may ultimately lead to a new equilibrium. In Kirzner's view, changes due to entrepreneurial activities are more related to the hypothetical state of equilibrium; they are responses to an existing scheme arising from wrong decisions, a scheme full of missed opportunities. As a result of ignorance of the market, the entrepreneur plays a leading role in a mutual adjustment of these conflicting elements. Kirzner emphasised that entrepreneurship plays a critical role in market development.

Kirzer's theory can be critiqued as follows:

- It is not unusual that opportunities cannot be seen even when the entrepreneur purposefully searches for them.
- In order to search for something, entrepreneurs must know what they are looking for.
- Entrepreneurs create opportunities more than they discover them.

2.2.2 Max Weber's Theory of Social Change (Pawar, 2013:36)

In his theory of social change, Max Weber promoted a sociological explanation for entrepreneurship's growth. He debated that the growth of entrepreneurship was profoundly influenced by religion. Entrepreneurship is strongly influenced by the religious and ethical values present in society.

Weber believed that a society's entrepreneurial vigour is externally generated and supplied by religious beliefs. While some religions acknowledge and value the value of earning and acquiring money, others place less emphasis on it.

Entrepreneurs are driven by the urge to make money and profits. An adventurous spirit instigates the impulsive force that propels entrepreneurship.

Hindu belief systems do not foster entrepreneurship, according to Weber. Wealth accumulation and material life were less important in Hinduism. Since Hinduism did not promote capitalism, it was an obstacle to entrepreneurship. Protestancy provided the mental attitude in a society that encourages capitalism and promotes entrepreneurship.

Industrial growth is influenced by the values professed by society's religion. Protestants had established capitalism in Europe at a faster rate due to their value system. Protestant ethics gave them a rational economic attitude, allowing them to accumulate assets and enjoy the material world.

Weber's theory can be critiqued as follows:

- There are a number of unrealistic assumptions in the theory.
- Evidence has been published to invalidate the theory (Becker & Wößmann, 2007:32).
- India's rapid expansion of entrepreneurship during its post-independence period disproves Hinduism's disdain for capitalism and adventure.
- Capitalism has thrived in areas where the Protestant ethic is not prevalent.

2.2.3 Schumpeter's Theory of Innovation (Śledzik, 2013:89)

According to Schumpeter's theory, entrepreneurs reform or revolutionize processes with new inventions or new technologies to produce products innovatively. This is accomplished by leveraging new feed materials or state-of-the-art production processes. Schumpeter viewed the entrepreneur as an initiator who boldly acts beyond the range of conventional technologies.

According to Schumpeter, a capitalist closed economy is in a stationary circular flow. When entrepreneurs create new innovative products and processes, this equilibrium is disturbed, which results in rapid economic growth in a country. Entrepreneurial endeavours create a situation of disequilibrium, breaking the normal circular flow. Therefore, he firmly believed that entrepreneurs are instigators of economic growth.

Although leading scholars have some critisicms against Schumpeter's theory of entrepreneurship (Schumpeter, 1912), it is still viewed as a landmark for entrepreneurship theory within a capitalist-closed economy. His innovative entrepreneurship theory is relevant to the study because it contains the dimension of innovation. To this end, Schumpeter viewed innovations as new combinations of the various functions of production processes. Innovation is instigated by the entrepreneur, who manages in new and superior ways, which lead to the development of new technologies or processes.

Schumpeter considered a new product as a completely new product to the consumer and is of superior quality and utility. A new production method involves a new process not previously employed in manufacturing and commercial production, which may increase productivity and improve profit margins.

Schumpeter viewed an invention as creating new feedstocks and innovation as the use of these feedstocks in industrial processes. He also made a distinction between the inventor and the innovator. The former invent new materials and new methods and the latter employs these inventions and discoveries in novel processes.

Schumpeter's theory can be critiqued as follows:

- The theory emphasizes the innovative functions of the entrepreneur while disregarding its organizing functions.
- The risk-taking function of the entrepreneur is completely ignored.
- The theory is more attuned to developed countries. Most developing countries experience a scarcity of innovative entrepreneurs.

- This theory does not explain why entrepreneurial talent exists in similar proportions in all countries.

2.2.4 Theory of Frank Young (Pawar, 2013:38)

In this theory, entrepreneurship is developed by the combined efforts of a group of entrepreneurs because groups are more capable of facing challenges. Creating a new industrial enterprise is a collective effort, not an individual undertaking. The purpose is to support the responsive sub-group for societal development. Groups refer to clusters, ethnic groups, occupational groups and groups with political orientation. Furthermore, entrepreneurial ventures are attributed to the family background of the entrepreneur and the manifestation of the general values of the group. As a result of their association with solidarity groups, individual entrepreneurs are more confident in overcoming economic problems.

According to Young's theory, reactive subgroups play a vital role in creating an enterprise. Compared to other groups at the same level in society, reactive subgroups have better institutional resources.

The emergence of a responsive group depends upon the following events:

- A group feels that it has law status in society.
- Failure to achieve meaningful social status.
- In a society, groups have better institutional resources than others.
- The events mentioned above will give rise to entrepreneurship if all of them occur simultaneously.
- Assisting institutes play a significant role in promoting entrepreneurship. It is, therefore, necessary to establish more and more of these supportive institutions for the development of entrepreneurship.

2.2.5 The Uncertainty-Bearing Theory of Knight (Newman, 2007:1)

The uncertainty-bearing theory of Knight argues that entrepreneurship is associated with risk-bearing. In this theory, entrepreneurs are considered insurance providers through the establishment of contractually fixed wages. Individuals' attitudes toward risk determine whether they opt for the security of a wage or take the risks that entrepreneurial ventures present. Risk-averse individuals are more likely to work for guaranteed wages and be employed by less risk-averse business owners. Consequently, there is a tendency for entrepreneurs to be wealthier than employees.

An insured risk can be quantified and its probability can be statistically estimated. The other side of the coin is risks that cannot be quantified and the probability of their occurrence cannot be statistically determined. Examples are risks associated with changes in prices and variations in demand and supply.

The ability to bear uncertainty is one of the most critical functions of a dynamic economy. Profit in mind, the entrepreneur, carries the uncertainty of the business. Entrepreneurs set a minimum price on supplies in risk-averse economies. Below this minimum, entrepreneurs will abstain from providing their entrepreneurial services. Entrepreneurs tend to raise their minimum supply price in an uncertain economy.

The key points of Knight's theory are:

- For bearing the uncertainty, the entrepreneur generates pure profits.
- Non-insurable risks cannot be statistically estimated.
- Riskier enterprises earn higher profit levels.
- Profit is the reward of the entrepreneur. Hence, it forms part of the standard cost.
- Entrepreneurs are rewarded with profits for bearing uncertainties and risks.
- Weber's theory can be critiqued as follows:
- Weber's theory can be critiqued as follows:

Knight's theory can be critiqued as follows:

- The role of an entrepreneur is not clear from the theory. It is restricted to uncertainty bearing.
- The concept of profit is vaguely described.
- Profit as a residual income of the entrepreneur has been criticized.
- Uncertainty-bearing cannot be treated like other production factors like land, labour, and capital.

2.2.6 Kunkel's Theory of entrepreneurship (Sampene *et al*., 2021:4)

Kunkel developed his theory on entrepreneurship based on entrepreneurship supply. Entrepreneurs are thought to emerge due to sociological and psychological factors. The emergence of new entrepreneurs is closely linked to social, political, and economic structures.

In Kunkel's theory, the supply of entrepreneurship is determined by the following economic structures:

- Demand Structure:

In economic terms, it refers to the current demand situation. Entrepreneurs' behavior is affected by the rewards they receive for their contributions. Entrepreneurs can be rewarded for their entrepreneurial activities to expand the economy's demand structure.

- Limitation Structure:

This structure impacts entrepreneurs and the rest of society. Society restricts specific activities in this structure. The entrepreneurs and other members function within the framework of this structure.

- Opportunity Structure:

This structure is regarded as one of the most significant that influences an entrepreneur's supply in an economy. Information about production techniques, labour supply, and capital are included in this structure.

- Labour Structure:

The availability of skilled labor is related to this structure. The labour structure is influenced by several factors, including the mobility of the labour force, the availability of alternative employment options, and the level of traditionalism and work culture.

The conditioning procedure in Kunkel's theory plays a major role in determining the activities of individuals. Individual behavior is highly dependent on the conditioning procedure surrounding their environment. There is a need to change certain situations that influence individuals' conditioning to influence and alter their activities.

Kunkel's theory can be critiqued as follows:

- Postulates in the theory are unrealistic.
- Different structures influence the supply of entrepreneurship in different ways.
- Kunkel's theory avoids ambiguous concepts such as values and personality.

2.2.7 Cochran's Theory of Entrepreneurship (Pawar, 2013:37)

Cochran's theory explains the growth of entrepreneurship from a sociological standpoint.

According to Cochran, societies' cultural values, social expectations, and role expectations influence the growth of entrepreneurship. Factors that are detrimental to economic growth

include non-economic issues. Entrepreneurial dynamism and the growth of entrepreneurship are dependent on social factors. The entrepreneur represents a role model in society.

Entrepreneurs have a significant influence on society. The model personality of the entrepreneur strongly influences the role of an entrepreneur. In the corporate world, the role of an entrepreneur is defined by the members of the board of directors and other top officials.

Social and cultural factors play an important role in influencing an entrepreneur's expectations, personality, and behavior. Entrepreneurial dynamics depend on social factors, which result in major changes.

2.2.8 Peter Drucker's theory of Entrepreneurship (Nikoloski, 2016:96-99)

Peter Drucker considered entrepreneurs to be unique change agents. The entrepreneur, according to him, always looks for changes, responds to them, and exploits them as opportunities."

Drucker proposed guidelines for becoming innovative as an entrepreneur. Drucker believes that successful innovation practices result from systematic hard work. As a framework for exploiting innovative opportunities, he presents systematic innovation.

The entrepreneurial society, in his view, is the result of innovative entrepreneurship combined with government facilitation.

Drucker proposed five entrepreneurial strategies:

Being Fastest with the Mostest. From the beginning, the goal here is to become the first with the most eventually. An entrepreneur wants to lead a new market or industry, if not dominate it.

Hit Them Where They Aint. This strategy does not involve creating a major new product or service. Instead, it improves on something created by someone else. Drucker called it "creative imitation" because the innovator reworks the product or service into something desirable.

Entrepreneurial Judo. Complacency is the key to this strategy's success. Turning a market leader's strengths into weaknesses defeats the market leader.

Changing Economic Characteristics. Under all of the other strategies presented by Drucker, An innovator must create a product or service that is innovative in this strategy. It is the strategy itself that is innovative. Through this strategy, the company changes the existing

product's utility, value, and economic characteristics into something new. There is no new product or service despite the conversion, but new economic value and new customers are. High-tech firms commonly employ this strategy. Pricing is one of the most effective ways to change the economic characteristics of a product or service to make it more competitive.

Ecological Niche. This strategy revolves around control. In a small market, it has a practical monopoly. Ecological niche strategies work by being so inconspicuous that, despite the product's necessity to a process, no one will likely try to compete, thus making them virtually immune to competition.

2.2.9 Economic Theory of Entrepreneurship (Boutillier & Uzunidis, 2014:9)

The economic theory of entrepreneurship states that economic incentives are the main factor influencing entrepreneurial activities. Economic gains spontaneously develop the willingness among the entrepreneurs to undertake diverse entrepreneurial initiatives. The relationship between an individual's inner urge and the desired economic gains profoundly influences the development of entrepreneurial competencies. Entrepreneurship development and economic growth take place whenever certain economic conditions are favourable.

The economic theory of entrepreneurship can be critiqued as follows:

- Entrepreneurship and its supply are not adequately analyzed in the economic theory.
- Entrepreneurs take risks and work in an uncertain environment. The economic theory failed to formulate a systematic theory of entrepreneurship.
- The market system is not understood as a dynamic, open system.
- It downplays the diverse contexts in which entrepreneurship occurs, ignoring the unique nature of entrepreneurship.

2.2.10 Mark Casson Theory (Economic Theory) (Casson, 1982)

Mark Casson's entrepreneurship theory is a balanced perspective on entrepreneurship and is among the most influential in this field. Using the economic theory of entrepreneurship, Casson proposed a method for developing a "dynamic theory of ownership advantage" (Jones & Wadhwani, 2007:6). Mark Casson conceptualized the entrepreneurship theory as a fusion of two approaches. Economic historians adopted the indicative approach and economists used the functional approach. He also blends several other approaches into his theory (Alvarez et al., 2014:187) and concluded that an entrepreneur could be a real estate developer, a small businessman or someone who knows how to quickly generates profits.

Mark Casson's theory explains the differences in decision-making between entrepreneurs with the same aptitudes but with different information. Every entrepreneur makes decisions uniquely different from the rest. Entrepreneurs believe that the totality of information available to them concerning a particular decision is unique. Consequently, the entrepreneur's perspective of a situation profoundly influences the allocation of resources. The entrepreneur anticipates making profits from the difference in perception by taking a position vis-à-vis others.

Based on the tactical facets of the entrepreneur's strategy, the economic theory of entrepreneurship makes several predictions. Unlike neoclassical assumptions, Mark Casson acknowledges the difficulties of organizing a market. He suggests that in reality transactions entail significant resource costs. Successful entrepreneurs minimise the transaction cost incurred in establishing any given trade volume.

2.2.11 Hoselitz's Theory (Emphasis on Marginal Groups) (Hébert & Link, 2006:289)

Hoselitz's theory emphasized the cultural factors and the role of culturally marginal groups in entrepreneurial development. Hoselitz's theory emphasises the significance of culturally marginal groups in developing entrepreneurship and their role in economic growth. The marginalized groups in society strive to raise their status and, in so doing, promote economic development.

Hoselitz opined that the marginalized are in an ambiguous position, which renders them ideally suited to adapt creatively to a changing environment. The changes they create in their behaviors are real. It leads to them becoming entrepreneurs and stimulating the economy.

Cochran's theory can be critiqued as follows:

- There is no satisfactory explanation of why entrepreneurship grows in an economy.
- Social factors and their impact are the only factors considered.
- The influence of risk, profit and innovation are not included.
- No mention is made of the multiple roles an entrepreneur plays.

2.2.12 E. E. Hagen's Theory (Co, 2003:36)

According to Hagen, the starting point for the entrepreneurship development process is attributed to the withdrawal of status respect of a group.

His theory viewed the entrepreneur as a troubleshooter who contributes to economic development. The creativity of the entrepreneur brings about social transformation and economic development. Economic growth is associated with social and political changes. He did not encourage the entrepreneurs to imitate other's technology.

In Hagen's view, entrepreneurship began when the status respect of groups decreased. When a social group experiences the loss of status respect, it turns to aggressive entrepreneurship. In such a situation, the members of the status-losing group undertake rigorous entrepreneurial endeavors to regain their status.

Hagen examined the events that could lead to and indicate withdrawal of a social group's status respect. Firstly, the disenfranchisement of a traditional elite group. The second is the denunciation of valued symbols through a change in the attitude of the superior group. Thirdly, status symbols' unpredictability in the altered distribution of economic power. Lastly, social groups do not inherit their desired status when they migrate into a new society.

According to four different personality types, withdrawal of status respect can cause four different reactions:

- The retreatist: A person indifferent to his or her job and position in society but works in it.
- The ritualist: The individual has no hope of improving his or her position but works in a manner accepted and approved by society.
- The reformist: A person who rebels against the established society and tries to form a new one.
- The innovator: It is a person who strives to bring about new changes and takes advantage of every opportunity. Entrepreneurial characteristics are reflected in the innovator.

Hagen's theory can be critiqued as follows:

- Social groups do not always behave as the theory advocates.
- The theory ignores several other factors that contribute to entrepreneurship.

2.2.13 Leibenstein's Theory (Emphasis on X-Efficiency) (Huil, 2004:2)

The term X-inefficiency refers to the difference between optimally efficient business behavior in theory and the observed behavior in practice due to various factors. Thus, X-efficiency refers to the effectiveness of inputs in producing outputs. The technical efficiency of an organization

refers to its ability to produce the most output with the resources and technology it utilizes. X-inefficiency occurs when technical efficiency is not achieved. The difference between an input's actual output and its maximum output is a measure of X-efficiency whenever the input is not used effectively. X-efficiency refers to specific companies and industries and the country as a whole.

X-efficiency is caused by the inappropriate use of resources or the waste of resources, which implies that they are not used.

Entrepreneurs fulfil two roles; the first is that of gap fillers and the second of input completers. It is common for the production function to have particular deficiencies. Because all the factors of production cannot be marketed, there are deficiencies and gaps. The entrepreneur's role is to fill the gaps in the market. Entrepreneurs are also responsible for completing inputs. The entrepreneur has to maximize the efficiency of existing production methods by mobilizing all available inputs.

