



CONFERENCE PROCEEDINGS

GLOBAL TRENDS IN MANAGEMENT, IT AND GOVERNANCE IN AN e-WORLD (e-MIG 2023)

Conference Theme:

Resilience, Innovation and Management in a Turbulent Environment

Dates:

26 - 27 October 2023

Platform/Venue:

Hybrid and in-person (Ravenala Attitude, Mauritius)

ISBN - 978-0-6397-6413-9

Host Institutions: University of KwaZulu-Natal, South Africa and Open University, Mauritius

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Acknowledgements

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Date of publication

15th December 2023

International Standard Book (ISBN) 978-0-6397-6413-9(e-book)

Publisher

University of KwaZulu-Natal, Private Bag X 54001, Durban, 4000, South Africa

Conference email address emigconf@gmail.com

Conference Website <https://e-mig.ukzn.ac.za/>

Review process

Complete articles were double-blind peer reviewed prior to acceptance for presentation at the conference, and subsequent publication in the proceedings. The related International Standard Book (ISBN) is 978-0-6397-6413-9 (e-book). The target audience of the proceedings are specialists in the fields of Management, Information Technology, and Public Governance. More than 60% of contributions published in the conference proceedings emanate from multiple institutions. The conference has a Scientific Committee with a significant majority of members beyond a single institution, which is reflective of expertise in the fields of Management, Information Technology and Public Governance.

e-MIG Preface

The eMIG 2023 conference, entitled *Global Trends in Management, IT and Governance in an e-WORLD* (eMIG 2023), was co-hosted by the School of Management, IT & Governance – University of KwaZulu-Natal and the Open University, Mauritius, held on 26 - 27 October, 2023.

The Conference Chairs are Dr Upasana Singh, from the University of KwaZulu-Natal and Dr Perienen Appavoo, from the Open University.

The e-MIG conference is fast becoming a reputable event in the international academic conferencing calendar. This year marks the *third* iteration of this event. A unique feature of this academic conference is the venue - the paradisiacal island of Mauritius. This conference, held every alternate year, is *the* place to share research, to build knowledge and to network. The conference runs over two days wherein a comprehensive range of accepted papers is delivered – thus embracing a wide scope of topics.

The opening keynote was delivered by Prof Stefan Husig, holder of the Chair for Innovation, Research and Technology at the Technische Universitat Chemnitz, Germany, on the topic entitled *Digitalization Meets Innovation Management: Drivers and Effects of Digital Innovation Management Systems in New Product Development*.

Mr Kevin Ramkaloan, the CEO of Business Mauritius, spoke on the topic entitled *Our Vision for Sustainable Business Growth in an Uncertain World*, on the second day of the conference.

With an initial submission of 24 full Academic research papers, after the double-blind peer review process, there are 20 papers published in these Conference Proceedings. With an initial submission of 101 Abstracts, after the double-blind, peer review process, there are 71 abstracts published in a separate Book of Abstracts. These papers represent research from several countries in Africa.

We look forward to seeing you at the *fourth* eMIG conference to be held in 2025.

Prof Isabel Martins
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December 2023

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Contents

e-MIG Preface	i
e-MIG Conference Committee	ii
Adoption of digital systems at Ezemvelo KwaZulu-Natal (KZN) Wildlife.....	1
Environmental non-profit organisational resilience: Exploring adaptive capacities in a turbulent environment in South Africa.....	14
Operational resilience during coronavirus disease on total quality management in textile multinational companies.....	28
Evaluating customer satisfaction with AI chatbot interactions in the Ghanaian insurance industry: Focusing on Star Assurance Ltd	43
Exploring corporate social responsibility adoption and perception among small and medium enterprises in eThekweni Municipality.....	55
Investigating the obstacles to cloud computing adoption in the health sector: A case study of selected public and private health centres in Ghana.....	76
Fostering resilience through emotional intelligence in an academic environment	91
Fourth Industrial Revolution: Survival skills for the South African job market	112
Cybersecurity in developing countries: A case of South African Small-Medium Enterprises (SMEs).....	128
Evaluating citizen satisfaction of Southern Africa electronic government information services	142
Investigating online learning with digital storytelling.....	163
Journeying through the tempest: A council member's reflection on the South African TVET college governance system.....	179
The effects of a growth mindset in South African small businesses	193
The impact of disruptions on the operations and performance of the Durban Port	206
Challenges in inclusive social innovation for informal waste pickers in South Africa: Insights from a pilot study	224

Forging a vibrant creative industry in KwaZulu-Natal (South Africa): A governance and organizational conceptualisation for KwaZulu-Natal United music industry association (KUMISA)	242
The correlation between perceived leader’s conduct and employee engagement in the public sector.....	255
Assessing the feasibility of backward design technique in Mauritian public universities.....	281
How students view the role of Information and Communication Technology (ICTs) in enhancing their academic performance	295
Exploring the impact of business acumen and the macro environment on firm performance	306

Adoption of digital systems at Ezemvelo KwaZulu-Natal (KZN) Wildlife

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Abstract

The advent of COVID 19 lockdowns experienced across the world, led to transition from paper-based operations to digital operations. This digital era, challenges all sectors to implement changes, particularly in the hospitality and leisure sector, where employees need to maximise productivity using technology during and post lockdowns. This study examined the adoption and usage of digital administrative systems and practices at Ezemvelo KZN Wildlife, a South African organisation responsible for maintaining wildlife conservation areas and tourism in KwaZulu-Natal Province. The headquarters of the organisation are in Queen Elizabeth Park situated on the northern slopes of Pietermaritzburg, the KwaZulu-Natal provincial capital. The objective of the study was to determine which systems and practices have been adopted by administrative employees and for which purpose.

Previous studies have investigated the benefits of adoption and role of technology in various sectors. However, there is limited focus on the adoption of digital administrative systems and practices in the South African tourism industry. Yet, these systems and practices can boost employee productivity as they lead to better usage of time, money, resources and can contribute to improved customer satisfaction and growth of the economy.

This research adopted a quantitative approach using a census of 160 administrative employees at Ezemvelo KZN Wildlife. Online survey was used to collect data. Data analysis was conducted using the SPSS version 25.0. The paper argues that management needs to enhance communication to employees regarding the purpose and benefits of the digital administrative systems and practices to be used and adopted.

Keywords: digital systems, adoption, usage, practices

Introduction

Digital transformation requires workplaces and individuals to access digital systems and practices, one of the most critical being the Internet (Hinton, 2020). Furthermore, according to Palmer (2022), digital innovation has the ability to decrease costly inefficiencies, increase the workplace experience, ensure greater productivity and provide a digital thread for better transparency and interaction.

Therefore, embracing the digital platform for administrative functions at the hospitality and leisure industry needs sufficient attention as it can negatively impact productivity and customer service. Digitalisation and adoption of digital administrative systems and practices are the current and future areas for the hospitality and leisure industry to gain productivity and maximum customer satisfaction (Xanthopoulou and Plimakis, 2021). In addition, within

the context of the new digital era, the Artificial Intelligence (AI) and Fourth Industrial Revolution (FIR) that indicate an uprising trend of digitalisation (Wilson and Tinson, 2021)

The experience of one of the authors, currently working at Ezemvelo KZN Wildlife, is one of the motivations for undertaking the study. Informal observations indicate that employees face various challenges regarding transitioning to digital platforms. Challenges such as poor connectivity in some of Ezemvelo KZN Wildlife stations, the existence of two parallel processes, paper based and digital systems. As mentioned by Mathew and Ward (2018) that digital policies inform the practice and promotion of the opportunities offered by digitalisation and include regulation of digital and electronic communications, network, broadband access, digital infrastructure and information security. To this effect, the Ezemvelo KZN Wildlife accounts payable policy (2015) for instance is in place to stipulate expected digital practices of receipting electronic invoices before processing payments. Therefore, it is crucial to study what how and why certain systems and practices are adopted.

Lack of use and adoption of digital systems by employees may negatively affect productivity in administrative operations. Gaglio et al. (2022) indicated that innovation conditional on using digital communication technologies influences labour productivity. The study identified the problem of lack of focus on use and adoption of digital administrative systems and practices at Ezemvelo KZN Wildlife during and post the COVID-19 pandemic. This issue needs urgent attention as it may affect employee productivity, the service provided to customers and the ability of Ezemvelo KZN Wildlife to adapt quickly to digital transformation.

Literature review

Digitilisation

According to Gupta (2020), digitalisation enables and improves organisational processes via leveraging digital technologies, digitised data, and conversion of information into accessible digital data. Berger (2017) supported this by stating that digitalisation is already amongst human beings. It is a continual partner in every aspect of business and everyday office administration. Therefore, through the evolution of technology the hospitality and leisure industry has benefited from the introduction of Internet technology in the 3rd industrial revolution in terms of hotel operation. For instance, the increase in usage through online reservation systems (Wong, 2015). Archi et al, (2023) reviewed that the adoption of digital technology has the potential to support sustainable tourism practices by improving operational efficiencies and enhancing customer experience. It is now important that the tourism and leisure industry prepares itself for the evolution of digital transformation in the fourth industrial revolution and beyond (Schweb, 2016).

Digital systems

According to Isabel and Guterres (2021: 115), digital administrative systems are several mechanisms which convert what is in a traditional office (that relies on the use of paper) into electronic processes to create a paperless office. Certain benefits come with digitalised systems that result in a paperless office, such as easy access to data, less expensive client communication and reduced daily data storage as opposed to the traditional office where employees spend more on administrative operations. Previous research has emphasised the importance of identifying proper digital administrative systems required for the success of

digital technology adoption (Gholami, 2023). However, existing research provides insufficient insight on the main tourism and leisure industry's proper administrative systems and practices adopted towards a paperless office. This study contributes to the existing literature on technology adoption and information communication technology in the South African sustainable tourism and leisure industry, by identifying digital administrative systems that are adopted. Below are the different types of digital administrative systems utilised in the hospitality and leisure industry in South Africa, it is of high importance to assess the acceptance and employee attitudes toward using these systems.

Digital systems used and adopted in the hospitality and leisure industry in South Africa

System Application and Product System (SAP)

Junnarkar and Verma (2017) wrote that SAP is one of the world's leading software producers for managing and administrating business processes, developing solutions that enable effective data processing and information flow worldwide and in South Africa. In addition, it uses ERP software applications to increase the achievements of the organisation's resource planning, execution control and administration control. It has been found by Cydee and Gargeya (2005) that the lack of appropriate culture and organisational readiness are the most important factors contributing to failure of a SAP system implementation in Romania.

MyESS System

According to Margatama (2017), Employee Self Service (myESS) is an application that provides digital labor force services and personnel information management. Employee self-service increases employee responsibility and saves time and money as it automates Human Resource (HR) routine tasks such as the administration of leaves (Verlaan, 2016).

Payspace System

Margatama (2017) defined the Payspace system as an improved solution to help the tertiary sector to operate in the modern digital era where administrative employees have access to information at the touch of a button. Swanepoel (2022) further emphasised saving more time using the Payspace system, a simplified data-capturing system that can be used anytime, anywhere, with multi-device access. Melissa (2020) highlighted that the Payspace system allows businesses or HR administrators to access employee data anytime and can help them automate many payroll-related tasks. It includes managing employee IRP5 for tax purposes and leave management, which can be a massive drain on Human Resource Administrator's time.

Dynamic System

Dynamic system as an integrated Web-based Human Resource and Payroll Management Information System (PMI) designed to meet the needs of organisations that wish to automate their HR and payroll requirements (Radebe, 2016). Examples include the generation of pay slips and ensuring compliance and security of information. Furthermore, this system maintains an employee database with relevant payments and deductions. In addition, it has easy integration with digital biometric devices and other enterprise resource planning solutions with real-time reports and business intelligence.

e-Communication, Microsoft teams and Zoom System

Hamarshe and Bsharal (2020) mentioned that many communication leaders are already experimenting the digital transformation in industries such as financial services, real estate, and hospitality in South Africa. Their aim is to integrate various digital systems, such as mobile apps, social media, etc., into improving communication and enabling employee-to-employee networking and collaboration during and post Covid-19 pandemic.

e-Booking System

Banoobhai-Anwar (2016) defined e-booking as a term that also refers to an online booking system. The software facilitates easy bookings and payments by guests through the website of the business provider. It gives organisations the best tools to run and scale their operations all in one place. Therefore, administrative employees can require their potential guests to pay when they book, increasing the organisation's income and not worrying about payments and the administration of safekeeping payments when guests arrive. Idrees et al (2022) found that security risk, financial risk and trust are important dimensions of online reservations. Furthermore, he stated that these variables are important for an organisation's functions and increasing efficiency and effectiveness.

e-Invoice

Chamberlain (2021) mentioned that electronic invoices contain invoice data in a structured form automatically imported into the buying organisation's accounts payable system. They typically include a visual presentation of the invoice date. However, they can be temporarily rendered during processing or transposed into graphic formats (Tony, 2019). Literature revealed that working with paper based financial records also increases the risk of errors such as loose or double invoicing (Mokoena 2021). This study will determine if employees have fully moved from paper base invoicing to e-invoicing at Ezemvelo KZN Wildlife during and post Covid-19 lockdowns.

e-Signature

An e-signature or electronic signature is an efficient, legally binding way to get approval on electronic documents (White, 2019). Secure and verifiable, it can replace a handwritten signature virtually or digitally (Karanikolas, 2019). However, in developing countries, most employees still use a traditional way of signing documents, which involves printing the paper and placing a handwritten signature (White, 2019). As reviewed by Balfourt (2021) the advantage of an electronic signature assist administration operations as it increases employee productivity by enabling access to e-signed documents from anywhere easily.

e-Coupons

Illyana (2018) defined e-coupons as a digital analogue of paper coupons used to give customers discounts or gifts to attract purchasing products. Accessible through the organisation's website for discounts, refunds and free-of-charge services, e-coupons can also be benefitted from creating a viral effect through google posts, depending on the use of the promotion engine (Weiner, 2019).

This study will contribute to existing body of knowledge by accessing the utilisation and adoption of digital administrative systems and practice in the South African hospitality and leisure industry.

Practices adopted in the hospitality and leisure industry in South Africa

Machin (2021) defined digital administrative practices as employee conduct that an organisation must follow. The practices are typically informed by policy or suggested by Management.

Digital administrative practices stipulated in the literature

Reyes (2019) review highlighted that digital practices/ processes had changed work locations, especially in developed countries like the United States of America (USA) and Sweden. Sophisticated mobile devices allow work to take place anywhere (Reyes, 2016). In the USA, some companies even think of partially eliminating traditional offices (United State, Department of Commerce, 2013). Mawela et al, (2017) found in their study that the information collected mirrored what was found in the existing literature indicating that South Africa's experiences are like their counterparts in the developing world. For example, in the hospitality and leisure industry, the integration of electronic booking into organisations existing websites or social media pages (Karanicolas, 2019). Electronic bookings help customers view a booking calendar with available appointments when they visit the organisation's website. Practices include providing a booking calendar, updating digital booking forms, and updating payment details. Zsarnoczyk (2018) reviewed the method as an effective way of using an electronic booking system. However, these practices need to be tabled in organisation policies to provide a standard procedure as suggested by Nerma et al, (2020).

Theoretical Framework

The researcher selected the Technology Acceptance Model 1 (TAM) to examine the usage and adoption of digital administrative systems and practices at Ezemvelo KZN Wildlife because it has been used widely, has several adaptations, and shows higher acceptance compared to other existing models (Allen, 2020; Burgess and Worthington, 2021). Constructs of this theory include the attitudes and desire to use a system individually on perceived ease of use. The results of perceived ease of use and usefulness on intentions to adopt digital strategies and the consequences of trust that the adoption of a new system has the ability to improve operations in the hospitality and leisure industry in South Africa (Benli, 2019). However, Van-Bella and van-Dyk (2019) stated that there is a need to investigate the technology acceptance model with digital transformation in the retail industry. In addition, Sawerschel (2022) added that retail companies use hotels to contextualise their offering and engage their customers. The study will firstly focus on the tourism industry. In addition, Molinillo and Jemputra (2017) recommended that for digital systems to be successful in organisations and small enterprises, assessing the employee's participation in adopting digital strategies based on their acceptance behaviour is essential.

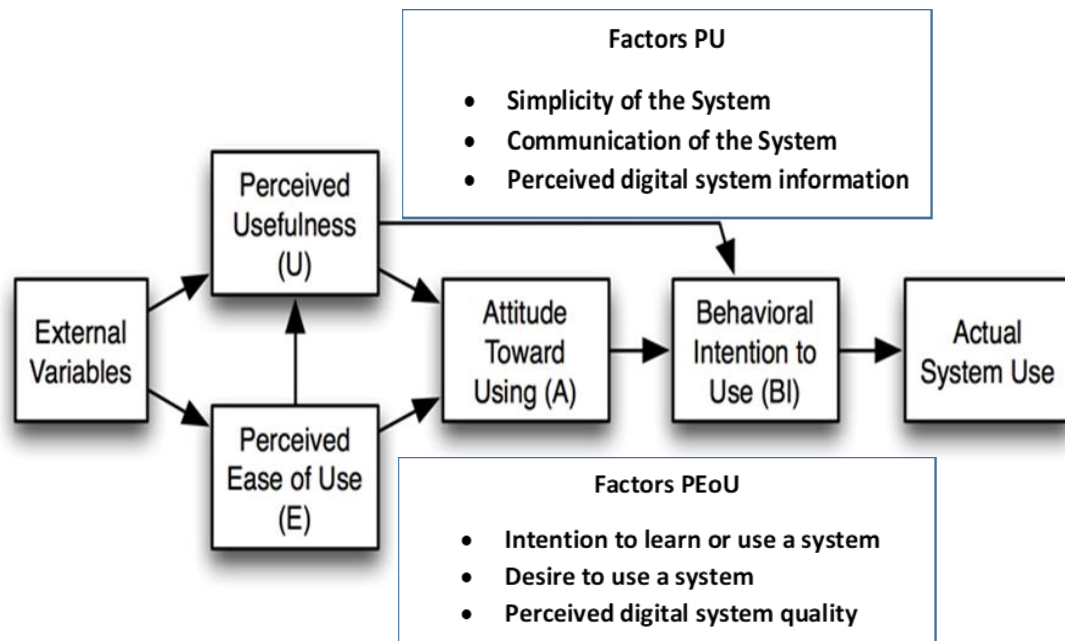


Figure 1- Technology Acceptance Framework 1 (Davis 1986)

Methodology

Research philosophy

A research philosophy also known as a paradigm consists of positivist, interpretivism, constructivism and pragmatists (Moroi, 2020). In positivism, reality is independent of researchers who can observe reality objectively. In interpretivism, reality is seen as highly subjective, because it is shaped by human perceptions (Collis and Hussey 2014; Moroi 2020). Radhakrishnan (2017) stated that constructivists believe that there is no single reality or truth, but rather multiple realities. While, pragmatists believe that reality is continually interpreted and renegotiated against the backdrop of new and unpredictable situations. The positivism paradigm was deemed appropriate to this study as it is adopting quantitative approach. This paradigm was suitable, because in a quantitative approach the researcher can cover a wide range of employees, objectively.

Research approach

The research early planning stage (proposal stage) observed that a quantitative approach needed to be employed to assess the adoption of digital administrative systems and practices at Ezemvelo KZN Wildlife. This is because, (Williams, 2021) stated that the quantitative approach makes it possible for researchers to make accurate and trustworthy findings based on actual data. In addition, (Bhandari, 2022) highlighted the direct comparisons of results as an advantage for quantitative approach.

Data collection approach

The online survey was a suitable data collection approach during the COVID-19 pandemic, where it is essential to reduce human contact to curb the spread of the virus. It is straightforward and convenient for respondents to complete surveys online (Sutherland, 2019). Furthermore, respondents can fill out surveys when they choose to and start and stop

a survey at their leisure. This gives the individual control over completing the study, which can increase engagement and response rates (Sutherland, 2019). For instance, Darya (2017) collected data using an online survey when he conducted a study on the suitability of user authentication solutions on mobile devices.

Target population

It is essential to highlight that Ezemvelo KZN Wildlife administrative employees were mandated to move urgently to digital administrative operations due to several COVID-19 cases reported in the organisation. However, the Tourism and Leisure industry plays an essential role in the growth of the economy of the country. Thus, it had to continue operating despite the cases. It was, therefore, vital to study the adoption of digital administrative systems and practices in this organisation.

The target population of 160 for this study comprises three regions that form part of Ezemvelo KZN Wildlife, as described below:

- 31 Administrative employees employed in the East Region
- 96 Administrative employees employed in the Head Office, QEP
- 33 Administrative employees employed in the West Region

Census

This study adopted a census of 160 administrative employees to achieve objectives of the study. Golata (2016) defined the census as a statistical enumeration method for studying all population members. Census was previously used in the work of (Ndebele, 2021:1) who studied “Management’s support and implementation of electronic documents and records management systems in government departments”. The study was conducted at KwaZulu-Natal Cooperative Governance and Traditional Affairs (COGTA). Census was also used and proven to draw accurate conclusion in the work of (Khumalo 2022). Therefore, all 160 Administrative employees at Ezemvelo KZN Wildlife were selected to be part of this study.

Distribution of the survey

The researcher used emails, Microsoft Teams calls and phone calls to approach participants in different regions. Participants' telephone numbers and email addresses were easily obtained from the Ezemvelo KZN Wildlife intranet website. Participants were requested by email to click on a link to access the survey. The researcher sent an email requesting 160 administrative employees at Ezemvelo KZN Wildlife to participate in the study on the 30th of June 2021, with an anticipated response due date of the 29th of August 2021. Participants were requested to click on the link <https://forms.microsoft.com/r/qDSadRanqq> to the Microsoft teams form and complete the online survey by inputting their answers and clicking on the submit button. The researcher could then view the data collected by clicking on the check result icon. An acceptable response rate was reached, thus leading to data analysis.

Data Analysis

The results of this survey were analysed using SPSS 25.0, resulting in findings regarding adopting digital administrative systems and practices at Ezemvelo KZN Wildlife. (Sharief, 2020) described SPSS as a format that International Business Machines (IBM) offers for complete analysis. IBM SPSS Statistics is a family of advanced computer programs for

statistical analysis (Sharief, 2020). In addition, the researcher used built-in analytics to evaluate the responses.

Descriptive statistics were used in this study to summarise critical variables, and these were presented using tables. The variables for this study were the digital administrative systems, digital administrative practices and factors influencing the adoption of digital systems and practices. Inferential Statistics is when a researcher gathers data from a sample and uses the statistics generated to reach conclusions about the population from which the sample was taken (Bandari, 2020). However, for the current study the inferential statistics were not used because a whole target population was used to collect data (census). As indicated by Alexander (2015) that the statistical inference is commonly said to be inapplicable to complete population studies such as census, due to the absence of sampling variability.

Findings

This section analyses data based on the adoption status of digital administrative systems such as an SAP system, myESS system, Payspace system, Dynamic system, Microsoft Teams system, Zoom system, E-booking system, E-invoice system (SAP), E-signature system and E-coupons system as described in the table 1 below. Table 2 analyses data based on the adoption status of digital administrative practices.

Table 1 – Adoption and usage of digital systems at Ezemvelo KZN Wildlife

	Code	Statement	SD	D	N	NU	A	SA	%	Mode
Status of Adoption of Digital Administrative Systems	B1.1	I am using a PaySpace system	0	0	0	3	24	46	63.0%	Strongly agree
	B1.2	I am using the Microsoft Teams system	1	1	0	2	27	42	57.5%	Strongly agree
	B1.3	I am using an SAP system	0	3	0	8	24	38	52.1%	Strongly agree
	B1.4	I am using the MyESS system	1	5	0	8	24	35	47.9%	Strongly agree
	B1.5	I am using the e-Booking system	0	6	0	13	24	30	41.1%	Strongly agree
	B1.6	I am using e-Invoicing	0	7	2	16	22	26	35.6%	Strongly agree
	B1.7	I am using a Dynamic system	1	14	0	18	17	23	31.5%	Strongly agree
	B1.8	I am using the Zoom system	0	19	1	14	17	22	30.1%	Strongly agree
	B1.9	I am using e-Signature	3	15	0	16	19	20	27.4%	Strongly agree
	B1.10	I am using e-Coupons	4	18	0	21	16	14	19.2%	Not using

Results revealed that the mostly adopted system was the Payspace system. This system is associated with processing personal information of employees, such as application for leave and receiving payslips. This implies that employees firstly adopt and use a system beneficial

to them as individuals, prior to adopting those in line with the core functions of the business. Other adopted and used systems and practices are related to communication between employees, conducting meetings, processing bookings, orders and invoices. Previous study by Macavei et al (2022) stated that perceived enjoyment of using platforms during the pandemic was high and it is not clear if this is due to platform features or the personal benefits of online platforms. This outcome is aligned with the results of the current study. However, the literature is silent in terms of the level of utilisation of digital administrative systems that are inline with the core functions of the business (e.g. e-booking) in the Tourism and Leisure Industry. This paper will attempt to address this gap.

Table 2 – Adoption and usage of digital practices at Ezemvelo KZN Wildlife

	Statement	SD	D	N	NU	A	SA	%	Mode
B2.1	I apply for leave and obtain my leave balance using a Payspace system	2	0	0	4	25	42	57.5%	Strongly agree
B2.2	I communicate and conduct meetings using a Microsoft Teams system	0	3	2	3	26	39	53.4%	Strongly agree
B2.3	I obtain quotations, place orders and purchase goods and services using an SAP system	0	6	0	7	23	37	50.7%	Strongly agree
B2.4	I request and verify my file or information from HR using the MyESS system	2	6	0	7	25	33	45.2%	Strongly agree
B2.5	Practices associated with electronic booking for supervisors	0	7	1	12	27	26	35.6%	Agree
B2.6	I issue electronic invoices to suppliers	1	10	0	15	22	25	34.2%	Strongly agree
B2.7	Practices associated with electronic booking for clients	0	11	0	12	26	24	32.9%	Agree
B2.8	I prepare and sign off documents using an electronic signature	0	16	0	14	19	24	32.9%	Strongly agree
B2.9	I communicate and conduct meetings using a Zoom system	0	14	0	15	22	22	30.1%	Strongly agree
B2.10	I compile payslips using a Dynamic system	3	18	0	16	17	19	26.0%	Strongly agree
B2.11	I send vouchers to clients using e-Coupons	1	15	1	21	20	15	20.5%	Not using
6= Strongly agree, 5=Agree, 4=Neutral, 3=Not using, 2= Disagree, 1=Strongly disagree									

Employees at Ezemvelo KZN Wildlife use Payspace to apply for leave and obtain leave balance. However, it has been found that guidelines on using a Payspace system are context specific within Ezemvelo KZN wildlife stations where there are challenges related to connectivity, paper based practices are still adopted. In addition, employees use Microsoft Teams to communicate and conduct meetings. The results reveal a significant shift from

paper-based operations to digital processes. Response also indicated that myESS is used to request and verify personal files or information from the HR at Ezemvelo KZN Wildlife. The adoption of these practices confirms minimum human error on employee files, as reviewed by Verlaan (2016) that myESS system can ensure accuracy of employee information in the database. Of concern, the digital issuing of e-coupons has not been fully adopted by employees, which indicates dominant use of paper-based e-coupons. Furthermore, e-booking is treated the same at Ezemvelo KZN Wildlife for all clients with the exception of Senior Government Officials as per Guest of Board policy. As Ezemvelo KZN Wildlife moves towards the digital era as per findings it is crucial for documents storage, preservation and retrieval in order to enhance employee productivity and customer satisfaction.

Conclusion and recommendation

Conclusion

Objective of the research project was addressed, and the results showed that there are digital administrative systems and practices adopted and used at Ezemvelo KZN Wildlife. The most adopted system is the Payspace system, collaborating with mostly adopted practices related to this system. However, this system is more related to employee benefit, this means that employees are prioritising the system that is beneficial to them more than the ones that can improve productivity and customer satisfaction, such as the e-booking system.

Findings further indicated that respondents obtain quotations, place orders, and purchase goods and services using a SAP system. Employees at Ezemvelo KZN Wildlife use Payspace to apply for leave and to obtain leave balance. In addition, they use Microsoft Teams to communicate and conduct meetings. The results reveal a significant shift from paper-based operations to digital processes with the exception of e-coupons. It seems as if these systems were adopted due to employee's intention to use, which was mainly personal, as the study was premised on the TAM version 1.

Recommendations

The Payspace system was revealed in this study as the most adopted system by employees at Ezemvelo KZN Wildlife. However, its practice is associated with employees' personal information, such as leave and payslips. This means that employees are prioritising systems that are beneficial to them. It is recommended that Ezemvelo KZN Wildlife engage employees on implemented systems and clearly state their benefits in terms of their daily operations so that employees can adopt and increase productivity. As Matthew (2021) emphasised, organisational culture change will ensure that business leaders, managers and employees are on board with the digital transformation initiative.

As the world came to an abrupt halt in early 2020 governments had to implement drastic measures to save lives (Anon, 2020) and organisations had to transition to digital systems. As we move beyond the 2020 catastrophe, Ezemvelo KZN Wildlife should consider standardising and putting procedures through an organisation policy for adoption and usage of digital administrative systems and practices that will include systems such as digital e-coupons. For instance, a standard procedure relating to e-coupons and e-signature so that administrative operations continue in unforeseen events. Policy-making bodies and policy administrators at Ezemvelo must consider motivating employees to adopt digital administrative systems and robotic modern information technology a core driver for

improving the efficiency of its administrative operations and encouraging customer satisfaction within the organisation.

Future research

Research on adopting digital systems and practices will have to be conducted on Executive Management and Senior Management employees of Ezemvelo KZN Wildlife, since this study was only limited to administrative employees. Research could also be conducted in other organisations, such as retail sector and the public sector. Investigating factors leading towards resistance to digitalised e-coupons warrants an area for future research.