According to Leibenstein there are two types of entrepreneurship. The first is 'Routine entrepreneurship', which involves the essential functions of business management. Secondly, there is 'New Entrepreneurship', which involves innovative business practices.

Leibenstein's theory can be critiqued as follows:

- Often, Leibenstein's theory is compared to neoclassical views.
- It is impossible to determine X-efficiency's effect on an organisation's output.
- In comparison with standard theories, this theory is less predictable.

2.2.14 Baumol's View on Entrepreneurship (McCaffrey, 2018:2-3)

Baumol builds upon Schumpeter's theoretical framework because it views innovative activity as the defining characteristic of entrepreneurship. However, Baumol extends Schumpeter's theory by highlighting several previously unnoticed or under-theorized types of entrepreneurship: productive, unproductive, and destructive. Therefore, profit-seeking and social forces driving it can be viewed more nuancedly through this categorization. A disaggregated view of entrepreneurship enables Baumol to gain new insights into economic growth, its historical development, and the policies that support or impede it.

In Baumol's view, entrepreneurs are generally motivated by profit rather than a desire to be innovative or creative. Their motivation crystallises in the economic system through monetary profit and increased social standing. However, there are several options for generating

financial and social rewards, and as a result, there exists a wide range of entrepreneurial actions, each with its impact on productivity and growth. The primary purpose of Baumol's argument is to define these actions and explain their role in economic development.

Baumol opposed the notion that economic growth is primarily determined by the amount of entrepreneurship in society, arguing that entrepreneurs exist in one way or another in virtually every society.

Baumol maintained that entrepreneurs are vital to economic growth. In Baumol's analysis of entrepreneurship within the economy, the entrepreneur is essentially absent from economic models. In his view, the entrepreneur has been omitted from the model because economic models are based on well-defined variables such as output and price. Models do not allow an analysis of entrepreneurs' inventiveness, cleverness, and ambition. He opined that theories could not explain entrepreneurial activities.

Baumol's theory can be critiqued as follows

- In unproductive criticisms, Baumol's contribution is misinterpreted and therefore unaddressed.
- Baumol's arguments are attacked in a destructive way to disprove or improve them.
- Baumol's work is refined and developed in new directions in constructive criticism.

2.3 ORIENTATION TOWARDS BLENDED TECHNOLOGY

2.3.1 Advantages of Blended Technology

Blended Technology is a method of teaching that incorporates technology and the digital landscape with traditional tutor training through an online platform, allowing students to be more flexible in their learning experiences (Atef and Medhat, 2015:361). According to deNoyelles *et al*. (2016:141), Blended technology is a mixture of learning methods that incorporate multiple teaching methods, most commonly E-learning and traditional face-to-face learning. In line with these philosophies, Atef and Medhat (2015:364) state that Blended Technology is a development that utilises the growing accessibility of E-learning and online learning, online resources, and the continued need for a human component in the learning experience.

A Blended Technology approach ensures that trainees are engaged and drive their individual learning experience. The approach also provides the unique needs of the individual learner, which is not always possible with traditional classroom teaching (Adel & Dayan, 2021:2). By

employing fourth-generation technologies, Blended Technology challenges conventional teaching, which is ineffective for all students. In this way, the learning experience is tailored to suit the learning preferences of each student (Marshall-Stuart, 2018:8). Blended Technology also offers flexible timeframes tailored to each individual, allowing them to learn at their own pace (Adel & Dayan, 2021:4).

2.3.2 Blended Technology to enhance creativity and innovation in SMMEs

There are many opportunities to develop and progress new learning technologies beneficial to the entrepreneur's creativity and innovation. According to Akanbi & Iortimber (2015:89), an entrepreneur's creativity and innovation facilitate the development of innovative and creative products. Therefore, stimulating creativity and innovation through a Blended Technology approach in an SMME's training and development program affords creativity in product and service development. It is concluded that to effectively design and implement technology solutions that will engage creativity and innovation successfully, the SMME sector should investigate and adopt informal learning that is infused with Blended Technology.

An effective Blended Technology system in the training and development program greatly influences solving problems commonly experienced in the SMME sector. According to Bushe (2019:20), SMMEs are burdened by underskilled entrepreneurs and unfavorable external factors. These problems can largely be attributed to a lack of understanding of the diversity of needs of the SMME at the various stages of its growth process resulting in loss of jobs and income, poverty, and unemployment (Bushe, 2019:1).

The objective of the current research is to design a method that can be used to infuse SMMEs with Blended Technology to enhance creativity and innovation in technology development (section 1.5.1). One approach would be to set up moderated online networks of business owners, mentors, consultants and coaches with similar or overlapping interests (Carr, 2005:212). It is the most common form of informal business-to-business learning support in the SMME's technology learning environment (Gao *et al*., 2019:47).

The following steps can be considered in the implementation of Blended Technology in an SMME's learning program (Landers, 2017):

- Determine which knowledge, skills, or attitudes are most important to the organisation's success. Examples of KSF's of SMMEs are quality of customer support, products and processes, company morale, productivity, and the robustness of the SMME's intellectual property.

- Find out from management what the top priorities are. These issues set the direction for the levels of importance of the priorities. To this end, the highest level must be those factors directly affecting finances.
- In a consequent step, the competencies of employees are assessed. To this end, information is gathered on what employees know well and which competencies they excel in. It is followed that a list of each employee's development needs (DNA of development needs) in the SMME should be drafted.
- In the fourth step, the SMME's subject matter experts are identified and educated in the modus operandi of on-the-job training, focusing on the DNA of development needs of the employees in the SMME. The training starts with those employees who are the most competent. Next, the novices are trained, identifying the gaps in their competency levels.
- The next step is to identify and utilise online materials that may be used in the Blended Technology program. Examples are free materials on YouTube and videos that are relevant and appropriate for the skills that need to be developed. After this is done, it is important to create a list of titles and links.
- Lastly, structured study materials are assigned to the targeted employees**.** These employees are supplied with the link to the online materials and instructed to watch the content. To ensure that the employees have watched the relevant online training materials let them complete a simple assignment assessment form, which is to be completed and returned. The form consists of questions that address the main aspects of the online training.

The training program is assessed by soliciting feedback from the custodians of SMMEs on whether the amount of innovative products or services has increased during and after Blended Technology was implemented in the SMME. Infusion of the SMME's training and development program with Blended Technology shows the most promise for collaboration because it is likely that entrepreneurship will require face-to-face meetings to establish trust in online environments (Robb *et al*., 2014:3). Technology solutions for training and development should not be developed based on existing institutional and social practices but rather on how Blended Technology is practised in SMMEs.

2.4 DESIGN OF BLENDED TECHNOLOGY IN SMMEs

2.4.1 Introduction

Blended Technology is an effective solution to the challenge of delivering effective management training (Underhill Corporate Solutions, 2021:24). Therefore, it is regarded as a potential methodology for entrepreneurs to develop new products in SMMEs (ESADECREAPOLIS, 2012:5). The current study strives to adopt the Blended Technology philosophy for learning in SMMEs. Within the SMME's training and development plan, actions, goals, priorities, and resources are framed in the approach of adopting Blended Technology.

In general, the implementation of Blended Technology involves defining the entrepreneurs' actions to reach one or more of the organization's goals (Jofre, 2011:5). Actions include plans, patterns, positions, perspectives and ploys an SMME frame to reach the business's goals. This study investigates a general direction for SMMEs to achieve a desired Blended Technology creativity and innovation for product competitiveness in the marketplace. This study seeks to adopt the Blended Technology teaching approach, which concerns integrating the entrepreneur's creativity and innovation in the company's processes and utilising and allocating the Blended Technology creativity and innovation resources within the entrepreneur's environment to meet the customer's needs in the market.

The current study defines design as knowledge of goals, the uncertainty of events, and the need to consider the likely or actual behaviour of others. A Blended Technology design is the plan of creative decisions of entrepreneurs that shows its objectives and goals. The design of a Blended Technology teaching approach enhances creativity and innovation during product development because online learning caters to the entrepreneur's learning gaps within the business sphere, enhances digital proficiency, and allows for interactive learning. As part of the Blended Technology approach, VLEs are integrated with conventional classrooms to improve learning effectiveness (Hrastinski, 2019:568).

2.4.2 Aim and objective of adopting Blended Technology in SMMEs

The primary aim is to develop guidelines for adopting Blended Technology in the learning program of South African SMMEs. The ultimate aim is to enhance entrepreneurial creativity and innovation among entrepreneurs in SMMEs, which would enhance product competitiveness. In order to achieve this objective, the following factors need to be addressed in the method of adopting Blended Technology in SMMEs' learning systems.

- Design of the Blended Technology approach in SMMEs.

- Combination of traditional face-to-face classes with E-learning.
- Combination of creativity and innovation components with entrepreneurial skills.
- Pedagogy of entrepreneurial skill development.

Each of these factors will be discussed in the following sections.

2.4.3 Guidelines for implementing Blended Technology in SMMEs

Even though the number of employees in an SMME is between 10 and 250 (OECD, 2017:4), they generated 32% (R12.8 trillion) of the total GDP in South Africa in 2019 (Stats SA, 2020) and are therefore important drivers of the economic growth of the country.

The percentage contribution of SMMEs to South Africa's total turnover increased from 16% in 2013 to 22% in 2019 (Stats SA, 2020). This impressive growth can be attributed to the following characteristics of SMMEs (OECD, 2017:15).

- **Flexibility and personality**. Flexibility is a key determinant of the competitiveness and competitive edge of SMMEs. SMMEs do not have a board of directors and multiple regional leads to report to, implying they are more flexible than larger businesses.
- **The power to disrupt**. Due to their small size and agility, SMMEs are ideally suited to deliver products and services that customers are not procuring from bigger businesses.
- **Winning with people**. The close-knitted teams in SMMEs are more conducive to collaboration, creative thinking, and cooperation than teams in larger businesses.
- **Better benefits**. SMMEs are highly flexible because they have a flat hierarchy which translates to benefits like casual dress, a relaxed work environment, and customer service.
- **Financial assistance**. In most countries, including South Africa, SMMEs are eligible for various business grants from the government and private investors. It can lead to creativity and risk-taking outlined above, enabling new ventures to explore innovative possibilities.
- **Customer service**. Often SMMEs do not have a large dedicated marketing department, and quality customer service is readily achievable through direct contact between the SMME's staff and customers.

According to the definition of Blended Technology, the design of this approach in the learning systems of SMMEs should consider the blending of face-to-face classes with online platforms. A Blended Technology method is ideally suited for effective teaching of entrepreneurial skills because it improves student participation, preparation, and

understanding and encourages a more active approach to learning over a passive one, which can be difficult in comprehensive undergraduate courses.

When designing a Blended Technology approach, a few guidelines (Watson, 2008:12; Gachanja *et al*., 2016:22; Burgess *et al*., 2018:22) may be considered:

- There is not a single type of blended education, and over time the gaps on the continuum between entirely online and entirely face-to-face instruction may fill in.
- A Blended Technology design should be focused on the student, and artificial mandated boundaries should be avoided.
- Blended Technology is unique and requires innovative methods of instruction, content development, and professional development.
- The course content should be supported by both types of teaching and readily accessible to the learners as learning objects.
- Animation, video, simulations, and other engaging and illustrative content effectively convey concepts more visually and dynamically than paper or an instructor drawing on the board.
- To maintain the flow of classroom instruction, teachers must access online content quickly and easily.
- Since Blended Technology relies largely on web-based communication and content, it depends on a course management system or a learning management system to organise content and facilitate communication.
- The software that organises the course may be a distinguishing characteristic between a genuinely blended course and a face-to-face course that incorporates a few digital elements.
- Because Blended Technology can vary in many ways, it may pose research and policy challenges.
- As for online learning, there are several options. Students can be directed to online resources that reinforce the curriculum. In this way, their dependence on traditional single sources of knowledge such as textbooks is reduced. Online coaching, tutoring, and mentoring are also available. Online mentoring and coaching provide students with support and guidance outside of the classroom.
- Email communication is an essential facet of Blended Technology. It has shown to be very effective in distributing lists, task management, assignment attachments and scheduling functionalities that provide a rich platform for students to interact with the lecturer.

- Therefore, integration of technology and live events should be adopted in the Blended Technology pedagogy where they are not taking place. It is because they enrich the learning process by creating depth of reflection on content, creating interactions and sharing experiences, and providing a global perspective that leads to internationalization.
- Successful implementation of Blended Technology requires funding for training, equipment, and services.
- Blended Technology is possible in training settings using various technologies and delivery methods. Multiple models and Blended Technology approaches are available for delivering training (Bryan & Volchenkovakn, 2016:25). Therefore, it is essential to provide practitioners with guidance on the most effective and efficient methods of delivering Blended Technology. Because many subject experts can only be reached at foreign institutions, global collaboration is essential in the Blended Technology approach.

Expatiating from the preceding paragraphs and bullets, the following design of the Blended Technology approach in SMMEs is proposed:

- Designers of Blended Technology should analyse the institution's technical/financial infrastructure preparedness.
- Defining the administrative and personnel qualities required for Blended Technology is crucial.
- The ethical and political philosophies should be framed. Designers need to identify the ethical issues involved in the delivery. It is imperative to address the issues of social and political equality of opportunity, cultural diversity, and Internet accessibility in a way that does not offend the learners.
- Designers should consider the characteristics and needs of learners (audience analysis). Knowing their demographics, academic levels, geographic distribution, prior knowledge, and anxiety level is essential. Students with special needs should be allowed access to alternative learning opportunities.
- Analysis of learning content should be based on learners' characteristics.
- A Blended Technology approach should be used to determine concept sequencing, design, development, and strategy.
- The learning objectives (goal analysis) should be clearly defined. The objectives are behaviorally defined to promote active participation, discussion, and critical thinking.

- Blended delivery methods should be developed so that all learners can experience all blended components equally.
- Various instructional modes can be used to design learning strategies, including interactive discussions, teaching by examples, simulations, depictions, modelling, debates, field trips, case studies and lectures. These processes can be in the following formats: 1) Blending traditional classroom teaching with a VLE, 2) learning in groups, and 3) blending conventional with textbook content.
- Designing Blended Technology environments and tools of delivery means combining a wide range of state-of-the-art technologies that can be employed in blended learning scenarios and are aligned with the prescribed formats of learning. In addition to conventional classroom teaching, these technologies may include management systems for 1) learning, 2) curricula, 3) reusable learning objects, 4) wireless technologies, 5) peer-to-peer collaboration tools, 6) digital libraries, 7) supporting technologies, 8) digital portfolios, and 9) e-books.
- Designing the interface and ensuring its usability is necessary to facilitate interaction through the user interface. Designers must ensure that the interface is user-friendly and integrates and supports various components (structure, navigation, arrangement, and help).
- Designers need to organise and provide various offline and online resources for the learners. Resources may include consultations, private tuition, FAQs, email and chat assistance, a library, and website links.
- The management of Blended Technology should be conducted. The infrastructure, facilities and logistics for the use and implementation of different forms of Blended Technology should be ensured.
- The following processes should be implemented: LMS administration, materials upload, students' registration and enrollment, and class scheduling and allocation. Since learners in the online part of Blended Technology are located in different time zones, lecturers, moderators, tutors, and technicians should ensure that the server is accessible whenever it is needed.
- Students should be taught to become proficient in traditional and online instructional strategies to maximise their learning outcomes. To this end, learner outcome satisfaction, the balance of delivery, peer and tutor engagement, workload, selected technologies, perceived career benefit, and student satisfaction should be considered.
- It is critical to consider the on-campus aspect of blended education when developing a learning community.

- Activities should focus on engaging learners through reports, presentations, discourses, small group debates, and threaded discussions as part of the blended instructional process.
- Students should interact in face-to-face or online environments with their colleagues and instructors, depending on the blend format.

It can be concluded that the design of the Blended Technology approach is a complex exercise that involves various crucial factors for success. Some of these are learners' characteristics and needs, equality of opportunity, analysis of learning content, defining the learning objectives, experiencing all of the blended components by learners, defining instructural modes to construct the learning process, creation of a blended environment and tools of delivery, design the interface and ensure its usability and construct various offline and online resources.

2.4.4 Combination of creativity and innovation with entrepreneurial skills

This study pursues Blended Technology as a tool to enhance entrepreneurial creativity and innovation. This approach allows entrepreneurs from various spheres of SMMEs to huddle together in a conference room or convention centre to enhance product creativity and innovation. In this study, an effective Blended Technology program is designed to deliver training on creativity and product development innovation through the space of the SMME's distance approaches. Distance approaches are defined as the physical separation of teachers and students during instruction and the use of various technologies to facilitate student-teacher and student-student communication. However, a reasonable training component should be conducted in real-time to provide entrepreneurial creativity and innovation in product development. The Blended Technology teaching approach can also take the form of live casting within the SMME business. The author regards the following as essential mandates of the strategy for the growth and development of SMMEs:

- Online training on product creativity and innovation is mandatory for the entrepreneurship and growth of SMMEs.
- The records will be held entirely in real-time for the benefit of reviewing the decision on the approach to developing creative and innovative products.