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Environmental non-profit organisational resilience: Exploring adaptive capacities in a turbulent environment in South Africa

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Abstract

There is a dearth of academic studies focusing on non-profit organisational (NPO) resilience. NPOs work across most of the 17 United Nations' sustainable development goals (SDGs) underwriting a significant contribution to the South African economy, however studies are inadequate and sporadic. This study addressed a gap in the literature to determine how NPOs in South Africa can develop adaptive capacities to enhance organisational resilience to survive in a turbulent environment. This qualitative study applied an interpretivist philosophy with an inductive research approach, a case study strategy, and multiple data collection techniques. Cases were limited to environmental NPOs selected purposively. It was found that the initial 15 adaptive capacities identified from the literature reviewed were all interconnected. Three new adaptive capacities were identified via data and cross case analysis. NPO resilience can be achieved by developing these 18 interconnected adaptive capacities, discussed within the broad categories of: Culture, Leadership and People, Tactical Administration and Tactical Planning and Restructuring applicable to individual NPOs. NPOs could improve funding prospects by accentuating their work within the SDGs framework. This study provided a holistic view of promoting NPO resilience and could reduce barriers connected to managers' negative beliefs on a resilience outlook and inform NPO policy.

Keywords: adaptive capacities; non-profit competition; organisational resilience; sustainable development goals, tactical planning and administration

Introduction and rationale

During the next decade ongoing degradation of the ecosystems on which all life depends, will see an increase in natural disasters such as wildfires, earthquakes and flooding due to climate change. Subsequent geopolitical unrest may spur a demand for costs to address these, and more funding may be diverted from existing Sustainable Development Goals (SDG) targets (Naidoo and Fisher, 2020). The conservation of ecosystems and a culture that respects

life in water and on land, as mentioned in the SDGs, can lead to avoiding future pandemics but this cannot be achieved without institutions such as environmental NPOs that operate across business and government sectors in service of communities and the environment (Nemţeanu and Dabija, 2020; Ng, 2020; O'Connell, 2020).

Economic disturbances resulting from the Coronavirus disease (COVID-19) pandemic have decreased the financial and human resource capacity of conservation and environmentally focused entities. Difficulties include funding losses for conservation generated from activities such as ecotourism, government funding that was transferred to social relief efforts (e.g., grants for unemployed citizens), funder urgencies that shifted to pandemic relief efforts and decreased funding from corporates and high-wealth individuals (Sandbrook, Fisher, Holmes, Luque-Lora and Keane, 2019). Together these adverse effects could outweigh the brief gains for biodiversity resulting from the pandemic (Sandbrook, Gómez-Baggethun and Adams, 2020).

In response to societal needs, the number of NPOs in South Africa increased from 82 248 in 2011/12 to 155 367 in 2015/16, resulting in a calculated average increment of 80% within five years (SouthAfricanNPORegister, 2016). This trend is reflective of global indicators, fuelled by growing social demand. South African NPOs work in the backdrop of poverty, inequality, infrastructure deficiencies, scarce power supplies and high youth unemployment levels with escalating burdens on the natural ecosystem (Meiring, Kannemeyer and Potgieter, 2018; Thompson and Wissink, 2018). It has become more challenging for NPOs to pursue their missions in recent years due to declining regime support, an increase in the number of new NPOs and several businesses that now also serve markets traditionally considered NPO territory (Dobrai and Farkas, 2016; Mohammed, 2017).

Initiatives related to the environmental sector received 3% of South African corporate social investment spend in 2022, while education remained the most supported sector at 44% (Dialogue, 2022). Considering the central role that environmental NPOs play in achievement of several SDGs, this study addressed the gap in the literature to determine how environmental NPOs in South Africa can develop adaptive capacities to enhance organisational resilience to survive in a turbulent environment.

Literature review

Organisational resilience

Resilience is a term with far-reaching applications; engineering, socio-ecology and psychology use it to portray the capability of an individual, object or system to withstand or spring back from some form of trial (Searce and Wang, 2020). The notion of resilience related to organisations was initially postulated by Hirsch and Levin in 1999 as an ‘umbrella format’ which is a comprehensive notion utilised lightly to incorporate and justify a group of varied trends (Hirsch and Levin, 1999). Duchek (2020, p. 220) explains that “organizational resilience is an organization's ability to anticipate potential threats, to cope effectively with adverse events, and to adapt to changing conditions. Natural disasters, pandemics, terrorism and fiscal recessions can all pose a threat to an organisation’s continuity of operations (Bhamra, Dani and Burnard, 2011). A proper resilient organisation should constantly scan, recognise and plan for probable risks and be well prepared to manage the outcomes and impact once these risks materialise. Several entities addressed this organisational capability

through diverse methods with some concentrating on organisational continuity while others accentuated disaster management (Sin, Musa and Ng, 2017).

A central challenge of organisational resilience is that the resilience of a specific variable or structure is not observed directly. Instead, organisational resilience is regularly the consequence of numerous interactions and associations involving variables (Burnard and Bhamra, 2019). With growing environmental difficulties and unpredictability, the organisational resilience construct is important to application and investigation objectives, nonetheless, the organisational resilience construct remains at the emerging stage, and a vital aspect that persists without clarity is exactly how organisational resilience may be attained (Ma, Xiao and Yin, 2018; Evenseth, Sydnes and Gausdal, 2022; Chen, Xie and Liu, 2021).

Organisational resilience frameworks and models

As hypothesised by Ducheck (2020), organisational resilience is separated into three phases: anticipation, managing and adaptation, and unites material and societal resources in building control and responsibility while recognising the significance of intellectual and developmental action (Pryce, 2021). Following a comprehensive systematic review of organisational resilience constructs developed by other academics, Hillman and Guenther (2021) proposed that the outcome of an entity's response to turbulent events is development and learning. In their integrative model, an entity's conduct, resources and capabilities facilitate and establish organisational resilience (Hillmann and Guenther, 2021).

Pryce (2021) recognised that the human rudiments of an entity, e.g., leadership, staff inspiration and governance etc. are as indispensable as material resources which are key to enacting organisational resilience. A heightened means of conceptualising organisational resilience, thereby 'organisational culture', as a central driver of organisational resilience was proffered by Pryce (2021). Gibson and Tarrant (2010) developed the resilience triangle model in which they state that resilience is drawn from a multifaceted interplay of institutional elements or proficiencies that underwrite resilience when they adjust to a substantial change. Furthermore, this model depicts three types of competences: process competences, resources and organizational competences and leadership, human resources and know-how competences – all equally crucial to organisational resilience. This framework distinguishes material resources from human resources but, similar to Pryce (2021), accepts that each element is indispensable in relation to the other to augment organisational resilience.

Within the adaptive capacity element, eight indicators were identified by Lee et al. 2013(Lee, Vargo and Seville, 2013). "Minimization of silos, internal resources, staff engagement and involvement, information and knowledge, leadership, innovation and creativity, decision-making and situation monitoring and reporting". A further five indicators were identified for the planning element namely: "planning strategies, participation in exercises, proactive posture, external resources, and recovery priorities" (Lee et al. 2013, p. 34).

Adaptive Capacities: People, Administration and Planning

Central to adaptive capacity is an entities capability to determine an appropriate balance, that is entities must rapidly adapt their internal organisational rudiments to the aspects that result from a changing exterior environment. Adaptive capacity is considered an organisations

long-term proactivity in generating and employing newfound knowledge and aptly pivoting in a turbulent environment (Mahdad, De Marco, Piccaluga and Di Minin, 2020). “The adaptive capacity represents the set of resources accessible for adaptation, including the capacity to utilise these resources efficiently in the quest for adaptation. Resources may be natural, financial, institutional or human, and includes access to ecosystems, information, expertise, and social networks” (Brooks and Adger, 2005, p. 168). NPOs experience increased competition for limited resources, and with increased regulating limitations NPOs are unable to continue to be financially operational and additionally experience further pressure to continue to be communally appropriate. Therefore, the development of an NPOs adaptive capacities, is vital to enable them to withstand unexpected circumstances and rebound well (Kellner, Townsend and Wilkinson, 2017; Renjini, 2018; Witmer and Mellinger, 2016). The adaptive capacities identified from the literature reviewed were initially grouped into the People, Administration and Planning categories. These were later refined following the thematic analysis of the primary data collected.

Planning for a competitive and turbulent environment

A turbulent environment can be defined as a random change in the progressiveness and intricacy of an entity setting (Boyne and Meier, 2009). The greater the degree of volatility that exists in the environment, the greater the negative consequences on the organisation (Al Ani and Al Kathiri, 2019). Effectively the ramifications of COVID-19 can be construed as a high degree of unpredictability in the environment; along with increased competition and funding constraints, the degree of environmental turbulence for this study was deemed as high. Brown (2019) found that NPOs often traverse environmental turbulence in two ways, i.e., by exploring strategic mechanisms to cope with outer change or by exploring the capacities needed and how these capacities could be established, preserved or weakened through varying practices.

An NPO’s competitive behaviour could result in differentiation, consequently improving donor funding and mission deliverables (Curley, Levine Daniel, Walk and Harrison, 2021). NPOs have gradually begun to acknowledge competition in their sector, however, it is often viewed as inappropriate by NPO leaders (Sharp, 2018). Nonetheless, as competitive demands increase for limited resources in the NPO environment, NPOs could likely not completely avoid competition. In a competitive environment, NPOs need to manage their resources efficiently. NPOs may exploit certain distinctive resources not available to the business world such as monetary and in-kind donations, grant funding from regimes and corporates, their tax-exempt standing, a voluntary labour force and a distinctively positive image (Topaloglu, McDonald and Hunt, 2018).

Methodology

The choice of the research methodology was directed by the research onion model developed by Saunders et al. (2009). This qualitative study applied an interpretivist philosophy with an inductive research approach, a case study strategy, and multiple data collection techniques over a period of time. The interpretivism epistemological perspective was implemented to obtain an intense sense of social experiences by examining the participants’ understandings of and mindsets in building organisational resilience. This study was limited to NPOs enrolled with the Department of Social Development in the environmental category. According to the Directory of Environmental Organisations in South Africa, 92

environmental NPOs were recorded in 2018, making up the target population. Eleven environmental NPOs purposively selected formed the case studies and the NPO executive or founder of each NPO was interviewed. NPOs that were five years and older, surviving a turbulent environment were included. Big international NPOs operating in South Africa were excluded and only locally established environmental NPOs were included.

Primary data

Primary data was collected via semi-structured interviews with leaders of the eleven environmental NPOs which included open-ended questions. Unique codes were assigned to each NPO and the individual participants to analyse data and maintain confidentiality. Data were analysed using the NVivo version 12 data analysis tool. All interviews were conducted virtually via Zoom from April 2022 to July 2022 and recorded. Table 1 contains the position, age, race, gender and number of years of experience, related to the NPO leaders who participated in the study. Organisational information for each of the cases, such as the NPO's age, location, revenue, number of staff and board members and registration type, is also listed. This information was sourced directly from the participants and NPO websites or official reports such as annual financial statements and annual reviews. The participant numbers were aligned with the case numbers for ease of reference.

Table 1 – Case and participant profile information

Case/Participant Number	1	2	3	4	5	6	7	8	9	10	11
Participant Position	Director	CEO	Founder and Director	CEO	Managing Director and Founder	Executive Director	Chairman	Managing Director	CEO	Chairman and Founder	Director
Participant Age	50-59	40-49	70-79	40-49	40-49	40-49	40-49	40-49	50-59	60-69	50-59
Participant Race	White	White	White	White	White	White	White	White	White	White	White
Participant Gender	Male	Male	Female	Female	Female	Female	Male	Male	Male	Male	Female
Number of years participant worked in NPO sector	21	19	29	19	12	12	11	17	22	21	16
NPO Registration Type	Non-profit Company	Non-profit Trust	Non-profit Company	Non-profit Company	Non-profit Company	Non-profit Trust	Voluntary association	Non-profit Trust	Non-profit Trust	Non-profit Trust	Voluntary association
Number of Staff	7	257	6	23	12	9	10	35	19	10	7
Number of Board Members	3	8	3	8	3	4	7	7	4	7	3
Year Established	2015	2004	2017	2005	2016	2012	2000	2008	2000	2004	2010
Location	Kwa-Zulu Natal	Kwa-Zulu Natal	Western Cape	Kwa-Zulu Natal	Western Cape	Western Cape	Kwa-Zulu Natal	Kwa-Zulu Natal	Kwa-Zulu Natal	Western Cape	Eastern Cape
Revenue	Below R10mil	Above R100mil	Below R1mil	Above R10mil	Below R10mil	Below R10mil	Below R1mil	Above R10mil	Above R10mil	Below R10mil	Below R1mil
NPO Age	7	18	5	17	7	10	22	14	22	18	12

Discussion of findings

The findings from the case studies and the literature supported an adaptive capacity model proposing that organisational resilience for NPOs may be possible by building the connected adaptive capacities set out in three comprehensive categories. The first is Culture, Leadership and People. This broad category includes six adaptive capacities: Cogency-based Leadership; Collaboration – Internal; Innovation; a Resilience-based Culture; People: Employees, Volunteers and Board and a new Transformation Agenda, gleaned from the data analysed. Each of these adaptive capacities is largely people centric.

The second broad category is Tactical Administration and includes six adaptive capacities: Programme Practices; Monitoring, Evaluation and Reporting; Stakeholder Engagement: Funders and Beneficiaries; Brand; Information and Communication Technologies; and a new

adaptive capacity not identified from the data analysis i.e., Academic Institution Alignment. Each of these adaptive capacities is largely related to the administration of the projects or daily operations of the NPO.

The Tactical Planning and Restructuring broad category includes six adaptive capacities: Financial Practices; Collaboration – External; Succession Planning; Alliances and Mergers; Governance: Board Compliance and Accountability; and a new adaptive capacity that is SDG Alignment. Each of these adaptive capacities is largely related to the planning and legitimacy of NPOs. This model is presented in Figure 1 below.