These virtual live sessions will also allow peer entrepreneurs to work together and collaborate on shared projects in real-time, for example, through break-out sessions or entrepreneurship creativity and innovation group discussions.

2.4.5 Sharing of goals through Blended Technology

SMMEs may be limited in their resources to enable entrepreneurs from across the spectrum to thrush out shared team goals online. Online shared meetings may assist entrepreneurs in SMMEs to closely work together on related products. It allows meeting at a convenient time online, and they can execute their projects through visual online Blended Technology. To face the challenges of 21st-century consumers successfully and competitively, Blended Technology innovation strategies are essential.

2.4.6 Porter's Five Forces Model

Business success within SMMEs can be realised if Porter's Five Forces model (Figure 2.1) is employed. With the objectives of sustainability and profitability in mind, this model allows for a practical analysis of businesses. Most SMMEs employ Porter's five forces model to brainstorm an organisation's business structure and strategy. Since it was published (Hole et al., 2019:1437), Porter's Five Forces have been instrumental in shaping and directing most markets, industries, corporations and SMMEs (Pervan *et al.*, 2018:14; Mugo, 2020:37; Sultan, 2007:22,27-28,210; Nilsson & Tinglöf, 2007:71; Maresova & Kuca, 2014:139-142). It also aided the identification of risks in the business environment.

Porter's Five Forces Model is often used to measure the competitiveness, lucrativeness, and success of SMMEs (Hove & Masocha, 2014:255; Jakes, 2018:19). To this end, Porter's five forces are commonly used to revise or develop the business strategy, which should address the standard and driving forces of the market. This study is expected to strengthen the creativity and innovation of entrepreneurs in SMMEs by implementing a Blended Technology teaching approach.

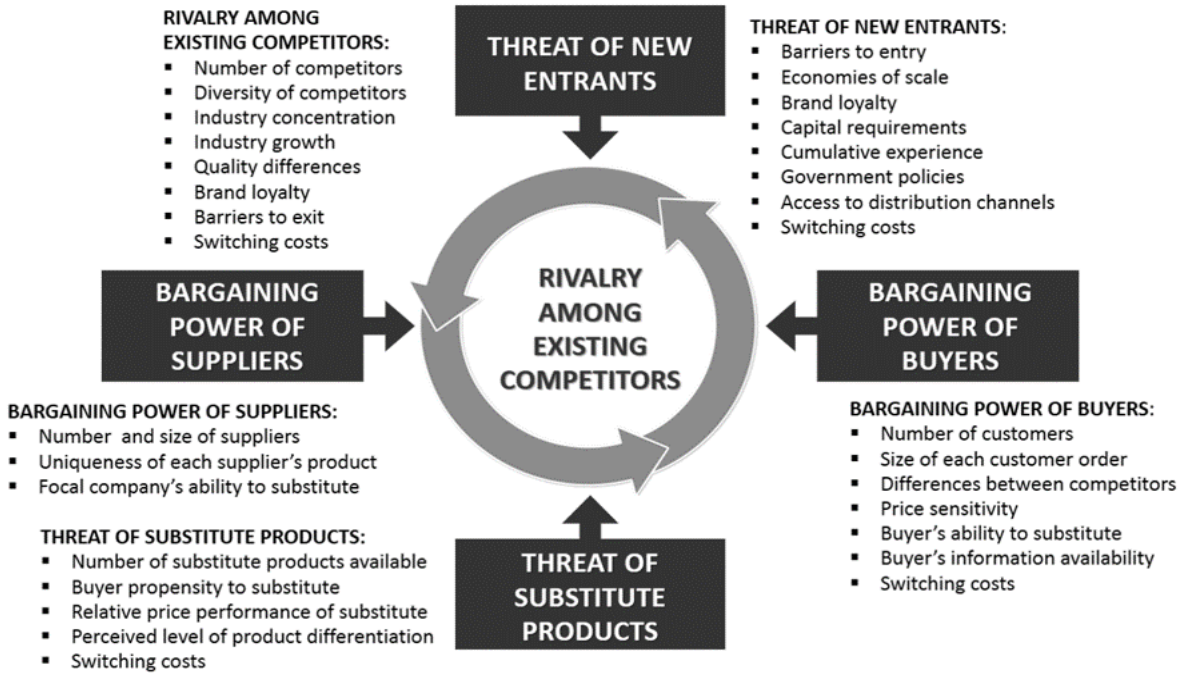

Figure 2.1: Porter's five forces model (adopted from Hole *et al*. 2019:1437)

2.4.7 Analysis of SMMEs according to Porter's Five Forces model

2.4.7.1 Trade Competition within SMMEs

Different organisations offer similar if not different products within the market. Important factors that determine the buying decision of customers or clients are economical, functional, marketing mix, personal, psychological, social and cultural (Ramya & Ali, 2016:76). These imply that the buying power comes from the customers and the supplying power from the SMMEs. A Blended Technology teaching approach fits well in the business of 21st century of SMMEs because it enhances their competitiveness. Common platforms such as digital marking, online product development, online customer service, and other business-related services are not as effective as Blended Technology. A Blended Technology teaching approach fills the gap between online training, hands-on experience and face-to-face interaction.

2.4.7.2 New Potential Competitors in an Industry or market

When there is a new entrant in the market, the SMME has to respond fast to maintain its market position. This situation has a significant influence on the business processes of the SMME because to respond, high capital costs to create production or trade facilities must be incurred, customer loyalty resulting from special product features must be established, and economies of scale should be considered if competitors are large operations. If a competitor

produces a product cost-effectively, it will enter the market and pose a significant challenge to SMMEs already in the market. Potential competitors bring about healthy competition because the product is standard, competing to be the best. A winning competitor has convinced customers about the value of buying their product.

In terms of customer loyalty, customers in the industry show a strong preference for the products and services of existing SMMEs. If a company has strong customer and distributor loyalty in its existing markets, it is ideally situated to be profitable over the long term.

To counter the competition with an economy of scale advantage, an SMME can expand its scale of operations. In this way, it can expect to reduce its average costs and become more competitive. If a company has strong customer and distributor loyalty in its existing markets, it is ideally situated to be profitable over the long term.

Economies of scale can be achieved by recognising the following factors:

In general, there are internal factors such as technical economies of scale through improving the efficiency and the size of the production process, purchasing economies of scale by buying bulk, managerial economies of scale by investing in expertise as the SMME grows, financial economies of scale by having many and large assets and risk-bearing economies of scale by diversifying activities and spreads its costs.

External factors include industry growth, low demand and ample supply, similar companies operating in the same area as the SMME, industry infrastructure, availability of training facilities, a good transportation network that may be available to the SMME and improved technology, which may drive down costs.

2.4.7.3 Suppliers Power

Supplier power is a strong force that can affect the cost of inventory, computer systems and workforce. The impact of this force can be derived from other suppliers who have competitive inputs of products or goods and services, how the supplier position itself, and the associated costs if an SMME decides to migrate to other suppliers (Lacoste & Blois, 2015:570). It is advisable to diversify the suppliers because it affords less dependency of the SMME on a few suppliers only. Suppose only a few suppliers supply goods and services to an SMME. In that case, they are placed in a position of power and charge unnecessarily high prices for goods and services, thereby giving the competitor a market advantage. However, if a supplier migrates costs between competing suppliers, an SMME can lower its input costs and increase its profit.

2.4.7.4 Customers Power

Buyer power can be broken down into two primary factors:

The first is bargaining power, which is the degree of influence buyers have relative to actors in the target industry. Buyer power allows buyers to reduce industry profit margins by placing SMMEs under pressure to decrease prices or increase service or product quality. When determining the bargaining power of buyers, four essential factors should be considered:

- The number of buyers relative to suppliers: The buyer's power is more substantial if the number of buyers is smaller than that of the suppliers,
- Reliance of a buyer's purchase on a specific supplier: If specific products and services are widely available, buyers are less reliant on one just one supplier. Therefore, the power of the buyer would be more significant.
- Switching costs: If there are not many alternative suppliers, switching costs are high. Therefore, buyer power is low.
- Backward Integration: By integrating or merging suppliers, the buyer increases his bargaining power.

The second factor is price sensitivity, which measures buyers' sensitivity to price changes. The greater the bargaining leverage and the more sensitive a buyer is to the price of a product, the more power that buyer has, which can lead to lower prices, higher churn rates, and higher buyer surplus across the industry.

2.5 CONCLUSIONS

In this chapter, a structured approach was followed to design an approach to enhance the innovation and creativity of entrepreneurs through the implementation of the Blended Technology teaching method in SMMEs. At first, the reader is orientated towards Blended Technology by a detailed discussion on the philosophy of the Blended Technology approach and how it stimulates innovation and creativity in a business, followed by guidelines to design the Blended Technology approach in SMMEs, recommendations to combine creativity and innovation with entrepreneurial skills, the employment of the IT platform to collaborate with outside SMMEs through Blended Technology and the use of Porter's five forces model to give SMMEs a competitive edge. Based on the information in these sections, methods that can be employed to infuse the training program of SMMEs with Blended Technologies are presented in the following section.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

In this chapter, the methodology used in this study is described. The main themes of the chapter are the research approach, research design and ethical considerations. Under the research approach, the quantitative methodology is discussed in detail. Under research design, the measuring instrument, sampling approach, validity and statistical analysis are deliberated. This chapter formed the basis for investigating the implementation of a Blended Technology strategy in SMMEs to enhance entrepreneurial creativity and innovation. Under ethical considerations, precautions taken to protect the privacy of respondents are highlighted.

3.2 RESEARCH APPROACH

In South Africa, there is a gap between the entrepreneur's creativity and innovation level and competitive product development and SMME business sustainability (Olawale, 2014a:926). Blended Technology can be employed as a tool to enhance entrepreneurs' creativity and innovation within SMMEs (section 2.4.4). A research problem was derived to address this gap (section 1.3). The problem can be addressed through the study's objective, which is to design a method that can infuse entrepreneurs' creativity and innovation within SMMEs with Blended Technology (section 1.5). To this end, this study adopted a quantitative methodology by rolling out a questionnaire within the SMMEs to gauge the level of understanding of the advantages of the Blended Technology philosophy in their teachings (see below).

The quantitative research methodology aligns with the current research objectives (section1.5).

The data and analysis obtained from the questionnaire will assist SMMEs in implementing Blended Technology in their teachings. If the pre-requisites for the questionnaire are adhered to, and the targeted sample is a true reflection of the population, the statistical analysis is credible. The results from the statistical analysis can then be used to identify obstacles and factors conducive to the implementation of the Blended Technology teaching approach in SMMEs. SMMEs will significantly benefit from this approach because most of their activities are conducted in an analogue approach. As already discussed, the roll-out of a Blended Technology teaching approach in SMMEs will align its training and development program with the demands of the workplace. It will positively impact its reputation in government, workplace, and public circles.

International surveys showed that migrating to Blended Technology is not straightforward (OECD, 2016:9). The roll-out of a Blended Technology teaching approach in SMMEs will be a steep learning curve and potentially expensive exercise for the business. Based on the previous sections, it is recommended that SMMEs follow a gradual and consistent approach to supplement their training and development program with the Blended Technology approach. The research results will also add value to the current sustainability and profitability of SMMES in such a way that IT technology is taking a front stand in every SMME's business process. It is especially true in light of the enormous challenges SMMEs face due to the global Covid 19 pandemic. To this end, the adoption of Blended Technology in the training and development program of SMMEs affords remote classroom teachings. For this reason, SMMEs should adopt a Blended Technology approach in their teachings to cope with the precarious situation created by the Covid19 pandemic.

In this study, survey research was used to collect primary data by a Snowball sampling technique (section 1.6.2.4). Survey research involves collecting information from a targeted population sample through their responses to survey questions. Survey research is often used to study human behaviour and is ideally suited to the study (Section 1.5). In the study, survey research is used to obtain information from entrepreneurs in SMMEs on the Blended Technology approach in their training and development programs. The Snowball sampling approach allows for gathering information that describes the characteristics of a large sample of entrepreneurs relatively quickly. Careful consideration was given in the design of the questionnaire. Aspects that were considered were who the respondents would be, how to select them, how to survey them and what to ask them.

3.3 RESEARCH DESIGN

The research design entails framing the market research approach and the method chosen by a researcher. Choosing the right design for the study allows researchers to select the methods they need for the study and render the research successful. According to Creswell (2014:55), a research design is an overall strategy for connecting the theoretical research problems with the appropriate and feasible empirical research. It is an investigation that provides a specific direction for the procedures in the research. Creswell (2002:11) argued that research design involves procedures, such as sampling, data collection instruments or protocols, procedures, data analysis, and the final interpretation of results.

3.3.1 Measuring instrument

As already indicated, a SurveyMonkey was the chosen measuring instrument (section 1.6.2.4). The type of scales used to measure the items on the survey instrument are continuous (strongly agree to strongly disagree). According to Creswell (2014:201), a survey design provides a quantitative or numeric description of a population's trends, attitudes, or opinions by studying a sample of that population. The researcher takes a broad view from sample results or extrapolates to the population. A survey design was chosen because more respondents can be reached and therefore, greater statistical power, large amounts of information can be obtained and validated models are readily available (Jones *et al*., 2013:7). Other advantages of the survey design include comprehensiveness in the types and number of variables that can be studied, ease of making generalisations and elicitation of information about attitudes from it that are problematic to measure using empirical methods (Glasow, 2005:1-1).

The limitations of survey design (Glasow, 2005:1-2) are related to the willingness of respondents to provide time to answer questions. Bias may occur, either due to the omission of responses from intended respondents or the nature and accuracy of the responses received, and respondent fatigue may occur. Other sources of error include intentional misleading responses of behaviours to falsify survey results or conceal inappropriate behaviour and respondents' inability to judge their behaviour or poor recall of the circumstances of their behaviour. The purpose of the survey is to extrapolate from the sample to the population so that interpretations can be made about some characteristic, attitude, or behaviour of the population at play (Creswell, 2014:203).

The survey instrument was distributed to the desired respondents by email because a larger target can be reached, response to the survey is primarily fast, and the data can be quickly compiled.

The mailed survey was administered by following the following steps:

- A short advance-notice letter was sent to the entrepreneurs in South African SMMEs that form part of the circle of acquaintances of the researcher.
- A few days after the advance-notice letter, the actual survey was sent with the letter of intent and an accompanying letter to explain to the respondents the outline of the questionnaire, how they must respond to the questions, the objectives and nature of the research, the different constructs and the value the research holds for the respondent and the SMME.

- All members of the sample received a follow-up postcard a few days later.
- Once there were no more responses to the questionnaire, the data was captured in an MS Excel spreadsheet to facilitate statistical analysis.
- Feedback was given to the respondents and management of the SMMEs because they requested the survey results.

3.3.2 Sampling approach

As already noted, the Snowball or chain referral sampling approach does not lend itself to a precise definition of the population, but the population can be described in terms of suitable candidates that can give informed responses to the questions in the monkey puzzle (section 1.6.2.3). This approach is a classic example of a multistage or clustering procedure. The researcher first identifies clusters (groups or organisations), obtains names of individuals within those clusters, and then samples within them (Creswell, 2014:204). Specifically, the population can be described as manager/entrepreneurs in South African SMMEs who may appreciate the benefits of a Blended Technology approach. Bias can be partially avoided by distributing the questionnaire to entrepreneurs in lucrative, average and struggling SMMEs. It alone, however, will not be enough to prevent bias. The letter of intent should be written to make the respondents aware that South African SMMEs need Blended Technology in their training programs to enhance creativity and innovation in the enterprise. This clause contains elements of motivation to change and how to do that. However, the researcher acknowledges that the Snowball sample technique is prone to bias because the respondents to whom the respondents sent the questionnaire in the circle of acquaintances of the researcher do not necessarily fall within the preceding guidelines or might not even respond to the questionnaire.

The questionnaire was distributed to the circle of acquaintances of the researcher via a Google Form. It is a free online program which researchers often use to deliver questionnaires online.

The Snowball sampling approach allows for the relatively rapid collection of information describing the characteristics of a large sample of entrepreneurs. Snowball sampling produces biased samples because respondents with many social connections can provide the researcher with a higher proportion of other respondents with similar characteristics to the entrepreneurs in the researcher's circle of acquaintances. Additionally, Snowball sampling generates biased samples because there is a high probability that the characteristics of the respondents in the circle of acquaintances of the researcher will be similar in the secondary and tertiary circle of acquaintances. Nevertheless, respondent-driven sampling is not undesirable because it allows the researcher to make asymptotically unbiased estimations from Snowball samples when it is unfeasible to obtain a probability sample and a relevant

population size exists (Johnston & Sabin, 2010:40). Hence, it will enable respondents to deduce information on the social network connecting the hidden population, which in the study are entrepreneurs in SMMEs.