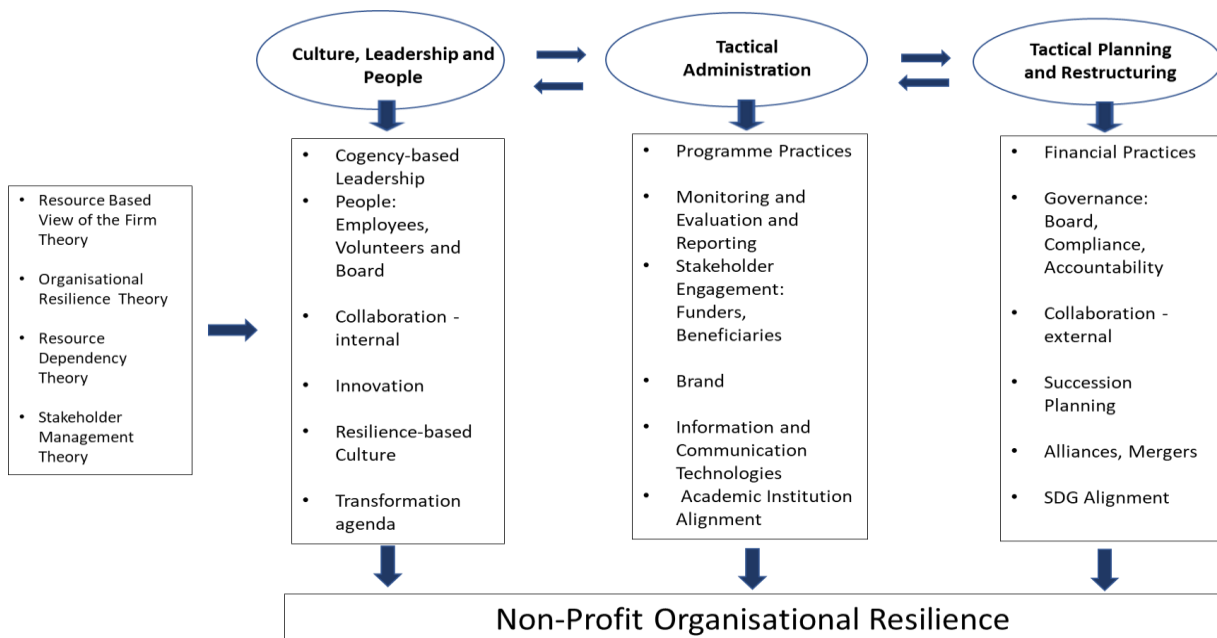


Figure 1 – NPO adaptive capacity framework

Culture, leadership and people

A current cogency-based leadership style in conjunction with a transformational leadership style, for instance the authentic leadership style can be applied for meaningful organisational transformation (Avolio and Gardner, 2005; Moore, 2019). The leadership traits related to both an authentic leadership style and a translational leadership style are present in Participant 5’s comments which indicate that several leadership styles are adopted. Furthermore, Participant 5’s awareness that change is occurring fast underwrites an overall culture of organisational resilience: “we must use the better way; we mustn’t stick to the old way because life is changing so fast”. Pryce (2021) purported a holistic method to organisational culture to develop organisational resilience. This is realised when organisational resilience becomes rooted in fundamental organisational values and operations are merged in the diverseness of the entity to relate to turbulent incidents. “It’s like the reason for being resilient is resilience or grit”, Participant 2 attributed their NPO’s resilience to a resilience culture that was inculcated at the board level. Participants 9 and 10 also mentioned the board as a key factor of their resilience but also credited their resilience to a long-serving and stable board. “We had the same board members for more than 18 years and that helped a lot. There was a sense of being on a journey together.”

NPOs tend to consider their human resources key to novel individual and organisational capabilities being advanced and adding value to the NPO, thereby necessitating their upkeep and management (Gile, Buljac-Samardzic and Van De Klundert, 2018; Oliveira, Sousa, Silva and Santos, 2021). Efficient human resource designs, along with robust environmental and organisational policies that are uniformly supporting and consistent to the NPO mission, can inspire, attract and retain worthwhile personnel (Kellner et al., 2017). Participant 10 reiterates this need *“People, they’re the ones that build the character of an organisation for what it is. And that’s why you gotta get the right people”*.

When volunteers leave an NPO, turnover rates increase and this has a negative impact on the NPO’s productivity (Lee, 2016). A volunteer’s relationship with an NPO and its employees or leaders is central to the length of time the volunteer remains engaged with the NPO (Crotty and Ljubownikow, 2020). Efficient NPO leaders communicate their tactical reasoning with staff and are engaged in signing up volunteers that are compatible with their unique NPO offerings (Sneath, 2021). Participants 8 and 5 mentioned volunteers and donors who are key to making their work possible. This alludes to the awareness or need to share and align the organisational values with key stakeholders, further bolstering the culture of the NPO. However, not all participants were welcoming towards volunteers. Some made strong statements against them such as Participant 9 who said, *“We avoid them like the plague. Volunteers are all very well, but they are needy”*. Participant 4 said, *“We’re terrible with volunteers”*. Participant 9 flagged the resources required to manage volunteers.

The detraction of silos is evident in Participant 2’s reflections: *“We did have these different silos and I think it was deliberate by our previous leader”*. Pivoting from a silo ethos to a collaborative philosophy requires pragmatic planning, responsible management and constant sustainment. To promote collaboration and communication among staff, leaders may also involve co-workers in retreats to engage in decisive planning for an NPOs future (Sneath, 2021).

Participant 4 alluded to the legacy set-up of their board and described efforts to transform the board: *“appointed two black powerful women, because we need to shift the dynamic of the board being a very old white male board, unfortunately, because they are not located here, but grew up here”*. A positive correlation between the number of womenfolk serving on a board should exist (Gazzola, Amelio, Grechi and Papagiannis, 2020; Ward and Forker, 2017). Only Participant 4 reflected on the gender representation of board members. The challenges experienced in achieving a shift in gender representation towards a more diverse board in terms of gender and race are related to the diversity and transformation dynamics of South Africa’s apartheid backdrop, therefore a new adaptive capacity identified is the promotion of diversity and transformation.

NPOs are frequently expected to invest in innovation from an organisational perspective, however, an ongoing key challenge for NPOs comes about in exactly how to realise this (Adro and Fernandes, 2021; Dover and Lawrence, 2012). It was found that the participants often worked with limited resources but still made efforts to minimise costs and create a stimulating environment away from the office for their staff. For example, Participant 4 mentions that sometimes the participants own home is used to host the team. Participant 2 also refers to an environment that encourages innovation and where failure is not viewed

negatively, “*Whereas if you don’t allow failure then some people just end up doing their job because they’re so scared of that failure*”. Participant 2 represents Case 2 which is also the largest NPO studied both from the number of employees and income perspective, and this stance is possibly related to the ability to allow staff to experiment.

Tactical administration

The effective management of socially oriented programmes is an essential prerequisite for accomplishing the best performance outcomes possible and effective administrative tools should be adopted, including a stakeholder management perspective (de Camargo, Mendonça, de Oliveira, Jabbour and de Sousa Jabbour, 2019; Moya-Colorado, León-Bolaños and Yagüe-Blanco, 2021). “*It creates a very good method of communicating our story and our success rates to the donors. But it also creates a lot of transparency and ways we can go and check things online if we need to*” Participant 5 explains some instances in which they use technology to assist them with the monitoring and assessment of their projects and understands the importance of transparency when communicating success stories to donors. “*Larger impact in terms of quality reporting or sharing it that way*”, Participant 6 demonstrates an ethos that supports assessment by alluding to the desire of the NPO to be accountable to stakeholders. Developing efficiencies in programme activities is considered an important NPO adaptive capacity.

In the NPO world, there is often pressure and expectation from corporate donors and governments for NPOs to improve their management and overall systems (Balduck, Lucidarme, Marlier and Willem, 2015; Singh and Mthuli, 2021). Yet, often the funds required to develop and improve systems and reporting efficiencies are not underwritten by donors (Adro and Fernandes, 2021). This is evident in the comments on donor funding from Participant 10, “*Funders need to fund operational capabilities of non-profits, not just their projects and delivery. Uhm, successful non-profits need to attract good people and they need to be able to pay them*”.

Participant 5 describes how their website attracts users monthly and that over time they have built a strong online presence. Donors can furthermore associate themselves with their brand in innovative ways. Participant 5 also referred to their website under the discussion of volunteers, where they have a significant number of volunteers wanting to contribute their time, “*we’ve got thousands of people signed up and we try to create opportunities*”. In this NPO case, they have successfully created a brand image of dynamism, demonstrated by a large number of volunteers and corporates that have chosen to be associated with their brand. The findings from the study conducted by Huang and Ku (2016) are well illustrated in this NPO’s case confirming the benefits of having a strong NPO website to generate brand value. Participant 1 “*but we don’t have a marketing kind of component and we’re not building our brand in that way*” describes how they went about building a brand from a different perspective in the absence of marketing staff and alludes to the difficulties of contextualising their project work in a single brand offering.

Information and communication technology is a current social stimulant for the betterment of communities, representing a transformative capability for NPOs (Nicholson, Nugroho and Rangaswamy, 2016). Participant 10 “*We want to start using underwater cameras, Gopros and underwater sonar, to try and get our outdoor classrooms televised, real time to two*

schools in South Africa, we think we can go global with it". In Participant 10's example of their potential new projects, the intended benefit to their beneficiaries and the desire to enable greater access to research for the majority demonstrate the transformative power of ICT, similar to participant 2's reflections on technology driving fundraising.

Three NPOs had developed relationships with local universities to conduct scientific research. Research is often conducted by postgraduate students and their research focus underwrites the interests of the NPO in collaboration with the universities. The knowledge gathered from the research is shared with NPO stakeholders. It can therefore be inferred that an alignment with academic institutions is an adaptive capacity underwriting legitimacy for the NPO and promoting organisational resilience. For example, Participant 4: *"commissioners involved in Rhodes University"* and Participant 8 *"building relationships with local universities and also part of that is building capacity within our team"*.

Tactical planning and restructuring

Globally regimes are shrinking their financial funding of social and charitable work, causing an increased number of NPOs to fill the gap stemming from the decline in government spending (Mueller, Williams, Higgins and Tou, 2005; Appe, 2019; Brown, 2019; Mueller-Hirth, 2012). Participant 9 *"We have traditionally relied on project funding, which is irregular and uncertain as we compete against global entities that operate in a relatively competitive environment"*. This reiterates that irregular funding and the competitive environment compromises project funding. In the cases studied, the participants have described some instances of developing alternative commercial funding options, intended to reduce reliance on traditional donation income. Participant 5 describes in detail the limitations to raising funds via commercial activities imposed on NPOs and also demonstrates the thinking to reducing reliance on traditional funding in turbulent times. Participant 5 *"NPOs have a threshold with SARS to keep their PBO status, if you earn through business activities beyond the threshold, then your PBO status is potentially at risk"*. In exploring what triggers NPO failure, Green, Ritchie, Bradley and Parry (2021) found that a diversified income portfolio increases NPO financial resilience, and specifically found that reliance on grant income was distinctly related to an elevated risk of failure. Participant 2 mentions *"but it's not really driving funds back, there must be ways of using that data to bring in actual funds with some smart apps"*, this demonstrates an awareness of the need to have a diversified funding stream to provide different funding options to interested donors, and therefore aligns to the general findings of Chikoto and Neely (2014) and Suykens et al., (2019) concerning the optimistic effects of revenue diversification on NPO financial resilience.

Participant 10 *"I think it has to do with the unprofessionalism in which board members are selected for non-profits. But I also think it's got a lot to do with the fact that they're not paid"* In terms of recruitment and remuneration practices for NPO board members, this could be related to the findings of Olinske and Hellman (2017) who found that although academic studies focusing on NPO organisational management had increased recently, relationships and engagements between the NPO board and its executive leaders remain understudied. NPO officials regularly deal with a disconnected and a controlling board (do Adro and Leitão, 2020). An example of such board challenges experienced is provided by Participant 4 *"I changed the logo without showing them and everybody had opinion about why we cannot"*

change it. It was very disheartening to come away thinking we've just presented incredible work that's happening, but they focused on the logo". The blurring of the roles between the executive and the board is evident in the responses of Participant 2 *"We actually have to have a little bit of separation where they as a board member help us to fundraise"*.

Collaboration is perceived as a prerequisite by NPO actors and a central value; maintaining positive collaboration requires time and resource investment (Witesman and Heiss, 2017; Zeimers, Anagnostopoulos, Zintz and Willem, 2019). Participant 6 stated, *"we have to be very diplomatic in that space"* and diplomacy is indeed necessary when contemplating external collaboration. Although *"it is hard work"*, as concluded by Participant 4, it remains an important requirement for NPOs.

Succession plans for NPO officials underwrites stakeholder security and ease, warranting the continuation of the NPO mission (Yawson, 2019). Participants 2 and 5 both admit that they do not have a succession plan but acknowledge that they should ideally have this in place. Participant 5 *"We don't, and we should. We thought about it many times"*.

In the NPO segment, mergers evolve as a tactic for expansion, markedly when environmental uncertainty and resource deficiencies occur (Gabriel and Marian, 2017). Participant 2 supports the notion of a merger with other NPOs and alludes to environmental NPOs that are stressed because of the COVID-19 pandemic, similar to Participant 10 who would also consider merging with another NPO if their values etc. are aligned. Participant 2 *"I think there is a space for merger or takeover. I think there's lots of opportunity, especially as a result of what happened with COVID"*. Participant 10 *"they've got the same purpose, vision, mission, I'd be happy to merge with them"*.

South African NPOs work in collaboration with local and global organizations and regimes (Haywood et al. 2019). Participant 2: *"for international funding, there's always sections like what SDGs do you address"* and Participant 9: *"We've never done it before; you won't even notice SDGs on our websites"*. Participants 2 and 9 felt that it was necessary to align their work and, consequently, the monitoring and assessment reports to the SDGs. Importantly, when NPOs begin to talk about and report on their work from an SDG perspective, it will turn the spotlight on the contribution of NPOs to the SDGs. *"I think that by aligning to the SDG's and reporting more of the work we do on the ground, under those sorts of headings, it could help us unlock funding"* Participant 10. There was general agreement from all participants that this could assist with unlocking funding from key stakeholders such as governments and corporates. However, none of the participants was currently implementing this approach but felt that it was needed.

Conclusion and recommendations

According to Duchek (2020) several studies have focused on organisational resilience from the engineering, socio-ecology and psychology perspectives, however there are limited studies from a management perspective. Furthermore, a gap is also apparent in the understanding of different entities experiences and readings of adverse occurrences and differing response channels to varying configurations of organisational resilience (Shepherd and Williams, 2023). This study contributed to the understudied NPO sector in South Africa and the three new adaptive capacities identified, i.e., a Transformation Agenda, an Academic

Institution Alignment, and SDG Alignment, contributed to organisational resilience literature, from a turbulent environment perspective. The adaptive capacity model can provide unique NPOs a means of enhancing organisational resilience within its individual historical context from a management perspective. The findings on the NPO sector in general could inform NPO policy.

In South Africa academic studies focusing on the NPO segment are limited (Choto, Iwu and Tengeh 2020); the NPO sector plays a key role to reaching the SDGs by 2030 and more studies in this field are recommended. This study was limited to NPOs with an environmental focus. It is recommended that similar studies could be conducted with NPOs with other focuses, e.g., the culture and recreation, education, or health NPOs registered with the DSD. Furthermore, this study also excluded big international NPOs operating in South Africa and focused only on locally established environmental organisations. It is recommended that a similar study be conducted with a focus on environmental NPOs including big international NPOs to get a cross-cultural or Global South perspective of the adaptive capacities that promote organisational resilience.

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Operational resilience during coronavirus disease on total quality management in textile multinational companies

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Abstract

This paper investigates the impact of the coronavirus disease (COVID-19) on operational resilience and total quality management (TQM) practices in multinational textile companies. The scope of the study encompasses the challenges faced by the textile industry during the pandemic and how these challenges affected the implementation of TQM principles. The research focuses on multinational companies in the textile sector, considering their size, geographical diversity, and global supply chains. The paper concludes that the COVID-19 pandemic significantly disrupted the operational resilience of textile multinational companies and posed challenges to their TQM practices. The sudden disruptions in supply chains, labour shortages, and restrictions on mobility resulted in production delays, increased costs, and compromised product quality. However, the study also highlights the resilience strategies adopted by these companies to mitigate the impact of the pandemic. These strategies included risk assessment and business continuity planning, diversification of suppliers and supply chains, agile manufacturing and flexibility, and digitalization and technological integration.

Keywords: Resilience, Collaboration, Agility, Total Quality Management.