It is important to note that Snowball sampling is a non-random, non-probability approach because the researcher identifies the respondents in the research. A drawback of statistical sampling is that factors such as the workforce, time, and money are detrimental to obtaining a truly random sample representing the entire population. These factors are very real in the researcher's case, and the Snowball sampling approach was chosen. As explained in the previous paragraph, the researcher subjectively selected appropriate respondents representing the study population. True to the nature of the Snowball sampling approach, entrepreneurs in South African SMMEs were targeted non-randomly based on their accessibility.

There are two other important reasons for choosing the Snowball sampling approach: Firstly, the population (entrepreneurs in South African SMMEs) is hard to reach. A survey conducted by GoDaddy during 2019 learned that only 28% of South African SMMEs have a website, 22% planned to build one soon, while the rest (42%) used social media platforms solely (SME South Africa, 2021). Secondly, successful SMMEs are rare in South Africa (Alan Gray Orbis Foundation, 2019).

The study did not involve stratification because the population was not divided into homogeneous subgroups before sampling. It was also impossible to choose a sample size before researching because each respondent in the circle of acquaintances of the researcher has a different number of social connections.

3.3.3 Validity

Although many forms of validity are discussed in the open literature (Brown, 2010:33; Drost, 2011:115), only three traditional forms of validity may be considered (Creswell, 2014:206). These are:

- Content validity signifies how well the items in the questionnaire are aligned with the study's objective.
- Predictive or concurrent validity concerns the efficacy with which scores on one measure (a predictor) predict scores on another measure of interest.
- Construct validity determines if items in the questionnaire measure hypothetical constructs or concepts.

However, this tripartite validity view is problematic for several reasons (Brown, 2010:33). In general, it masks the unitary nature of validity, it classifies validity into narrow categories, it is incomplete because it ignores questions that test consequences, and it postulates that all types of validity are equal. Consequently, construct validity has become the primary goal in validity research, looking at whether the ratings are useful and have beneficial implications for practice (Creswell, 2014:206). Establishing the validity of the scores in the survey assisted the assessment of the applicability of the measuring instrument in reaching the objectives of the research. This aspect is discussed in detail in chapter 4. Different papers define various forms of construct validity (Bolarinwa, 2015:197; Drost, 2011:116; Taherdoost, 2016:31). Some that maybe be highlighted are:

- Validity is convergent when different numerical measures of the same concept produce similar results.
- A concept's discriminant validity indicates it is distinct from other concepts with very close relationships.
- When a group with an established attribute of the construct's outcome is compared to a group in which the character has not yet been established, known-group validity is used.
- Factorial validity validates the construct's contents by employing the factor analysis model. It is usually used when a construct of interest is multidimensional, forming different domains within a general attribute.
- Hypothesis-testing validity is used to determine whether a research hypothesis about the relationship between a concept (variable) or other concepts (variables) derived from a theory is reliable.

It is noted that validity exploits how well the notion of a theoretical construct is represented in a survey instrument (Bolarinwa, 2015:196). Furthermore, the survey questions (Appendix 4) should address the objective of the research (section 1.3). A sample of questions[1] that meet this criterion is given below:

- I believe that I will create a better product with technology.
- The use of technology in business can help with creativity and innovation.
- I think the use of technology for product creation and innovation will help in business.
- Using technology to create and innovate products will enable me to accomplish business goals.

[1] Obviously, the other questions in the survey instrument also meet this criterion but they are more indirect in nature.

- Technology usage would enhance my creativity and innovation as an entrepreneur
- The blend between technology, creativity and innovation will be challenging to get used to.
- There is a need for product development and creation to enable the change.

These questions directly solicited the opinion of entrepreneurs in South African SMMEs on the effectiveness and importance of Blended Technology in enhancing creativity and innovation in product development. The questions also show how the dependent variables (innovation, creativity, entrepreneurs, training and development) relate to the research questions (section 1.3).

In the study, a Snowball sampling technique (section 1.6.2.3) was used to distribute the survey to entrepreneurs in the circle of acquaintances of the researcher. The results were subjected to statistical methods of analysis (chapter 4).

3.3.4 Statistical analysis

The statistical analysis was performed with the help of the SPSS statistical program (SPSS Inc, 2007). Basic statistical tests relevant to the study that can be performed in SPSS include t-tests, correlation, and ANOVA.

Statistical methods that can be leveraged in SPSS and were employed in the study are descriptive statistics, including methodologies such as frequencies, cross-tabulation, and descriptive ratio statistics, bivariate statistics, including methods such as ANOVA, means, correlation, and nonparametric tests and inferential statistics including hypothesis tests, confidence intervals, and regression analysis.

A detailed discussion of the approach to statistical analysis is given in section 4.1.

3.4 ETHICAL CONSIDERATIONS

It is the responsibility of the researcher to protect the confidentiality and privacy of the respondents in the research. Accordingly, researchers must protect sensitive and personal data that respondents would not reasonably wish to disclose to the public (Research Ethics Board, 2015:3). In the study, confidential research was conducted. By implementing proper safeguards, the researcher safeguarded respondents' information and privacy from unauthorised access, use, disclosure, modification, loss, and theft.

Privacy and confidentiality were achieved by adopting the following measures:

Confidentiality and privacy were pledged in the letter of intent. This promise was upheld by using number codes to associate a specific individual with the questionnaire, not disclosing names and addresses of survey respondents from anyone else, including the management of SMMEs where the research was undertaken, destroying the questionnaires and respondent's identifying information after the responses were transferred to the Excel spreadsheet, destroying the questionnaires and respondent's personal information after the responses have have been filed in the database and performing tabulations for statistical analysis only when the individual respondents remained anonymous.

The questionnaire was conducted anonymously, requiring the people to respond directly by email. Voluntary participation was highlighted, and respondents were thanked for their involvement

3.5 SUMMARY OF THE CHAPTER

This chapter presented a discussion of the methodology applied in performing the research. The administration and recording of the measuring instruments were discussed. It included a comprehensive discussion of the scope of the survey, the sampling method and the organisation of the survey. Moreover, the data collection technique used for the research study was also discussed, and the rationale for using the selected data collection methods was emphasised. Lastly, the chapter described the reliability and validity of the research instrument and the ethical considerations.

CHAPTER FOUR: DATA ANALYSIS

4.1 INTRODUCTION

The previous chapter outlined the methodology used in this study to collect and gather data. This chapter aims to present the findings that would assist the researcher todesign a Blended Technology teaching approach that can be used to infuse the creativity and innovation of entrepreneurs in SMMEs. The objectives of the study were:

- Perform a literature study on entrepreneurship in SMMEs and how Blended Technology can be employed in SMMEs to enhance creativity and innovation during the development of products and services.
- Determine how respondents to the questionnaire perceive Blended Technology and how these perceptions affect the adoption of Blended Technology in SMMEs.
- Determine how Blended Technology as a tool affects technology change on implementing technological creativity and innovation.
- Recommend improvements at SMMEs by adopting Blended Technology.

This chapter will present the data analysis using descriptive and inferential statistics. Descriptive statistics used were summary statistics like mean, frequency proportions and bar charts, while the inferential statistics used were independent t-tests, the univariate analysis of variance (one-way ANOVA) and correlation analysis.

The chapter begins with the response rate for the instrument, followed by the descriptive statistics of the sample's social demographics. Investigative factor analysis will then be presented, used to cluster closely related variables into groups. It allowed for the formation of a construct of the items in the survey. From the constructs, composite variables were created by averaging items in a construct for use in comparative analysis. Cronbach's alpha was used to assess the reliability of the constructs. The description of the items in a construct is then presented, followed by a summary description of the composite variables.

The independent t-tests and one-way ANOVA are then presented. These were done to determine whether the perception of respondents on Blended Technology is affected by social demographic characteristics. The chapter then presents the degree of association between the composite variables using Pearson correlation analysis. The chapter ends with conclusions and a summary of the results of the data analysis.

4.2 RESPONSE RATE

There were approximately 400 managers/entrepreneurs within the SMMEs in the study population. According to the table for sample size determination (Krejcie and Morgan, 1970:607), a population of about 400 requires a sample size of 196 with a 95% confidence level. The researcher sent links to the online survey to 196 people, and the response rate is shown in Table 4.1.

Table 4.1: Response rate of the sample

Item	Number
Total population	N = 400
Questionnaires administered (target sample)	n = 196
Initial total responses	160
Non-usable responses	0
Total usable responses	160
Usable responses rate	81.6%

One-hundred and sixty entrepreneurs participated in the study giving a response rate of 81.6%, which is acceptable as proposed by Baruch and Holtom (2008:1155). According to these authors, the average response rate for surveys is 52.7%, with a standard deviation of 20.4. In comparison, the average response rate for studies that utilised data collected from an organisation is approximately 35.7%, with a standard deviation of 18.8, as observed from 490 different studies that used surveys

4.3 SOCIAL DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

A consent form accompanied the online questionnaire, and all the people agreed to participate in the study, and every question was mandatory. It resulted in all the respondents answering all the questions giving a sample size of 160 for each question. The respondents were asked to provide their age, educational background, years working in the company, managerial level and the number of subordinates that worked under them. The information is presented in Table 4.2.

Most of the respondents were females comprising 64.4% (n=88), while males constituted 33.1% (53). Only 2.5% (n=4) preferred not to state their gender. About 55% (n=88) respondents were aged between 20 – 30 years, 29.4% (n=47) were aged between 31 – 40 years while 8.1% (n=13) were aged between 41 – 50 years and 7.5% (n=12) were more than 50 years old. The results indicated that the majority of the entrepreneurs that participated in

the study were not more than 30 years of age, and close to 85% were not more than 40 years of age. In terms of marital status, 70.6% (n=113) were single while 23.1% (n=37) were married. It might be attributed to the fact that the majority of the entrepreneurs that participated were young. Only 1.9% (n=3) were divorced, 3.1% (n=5) were separated and 1.3% (n=2) were widowed.

Table 4.2: Social demographic characteristics of the sample

Variable	Category	Frequency	%
Gender	Female	103	64.4%
	Male	53	33.1%
	Prefer not to say	4	2.5%
	Total	**160**	**100 .0%**
Age	20 - 30 years	88	55.0%
	31 – 40 years	47	29.4%
	41 – 50 years	13	8.1%
	50 years and above	12	7.5%
	Total	**160**	**100 .0%**
Marital status	Single	113	70.6%
	Married	37	23.1%
	Divorced	3	1.9%
	Separated	5	3.1%
	Widowed	2	1.3%
	Total	**160**	**100 .0%**
Educational background	Matric	47	29.4%
	National certificate	23	14.4%
	National diploma	14	8.8%
	Degree	26	16.3%
	Honours	19	11.9%
	Masters	20	12.5%
	PhD	4	2.5%
	Other	7	4.4%
	Total	**203**	**100 .0%**
Years worked at the company	0 – 5 years	105	65.6%
	6 - 10 years	26	16.3%
	11 – 15 years	12	7.5%

Variable	Category	Frequency	%
	More than 15 years	17	10.6%
	Total	**160**	**100 .0%**
Discipline	Supervisor/Junior manager	45	28.1%
	Middle manager	30	18.8%
	Senior manager	14	8.8%
	Director	6	3.8%
	Executive	10	6.3%
	Student	17	10.6%
	Lecturer/Educator	11	6.9%
	General worker	6	3.8%
	Other	21	13.1%
	Total	**160**	**100 .0%**
Number of subordinates	0 – 5	105	65.6%
	6 – 10	17	10.6%
	11 – 20	15	9.4%
	21 – 50	14	8.8%
	More than 50	9	5.6%
	Total	**160**	**100 .0%**

Only 29.4% (n=47) of the respondents had a matric qualification, 14.4% (n=23) had a national certificate while 8.8% (n=14) had a national diploma. The majority of the respondents were degree holders, with 16.3% (n=26) having an undergraduate degree, 11.9% (n=19) having an honours degree, 12.5% (n=20) having a master's degree, while 2.5% were PhD holders. Only 4.4% (n=7) did not mention any qualifications. About 65.6% (n=105) had worked for not more than 5 years in the company, 16.3% (n=26) had worked for 6 – 10 years while 7.5% (n=12) had worked for 11 – 15 years, and 10.6% (n=17) had worked for more than 15 years. The majority of the entrepreneurs who participated in the study had not worked for many years within the company.

In terms of discipline, about 28.1% (n=45) were supervisors/junior managers, 18.8% (n=30) were middle managers, 8.8% (n=14) were senior manager, 3.8% (n=5) were directors, and 6.3% (n=10) were executives. The entrepreneurs who were students constituted 10.6% (n=17), 6.9% (n=11) were lecturers/educators, 3.8% (n=5) were general workers while 13.1% (n=21) were in various posts like assistants, clerks and salesperson. About 65.6% (n=105) supervised not more than 5 subordinates, 10.6% (n=17) supervised 6 – 10 subordinates, 9.4%

(15) supervised 11 – 20 subordinates while 8.8% (n=14) supervised 21 – 50 subordinates and 5.6% (n=9) supervised more than 50 subordinates.

4.4 EXPLORATORY FACTOR ANALYSIS ON THE CONSTRUCTS

There were ten questions on Blended Technology as a tool and eighteen questions on the effects of change due to technological creativity and innovation. By grouping highly associated items, exploratory factor analysis using principal component analysis with a varimax rotation was employed on each section to establish which items assessed the same issue. The two exploratory factor solutions will be discussed in the following subsections.

4.4.1 Exploratory factor analysis of Blended Technology as a tool

Blended Technology as a tool was assessed using ten questions. The items "*I avoid using technology when I can (*R)"* and "*I think technology for entrepreneurs takes too much time (*R)*" were dropped from the analysis because there were not loading with the other factors although there was reverse scored. The eight-item factor solution resulted in a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .908, which is greater than .5, showing that the correlations were adequate for factor analysis. The Bartlett's Test of Sphericity resulted in a chi-square value of 653.7 with a p-value of less than .001, resulting in the null hypothesis of lack of sufficient correlation between variables being rejected, indicating that the correlation matrix is not an identity matrix and that at least some pairwise correlations are not equal to zero. The results from both tests showed that factor analysis was appropriate. All communalities were above .5, and the latent root criterion was used to determine the number of factors, that is, the factors with an eigenvalue of at least one. The factor solution resulted in one factor explaining 60% of the total variance, indicating that the solution was robust since it accounted for at least 60% of the variance (Hair *et al*., 2019). The rotated factor solution is shown in Table 4.3.

The factor had an eigenvalue of 4.764 and accounted for 60% of the total variation. The items "*I believe that I will create a better product with technology "*and *"the use of technology in business can help with creativity and innovation*" were the ones loading highly on the factor with the items correlating to the factor to a degree of .842 and .826 respectively. The factor was named "*Blended Technology as a tool*" since all the eight remaining factors loaded on one factor.

Table 4.3: Rotated factor solution of the items on Blended Technology as a tool

Item	Component 1
Q2.6 I believe that I will create a better product with technology.	.842
Q2.9 The use of technology in business can help with creativity and innovation.	.826
Q2.8 I want to learn more using technology in my line of work.	.762
Q2.4 I know technology can help me to learn many things about a business.	.762
Q2.5 I will be a better entrepreneur if I know how to use technology.	.755
Q2.1 I enjoy using technology.	.749
Q2.10 Entrepreneurs can find technology reliable.	.740
Q2.7 I am very confident when it comes to working with technology.	.730
Eigenvalues	**4.764**
Percentage variance explained	**60.0%**
KMO measure of sampling adequacy	***.908***
Bartlett's sphericity test level of significance	***p<.001***

4.4.2 Exploratory factor analysis of effects of technology change

Effects of change from implementing technological creativity and innovation consisted of eighteen items. Some of the items were reverse-scored to make them in the positive direction. Six items were omitted from the analysis. The items "*I prefer using technology I know (*R)"* which was reverse-scored (*R), and "*I am unlikely to change plans regarding technology usage*" were dropped from the analysis because outliers were loading on their own. The items "*I find it hard to use technology in my work (*R)"* and "*using technology in the creation and innovation of products will enable me to accomplish business goals*" were dropped from the analysis because they were loading highly on two factors (cross-loading) while the items "*the blend between technology, creativity and innovation will be challenging to get used to (*R)"* and "*there is a need for product development and creation to enable the change*" had insignificant loadings which were less than .5. The remaining twelve items resulted in a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .859, which is greater than .5, showing that the correlations were adequate for factor analysis. The Bartlett's Test of Sphericity resulted in a chi-square value of 800.7 with a p-value of less than .001, resulting in the null hypothesis of lack of sufficient correlation between variables being rejected, indicating that the correlation matrix is not an identity matrix and that at least some pairwise correlations are not equal to zero. The results from both tests showed that factor analysis was appropriate. The majority of the communalities were above .6, and the latent root criterion resulted in a three-

factor solution with at least one eigenvalue. The three-factor solution explained 64.5% of the total variance, indicating that the solution was robust since it accounted for at least 60% of the total variance (Hair *et al*., 2019). The rotated factor solution is shown in Table 4.4.