Introduction

Like many other sectors, the textile industry has faced significant challenges due to the coronavirus (COVID-19) outbreak. The pandemic has disrupted global supply chains, caused fluctuations in demand, and posed operational hurdles for multinational textile companies (Dohale, 2022). In this context, operational resilience has gained prominence to effectively navigate these uncertainties and ensure the continuity of business operations. According to Leo (2020, p. 128), operational resilience "refers to an organization's ability to withstand and adapt to disruptions, safeguarding its critical processes and maintaining customer service delivery." Simultaneously, total quality management (TQM) has long been recognized as a fundamental approach to enhancing competitiveness and customer satisfaction. TQM focuses on continuous improvement, involving all members of an organization to deliver products and services that meet or exceed customer expectations (Khurniawan, 2020). Amid the COVID-19 pandemic, maintaining TQM practices has become essential for multinational textile companies to ensure consistent quality and customer satisfaction despite unprecedented challenges.

Literature review

Definition and components of operational resilience

Operational resilience refers to an organization's ability to withstand and adapt to disruptions while maintaining critical business operations (Leo, 2020, p. 128). It encompasses the capacity to absorb shocks, respond effectively, and recover swiftly from unexpected events. In the COVID-19 pandemic, operational resilience has gained significant importance in the textile industry, enabling companies to navigate uncertainties and maintain their competitiveness. Operational resilience comprises several vital components contributing to an organization's ability to withstand disruptions. Some components include risk assessment and management, supply chain resilience integration, and technology.

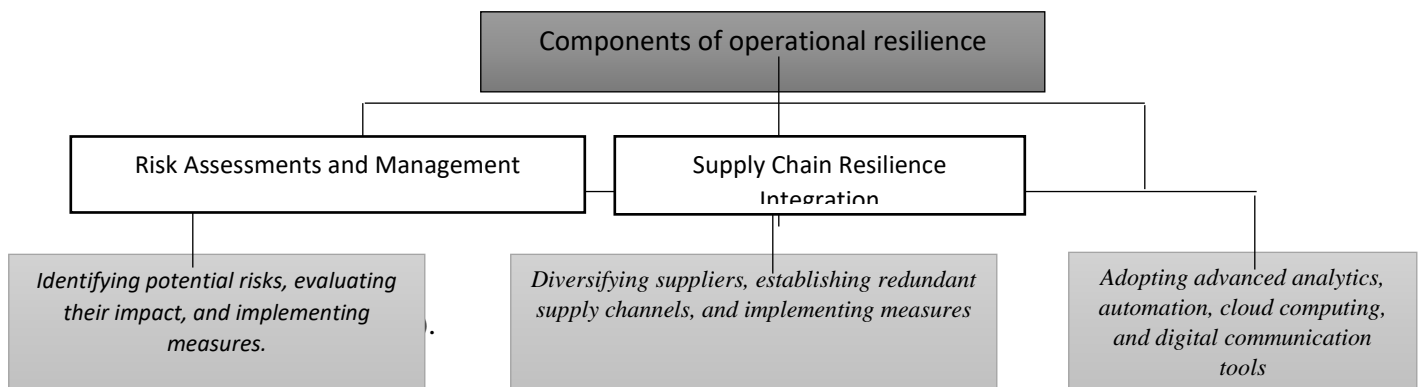


Figure 1.1. Components of operational resilience

Importance of operational resilience in the textile industry

Operational resilience is essential in the textile industry, especially during the COVID-19 pandemic. The textile industry relies heavily on global supply chains, severely impacted by disruptions during the pandemic (Castañeda-Navarrete, 2021). For instance, disruptions, such as natural disasters, economic crises, or transportation issues, can severely impact the supply chain and disrupt the flow of raw materials and finished products. Operational resilience ensures that textile companies can withstand and recover from such disruptions, minimizing the impact on their supply chain stability. Therefore, this allows them to maintain a steady production process, meet customer demands, and avoid costly delays or stockouts (Stank, 2022).

Operational resilience ensures that textile companies can continue operations, even during unexpected events or disruptions. Haukkala (2023) asserts that it is particularly crucial during times of crisis, such as the COVID-19 pandemic, which significantly impacted global industries, including textiles. Companies with robust operational resilience plans can adapt quickly to changing circumstances. The textile industry is subject to various regulations related to product safety, environmental sustainability, labor practices, and supply chain transparency. Operational resilience is crucial in ensuring compliance with these regulations (Tardivo, 2021). With robust systems and processes, textile companies can effectively monitor and manage compliance risks, avoid legal penalties, and maintain a positive relationship with regulatory bodies.

*Impact of COVID-19 on operational efficiency of textile multinational companies
Disruptions in the supply chain.*

The COVID-19 pandemic has significantly disrupted global supply chains in the textile industry. Multinational companies rely on international suppliers for raw materials, components, and finished products. The following disruptions have been observed, such as shortages of raw materials, lockdown measures, travel restrictions, and temporary closures of manufacturing facilities in different countries have caused shortages of raw materials (Giese, 2022). It has led to delays in production and challenges in meeting customer demands. Border closures, reduced air freight capacity, and restrictions on international trade have disrupted the transportation of goods. Textile multinational companies have faced difficulties shipping products to customers, resulting in delayed deliveries and increased costs. Castañeda-Navarrete (2021) points out that “the closure of domestic and international textile factories due to lockdowns and safety measures has impacted production capabilities”. These closures have led to reduced production output and further contributed to disruptions in the supply chain.

Workforce and production challenges

The COVID-19 pandemic has presented numerous workforce and production challenges for multinational textile companies, including Health and Safety Measures. Adhering to health and safety guidelines, such as social distancing, increased sanitation, and personal protective equipment requirements, has required adjustments in production processes (World Health Organization, 2020). These measures have led to decreased production efficiency and output. According to Larue (2021, p. 269), in some cases, “companies have experienced labour shortages due to the unavailability of workers caused by illness, quarantine measures, or travel restrictions”.

This has further hampered production capabilities. The shift to remote work arrangements has affected non-production functions, such as administrative tasks and management. Communication, coordination, and collaboration have become more challenging, impacting overall productivity and efficiency.

Changes in customer demand and behaviour

The COVID-19 pandemic has significantly altered customer demand and behaviour in the textile industry. The closure of retail stores reduced consumer spending and changing fashion trends have led to shifts in customer demand. Pang (2022, p. 2149) mentioned that “some products, such as formal wear, have experienced a decline in demand, while others, like loungewear and athleisure, have increased”. With lockdown measures and social distancing guidelines in place, online shopping has witnessed significant growth. Textile multinational companies have had to adapt to the increased demand for online sales channels and ensure seamless delivery and customer experiences. The pandemic has reinforced customer's focus on sustainability and ethical considerations. Customers are increasingly conscious of environmentally friendly practices, fair labour conditions, and supply chain transparency.

Total Quality Management

Sriyakul (2019, p. 228) defines Total Quality Management (TQM) “as a philosophy that seeks to integrate all organisational functions such as marketing, finance, supply chain, engineering, production, and customer service to focus on meeting customer needs and

company objectives.” It encompasses a set of principles and practices aimed at enhancing customer satisfaction, optimizing efficiency, and fostering a culture of continuous improvement. TQM “is a process for a customer-focused approach and strives for continuous improvement of business operations” (Ezenyilimba, 2019, p. 15). It encourages organizations to continually monitor, evaluate, and optimize their processes to reduce defects and errors. This results in better product and service quality, fewer customer complaints, and reduced rework and waste.

The impact of COVID-19 on the principles of Total Quality Management

The COVID-19 pandemic has profoundly impacted the principles of Total Quality Management (TQM) in various ways. While the core principles of TQM remained relevant during the COVID-19 pandemic, the companies had to adapt and respond to new challenges and opportunities brought about by the crisis. Flexibility, agility, and a commitment to quality and customer satisfaction remained essential for organizations striving to navigate the uncertainties of the pandemic successfully (Moi & Cabiddu, 2022).

Customer focus

Customer focus is at the core of TQM. It involves identifying and understanding customer needs, expectations, and preferences and aligning all aspects of the organization to meet those requirements. Hu (2021) states that “the pandemic altered customer preferences and priorities, health, safety, and comfort became paramount consumer concerns”. This meant that textile products needed to meet new hygiene, durability, and functionality standards. The companies needed to actively gather customer feedback, monitor market trends, and adjust product design, quality standards, and service offerings accordingly. Gazzola (2020) adds that market research is essential to implement this principle to understand customer preferences, trends, and emerging needs.

Total employee commitment

Total employee commitment involves engaging all employees in quality improvement efforts and creating a work environment where they are motivated to contribute their best (Saffar & Obeidat, 2020). Lee and Rhee (2021) highlighted that “the pandemic posed direct threats to the safety and well-being of employees”. The companies had to prioritise measures to protect their workforce from infection, including implementing social distancing, providing personal protective equipment (PPE), and adjusting work schedules. This principle can be implemented by communicating and acknowledging the importance of each employee's contribution. Moreover, investing in training and development programs to enhance employee skills and knowledge. Empower employees to make decisions and suggest improvements in their areas of expertise (Yarberry & Sims, 2021).

Process approach

The process approach emphasizes that all organizational activities are interconnected and should be managed as processes to achieve efficiency, consistency, and quality (Noviantoro, 2020). It focuses on managing and improving processes systematically to achieve consistency, efficiency, and quality in an organization's operations. As per Chakraborty and Biswas (2020, p. 181), “the pandemic disrupted global supply chains, affecting the availability of raw materials and components for textile production”. It posed significant challenges to maintaining the flow of processes within textile companies. Therefore,

companies can implement this principle by identifying and prioritising the critical processes in textile manufacturing that directly impact product quality and customer satisfaction.

Integrated systems

According to Herterich (2023, p. 524), “integrated systems refer to the interconnectedness and synergy of different parts of an organization.” It recognizes that quality is not the responsibility of a single department but a collective effort involving various functions, including production, supply chain, quality control, design, marketing, and customer service. Akhtar (2022, p. 633) mentioned that “the pandemic accelerated digital transformation efforts across industries, including textiles”. The companies had to quickly adopt digital tools and technologies to facilitate remote work and collaboration. This principle can be implemented by systems that allow for the seamless sharing and integration of data and information across departments. This can include using Enterprise Resource Planning (ERP) systems or dedicated quality management software.

Strategic and systematic approach

It emphasizes the need for organizations to adopt a structured and strategic approach to managing quality and continuous improvement efforts. This principle involves aligning quality goals and processes with the broader strategic objectives of the company. According to Barman (2021), “supply chain disruptions were a major challenge during the pandemic. The companies had to develop strategies to ensure their supply chains' resilience to minimize disruptions”. It urged companies to integrate supply chain management into their strategic approach, aligning it with quality objectives. This principle can be implemented by providing resources to complete the process steps and proper employee training (Regmi & Jones, 2020). Further, ensuring that quality objectives and initiatives align with the overall strategic goals and vision of the organization. Quality is not viewed in isolation but as an integral part of the company's strategic planning.

Continual improvement

Continual improvement, also known as the Kaizen approach, emphasizes the ongoing process of identifying, analysing, and implementing improvements in all aspects of an organization to enhance quality, efficiency, and competitiveness. Badowski (2021, p. 668) stated that “the pandemic reinforced the importance of adaptability, flexibility, and a commitment to ongoing improvement”. The companies that embraced these principles were better positioned to navigate the challenges posed by the pandemic while maintaining their focus on enhancing quality and meeting customer expectations. This principle can be implemented by ensuring companies regularly evaluate their processes, products, and systems to identify improvement areas.

Fact-based decision-making

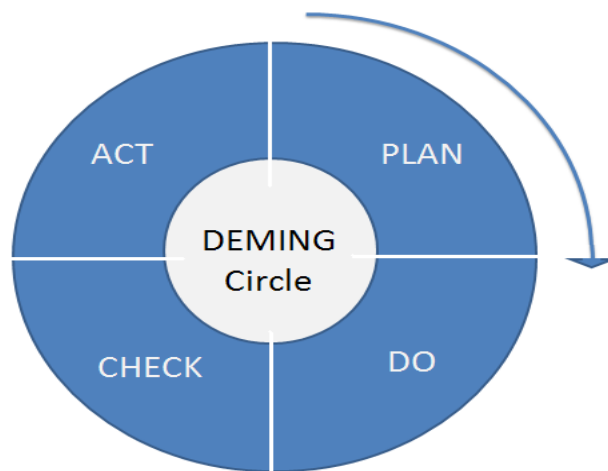
Companies can make sound decisions on the available information when they analyse and collect data. As a result, it can lead to a better understanding of the market and the customers. As per Kuhl (2020), “the pandemic created an urgent need for data-driven decision-making”. The companies had to rely on data to assess the impact of the crisis on their operations, supply chains, and customer demands. This principle can be implemented by analysing and checking data to ensure accuracy and reliability (Galvez, 2018). The company may be able to analyse and defend past decisions by referring to factual records.

Communication

Effective communication is essential for aligning employees, departments, and stakeholders toward common quality goals and objectives. In the textile manufacturing sector, communication is crucial in ensuring that quality standards are met, and that everyone knows their role in maintaining and improving product quality. Biddle (2020, p. 06) highlighted that “the pandemic created a need for clear and timely communication regarding health and safety measures, business continuity plans, and changes in workplace protocols”. The companies had to update employees, customers, and stakeholders regularly, ensuring everyone was informed about the latest developments and actions to address the pandemic's impact. This principle can be implemented by establishing official communication lines to update employees about new systems and processes (Oztemel & Gursev, 2020)

Theoretical framework

The PDCA (Plan-Do-Check-Act), Deming or Shewhart, is a four-step iterative framework for continuous improvement and problem-solving (Jelenc, Lerner & Knapic, 2020). It provides a systematic approach to managing processes, identifying areas for improvement, and implementing changes.



*Figure: 1.2. The PDCA Cycle.
Source: (Jelenc et al., 2020).*

Plan

The first step in the PDCA cycle is to plan. During this phase, it is essential to identify the problem or objective, set goals, and develop a plan to achieve them. For instance, gathering information, analysing data, and understanding the current situation. Multinational textile companies need to assess the impact of the coronavirus disease on their operations and total quality management processes. It involves understanding the specific challenges faced, such as supply chain disruptions, reduced workforce, or changes in customer demand. The companies should set clear objectives for maintaining operational resilience and improving total quality management despite the pandemic.

Do

The second step is to implement the plan developed in the previous phase. It involves executing the actions outlined in the plan and making the necessary changes to the process or system. In the "Do" phase, the multinational textile companies implement their plans and strategies to address the identified challenges. It may involve adapting production processes to ensure the safety of employees, implementing remote work arrangements, or establishing alternative supply chain sources. It is essential to document the actions taken during this phase.

Check

The third step involves comparing the actual and expected outcomes defined in the planning phase. This phase involves monitoring and evaluating the effectiveness of the actions taken in the previous phase. Textile multinational companies should measure key performance indicators (KPIs) related to operational resilience and total quality management. It includes metrics like production output, customer satisfaction, defect rates, and delivery timelines. Companies can identify areas where further improvement is needed by comparing these metrics to pre-pandemic levels.

Act

The final step is to act upon the findings from the check phase. In the "Act" phase, the textile multinational companies take corrective actions based on the findings from the previous phase. If the KPIs indicate that certain areas are not meeting the desired targets, companies must analyse the root causes and implement appropriate corrective measures. It may involve process optimization, employee training, or new technologies to enhance operational resilience and maintain quality standards.

Research methodology

The study employed an exploratory research design. The participants in the study were selected through purposive sampling. This study adopted a qualitative approach. The qualitative component allows for an in-depth understanding of the experiences, challenges, and strategies of multinational textile companies during the pandemic. The data collection process involves two main approaches: primary data collection and secondary data collection. This study employed both primary data and secondary collection. In-depth interviews were conducted with selected participants from multinational textile companies to understand better their experiences and perspectives regarding operational resilience and total quality management during the COVID-19 pandemic. The total population was 64, and this study recommended a sample size of 15 employees to participate in this study. Secondary data is collected from various sources to support and complement the primary data.

A comprehensive review of relevant literature, including academic journals, books, and industry reports, was conducted to gather existing knowledge and insights on operational resilience and total quality management in the textile industry during the pandemic. It supported the study's theoretical framework and provided context for the findings. Company reports and documents were reviewed to gather information about their strategies, performance, and quality management practices during the COVID-19 pandemic. The collected data were analyzed using appropriate qualitative analysis techniques: Qualitative data from interviews and open-ended survey responses were analyzed using thematic

analysis applying NVIVO 12. It involved identifying common data themes, patterns, and emerging concepts. The analysis allowed for interpreting participants' experiences, challenges, and strategies related to operational resilience and total quality management.

Results

The relationship between operational resilience and TQM in the context of textile multinational companies

Operational resilience requires a thorough understanding of risks and their potential impact on business operations (Casalino, 2019). On the other hand, TQM techniques, such as risk assessment and analysis, help identify and mitigate risks in the organization. Multinational textile companies can proactively address potential disruptions and enhance operational resilience by integrating risk management practices into TQM. Ufua (2023) mentions that operational resilience and TQM share a common focus on continuous improvement. Operational resilience involves adapting and improving processes to withstand disruptive events better, while TQM aims to enhance quality and performance continuously. As a result, by integrating TQM principles and practices, multinational textile companies can foster a culture of continuous improvement, strengthening operational resilience by identifying and addressing weaknesses before they become critical (Zighan & Ruel, 2023).

The operational resilience and TQM place a strong emphasis on meeting customer expectations. It ensures that disruptions do not negatively impact customer satisfaction, while TQM ensures that products and services consistently meet quality standards and customer requirements (Owusu-Kyei, 2023). As a result, by aligning operational resilience strategies with TQM principles, multinational textile companies can maintain customer satisfaction despite challenges, enhancing their long-term success. Both operational resilience and TQM rely on data and metrics for decision-making (Ufua, 2023). Operational resilience requires monitoring and analysing relevant data to assess the impact of disruptions and evaluate recovery strategies. TQM relies on data-driven analysis to identify areas for improvement and measure progress. By leveraging data and analytics, textile multinational companies can make informed decisions that enhance operational resilience and TQM practices.

Operational resilience strategies for mitigating the impact of COVID-19 on operational efficiency of textile multinational companies

Risk assessment and business continuity planning

Effective risk assessment and business continuity planning are crucial components of operational resilience. Comprehensively assessing risks, including supply chain vulnerabilities, production disruptions, workforce challenges, and customer demand fluctuations, is crucial. This analysis helps identify potential risks and their impact on operations (Butt, 2021). The companies established robust business continuity plans that outline actions to take during disruptions. Those plans included contingencies for supply chain disruptions, alternative sourcing options, inventory management strategies, and protocols for maintaining communication with stakeholders. Moreover, regularly test and evaluate the effectiveness of business continuity plans through simulations and scenario-based exercises. This enabled companies to identify gaps and make necessary improvements to enhance their resilience (Alberto, 2019).

Diversification of suppliers and supply chains

Diversifying suppliers and supply chains is a proactive strategy to mitigate disruptions and enhance operational resilience. Conducting thorough evaluations of potential suppliers becomes essential, as assessing their financial stability, production capabilities, and track record (Park & Li, 2021). For instance, the companies engaged with multiple suppliers for critical inputs to reduce dependency on a single source. Also, they explored sourcing options from different geographical regions to reduce the risk of supply chain disruptions caused by localized events or disruptions in specific regions. Barrane (2021) fosters solid relationships and collaborations with suppliers to enhance communication, transparency, and mutual support during crises. Engage in regular dialogue to address concerns and develop contingency plans together.

Agile manufacturing and flexibility

Agile manufacturing and flexibility are essential for multinational textile companies to adapt quickly to changing circumstances. For example, the companies adopted modular manufacturing approaches that allowed for rapid reconfiguration of production processes. This enabled them to respond swiftly to customer demand changes and adapt to supply chain disruptions (Siagian, 2021). Cross-training employees and developing their skill sets enabled flexibility in production. This ensured that employees performed multiple tasks and roles, reducing dependency on specific individuals or departments. Adana (2023) adds that fostering a culture of collaboration and coordination among different departments within the organization enables quick decision-making, effective communication, and seamless coordination during disruptions.

Digitalization and technological integration

Digitalization and technological integration play a crucial role in enhancing operational resilience. Companies leveraged advanced analytics tools to analyse data, identify patterns, and gain insights into supply chain dynamics, production processes, and customer behaviour (Sheng, 2021). This enabled data-driven decision-making and proactive responses to disruptions. Also, they invested in cloud computing infrastructure and remote work capabilities to ensure seamless communication, collaboration, and access to critical information even when employees work remotely. Integrating automation and robotics technologies into production processes is essential to enhance efficiency, reduce dependency on human resources, and ensure consistency in product quality.

Operational resilience strategies for mitigating the impact of COVID-19 on the principles of Total Quality Management

Digital customer engagement

It is an operational resilience strategy that uses digital channels and technologies to interact with customers, gather feedback, and meet their needs effectively. This strategy played a vital role in mitigating the impact of COVID-19 on the principles of Total Quality Management (Cavaliere, 2021). It encompassed using online communication channels such as websites, social media, emails, chatbots, and messaging apps to connect with customers. This allowed the companies to collect customer feedback through online surveys, feedback forms, and social media interactions. Bharadiya (2023, p. 123) adds that customer relationship management systems enable companies to personalize interactions and offers based on customer behaviour and preferences.

Flexible work arrangements

It is an operational resilience strategy that offers employees options and adaptability in how, when, and where they work. This strategy helped companies mitigate the impact of COVID-19 by addressing employee needs and concerns during challenging times (Chen, 2021). Flexible work arrangements often included the option for employees to work remotely from their homes. It allowed them to maintain their commitment to their jobs while reducing the risk of exposure to the virus. It provides a safer work environment, contributing to their overall well-being. Putranti (2020, p. 56) states that when employees have the flexibility to manage their work schedules and personal lives, they are more likely to remain committed to their roles and the organization.

Cross-functional collaboration

It is an operational resilience strategy involving different departments and teams working together cohesively and effectively to achieve common goals. Ponsignon (2019) mentioned that “this strategy ensured that despite disruptions, the companies maintained a cohesive and coordinated approach to quality management”. As a result, various departments, such as production, supply chain, quality control, and customer service, were aligned with the quality objectives of the companies. The collaborative efforts facilitated the sharing and integrating of data and information across departments. Teams worked together to understand and respond to changing customer needs and expectations, ensuring that integrated systems align with customer-centric approaches.

Employee training and empowerment

It is an operational resilience strategy that provides employees with the necessary skills, knowledge, and autonomy to actively participate in identifying, analysing, and implementing improvements within the company. According to Ramadan (2023, p. 544), “training programs equipped employees with problem-solving methodologies and tools, such as root cause analysis and Six Sigma techniques”. As a result, empowered employees with solid problem-solving skills can identify and address issues effectively, contributing to continual improvement.

Recommendations

Strengthening supply chain resilience

Companies must explore alternative sourcing options and engage with multiple suppliers to reduce dependency on a single source (Butt, 2022). This helps mitigate the risks of disruptions and ensures a steady supply of materials. Also, encouraging collaborative relationships with suppliers enhances communication, transparency, and mutual support during crises. Engaging in regular dialogue and joint planning becomes essential to develop contingency plans and sharing best practices. Lund (2020) regularly assesses the vulnerabilities and performance of the supply chain. Identify potential risks and implement proactive measures to address them. This includes conducting regular audits, monitoring key performance indicators, and engaging in continuous improvement efforts.

Investing in technological solutions

Technological advancements are crucial in enhancing operational resilience and total quality management. Companies can invest in digital technologies and data analytics tools to gain real-time insights into operations, supply chain dynamics, and customer behavior (Sakas,

2023). It enables data-driven decision-making and helps identify opportunities for improvement. Identify areas within the production process where automation can be implemented effectively. Automation reduces errors, improves consistency, and enhances efficiency, improving quality management. Qu and Liu (2022) emphasize investing in communication and collaboration tools that facilitate seamless interaction among employees, suppliers, and customers. This enables effective coordination, especially in remote or distributed work environments.

Prioritizing customer-centric strategies

In times of crisis, maintaining customer satisfaction is vital for business sustainability. It becomes crucial for companies to continuously monitor and analyse customer behaviour and preferences (Nezamova & Olentsova, 2020). Therefore, they must stay informed about shifting trends and adapt product offerings and services accordingly. Maintaining open lines of communication with customers to address their concerns, provide updates, and manage expectations effectively. Promptly respond to customer inquiries and feedback to build trust and loyalty. Tailor products and services to meet the evolving needs of customers. Innovate and introduce new offerings that provide value and address specific pain points experienced by customers during crises.

Conclusion

The COVID-19 pandemic has posed significant challenges to multinational textile companies, disrupting supply chains, impacting production processes, and altering customer demand patterns. This study focused on exploring the operational resilience strategies adopted by these companies and their impact on total quality management during the crisis. The findings of this study emphasize the importance of operational resilience in navigating the challenges brought forth by the pandemic. Textile multinational companies demonstrated their ability to adapt and respond to crises by implementing various strategies. The implementation of these strategies had a positive impact on total quality management within the companies.

Adopting digitalization and technological integration improved operational efficiency, productivity, and consistency in quality. Based on the findings, several recommendations were provided for the multinational textile companies. Operational resilience is crucial for maintaining total quality management in unprecedented disruptions. The lessons learned from the COVID-19 pandemic can serve as a foundation for building future resilience in the textile industry. As the world continues to navigate the uncertainties brought by the pandemic, operational resilience remains critical for the success and sustainability of multinational textile companies. Incorporating the recommendations in this study, the companies can better prepare themselves to withstand future disruptions, maintain high-quality standards, and emerge stronger from challenging times.

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Evaluating customer satisfaction with AI chatbot interactions in the Ghanaian insurance industry: Focusing on Star Assurance Ltd

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Abstract

The aim of this study is to examine the awareness of customer satisfaction with Artificial intelligence (AI) chatbot interactions in the Ghanaian insurance industry using Star Assurance LTD as the case study. The fascinating use of AI chatbots in the insurance industry is to assist customers online, and to consider the vast distances and wide variations in cultures, languages, and expectations that these customers have. A quantitative data collection approach was adopted to gather data from 111 respondents. The findings of the study indicate a high level of awareness of AI and use of chatbots among respondents, as well as a strong and statistically significant relationship between AI chatbots and customer service delivery (CSD). Nonetheless, the research also uncovered several customer-related challenges in using AI chatbots, such as misinterpretation of inquiries or input, task assistance failure, redundant questioning or responding, inappropriate or awkward replies, unwarranted contact, actions or content, and monotony. The study recommended that Star Assurance LTD needs to invest in ongoing improvements and enhancements to the capabilities and user experience of the chatbots, which involve incorporating more advanced AI technologies, such as natural language processing and machine learning, to improve its accuracy and effectiveness.

Keywords: Artificial intelligence, chatbots, insurance, technology

Introduction

The insurance sector is one of the fastest-growing industries in the global economy (Chen, Guo, & Liang, 2021; Chi, Denton, & Gursoy, 2020). Many insurance companies are seeking opportunities to expand internationally, in order to attract new customers (Chi, Gursoy, & Chi, 2022). The industry faces intense competition globally to satisfy both local and international clientele (Chi et al., 2022). Employee job satisfaction and the quality of social

support they receive are crucial for customer satisfaction, as employees are the primary points of contact for customers (Li, Yin, Qiu, & Bai, 2022).

Live chat interfaces are increasingly used for real-time customer service in insurance contexts, ensuring effective service delivery. Customers use chat services to obtain answers to questions or seek assistance. The real-time nature of chat services has significant implications for trust, satisfaction, repeat purchases, and word-of-mouth (WOM) intentions (Prentice et al., 2020). Over the past decade, chat services have been the most prevalent means of customer support (Ameen et al., 2021). Advances in artificial intelligence (AI) have led to the development of conversational software agents (CSAs), such as chatbots, designed to converse with humans using natural language (Gnewuch et al., 2017; Pfeuffer et al., 2019). Despite the emergence of basic CAs in the 1960s, recent "second wave of artificial intelligence" systems (Launchbury, 2018) have renewed interest in and commitment to CA technology (Ameen et al., 2021). However, customers still face negative experiences with AI-based financial advisors, impacting service quality in the insurance sector (Li et al., 2021).

AI chatbots have gained popularity in customer service interactions, but their impact on customer service perception and key performance indicators remains limited (Hentzen, Hoffmann, Dolan, & Pala, 2021). The insurance industry in Ghana faces the challenge of delivering increasingly personalised services, which AI chatbots can facilitate. These tools enable businesses to better comprehend customer needs and preferences through data analysis and trend identification (Hentzen et al., 2021). AI chatbots can assist international customers online, considering vast distances and diverse cultural, linguistic, and expectation differences. AI's potential to enhance service quality by generating vital customer information has primarily been examined from a technological acceptability standpoint in insurance literature. Only a few studies, such as Yoon and Lee (2021), have explored AI technologies concerning service quality, including information and system quality.

However, there is a lack of literature specifically addressing how AI chatbots impact customer service delivery in the insurance industry, especially in Ghana. Although studies exist on AI's general impact on service quality (Ameen et al., 2021; Yoon & Lee, 2021), Pinna et al. (2020) argue that AI chatbots should be assessed from an industry perspective, as they offer new self-service opportunities for customers and lower service costs. Businesses need to understand how service consumption affects metrics like satisfaction, loyalty, and willingness to reuse service applications. AI chatbots' impact on customer relationships remains scarcely measured (Li et al., 2022). The evaluation of service delivery in terms of dimensions and specific attributes concerning AI chatbots' influence on customer satisfaction and loyalty is unclear. This study aims to fill these gaps by addressing the research question: Do AI chatbots affect customer service delivery? A conceptual model has been developed to better understand these relationships. This study contributes to the literature on AI chatbots and international marketing by analysing AI chatbots' outcomes and factors influencing customer service delivery in the insurance industry. The study's goal is to help insurance managers enhance customer satisfaction, manage customer relationships, and gain a competitive edge in international marketing strategies.