Table 4.4: Rotated factor solution of the items on effects of technology change

Item	Component		
	1	2	3
Q3.3 I think the use of technology for product creation and innovation will help in business.	.832		
Q3.8 Technology usage would enhance my creativity and innovation as an entrepreneur.	.818		
Q3.9 It would be easy for me to become skillful at using technology.	.745		
Q3.4 I can make any situation around technology work for me.	.698		
Q3.7 Using technology would improve my job performance and work rate.	.681		
Q3.14 I fear the negative impact that the technology will have on the innovative products (*R).		.818	
Q3.12 I fear losing potential customers because of technology (*R).		.813	
Q3.15 Change brought by technology will cause large-scale redundancy (*R).		.687	
Q3.10 I feel technology change will cause delays in my business (*R).			.815
Q3.11 I feel technology will cause delays in my business (*R).			.744
Q3.18 Investing in technology for an entrepreneur is not the right investment (*R).			.591
Q3.13 I believe technology would harm my current working system (*R).			.574
Eigen values	**3.233**	**2.285**	**2.234**
Percentage variance explained	**26.94%**	**19.04%**	**18.61%**
KMO measure of sampling adequacy	***.859***		
Bartlett's sphericity test level of significance:	***p<.001***		

The first factor consisted of five items. The items, "*I think the use of technology for product creation and innovation will help in business"* and *"Technology usage would enhance my creativity and innovation as an entrepreneur"* were the ones loading highly on the factor with the items correlating to the factor to a degree of .832 and .818 respectively. The factor had an eigenvalue of 3.233, and it explained 26.94% of the total variation. The factor consisted of the

issues on product creation and skills development. The factor was named "*technology change for product creation and skills development*".

The second factor consisted of three items. It had an eigenvalue of 2.285 and accounted for 19% of the total variation. The items, "*I fear the negative impact that the technology will have on the innovative products (*R)"* and *"I fear losing potential customers because of technology (*R)*" were the ones loading highly on the factor with the items correlating to the factor to a degree of .818 and .813 respectively. The items addressed issues of fear of undertaking technology, and the factor was named "*technology change fear*".

The last factor consisted of four items, had an eigenvalue of 2.234 and accounted for 18.6% of the total variation. The items, "*I feel technology change will cause delays in my business (*R)"* and *"I feel technology will cause delays in my business (*R)*" were the ones loading highly on the factor with the items correlating to the factor to a degree of .815 and .744 respectively. The factor consisted of items on business systems and was named "*technology change effect in business systems*".

4.5 RELIABILITY OF THE INSTRUMENT

The instrument's reliability was assessed using Cronbach alpha to measure its consistency. The guidelines set by Jain and Angural (2017:288) were used to interpret the reliabilities. The guidelines states that if the Cronbach alpha $\geq .9$ the reliability is excellent; $.9 > \alpha \geq .8$ it is good; $.8 > \alpha \geq .7$ it is acceptable; $.7 > \alpha \geq .6$ it is questionable; $.6 > \alpha \geq .5$ it is poor and < .5 it is unacceptable. The Cronbach alpha results are presented in Table 4.5.

Table 4.5: Reliability of the constructs using Cronbach alpha

Construct	No. of items	Cronbach's alpha	Acceptable level
Blended Technology as a tool	8	.899	Good
Technology change for product creation and skills development	5	.849	Good
Technology change effect in business systems	4	.774	Acceptable
Technology change fear	3	.741	Acceptable
Total	***20***	***.915***	***Excellent***

The reliabilities of the constructs ranged from .741 to .899, indicating that all constructs had reliabilities greater than .7. The reliability of the overall instrument was .915, which was excellent, indicating the instrument could be used for further data analysis.

4.6 DESCRIPTIVE STATISTICS OF THE CONSTRUCTS

The factor solution indicated four constructs: Blended Technology as a tool, technology change for product creation and skills development, technology change effect in business systems, and technology change fear. The constructs were examined using a five-point Likert scale which ranged from 1 (totally disagree) to 5 (totally agree). The options totally agree and agree were collapsed to give the proportion that agreed while totally disagreed, and disagreed gave the proportion of the respondents that disagreed. The mean was used to rank the items and a mean of less than 2.5 indicated that the respondents disagreed, a mean between 2.5 and 3.5 indicated that they were neutral, and a mean of at least 3.5 indicated that the respondents agreed. The patterns and trends in the items are discussed using descriptive statistics in the following subsections.

4.6.1 Blended Technology as a tool

Eight items remained to assess the construct of Blended Technology as a tool. The descriptive statistics are shown in Table 4.6.

Table 4.6: Descriptive statistics on Blended Technology as a tool

Item	Level of agreement					Mean
	Totally agree	Agree	Neutral	Disagree	Totally disagree	
Q2.8 I want to learn more about using technology in my line of work.	41.3% (66)	55.6% (89)	.6% (1)	1.9% (3)	.6% (1)	4.35
Q2.9 The use of technology in business can help with creativity and innovation.	44.4% (71)	48.8% (78)	2.5% (4)	3.1% (5)	1.3% (2)	4.32
Q2.1 I enjoy using technology.	43.8% (70)	48.1% (77)	2.5% (4)	2.5% (4)	3.1% (5)	4.27

Item	Level of agreement					Mean
	Totally agree	Agree	Neutral	Disagree	Totally disagree	
Q2.5 I will be a better entrepreneur if I know how to use technology.	41.3% (66)	48.1% (77)	3.8% (6)	1.9% (3)	5.0% (8)	4.19
Q2.4 I know technology can help me to learn many things about a business.	43.1% (69)	42.5% (68)	4.4% (7)	8.1% (13)	1.9% (3)	4.17
Q2.6 I believe that I will create a better product with technology.	34.4% (55)	56.3% (90)	3.1% (5)	3.1% (5)	3.1% (5)	4.16
Q2.10 Entrepreneurs can find technology reliable.	30.6% (49)	58.1% (93)	5.6% (9)	3.8% (6)	1.9% (3)	4.12
Q2.7 I am very confident when it comes to working with technology.	31.3% (50)	53.8% (86)	5.0% (8)	6.9% (11)	3.1% (5)	4.03

All the items had means greater than 4, indicating that, on average, the respondents agreed with aspects of Blended Technology as a tool. About 96.9% of the respondents indicated that they want to learn more using technology in their line of work, while 93.2% said that the use of technology in business could help with creativity and innovation, and 91.9% indicated that they enjoy using technology. Most respondents (89.4%) believed that they would be a better entrepreneur if they knew how to use technology. Regarding whether technology can help them learn many things about a business, 85.6% agreed, while only 10% disagreed. A proportion of 90.7% indicated they believe they can create a better product with technology, 88.7% said that the entrepreneurs could find technology reliable, while 85.1% indicated their confidence in working with technology.

4.6.2 Technology change for product creation and skills development

The factor solution resulted in the construct on technology change for product creation and skills development being measured using five items as shown in Table 4.7.

Table 4.7: Descriptive statistics on technology change for product creation and skills development

Statement	Level of agreement					Mean
	Totally agree	Agree	Neutral	Disagree	Totally disagree	
Q3.3 I think the use of technology for product creation and innovation will help in business.	37.5% (60)	55.0% (88)	1.9% (3)	4.4% (7)	1.3% (2)	4.23
Q3.7 Using technology would improve my job performance and work rate.	35.6% (57)	54.4% (87)	2.5% (4)	5.0% (8)	2.5% (4)	4.16
Q3.8 Technology usage would enhance my creativity and innovation as an entrepreneur.	30.6% (49)	59.4% (95)	3.1% (5)	5.6% (9)	1.3% (2)	4.13
Q3.9 It would be easy for me to become skilful at using technology.	26.9% (43)	62.5% (100)	5.0% (8)	5.0% (8)	.6% (1)	4.10
Q3.4 I can make any situation around technology work for me.	23.8% (38)	66.3% (106)	5.0% (8)	4.4% (7)	.6% (1)	4.08

All the means were at least 4, indicating that the respondents on average agreed on issues on technology change for product creation and skills development. A proportion of 92.5% thought that the use of technology for product creation and innovation would help in business, 90% believed that use of technology would improve their job performance while also 90% agreed that technology usage would enhance their creativity and innovation as an entrepreneur. Regarding whether it will be easy for them to become skilful in using technology,

89.4% agreed, only 5.6% disagreed and 5% were neutral. About 90.1% said that they could make any situation around technology work for them.

4.6.3 Technology change effect in business systems

The factor solution resulted in the construct on technology change effect in business systems being assessed using four items as shown in Table 4.8.

Table 4.8: Descriptive statistics on technology change effect in business systems

Statement	Level of agreement					Mean
	Totally agree	Agree	Neutral	Disagree	Totally disagree	
Q3.10 I feel technology change will cause delays in my business.	5.0% (8)	20.6% (33)	11.3% (18)	38.1% (61)	25.0% (40)	2.43
Q3.18 Investing in technology for an entrepreneur is not the right investment.	3.8% (6)	20.6% (33)	10.0% (16)	43.1% (69)	22.5% (36)	2.40
Q3.13 I believe technology would harm my current working system.	2.5% (4)	14.4% (23)	6.9% (11)	46.9% (75)	29.4% (47)	2.14
Q3.11 I feel technology will cause delays in my business.	1.3% (2)	14.4% (23)	6.3% (10)	46.9% (75)	31.3% (50)	2.07

All the items on technology change effect in business systems had means less than 2.5%, indicating that the respondents were in disagreement on average. About 63.1% disagreed that technology change will cause delays in their business, with 11.3% neutral and 25.6% agreeing to the statement. When further asked if investing in technology for an entrepreneur is not suitable, 65.6% disagreed, 10% were neutral, and almost a quarter, 24.4% agreed. Regarding whether technology will harm their current working system, 76.3% disagreed, 6.9% were neutral, and 16.9% agreed. About 78.2% disagreed that technology will cause delays in business, 6.3% were neutral, and 15.7% agreed. All these issues were negative and were reverse-scored when computing composite variables.

4.6.4 Technology change fear

The factor solution resulted in the construct on technology change fear being assessed using three items, as shown in Table 4.9.

Table 4.9: Descriptive statistics on Technology change fear

Statement	Level of agreement					Mean
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Q3.15 Change brought by technology will cause large-scale redundancy.	3.1% (5)	30.6% (49)	20.0% (32)	34.4% (55)	11.9% (19)	2.79
Q3.12 I fear losing potential customers because of technology.	5.0% (8)	24.4% (39)	14.4% (23)	35.6% (57)	20.6% (33)	2.57
Q3.14 I fear the negative impact that technology will have on innovative products.	1.9% (3)	22.5% (36)	11.9% (19)	43.8% (70)	20.0% (32)	2.42

64.5% agreed that the department understands whether the minimum 30% to be subcontracted relates to the scope of work or price, while 7.3% were neutral and 28.2% disagreed, and the mean was 3.41. About 60.9% agreed that the department can always identify situations where it is feasible or not feasible to subcontract, 7.3% were neutral, 31.9% disagreed, and the mean was 3.33. It can be noted that the majority of the respondents agreed on issues of sub-contracting.

4.7 DESCRIPTIVE STATISTICS OF THE COMPOSITE VARIABLES

Composite variables were constructed by averaging items in a construct as proposed by Joshi *et al*. (2015:398) and Subedi (2016:40). The average was used since it will be easier for the researcher to interpret the composite variables using the original Likert scale. The summary statistics of the composite variables are shown in Table 4.10.

Table 4.10: Means and standard deviation for the composite variables

Construct	Mean	SD	Agreement level
Blended Technology as a tool	4.20	.67	Agreed
Technology change for product creation and skills development	4.14	.63	Agreed
Technology change effect in business systems	3.74	.86	Agreed
Technology change fear	3.40	.92	Neutral

The construct on Blended Technology had a mean of 4.20 and a standard deviation of .67 (M = 4.20; *SD* = .67). The mean was close to four, indicating that, on average, the respondents agreed with the issues. Using the empirical rule of the normal distribution, about 68.3% of the mean scores range from 3.53 to 4.87 (± one standard deviation from the mean). A bar chart of the averages was constructed, and it is shown in Figure 4.1.

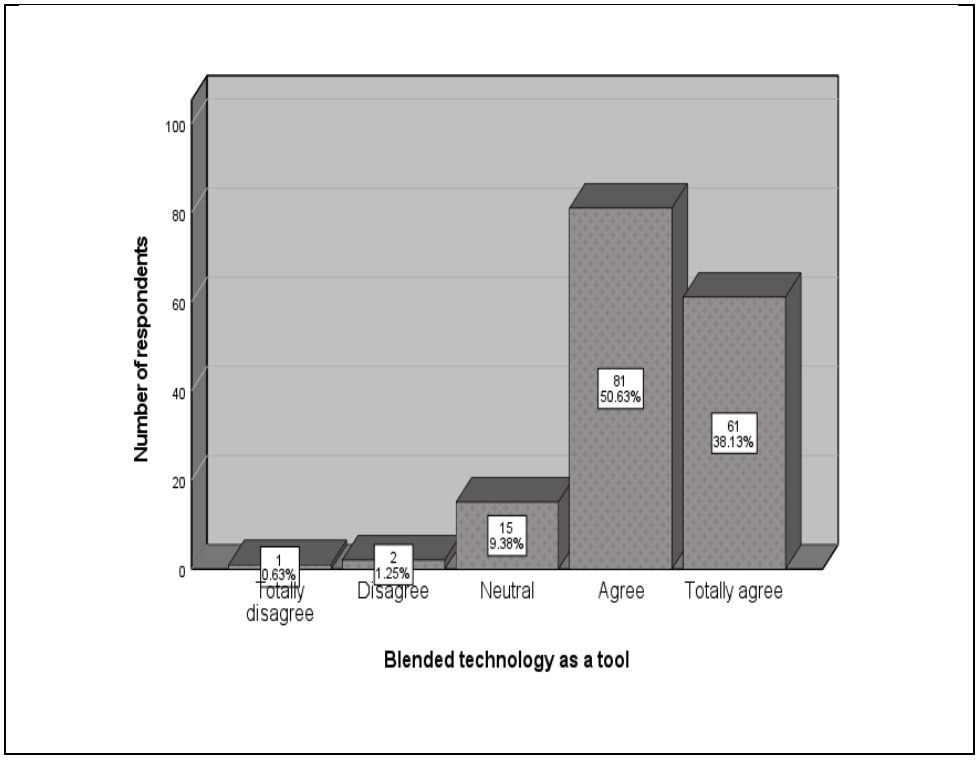

Figure 4.1: Blended Technology as a tool

Figure 4-1 shows that 38.1% of the respondents were in total agreement, and 50.6% agreed to give an agreement level of 88.7%, while 9.4% were neutral and only 2% disagreed on the

issue. The results reveal that the respondents agreed on issues on Blended Technology as a tool to enhance entrepreneur creativity and innovation through technology learning.

Technology change for product creation and skills development had a mean of 4.14 and a standard deviation of .63 (M = 4.14; *SD* = .63). The mean was close to four, indicating that, on average, the respondents agreed. About 68.26% of the mean score ranged from 3.51 to 4.77. The agreement levels on the composite variable are shown in Figure 4.2.

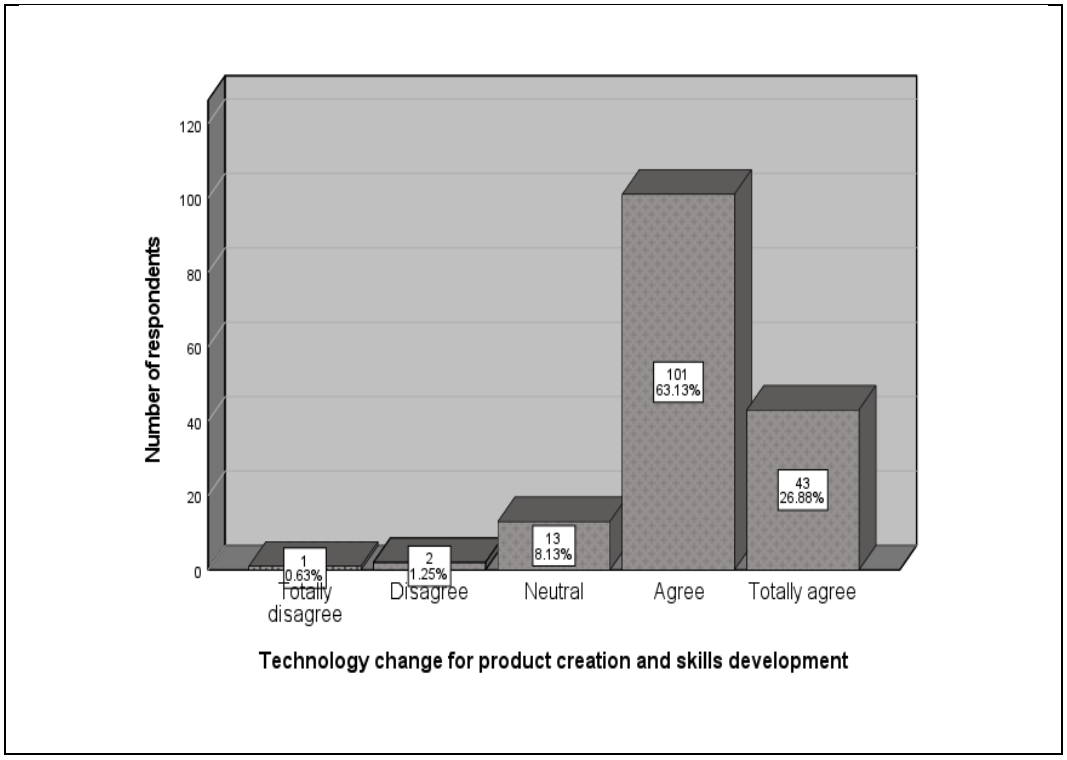

Figure 4.2: Technology change for product creation and skills development

The majority of the respondents (90.1%) agreed that technology would cause positive change in product creation and skills development, 8.1% were neutral, and only 1.9% disagreed. The respondents have confidence that the use of technology will assist in product creation and enhance employees' performance.

Negative items were reverse-scored to be in the positive direction. The construct on technology change effect in business systems had a mean of 3.74 and a standard deviation of .86 (M = 3.74; *SD* = .86). The mean was close to four, indicating that on average, the respondents agreed on the issues that technology can have a positive effect on business systems. About 68.26% of the mean score ranged from 2.22 to 4.6. The agreement levels on the composite variable are shown in Figure 4.3.

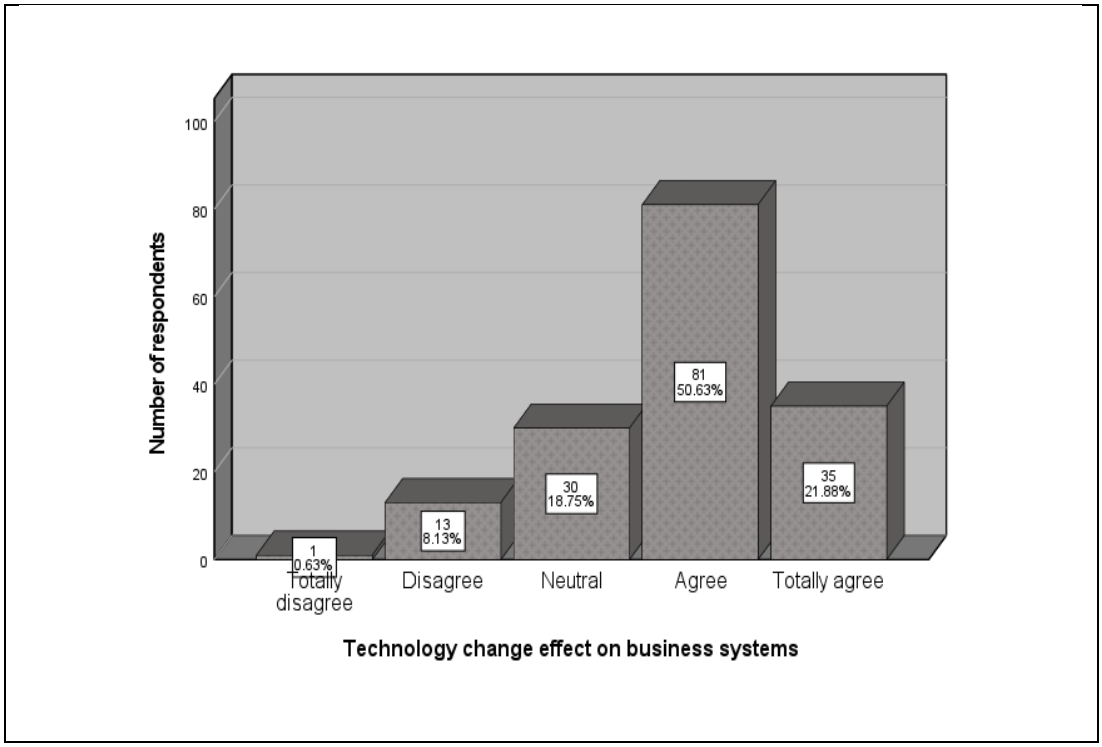

Figure 4.3: Technology change effect in business systems

The majority of the respondents, that is, 72.5% agreed, with 21.9% of them agreeing totally, 18.9% were neutral, and 8.2% disagreed on issues on technology change effect in business systems, indicating that the majority of the respondents were in agreement on the positive change effect of technology in business systems.

The construct on technology change fear had a mean of 3.4 and a standard deviation of .92 (M = 3.4; *SD* = .92). The mean was close to three, indicating that the respondents were neutral on issues of technology change fear. Using the empirical rule, about 68.26% of the respondents had mean scores that ranged from 2.48 to 4.32. The agreement levels of the composite variables are shown in Figure 4.3.

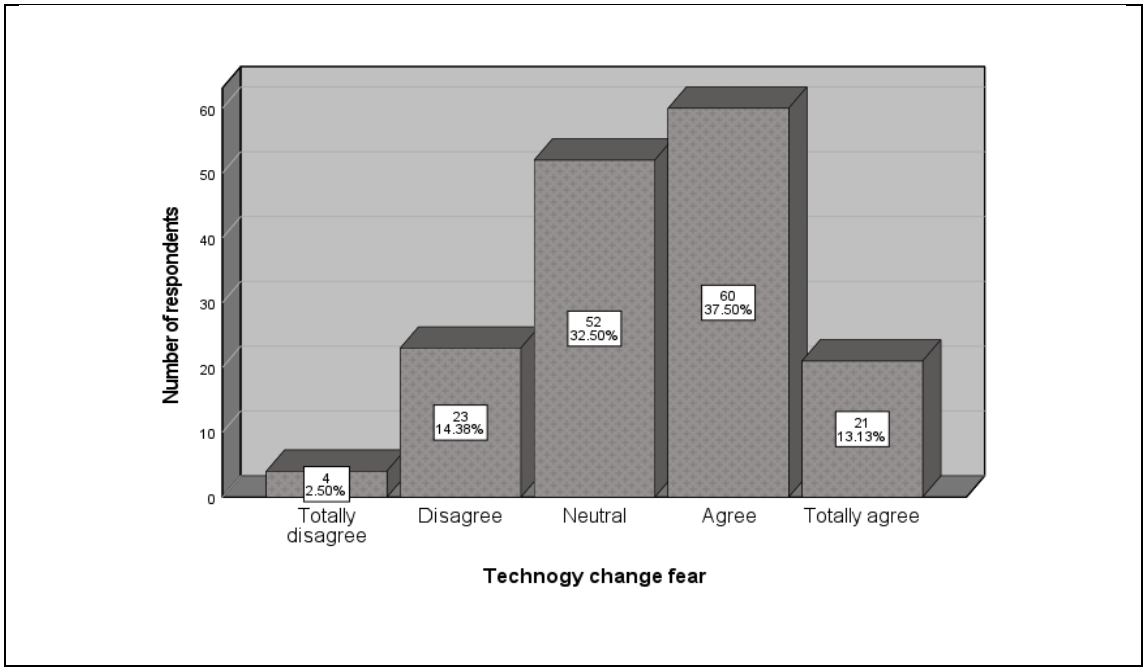

Figure 4.4: Technology change fear

The items were reversed-scored to be in the positive direction. Close to half, that is, 50.6% agreed that they do not have a fear of technological change, 32.5% were neutral, and 16.9% disagreed. The results reveal that close to 50% are still not sure about fear of technology change or tend to fear the changes technology brings.

4.8 COMPARATIVE ANALYSIS USING INDEPENDENT T-TESTS AND ONE-WAY ANOVA

One of the study's objectives was to determine how respondents perceive Blended Technology and how these perceptions affect the adoption of Blended Technology in SMMEs. This objective was accomplished and recommendations were made by determining whether the respondents' views differ due to their social-demographic characteristics. Comparative analysis was done using the independent t-test for variables with two categories and one-way ANOVA for variables with more than two categories. As mentioned in the methodology, there were assumptions to be fulfilled to perform these tests. The assumptions are that the observation should be independent of each other. The data should be coming from a normally distributed population, and variance across the categories should be the same (homogeneity of variance). Independence was achieved since the observations were randomly selected. The central limit theorem was applied to achieve normality, and in this case, the sample size was 160, which satisfies the application of the central limit theorem. The equality of variance across the categories of the variables was done by testing for the equality of variances across groups using Levene's test of homogeneity of variance. A significant test indicated that the

variances were not equal. If the variances were not equal across groups for the independent sample t-test then statistics under equal variances not assumed were discussed. In the case of one-way ANOVA, if variances across the groups were not the same, the Welch robust test of equality of means was used to assess equality of means.

Since the ANOVA was used for variables with more than two categories, post hoc tests were used to determine which groups differed. If the variance were equal, Tukey HSD was used as a post hoc test, and if the assumption of equal variances was violated, then the Games-Howell test was used as a post hoc test. The composite variables constructed from averaging the items in a factor were:

- Blended Technology as a tool.
- Technology change for product creation and skills development.
- Technology change effect in business systems.
- Fear of technology change.

The 5% level of significance was used in performing the test, and the test was significant if the p-value was less than .05, indicating that at least one pair of means was different. The tests are presented in the following subsections.

4.8.1 Independent t-test for determining the difference in mean scores for gender

Only four people preferred not to indicate their gender, and these were removed from the comparative analysis. The remaining groups were males and females. The homogeneity of variance test showed that in all constructs, the variance for males was not significantly different from the variance of females. Thus there were equal variances across groups. The results of the independent sample t-tests are shown in Table 4.11.

The results of the independent sample tests showed that there was no statistical difference between males and females in all constructs.

The construct on Blended Technology as a tool showed no statistical difference in means across gender ($t(154) = 1.307$, $p = .193$). The mean for females ($M = 4.28$, $SD = .56$) was not statistically different from the mean for males ($M = 4.14$, $SD = .72$). Both means are close to four, indicating that both males and females agreed with issues on Blended Technology as a tool.

Table 4.11: Independent t-test to determine the difference in mean scores by gender IV

Construct	Group Statistics				Levene's Test for Equality of Variances			T-test for Equality of Means		
	Gender	N	Mean	SD	Equal variances	F	Sig	t-value	df	Sig (2 – tailed p-value)
Blended Technology as a tool	Female	103	4.278	.558	Assumed	2.835	.094	1.307	154	.193
	Male	53	4.142	.720	Not			1.206	84.982	.231
Technology change for product creation and skills development	Female	103	4.194	.586	Assumed	.127	.722	.752	154	.453
	Male	53	4.121	.561	Not			.763	109.242	.447
Technology change effect in business systems	Female	103	3.808	.778	Assumed	1.565	.213	.452	154	.652
	Male	53	3.745	.907	Not			.430	92.091	.668
Technology change fear	Female	103	3.437	.891	Assumed	.100	.508	.019	154	.985
	Male	53	3.434	.951	Not			.019	99.226	.985

There was no statistically significant difference in mean scores between females (M = 4.19, *SD* = .59) and males (M = 4.12, *SD* = .56) for the construct on technology change for product creation and skills development for which a t-value of .752 and a p-value of .453 (t (154) = .752, p = .453) were obtained. Both means are close to four, indicating that both groups agreed with technology change issues for product creation and skills development.

To examine differences in technology change effect in business systems between the males and females, the independent sample t-test showed no statistical difference between the mean scores for females (M = 3.80, *SD* = .78) and males (M = 3.75, *SD* = .91) as evidenced by a t-value of .452 with a p-value of .652 (t(154) = .452, p = .652). The means were close to four, indicating that, on average, both groups agreed on issues on technology change effect on business systems.

The independent t-tests on the construct technology change fear change resulted in having no statistically significant difference in mean scores between females (M = 3.44, *SD* = .89) and males (M = 3.43, *SD* = .95) as supported by a significant p-value of .985 (t(154) = .19, p = .985). The mean scores for both groups were close to three, suggesting that both groups were neutral on issues on technology fear.

4.8.2 One-way ANOVA test to determine the difference in mean scores by educational background

Educational background was classified into six classes: Matric, national certificate, national diploma, degree, honours, and Masters/PhD. The test on equality of variances across groups showed that the constructs on Blended Technology as a tool and technology change for product creation and skills development had un-equal variances with p-values of less than .001 and .029, respectively. In this case, the Welch robust test for equality of means was used to test the mean difference. The results of the F-tests are shown in Table 4.12.

Table 4.12: One-way ANOVA test to determine the difference in mean scores by educational background

Constructs	Levene's test for equality of variance		Test for equality of means	
	F	***p-value***	***F***	***p-value***
Blended Technology as a tool	15.158	$p < .001$	2.440[b]	.046
Technology change for product creation and skills development	2.574	.029	1.544[b]	.191
Technology change effect in business systems	1.221	.302	.593	.705
Technology change fear	1.025	.405	1.197	.313

[b] Welch F-statistic

As expected, the one-way ANOVA results revealed no statistical difference in means across categories of educational background for the constructs technology change for product creation and skills development, technology change effect in business systems and technology change fear. The educational background did not affect the perceptions of respondents. However, there was a difference in perception across educational background categories for the construct on Blended Technology as a tool to infuse product development with creativity and innovation.

Levene's test of homogeneity of variance on the construct Blended Technology as a tool was significant, Levene's F (5,147) = 15.158, p < .001, indicating that the assumption of equal variance was not met. The one-way ANOVA of perception of Blended Technology as a tool revealed a statistically significant difference in means across categories of educational background (Welch F(5,53.664) = 2.440, p = ,046). A small effect size, ω^2 = .05, 5 was obtained, and approximately 5% of the total variation in Blended Technology as a tool is accounted for by educational background. The Games-Howell post-hoc test result is presented in Table 4.13.

Table 4.13: Games-Howell post-hoc test for Blended Technology as a tool by educational background

	Q1.4 Educational background	N	Subset for alpha = 0.05	
			1	
Games-Howell	Masters/Phd	24	3.8594	
	National diploma	14	4.0000	4.0000
	National certificate	23	4.1576	4.1576
	Honours	19	4.1842	4.1842
	Degree	26	4.2885	4.2885
	Matric	47		4.4122

The post hoc test results showed that the mean for Matric (M = 4.41, *SD* = .47) was significantly higher than the mean for Masters/PhD (M = 3.86, SD = .90). The confidence interval error bars are presented in Figure 4.5.

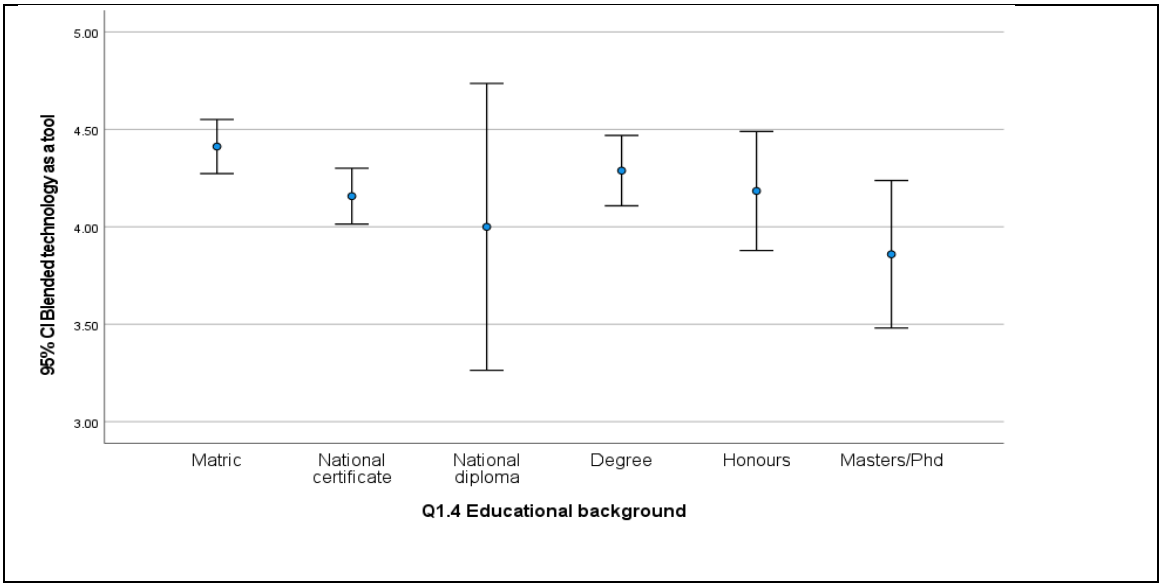

Figure 4.5: Confidence interval error bars for Blended Technology as a tool by educational background

There was higher variability in responses for the national diploma, as evidenced by a longer error bar. Those with Matric and National certificates were more consistent in their responses. All means were close to four, indicating that the respondents agreed on issues of Blended Technology as a tool. However, the Matric holders agreed more with those with Masters or PhD degrees.