This study aims to investigate the impact of AI chatbots on customer service delivery at Star Assurance LTD, in Ghana, specifically in Greater Accra. The paper first seeks to determine the level of awareness of AI chatbots among Star Assurance LTD customers. Second, it examines the effect of AI chatbots on customer service delivery. Third, it identifies the challenges of using AI chatbots among Star Assurance LTD customers. Star Assurance LTD, a privately-owned insurance company, was incorporated in August 1984 and began operations in April 1985. It has grown to become the largest indigenous private insurance company in Ghana in terms of assets and one of the top five in terms of premium income. The company has 21 branches across nine of Ghana's sixteen regions, with agency offices serving the remaining seven. Star Assurance LTD underwrites general business products, including motor, fire, marine, aviation, accident, and travel insurance (Star Assurance, 2022).

This study is significant because it assists insurance managers in improving customer satisfaction, managing customer relationships, and gaining a competitive advantage in marketing strategies. Furthermore, the study's importance stems from its potential to benefit stakeholders aiming to enhance customer service quality by improving information flow between parties. By illustrating how AI chatbots support the knowledge exchange process to improve customer service quality, this study helps insurance managers decide whether to implement AI chatbots in their insurance operations.

Literature review

Artificial Intelligence (AI)

Our exploration of artificial intelligence starts with an analysis of the term “intelligence”, which, in the human context, refers to the ability to learn, adapt to new situations, understand and apply abstract concepts, and use knowledge to influence the environment (Chen, Jiang, Jia & Liu, 2021). In more general terms, Paschen, Kietzmann, and Kietzmann (2019) define it as the ability to detect and process data, convert data into information and ultimately knowledge, and use this knowledge for goal-oriented actions. They highlight that Artificial Intelligence (AI) differs from human intelligence due to its reliance on rapid data processing. Think of AI technology as a solution that will transform customer service platforms for real-time self-service. This technology-driven shift will change the role of humans and empower future customer support agents (Ping, 2019).

Haenlein and Kaplan (2019) describe artificial intelligence as the use of technical devices to imitate human cognitive abilities to achieve goals autonomously while taking into account all possible constraints. AI technology, supported by data analytics, is increasingly being adopted as a solution to ongoing margin issues, shorter strategy cycles, and heightened customer expectations. This can enhance customer-brand relationships by changing how businesses interact with their customers (Jurisic & Azevedo, 2011). Specifically, AI advancements have the potential to improve the customer experience by enhancing companies' understanding of customer preferences and buying behaviours (Ameen, Tarhini, Reppel & Anand, 2021). As a result, organisations can experience significant benefits and increased customer satisfaction if they wisely employ AI technology at critical customer touchpoints. Retailers use AI in various ways, including content creation, AI-powered chatbots, and customer insights.

Previous studies indicate that the top 1% of customers in the retail sector can be reached through AI use, which is 18 times more valuable than average customers (Ameen et al., 2021). This is achieved through high personalization and enhanced engagement based on contextual and behavioural data. Early applications of artificial intelligence were limited by several factors related to the time, including the existing technology, computers' limited ability to adapt to daily life, and consumers' restricted imaginations, which mostly confined AI to the realm of science fiction. Contributing to the initial sluggishness in AI adoption were overestimations of Artificial Intelligence's potential and underestimations of the challenges to acceptance and implementation (Chi, Denton & Gursoy, 2020). Many of the AI benefits envisioned in the 1950s have gradually materialized or are still in progress, but the pace at which new technologies are developed, adopted, and utilised has consistently fallen short of expectations. This fact may serve as a warning for current forecasters.

In contrast to previous industrial revolutions that focused on agricultural and mechanical production, mass production, and raw computational power, AI has the potential to impact the “physical, digital, and biological realms” in ways that could disrupt nearly every aspect of society and bring about profound systemic change (Davenport & Kirby, 2016). Instead of just enhancing products, technology is now integrated into the product itself, leading to the term “smart products.” There is a great deal of hype surrounding current technology breakthroughs, which are variously referred to as the “Fourth Industrial Revolution” (Heppelmann & Porter, 2014), the “Third Wave of IT-Driven Competition” (Davenport & Kirby, 2016), and the “Third Era of Automation” (Schwab, 2016), among other names. The Fifth Industrial Revolution (5IR) represents a new phase of technological advancement characterized by the integration of emerging technologies such as artificial intelligence, quantum computing, nanotechnology, biotechnology, and 5G connectivity into various aspects of society and industry. Examples of 5IR applications include the development of autonomous vehicles, precision medicine using genetic information and AI, advanced robotics for manufacturing and healthcare, smart cities with interconnected IoT devices, and sustainable energy solutions like advanced solar panels and energy storage systems (Schwab, 2016).

In their review of service sector literature, Huang and Rust (2018) identify four types of intelligence that are primarily sequential: mechanical (automation), analytical (weak AI), intuitive (Strong AI), and empathetic (Affective AI). These four types of intelligence are useful for categorising technological advancements, because they demonstrate a structured progression of development, and each stage has distinct effects on customer service and service industry professionals. Huang and Rust observe that the evolution of artificial intelligence follows a natural progression, starting with mechanical intelligence and moving through analytical intelligence and intuitive intelligence to empathetic intelligence.

AI is increasingly being used in various economic sectors, including healthcare, hospitality, tourism, banking, and retail. In the healthcare industry, Nadarzynski et al. (2019) found that most participants were open to using chatbots for minor health issues that did not require a physical examination. They viewed chatbots as particularly useful when they had difficulty understanding instructions given over the phone and found text-based material easier to comprehend. Regarding awareness, a respondent is quoted as saying, “I think it's

online, and you can ask it questions and get answers back. It's not a real person. It's like stored data" (Nadarzynski et al., 2019, p. 5).

The goal of AI in insurance is typically to enhance customer service and understand customer behaviour. Sharma and Sood's (2022) study aims to examine the role of AI in India's insurance industry. They selected research papers from the past five years to investigate and determine how technology evolved during this period and how an increase in AI benefits the industry and facilitates providing the best services and understanding customer behaviour. They found that the sector is progressing rapidly and using AI technology approaches to improve customer service, India's development, and the country's insurance services.

Research methodology

This study utilised a cross-sectional design, meaning it was conducted at a specific point in time. This method has been praised for its ability to examine the relationships between variables under investigation using linear regression when the study's sampling units are large (Wang, 2020). Furthermore, it offers better financial and time flexibility, and it eliminates the need to seek respondents multiple times for a high response rate (Bangdiwala, 2019).

The study's participants were customers of Star Assurance Company Limited. With permission from the company, a list of customer phone contacts in the Greater Accra Region, Ghana, was compiled. A simple random sampling technique was employed to select 111 participants for the study. Randomly generated numbers were used to select customers from the databases of the Star Assurance LTD. Selected customers were then called, and the study's purpose was explained. Convenient locations and times were scheduled with respondents for data collection. However, for those who could not arrange suitable locations and times, questionnaires were administered via phone calls. Data were collected from the sampled population of 138 using a structured questionnaire. However, only 111 responded giving a response rate of 80.4%. Participants were invited to join the study and informed of its objectives. Ensuring respondents understood the study's purpose helped improve the reliability of their responses, and all ethical issues were addressed. The questionnaire consisted solely of closed-ended questions, as is typical. Data were processed using the SPSS version 20.0 software and analysed with a multiple regression model.

Findings

Descriptive and reliability analysis

In this section, descriptive and reliability analyses of the variables employed in the model were explored. The results of the descriptive analysis and reliability test for the dependent variable (Customer Service Delivery - CSD) and the independent variable (Artificial Intelligence Chatbot - AI) are displayed in Table 1. Descriptive statistics for the maximum and minimum responses, average response, and standard deviation, as well as skewness and kurtosis of the responses represented by the variables, are provided. The mean score indicates that the average response falls between 4.51 and 4.57, suggesting that respondents generally agreed with the questions on average. Therefore, there is a general level of agreed satisfaction and usefulness for the AI chatbot. The standard deviation ranges from 0.78 to 0.71, which could indicate some degree of subtlety or variation in the responses.

Table 1: Descriptive Statistics and Reliability Test

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis	Cronbach Alpha	Items
CSD 1.0	5.0	5.0	4.514	.7814	-2.316	6.019	0.948	5
AI	1.00	5.00	4.5653	.71487	-2.530	7.820	0.892	4

The level of awareness of Artificial Intelligence (AI) Chatbots among customers of Star Assurance Limited

Table 2 presents the level of AI chatbot awareness among customers using a Likert scale response. The findings reveal that the majority of the customers are highly aware of the company's AI chatbot. The data indicates that most respondents (70.3%) are "extremely aware" of Artificial Intelligence (AI), and a significant portion (67.6%) have previously used chatbots and understand their functionality. A majority of respondents (69.4%) know that insurance companies suggest using AI chatbots for inquiries and complaints, and a large majority (73%) recognize that AI contributes to cost reduction. A substantial portion (71.2%) is also aware that AI is employed for risk mitigation. However, only a small percentage (14.4%) prefer using chatbots over visiting Star Assurance for complaints. In summary, a minority of respondents (25.2%) have moderate awareness of AI chatbots, while 66.7% are highly aware of their use and importance. A small number of respondents (9.1%) seem to lack knowledge about the AI chatbot and its functions. The overall mean response for all questions is 4.49, indicating a moderate to high level of awareness.

Table 2: Awareness Level of Customers about AI Chatbots

Statement	Percentage Response					Mean Response
	Not at all Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Extremely Aware	
Have you heard about Artificial Intelligence (AI)	3.6%	0.0%	5.4%	20.7%	70.3%	4.54
Have you used Chatbots before	4.5%	1.8%	3.6%	22.5%	67.6%	4.47
Do you know about Artificial Intelligence chatbots functions	4.5%	2.7%	3.6%	21.6%	67.6%	4.45
Do you know insurance make use of Artificial Intelligence chatbots	4.5%	1.8%	3.6%	18.0%	72.1%	4.51
Are you aware that insurance companies recommend the use of AI chatbots for inquiry and complaint	5.4%	1.8%	1.8%	21.6%	69.4%	4.48
Are you aware that Artificial Intelligence helps in Cost Reduction	1.8%	1.8%	4.5%	18.9%	73.0%	4.59
Do you know Artificial Intelligence is used for Risk Mitigation	4.5%	1.8%	7.2%	15.3%	71.2%	4.47
Do you prefer going to Star Assurance for complaints or using the chatbots	5.4%	3.6%	5.4%	18.9%	66.7%	4.38
Total	0.9%	4.5%	2.7%	25.2%	66.7%	4.49

The effect of Artificial Intelligence (AI) chatbots on customer service delivery

According to Table 3, the model summary demonstrates that AI chatbots considerably influence customer service delivery, as evidenced by the high R and R Square values. The R-value of .926 implies a strong linear association between AI chatbots and customer service delivery. The R Square value of .857 reveals that about 86% of the variability in customer service delivery can be accounted for by the presence of AI chatbots. The adjusted R Square value of .855 suggests that the model fits the data well, considering the number of predictors in the model. The standard error of the estimate, .2971, represents the average difference between the predicted and actual values. In summary, these findings indicate that AI chatbots have a substantial positive effect on customer service delivery.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.926 ^a	.857	.855	.2971

a. Predictors: (Constant), AI

The ANOVA test outcomes in Table 4 reveal a statistically significant impact of AI chatbots on customer service delivery (CSD). With an F value of 651.927 and a significance level of .000, there is a notable difference in the average CSD scores between groups with and without AI chatbots. This indicates that AI chatbots have a substantial positive influence on customer service delivery.

Table 4: ANOVA test results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	57.548	1	57.548	651.927	.000 ^b
	Residual	9.622	109	.088		
	Total	67.170	110			

Table 5 presents the model coefficients, which illustrate the connection between AI chatbots and customer service delivery (CSD). The unstandardized coefficient for AI (1.012) signifies that with each unit increase in AI chatbots, CSD increases by 1.012 units. The standardised coefficient (Beta) of .926 reveals the strength and direction of the AI chatbots and CSD relationship, with a .926 value indicating a robust positive correlation. The t value of 25.533 and the significance level of .000 demonstrate that the AI chatbots and CSD relationship is statistically significant, suggesting a substantial positive influence of AI chatbots on customer service delivery. The constant (intercept) term of -.106 represents the predicted CSD value when AI chatbots are absent. The standard errors for the coefficients convey the estimates' accuracy. In summary, these findings imply that AI chatbots have a substantial and significant positive impact on customer service delivery.

Table 5: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.106	.183		-.577	.565
	AI	1.012	.040	.926	25.533	.000

The challenges of using Artificial Intelligence (AI) chatbots among customers of Star Assurance Limited

Table 6 suggests that a majority of respondents (55%) either agree or strongly agree that AI chatbots face various challenges among Star Assurance Limited's customers. A notable percentage of respondents (22.5% and 11.7%) disagree or strongly disagree with this statement. A smaller group of respondents (8.1%) hold a neutral stance on this matter.

Table 6: Challenges of Using AI Chatbots Among Customers

Statement	Percentage Response					Mean Response
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
The chatbot is reported to misinterpret requests or input, or to provide an answer that does not fit with the question	15.3%	19.8%	5.4%	4.5%	55.0%	3.64
The chatbot is reported to be unable to assist the participant in solving a particular task or to be unable to provide help in general	15.3%	19.8%	6.3%	4.5%	54.1%	3.62
The chatbot is reported to ask the same questions or provide the same line of answers repeatedly, which is experienced as obstructing the user from getting help or assistance	15.3%	18.9%	6.3%	3.6%	55.9%	3.66
The chatbot is reported to give responses that are improper or embarrassing	17.1%	19.8%	6.3%	0.9%	55.9%	3.59
The chatbot is reported to be the source of unwanted contact, actions, or content	14.4%	23.4%	5.4%	1.8%	55.0%	3.59
The chatbot interaction is reported to be boring either immediately or after a period of use	23.4%	9.0%	8.1%	3.6%	55.9%	3.59
Total	11.7%	22.5%	8.1%	2.7%	55.0%	3.6158

Further information on the challenges faced when using AI chatbots among Star Assurance Limited customers, as reported by respondents in the data, includes:

- Misunderstanding requests or input or providing unrelated answers: This implies that chatbots might not be accurately processing and comprehending customer inquiries, resulting in customer frustration and unresolved issues.
- Inability to assist with tasks or provide general help: This indicates that chatbots may lack the necessary skills or knowledge to effectively support customers, leading to dissatisfaction and diminished trust in the chatbot's ability to offer helpful assistance.

- Repetitive questioning or answering: This suggests that chatbots might be incapable of handling more intricate or subtle inquiries or may have a limited range of responses, causing customers to feel hindered or frustrated.
- Inappropriate or embarrassing responses: This implies that chatbots might not consistently deliver suitable or professional responses, potentially causing discomfort or embarrassment for customers.
- Unwanted contact, actions, or content: This indicates that chatbots may be causing annoyance or inconvenience for customers through their interactions.
- Boredom: This suggests that chatbots might not be engaging or interesting for customers, resulting in a lack of motivation to continue using them. Overall, these challenges suggest that AI chatbots may not always provide an optimal experience for customers of Star Assurance Limited. The company needs to address these challenges to improve the effectiveness and satisfaction of its chatbot service.