The construct on technology change for product creation and skills development resulted in Levene's homogeneity of variance test that was statistically significant, Levene's F (5,147) = 2.574, p = .029), indicating that the assumption of equal variance was not met. The Welch robust test of equality of means showed no statistical difference in mean scores across categories of

educational background on the construct (Welch F(5,54, .913) = 1.544, p = .191). All means across educational levels were close to four, indicating that the respondents agreed with issues on technology change for product creation and skills development. The perceptions on technology change for product creation and skills development did not differ by educational background.

Levene's test of homogeneity of variance on the construct technology change effect on business systems was not significant, Levene's F (5,147) = 1.221, p = .302, indicating that the assumption of equal variance was met. The one-way ANOVA test showed that mean differences across categories of educational background for the construct were not statistically significant (F(5,147) = .593, p = .705). All means across educational levels were close to four, indicating that the respondents agreed with technology change effect on business systems. The educational background did not influence respondents' perception of technology change effect on business systems.

Levene's test of homogeneity of variance on the construct technology change fear was not significant, Levene's F(5,147) = 1.025, p = .405, indicating that the assumption of equal variance was met. The ANOVA results revealed that the educational levels had no effect on mean scores for technology change fear F(5,147) = 1.197, p = .313). The means were not statistically different, however, those with degrees and Masters/PhD degrees tend to have means close to four, indicating agreement, while the other groups were neutral on issues on technology change fear. The educational background did not influence respondents' perception of technology change fear.

4.8.3 One-way ANOVA test to determine the difference in mean scores by years working in the company

The tenure, that is, years worked in the company, were categorised into four groups which were 0 – 5 years, 6 – 10 years, 11 – 15 years and more than 15 years. The equality of variances across groups showed that all the constructs had equal variances. The one-way ANOVA tests results are shown in Table 4.14.

Table 4.14: One-way ANOVA test to determine the difference in mean scores by years working in the company

Constructs	Levene's test for equality of variance		Test for equality of means	
	F	*p-value*	*F*	*p-value*
Blended Technology as a tool	1.401	.245	.091	.965
Technology change for product creation and skills development	1.486	.221	.221	..882
Technology change effect in business systems	.012	.998	.336	.799
Technology change fear	1.735	.162	.713	.546

[b] Welch F-statistic

As expected, the one-way ANOVA results revealed no statistical difference across groups for all constructs. Tenure did not influence the perception of respondents on these issues.

The construct on Blended Technology as a tool resulted in Levene's test of homogeneity of variance that was not statistically significant, Levene's F (3,156) = 1.401, p =n.245, indicating that the assumption of equal variance across groups was met. The univariate analysis of variance results showed no statistical difference in mean scores across categories of years working in the company on the construct Blended Technology as a tool (F(3,156) = .091, p = .965). All means across groups were close to four, indicating the respondents on average agreed on issues on Blended Technology as a tool regardless of the number of years worked in the company. Thus, the perceptions on Blended Technology as a tool did not differ by the number of years worked in the company.

The construct on technology change for product creation and skills development resulted in Levene's test of homogeneity of variance that was not statistically significant, Levene's F(3,156) = 1.486, p = .221, indicating that the assumption of equal variance was met. The ANOVA results showed no statistical difference in mean scores across categories of years working in the company (F(3,156 = .221, p = .882). All means across groups were close to four, indicating the respondents on average agreed on issues on technology change for product creation and skills development regardless of the number of years worked in the company. The perceptions on

technology change for product creation and skills development did not differ by years working in the company.

Levene's test of homogeneity of variance on the construct technology change effect on business systems was not significant, Levene's $F(3,156) = .012$, $p = .998$, indicating that the assumption of equal variance was met. The one-way ANOVA test showed that mean differences across tenure categories for the construct were not statistically significant Levene's $F(3,156) = .336$, $p = .799$. All means across groups were close to four, indicating the respondents on average agreed on issues on technology change effect on business systems regardless of the number of years worked in the company. Thus, the years worked in the company did not influence respondents' perception of technology change effect on business systems.

Levene's test of homogeneity of variance on the construct technology change fear was not significant, Levene's $F(3,156) = 1.735$, $p = .162$, indicating that the assumption of equal variance was met. The ANOVA results revealed that the number of years worked in the company had no effect on mean scores for technology change fear $F(3,156) = .713$, $p = .546$. All means across groups were close to three, indicating that the respondents, on average, were neutral on issues on technology change fear regardless of the number of years worked in the company. The tenure did not influence respondents' perception of technology change fear.

4.8.4 One-way ANOVA test to determine the difference in mean scores by discipline

The levels of discipline were classified into nine categories: supervisor/junior manager, middle manager, senior manager, director, executive, student, lecturer/educator, general worker, and others. The test on equality of variances across groups showed that all the constructs had equal variances across groups. The one-way ANOVA tests results are shown in Table 4.15.

The F-tests equality of means results showed no statistical difference in means across categories of discipline for the constructs technology change for product creation and skills development, technology change effect in business systems and technology change fear. Discipline had no impact on the perceptions of respondents. However, there was a difference in perception across discipline categories for Blended Technology as a tool construct. Discipline tends to influence the perception of respondents on Blended Technology as a tool.

Table 4.15: One-way ANOVA test to determine the difference in mean scores by discipline

Constructs	Levene's test for equality of variance		Test for equality of means	
	F	*p-value*	*F*	*p-value*
Blended Technology as a tool	1.196	.305	2.105	.039
Technology change for product creation and skills development	.113	.999	1.490	.165
Technology change effect in business systems	1.679	.108	1.698	.103
Technology change fear	.276	.973	.448	.891

[b] Welch F-statistic

The test on equality of variances on the construct Blended Technology as a tool was not statistically significant, Levene's F(8,151) = 1.196, p = .305, indicating that the assumption of equal variance was met. The univariate analysis of variance of perception of Blended Technology as a tool revealed a statistically significant difference in means across categories of discipline F(8,151) = 2.105, p = .039. A moderate effect size η^2 = .10 was obtained, and about 10% of the total variation in Blended Technology as a tool is attributed to discipline. The Tukey HSD post-hoc test result is presented in Table 4.16.

The post hoc test results revealed that the mean for senior managers (M = 3.72, *SD* = .74) was significantly lower than the mean for lecturer/educator (M = 4.55, *SD* = .41) and the mean for other (M = 4.48, *SD* = .42). The confidence interval error bars are shown in Figure 4.8.

There was higher variability in responses for the directors, as evidenced by a longer error bar. The students and the group "other" were consistent in their responses, as evidenced by the small error bars. All means were close to four, indicating that the respondents agreed on issues of Blended Technology as a tool. However, the lecturer/educator and other groups agree more than senior managers.

Table 4.16: Tukey-HSD post hoc test for Blended Technology as a tool by discipline

Tukey HSD			
		Subset for alpha = 0.05	
Q1.6 Discipline	N	1	2
Senior manager	14	3.7232	
Supervisor/Junior manager	45	4.1028	4.1028
Director	6	4.1042	4.1042
Executive	10	4.1750	4.1750
Middle manager	30	4.2000	4.2000
Student	17	4.2353	4.2353
Other	21		4.4762
General worker	6	4.4792	4.4792
Lecturer / Educator	11		4.5455

Present the F- ratio's and p-values of Tuckey. I am awaiting feedback from the student

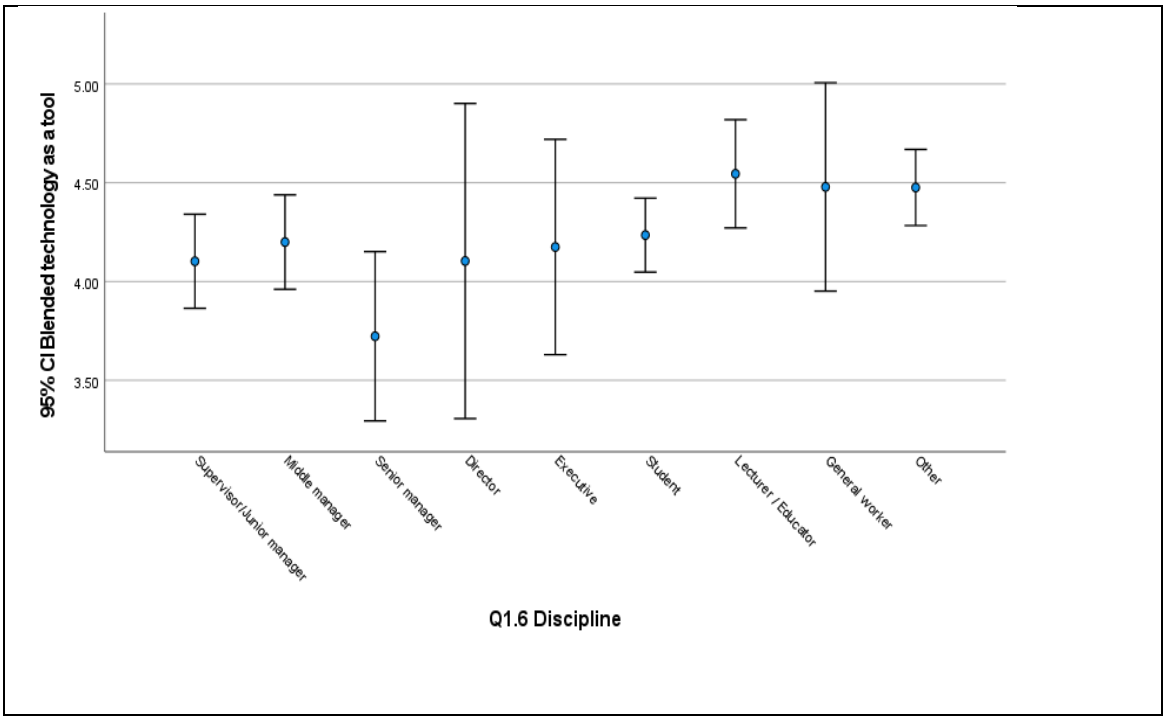

Figure 4.6: Confidence interval error bars for Blended Technology as a tool by discipline

The construct on technology change for product creation and skills development resulted in Levene's test of homogeneity of variance that was not statistically significant, Levene's $F(8,151) = .113$, $p = .999$, indicating that the assumption of equal variance was met. The test of equality of means showed no statistical difference in mean scores across categories of discipline on the construct ($F(8,151) = 1.490$, $p = .165$). All means across the discipline levels were close to four, indicating that the respondents agreed with issues on technology change for product creation and

skills development. The perceptions on technology change for product creation and skills development did not differ by discipline.

Levene's homogeneity of variance test on the construct technology change effect on business systems was not significant. Levene's $F(8,151) = 1.679$, $p = .108$, indicating the assumption of equal variance across the group was met. The one-way ANOVA test showed that mean differences across categories of discipline for the construct were not statistically significant ($F(8,151) = 1.698$, $p = .103$). All means across discipline levels were close to four, indicating that the respondents agreed on technology change effect on business systems. The discipline did not influence respondents' perception of technology change effect on business systems.

Levene's homogeneity of variance test on the construct technology change fear was not significant, Levene's $F(8,151) = .276$, $p = .973$, indicating that the assumption of equal variance was met. The ANOVA results showed that the level of discipline had no effect on mean scores for technology change fear ($F(8,151) = .448$, $p = .891$). The means were not statistically different, however, the directors, lecturer/educator and the group "other" had means close to four indicating agreement, while the other groups were neutral on issues on technology change fear. The discipline levels did not influence respondents' perception of technology change fear.

4.8.5 One-way ANOVA test to determine the difference in mean scores by number of subordinates

The number of categories was categorised into five classes which are 0-5, 6–10, 11-20, 21-50 and more than 50. The test on equality of variances across groups showed that all the constructs had equal variances across groups. The one-way ANOVA tests results are shown in Table 4.17.

Table 4.17: One-way ANOVA test to determine difference in mean scores by number of subordinates

Constructs	Levene's test for equality of variance		Test for equality of means	
	F	*p-value*	*F*	*p-value*
Blended Technology as a tool	1.828	.126	.733	.571
Technology change for product creation and skills development	.676	.610	1.648	.165
Technology change effect in business systems	.759	.554	1.204	.311
Technology change fear	1.065	.376	.261	.903

The equality of means F tests results showed no significant difference in means across groups for all constructs. The number of subordinates did not influence respondents' perceptions on these issues.

The construct on Blended Technology as a tool resulted in Levene's test of homogeneity of variance that was not statistically significant, Levene's F (5,155) = 1.828, p = .126, indicating that the assumption of equal variance across groups was met. The univariate analysis of variance results showed no statistical difference in mean scores across categories of the number of subordinates on the construct Blended Technology as a tool (F(4,155) = .733, p = .571). All means across groups were close to four, indicating the respondents on average agreed on issues on Blended Technology as a tool regardless of the number of subordinates. Thus, the perceptions on Blended Technology as a tool did not differ by the number of subordinates. The construct on technology change for product creation and skills development resulted in Levene's test of homogeneity of variance that was not statistically significant, Levene's F (4,155) = .676, p = .610, indicating that the assumption of equal variance was met. The ANOVA results showed no statistical difference in mean scores across categories of the number of subordinates (F(4,155 = 1.648, p = ,165). All means across groups were close to four, indicating the respondents on average agreed on issues on technology change for product creation and skills development regardless of the number of subordinates. The perceptions on technology change for product creation and skills development did not differ by the number of subordinates.

Levene's test of homogeneity of variance on the construct technology change effect on business systems was not significant, Levene's F (4,155) = .759, p = .554, indicating that the assumption of equal variance was met. The one-way ANOVA test showed that mean differences across categories of the number of subordinates for the construct were not statistically significant (F(4,155) = 1.204, p = .311). All means across groups were close to four, indicating the respondents on average agreed on issues on technology change effect on business systems regardless of the number of subordinates. Thus, the number of subordinates did not influence respondents' perception of technology change effect on business systems.

Levene's homogeneity of variance test on the construct technology change fear was not significant, Levene's F (4,155) = 1.065, p = .376), indicating that the assumption of equal variance was met. The ANOVA results revealed that the number of subordinates had no effect on mean scores for technology change fear (F(4,155) = .261, p = .903). The means were not statistically different, however, those with 11 – 20 and 21 – 50 subordinates had means close to four, indicating agreement, while the other groups were neutral on issues on technology change fear. The number of subordinates did not influence the respondents' perception of technology change fear.

4.9 CORRELATION ANALYSIS BETWEEN CONSTRUCTS

The degree of the relationship between constructs was assessed using the Pearson correlation coefficient, and the test was done at the 5% level of significance. The Pearson correlation coefficient was interpreted using the rule of thumb provided by Salkind (2012:165), which states if *r* is between .8 and .10, then the relationship is very strong; between .6 and .8 it is strong; between .4 and .6, it is moderate; between .2 and .4 it is weak, and between .0 and .2 it is very weak. The Pearson correlation coefficients between the variables are depicted in Table 4.18.

All pairs of variables had significant correlations between them. Blended Technology had a statistically significant strong positive correlation with technology change for product creation and skills development (r = .761; p < .001); a moderate positive correlation with technology change effect in business systems (r = .571; p < .001) and a weak positive correlation with technology change fear (r = .327; p < .001. High values in Blended Technology as a tool were associated with high values in technology change for product creation and skills development, technology change effect in business systems and technology change fear.

Table 4.18: Correlation between composite variables

Item	1	2	3	4
1. Blended Technology as a tool				
2. Technology change for product creation and skills development	.761**	-		
3. Technology change effect in business systems	.571**	.537**	-	
4. Technology change fear	.327**	.306**	.524**	-

Technology change for product creation and skills development had a statistically significant moderate positive correlation with technology change effect in business systems ($r = .537$; $p < .001$) and a weak positive correlation with technology change fear ($r = .306$; $p < .001$). High values in technology change for product creation and skills development are associated with high values in technology change effect in business systems and technology change fear. There was a significant moderate positive correlation between technology change effect in business systems and technology change fear ($r = .524$; $p < .001$). High values in technology change effect in business systems are associated with high values in technology change fear.

4.10 CONCLUSIONS

The statistical analysis of the data employed descriptive statistics of the constructs and the composite variables, comparative analysis using independent t-tests and one-way ANOVA and correlation analysis between constructs. The constructs were Blended Technology as a tool, Technology change for product creations and skills development and technology change effect in business systems.

This statistical analysis contributes new knowledge about South African SMMEs in the following ways:

The majority of respondents expressed the desire to use technology in their job descriptions, which indicated that the use of technology in their businesses will promote creativity and innovation, are open to the adoption of new technology, believed that their entrepreneurial skills will improve if they get skilled in technology, opinionated that new technology will improve their job performance and skills in business management, new technology will improve innovation in the company and enhances the success of the enterprise, technology usage will enhance their creativity and innovation as an entrepreneur. Furthermore, the majority of the respondents indicated that they could easily become skilful in using technology. A large percentage of

respondents indicated that new technology would not cause delays in the enterprise's business processes, are confident that new technology affords simpler processes, are open to adopting new technology in the business, and indicated that new technology would not harm the enterprise their working systems.

CHAPTER FIVE: FINDINGS AND CONCLUSIONS

5.1 INTRODUCTION

Chapter three provided a detailed clarification of the research methodology used in examining the efficacy of using Blended Technology as a tool to enhance entrepreneurs' creativity and innovation within SMMEs. This study followed a quantitative research methodology to provide a clear picture of phenomena aiming at implementing Blended Technology within SMMEs.

This chapter draws conclusions and recommendations based on the literature review in Chapter 2 and the empirical findings of the research in Chapter 4. Based on the outcomes of these two chapters, recommendations are made, and implications for SMMEs and shortcomings of the study are outlined.

5.2 CONCLUSIONS

The importance of enhancing the competencies in SMMEs is related to economic growth and an increase in the number of job opportunities. The South African government acknowledges the vital role that SMMEs play in the economy and has launched various support programs to increase the survival rate of these enterprises in the country. Entrepreneurial skills development is a core aspect that will increase the chances of SMMEs to flourish over the long run.

According to the study, employees in South African SMMEs express a positive intention to use Blended Technology in their learning systems and are aware of how it will enhance creativity and innovation in their organisations.

The Snowball sampling technique proved to be very effective in obtaining several statistically significant responses. A response rate of 81.6% was realised within a week since the questionnaire was distributed to the circle of acquaintances of the researcher, which is acceptable in statistical terms.

The literature review assisted the study with an understanding of the existing research. Key internal and external factors that determine the success of SMMEs in South Africa, essential business elements and how they relate to profitable and sustainable SMMES, and the philosophy of the Blended Technology approach and how it stimulates innovation and creativity in a business were discussed. These discussions formed the basis for devising a method to infuse the training program of SMMEs with a Blended Technology. Guidelines on how this learning approach instils innovation and creativity in the enterprise are also debated.

Entrepreneurs' learning experiences are enhanced strategically using a blend of online and face-to-face training by establishing more participative, cooperating, student-focused teaching

techniques that enhance students' motivation and skill set. The distance learning modalities in Blended Technology have proven effective in developing core entrepreneurial skills, e.g., creativity and innovation.

The results of the statistical data analysis were obtained using descriptive and inferential statistics. Descriptive statistics used were summary statistics like mean, frequency proportions and bar charts, while the inferential statistics used were independent t-tests, one-way ANOVA and correlation analysis.

In general, the statistics showed that SMMEs are knowledgeable about the advantages of employing the IT platform to develop suitable employee skills. The survey learned that SMMEs sometimes refrain from training for difficulty interrupting production and high costs. Nevertheless, the statistical analysis of the data showed an overwhelming intention by entrepreneurs in South African SMMEs to adopt the Blended Technology approach in their learning systems. It appears that most SMMEs are knowledgeable about the nature of the Blended Technology approach and agree that it will promote creativity and innovation within the business processes and themselves and consequently will enhance the success of the SMME. They acknowledged that entrepreneurial skills would be learned if the Blended Technology approach was adopted in their learning systems. Most entrepreneurs were not hesitant to adopt the Blended Technology approach in their enterprises and indicated that this technology would not be detrimental to the productivity and working systems of the enterprise.

High propensities towards Blended Technology as a tool were associated with high values in technology change for product creation and skills development, technology change effect in business systems and technology change fear. The developments in the implementation of Blended Technology are very significant, following the demand for product creativity and innovation.

It can be concluded that the research establsihed a significant relationship between Blended Technology, entrepreneurship, creativity and innovation and the hypothesis therefore holds. Entrepreneurs have a strong focus on creativity and innovation during product development. Blended Technology demonstrated a significant impact on improvements in SMME’s productivity.

SMMEs can become relevant in the market system by implementing Blended Technology, enabling entrepreneurial creativity and innovation to occupy space in every social platform that benefits customer needs.

Improved Blended Technology engagements allow SMMEs to explore new product development ideas, enabling them to compete with the top giants in the industry. Getting SMME’s products

competitive with emerging trends boosts productivity and has an immense bearing on product enhancement and customer satisfaction.

Enhancing the creativity and innovation of entrepreneurs through Blended Technology will result in a higher rate of customer retention due to customer product satisfaction. It will also instil higher productivity, profitability, growth and customer satisfaction.

5.3 SHORTCOMINGS OF THE STUDY

The Snowball sampling technique is biased to a certain extent because it produces samples from secondary respondents who have characteristics similar to that of the entrepreneurs in the circle of acquaintances of the researcher.

Entrepreneurship education as a driver to foster innovation and creativity in SMMEs was improved through research to identify the appropriate Blended Technology teaching modalities for entrepreneurs in different SMMEs wherein each has its unique business proposition. Future studies should use an extended sample because sampling in the current case was limited to the geographical area where the researcher resides. The effectiveness of the Blended Technology approach for entrepreneurial skills development in SMMEs can be assessed through follow-up research to analyse and compare the results with other SMMEs in South Africa. Further research is also needed to design strategies for successfully adopting Blended Technology in entrepreneurship education.

The findings reported in this study may not be generalised because a Snowball sampling technique was employed. Furthermore, the Snowball sampling technique does not allow for a fixed sample size because the social networks of the circle of acquaintances of the researcher are unknown. However, the researcher has chosen the number of individuals in his circle of acquaintances so that there is a good chance that the sample size is statistically relevant.

Although the questionnaire was available only in English, most respondents' first language is not English, potentially confusing interpreting the questions.

5.4 RECOMMENDATIONS

The study results show a pressing need to guide entrepreneurs on implementing Blended Technology in their enterprises. As a result, the research will assist entrepreneurs in becoming more knowledgeable about how Blended Technology will be conceived, distributed, and assessed for future workplace learning.

The results learned that South African SMMEs intend to adopt Blended Technology in their training and development programs. It is, therefore, prudent to explain to them the various

government initiatives to fund SMMEs (SME South Africa. 2021). These include full or cost-sharing grants, incentives and equity funding. The government committed itself to funding and creating programs to promote and support SMMEs with improved access to skill-enhancing education and training.

Although South African SMMEs are informed on the merits of using technology for training and skills development, some are reluctant to follow this avenue because it may cause an interruption in production and add additional high training costs to expenditure. The hesitancy of some SMMEs to adopt Blended Technology for expanding the skills-set of entrepreneurs can be addressed by conducting information sessions with senior management to explain the significant advantages that this education approach offers in terms of profitmaking and sustainability of the business. The research described in Chapter 4 also learned that most SMMEs are knowledgeable about the philosophy of the Blended Technology approach, how it promotes creativity and innovation, and how it can be used to develop entrepreneurial skills. Therefore, the next step towards adopting Blended Technology in South African SMMEs will be to assist them in devising a method for adopting this educational approach for the training of entrepreneurs.

Before adopting the Blended Technology educational approach, the technological infrastructure and ecosystem of South African SMMEs should be evaluated to ensure that they support this learning approach. Furthermore, if the necessary resources and support are not available, integrating educational technologies into SMMEs raises concerns regarding the influence on teaching and learning. Important consideration must go into the infrastructure's uptime, availability, and support. SMMEs must make decisions concerning priorities. At the most basic level, where tutors have limited computer literacy, a learning management system (LMS) is desirable. South African universities employ Moodle and Sakai's open-source platforms, requiring no license payments. Most universities in South Africa use the commercial platform Blackboard, which requires annual license fees.

5.5 MANAGERIAL IMPLICATIONS

The study's primary objective was to design a method that could be used to infuse the creativity and innovation of entrepreneurs in SMMEs with Blended Technology. The empirical study revealed that entrepreneurs of SMMEs in the targeted population are open to adopting Blended Technology in their training and development programs because it would improve entrepreneurs' skills and enhance creativity and innovation in product and service development. Some SMMEs indicated that adopting Blended Technology may negatively impact their productivity, but there was the general consensus that the benefits mentioned above would be realised if this teaching philosophy is employed in the enterprise.

The findings of this study could serve as a basis for entrepreneurs to evaluate the decision whether to adopt Blended Technology or not. It will also guide SMMEs by equipping them with knowledge of required skills for adopting Blended Technology, and this could assist in the leveraging of creativity and innovation that comes with Blended Technology. This study would further direct management within SMMEs to identify training needs that focus on managerial competencies, customer service, persuasion skills, sales skills, marketing skills, drafting a business plan and competitive strategy, financial management, functional skills, and minimising production costs.

The results revealed that South African SMMEs intend to adopt Blended Technology in their training and development programs, and the prudent need to explain to them the various government initiatives to fund SMMEs (SME South Africa, 2021). These include full or cost-sharing grants, incentives and equity funding. The government committed itself to fund and creating programs to promote and support SMMEs with improved access to skill-enhancing education and training.

It was evident from the quantitative study that most respondents expressed the desire to use technology in their job descriptions, which indicated that the use of technology in their businesses would promote creativity and innovation in product and service development. The respondents further indicated that their entrepreneurial skills would improve if they got skilled in technology and that new technology would improve their job performance and skills in business management.

5.6 SUMMARY OF THE CHAPTER

In this chapter, the advantages of the Blended Technology approach in the training systems of SMMEs are summarised. The main benefits are more participative, cooperative, student-orientated instructional practices that enhance students' motivation and learning outcomes and the development of critical skills of entrepreneurship, e.g., creativity and innovation. It also has other positive spin-offs such as increased productivity and profitability, positive growth and customer satisfaction.

SMMEs have the intention to adopt Blended Technology in their learning systems and recognise how it promotes creativity and innovation within the business processes and themselves. Therefore, adopting Blended Technology in SMMEs has crossed important hurdles, and further steps toward its implementation in these enterprises will be much easier.

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Appendix 1: Motivation of enquiring specific demographic data in the Questionnaire for research

A person's gender can considerably impact the way they think, affecting the survey results in a major way. Women have a balanced left and right hemisphere, while men have a stronger left hemisphere. It explains why women tend to be more aware of their emotions than men, while males tend to think objectively, task-oriented.

Age is necessary for the study because it determines the ideal target group. In addition, age determines the respondent’s knowledge and experience with the focus of the study.

The number of years of working experience and managerial level has been solicited because an experienced person might answer the questions in sections 2 and 3 of the questionnaire differently than a novice. It is also possible that an experienced person might possess a higher degree of wisdom than a novice regarding the advantages that Blended Technology holds for an SMME.

The respondents have been prompted on their educational background because education often determines how the questions are answered. Knowledge of the number of employees has been solicited because it shows the size of the SMME. A larger SMME might have a financial advantage over a smaller one and be better positioned to implement Blended Technology in its training and development program.

Appendix 2: Ethics application on, using Blended Technology as a tool to enhance entrepreneur's creativity and innovation within SMMEs

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Economic and Management Sciences Research
Ethics Committee (EMS-REC)

8 November 2021

Dr FF Prinsloo and Dr JJ Jordaan
Per e-mail
Dear Drs Prinsloo and Jordaan,

EMS-REC FEEDBACK: 29102021 (Round Robin)
Student: Matima, S (32855478)(NWU-00946-21-A4)
Study leaders : Dr FF Prinsloo and Dr JJ Jordaan - MBA

Your ethics application on, ***Using blended technology as a tool to enhance entrepreneur's creativity and innovation within SMMEs,*** which served via Round Robin, refers.

Outcome:

Approved as a minimal risk study. A number **NWU-00946-21-A4** is given for one year of ethics clearance.

Please note that the ethics approval of this application is subject to the Covid-19 protocols.

Kind regards,

Prof Mark Rathbone
Chairperson: Economic and Management Sciences Research Ethics Committee (EMS-REC)

1

Appendix 3: Letter of consent

Dear Respondent. Kindly participate in the data collection for Sello Matima's MBA research project. It should take 15 to 20 minutes to complete the questionnaire. The study research title is "Using Blended Technology as a tool to enhance entrepreneurs' creativity and innovation within SMMEs" I will therefore publish the results of this mini dissertation.

The objective of the study is to generate strategies that can be used to infuse the entrepreneur's creativity and innovation with Blended Technology. In this way, the businesses in which entrepreneurs operate will become more sustainable.

I kindly invite you to complete the attached questionnaire as accurately as possible. By completing this survey, you will be providing me with the necessary data needed to complete my research project.

It is important to note that your participation in this study is voluntary and that the information you provide will only be used for academic purposes. The demographic data collected is only for profiling and not for comparing responses from different demographic groups.

Your responses will be treated with the utmost confidentiality, and no answers and comments will be attributed to you in any way. If you have any questions about the study, please contact me on these numbers 0786269352/0812863117.

In addition to the above:

- I understand that even if I agree to participate now, I can withdraw at any time or decline to answer any question without any consequence of any kind
- I have had the purpose and nature of the study explained to me in writing, and I have had the opportunity to ask questions about the survey.
- I understand that I will not benefit directly from participating in this research.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research, my identity will remain anonymous.
- I understand that if I inform the researcher that I or someone else is at risk of harm, they may have to report this to the relevant authorities; they will discuss this with me first but may be required to report with or without my permission.
- I understand the purpose of the study, and no feedback will be given to respondents.
- I understand that under freedom of information legalization, I am entitled to access the information I have provided at any time while it is in storage, as specified above.
- I understand that the data will be used for the research and will be published.
- I understand that I am free to contact the researcher of this study to seek further clarification and information.

I consent: YES NO

Appendix 4: Questionnaire: "Using Blended Technology as a tool to enhance entrepreneur's creativity and innovation within SMME's"

Section 1: Demographic Data

The biographical information requested for this study is not for individual identification but for statistical analysis purposes and for validating data. Kindly indicate your relevant option.

1.1. Indicate your gender

Female	
Male	
Prefer not to say	

1.2. Age

20-30	
31-40	
41-50	
51-60	
61-70	
71-80	
81+	

1.3. Marital status Gender, age, **Educational background, years worked, discipline, number of subordinates**

Single	
Married	
Divorced	
Separated	
Widowed	

1.4. Educational background

Matric	
National Certificate	
National Diploma	
Degree	
Honour's	
Master's	
PhD	
Other	

1.5. How many years have you worked for this specific company?

0-5	
6-10	
11-15	
16-20	
21-25	
26-30	
31-35	
36-40	
41-45	
46-50	

1.6. Discipline

Supervisor/Junior manager	
Middle Manager	
Senior Manager	
Director	
Executive	
Other	

1.7. Please indicate the number of subordinates under your leadership

0-5	
6-10	
11-15	
16-20	
21-25	
26-30	
31-40	
41-45	
46-50	
50+	

Section 2: The following questions are concerned with your opinion towards Blended Technology as a tool to enhance entrepreneurs' creativity and innovation through technology learning. Indicate your option

2.1. I enjoy using technology

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.2. I avoid using technology when I can

Disagree totally	

Disagree	
Not strong option	
Agree	
Agree Strongly	

2.3. I think technology for entrepreneurs takes too much time

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.4. I know technology can help me to learn many things about a business

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.5. I will be a better entrepreneur if I know how to use technology

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.6. I believe that I will create a better product with technology

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.7 I am very confident when it comes to working with technology

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.8 I want to learn more using technology in my line of work

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.9 The use of technology in business can help with creativity and innovation

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

2.10 Entrepreneurs can find technology reliable

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

Section 3: The following questions are concerned with your opinion towards the effects of change and your perception about what the change will bring about. All questions refer to the change that comes about from the implementation of technological creativity and innovation.

3.1 I prefer using technology I know

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.2 I am unlikely to change plans regarding technology usage

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.3 I think the use of technology for product creation and innovation will help in business

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.4 I can make any situation around technology work for me

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.5 I find it hard to use technology in my work

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.6 Using technology in the creation and innovation of products will enable me to accomplish business goals

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.7 Using technology would improve my job performance and work rate

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.8 Technology usage would enhance my creativity and innovation as an entrepreneur

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.9 It would be easy for me to become skillful at using technology

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.10 I feel technology change will cause delays in my business

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.11 I feel technology will cause delays in my business

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.12 I fear losing potential customers because of technology

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.13 I believe technology would harm my current working system

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.14 I fear the negative impact that the technology will have on the innovative products

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.15 Change brought by technology will cause large scale redundancy

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.16 The blend between technology, creativity and innovation will be challenging to get used to

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.17 There is a need for product development and creation to enable the change

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	

3.18. Investing in technology for an entrepreneur is not a right investment

Disagree totally	
Disagree	
Not strong option	
Agree	
Agree Strongly	