Discussions

The primary objective of this study was to investigate the impact of AI chatbots on customer service delivery at Star Assurance Limited in Greater Accra, Ghana, with a focus on the awareness and challenges associated with AI chatbots. The high awareness (70.3%) and usage (67.6%) of AI and chatbots among respondents is consistent with their growing adoption and popularity across various industries. Gartner's report predicts a 25% increase in chatbot usage for customer service in 2020, with 70% of large organizations expected to implement chatbots by the same year, driven by cost-effectiveness, efficiency, and convenience (Gartner, 2020). Lower awareness of AI chatbot functions (21.6%) among respondents could stem from the complexity and rapidly evolving nature of AI technology. It is not unusual for people to have a general understanding of AI without knowing its specific capabilities and applications, emphasising the need to educate and inform customers about AI chatbot functions to foster trust in the technology. The high awareness of AI chatbot usage for inquiries and complaints in the insurance sector (72.1%) aligns with the increasing trend of utilising chatbots for customer service in this industry. According to Accenture's survey, 63% of insurance customers prefer chatbots for simple inquiries, and 37% for more complex tasks to enhance customer service and satisfaction.

These results indicate that AI chatbots effectively improve customer service delivery at Star Assurance Limited, corroborating numerous studies highlighting chatbot benefits such as faster resolution times, 24/7 availability, and personalised interactions (Accenture, 2018; Gartner, 2020). By handling routine inquiries, chatbots can also reduce customer service team workloads and costs, allowing human agents to focus on more complex tasks (Accenture, 2018). These findings emphasize AI chatbots' potential to significantly enhance customer service delivery at Star Assurance Limited. It is crucial for the company to consider AI chatbots' benefits and implement them to effectively address customer needs and expectations, which may involve ongoing efforts to improve chatbot capabilities and user experience and educate customers about the technology's functions and advantages.

Challenges mentioned by respondents, including request misinterpretation, task assistance inability, repetitive questioning or answering, inappropriate or embarrassing responses, unwanted contact or actions, and boredom, coincide with commonly reported issues when using chatbots for customer service. According to a Zendesk survey, the most frequent

complaints about chatbots involve understanding customer requests, insufficient knowledge or resources for complex issues, and a lack of personalisation or human-like interaction (Zendesk, 2019). These challenges underscore the need for continuous enhancements to chatbot capabilities and user experience to effectively cater to customer needs. The high percentage of respondents experiencing these challenges (55%) suggests a substantial gap between customer expectations and AI chatbots' current capabilities at Star Assurance Limited, highlighting the importance of close monitoring and addressing these challenges to improve chatbot service effectiveness and satisfaction. The average response of 3.62 for all questions suggest that respondents generally perceive these challenges as moderately severe, indicating that while there is room for improvement, Star Assurance Limited's chatbot service is generally functioning as intended and meeting most customers' needs.

Conclusion

In summary, the implementation of AI chatbots holds considerable promise for substantially enhancing customer service delivery at Star Assurance Limited, Ghana. The study's findings reveal a high level of awareness and usage of AI chatbots, which corresponds with the broader adoption and growing popularity of such technologies across various sectors. Nonetheless, the research also uncovers several customer-related challenges in utilizing AI chatbots, including misinterpretation of requests or input, incapability to assist with tasks, redundant questioning or answering, inappropriate or embarrassing responses, undesired contact, actions, or content, and monotony. These issues emphasise the need for continuous improvements and refinements in chatbot capabilities and user experiences to effectively cater to customer needs and expectations. The high percentage of respondents who acknowledged encountering these challenges suggests that there might be a gap between customer expectations and the existing abilities of AI chatbots at Star Assurance Limited. Therefore, AI chatbots can potentially bring about considerable improvements in customer service delivery at Star Assurance Limited. However, to maximize the benefits of this technology, the company must address the challenges identified by customers. This may involve continuous efforts to enhance the capabilities and user experience of the chatbots, as well as educating and informing customers about the technology's functions and benefits. By doing so, Star Assurance Limited can ensure that their AI chatbot implementation effectively meets customer needs and expectations, ultimately leading to a more satisfactory customer experience.

Limitations of the study and recommendations for future research

One limitation was the use of a self-report survey to collect data from customers which may be subject to bias, such as social desirability bias or memory recall errors. Additionally, the study did not assess the impact of other factors that may influence customer service delivery, such as the quality of human customer service agents or the overall customer experience. Future studies could consider controlling for these variables to more accurately assess the effect of AI chatbots on customer service delivery.

One of the main challenges identified by customers in this research was the misinterpretation of requests or input, the inability to assist with tasks and repetitive questioning or answering by AI chatbots. To address these issues, the company needs to invest in ongoing improvements and enhancements to the capabilities and user experience of the AI chatbots. Secondly, to enhance customer understanding and trust in the technology,

the company needs to provide education and information to customers about the functions and benefits of AI chatbots. Furthermore, there is a need to make AI chatbot interactions more engaging and personalised. Many customers reported that the interactions with AI chatbots were boring after a period of use. In addition, the company can adopt more advance “off the shelf” AI chatbot tools to enhance customer engagement and may also customize the interface to suit their customer demands.

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Exploring corporate social responsibility adoption and perception among small and medium enterprises in eThekweni Municipality

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(UKZN)

Abstract

Corporate Social Responsibility (CSR) has garnered increased attention, especially in developing regions. Historically, responsible corporations have undertaken CSR initiatives to improve the well-being of the communities they serve and safeguard the environment they depend on. In the 2000s, the United Nations Global Impact played a pivotal role in boosting CSR commitment by encouraging organizations to take on greater environmental responsibilities and promote eco-friendly technologies. This call to action was further reinforced by the King IV Report, emphasizing the importance of organizations setting targets and metrics for responsible conduct towards both society and the environment. Despite the growing emphasis on CSR, Small and Medium Enterprises (SMEs) cannot evade their responsibility to contribute to societal welfare and environmental preservation. SMEs have often faced criticism for not prioritizing CSR, attributing their inaction to resource constraints. However, this justification may no longer be sufficient, and SMEs should strive to incorporate innovative CSR strategies into their operations. This research aimed to investigate the perceptions held by SMEs in eThekweni regarding the practice of CSR. While similar studies have been conducted in various metropolitan areas across the nation, the eThekweni region remains unexplored in this context, creating a unique research gap. Employing a positivist philosophical stance, this study followed a deductive research approach and utilized questionnaires as the primary data collection method. Using factor analysis, the data revealed that SMEs in eThekweni currently apply and aspire to adopt five CSR initiatives into their strategies, with resource limitations often proving to be a significant barrier in implementing these.

Keywords: Sustainability, ethics, philanthropy, ubuntu

Introduction

In recent years, the business landscape has witnessed a notable shift towards a more socially responsible approach (Goss & Roberts, 2010). Porter and Kramer (2021) emphasize that businesses carry a responsibility to address pressing social and environmental challenges. Corporate Social Responsibility (CSR) has gained prominence within the business world, with companies embracing it to contribute to the well-being of the communities they impact and depend on (Rangan, Chase & Karim, 2015; Carroll, 2022). Modern, globalized companies recognize CSR as a driver of innovation and increasingly acknowledge the need for tangible business outcomes from CSR initiatives (Vilke, 2014; Rangan et al., 2015).

Embarking on CSR is not just a business obligation; it is a strategic move to gain a competitive edge and establish a positive business image (Ramasobana & Fatoki, 2014). However, amidst the comprehensive research on CSR, one area that has received relatively

less attention is the role of Small and Medium Enterprises (SMEs) in CSR within the developing world (Jamali, Lund-Thomsen & Jeppesen, 2015).

SMEs play a pivotal role in job creation and poverty alleviation within developing countries. The eThekweni Municipality, located in KwaZulu-Natal (KZN) Province, encompasses a diverse spectrum of SMEs, ranging from traditional family businesses to micro-enterprises (eThekweni Municipality, 2013). These SMEs operate across various sectors and face distinct challenges in their developmental stages. They are intertwined with both the formal and informal sectors of the economy, contributing to the region's economic vitality.

While business survival is conventionally associated with profitability, it is increasingly recognized that a company's interaction with its social environment, both internal and external, and adherence to legal and ethical boundaries significantly influence its longevity (Ferrell, Thorne & Ferrell, 2011). In this context, this study seeks to investigate perceptions regarding Social Responsibility (SR) strategies for SMEs in the eThekweni Municipality, KZN Province. This paper addresses the extent to which SMEs in eThekweni, a metropolitan municipality in South Africa, engage and perceive CSR practices. While prior research on this topic has been conducted in various metropolitan areas across the country (Ntshona, 2019), eThekweni has remained unexplored in the context of CSR practices, representing a significant knowledge gap.

Background

In the contemporary era, Corporate Social Responsibility (CSR) has garnered substantial attention, especially in developing countries (Adekanmbi, 2020). Organizations have traditionally embraced various CSR and environmental practices, aiming to contribute positively to the well-being of the communities they operate in and depend upon (Carroll, 2015). This focus on CSR intensified in 2000 when the United Nations Global Compact called upon organizations to enhance environmental responsibility and promote the development and dissemination of eco-friendly technologies (UN Global Compact, 2000). This global perspective aligns with national standards like the King IV Report, which emphasizes the necessity for organizations to establish targets and measures for responsible engagement with society and the environment (IoDSA, 2016).

Notably, Small and Medium Enterprises (SMEs) are not exempt from these responsibilities, despite being considered resource-constrained in their CSR endeavours (Amaeshi, Adi, Ogbechie, & Amao, 2006). It is essential for SMEs to align with CSR principles and adopt innovative strategies that positively impact their local communities (Schmeltz, 2017).

In the world of business, CSR is interpreted and understood in many ways. According to Kotler and Lee (2005), “CSR is a commitment to improve community well-being through discretionary business practices and contributions of corporate resources”. The understanding that Kotler and Lee (2005) have about CSR is also shared by Ackers (2009). The definition provided by Ackers is what European countries tend to adopt, and it is vital to understand factors such as workforce diversity, employee well-being, sustainable environment, and company operatives, which facilitate CSR activities (Baker, 2009; Matten

& Moon, 2008). The European Commission, which is composed of 28 representatives from each European country, encourages the notion whereby companies decide voluntarily to incorporate social issues in their business operations (European Commission, 2013; Baker, 2009).

In America, CSR emerged as a social and political reaction to the growth of capitalism after the American civil war (1861-5) (Bichta, 2003). In SA, the debate around the role of CSR activity dates back to the apartheid era (Skinner & Mersham, 2008). In 1977, Rev. Leon Sullivan, an Africa-American who at the time was a board member of General Motors, developed principles that were to be adopted by US companies in SA to promote programmes that had a positive impact on non-white workers (Johnson & Turner, 2010). These principles included non-segregation in the workplace, improving the quality of life for blacks and other non-whites outside the workplace, and working towards eliminating laws that hinder social, economic, and political justice (Igbanugo, 2012).

The South African corporate social responsibility context

The SA government recognises the importance of CSR, which is contained in the Broad-Based Black Economic Empowerment (BBBEE) Act that was implemented in 2004 (Beenavigator, 2013; Zondi, 2014). According to the National Development Plan (2011), social responsibilities deserve to be taken seriously by every citizen, and promoted by business, society, and institutions. CSR is a topic that is usually discussed under corporate governance. In terms of legislation, the Companies Act 71 of 2008 does not compel companies to engage in CSR activities or projects. However, various government policies and document, as well as King III, all address the need for companies to acknowledge their stakeholders and to adopt the ‘triple -bottom line’ approach. This approach focuses on the social, environmental and economic concerns of the organisation. Some scholars have further identified the three main concerns as people, plant and profit respectively (Zondi, 2014).

Cant and van Heerden (2013) define CSR as a concept that highlights the fact that businesses are part of the larger society in which they exist, and are also accountable to society for their performance. The European Union Commission (2011) is of the opinion that CSR is the process whereby companies integrate social and environmental concerns into their business operations, when interacting with their stakeholders on a voluntary basis. Possenti (2012) points out that CSR is a process that deals with the ethical treatment of the stakeholders of a company or institution. Stakeholders include both internal and external stakeholders.

For the purpose of this study, the definition by Cant and van Heerden (2013) was adopted, as it highlights the important link between organisations and the societies in which they operate. Bilankulu et al. (2014) state that researchers have postulated that a focus on the role of businesses in relation to CSR has become imperative to the survival of modern businesses. SMEs may find it difficult to have discretionary money available to spend on CSR (Jenkins, 2006). SMEs focus mostly on economic imperatives, rather than social goals, because of their need to survive and relatively limited financial resources (Bilankulu et al. 2014). CSR has been a major debate among scholars and the focus has been on the role of businesses in the society in which they operate (Galbreath, 2008). According to the World Business Council for Sustainable Development (WBCSD) (2000), business is an “inseparable part of society

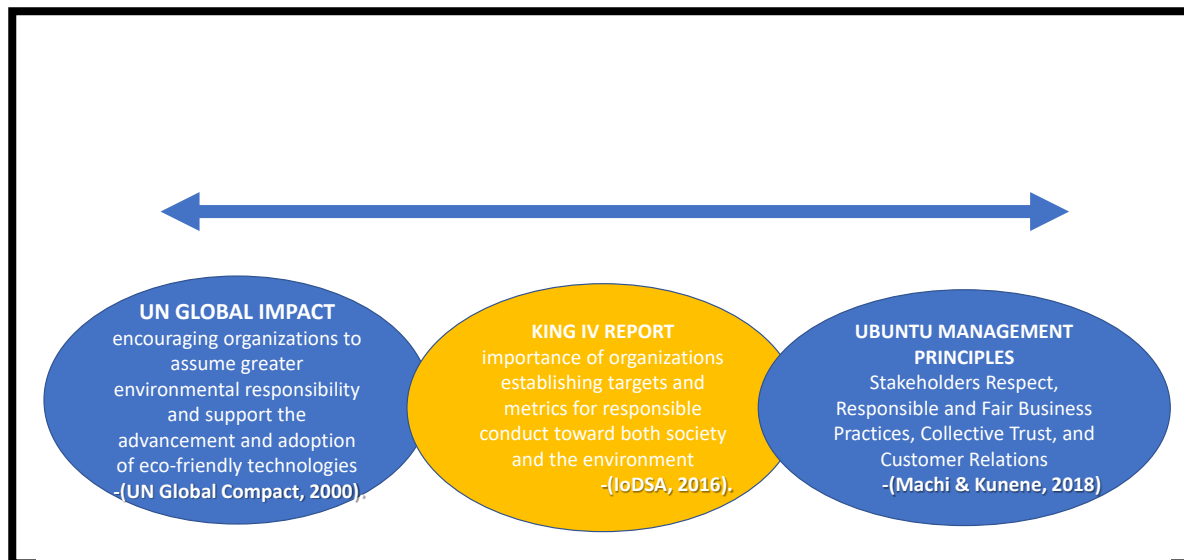
and to survive and prosper; businesses need to accommodate changes in public expectations of them”. Businesses cannot consider social issues as if they were separate from core business activities and practices. Bilankulu et al. (2014) suggest that “taking part in CSR programmes does not necessarily mean spending heavily on such programmes”.

Problem statement

In the South African context, Corporate Social Responsibility (CSR) has traditionally been associated with philanthropic activities beyond legal obligations, often viewed as separate from a company's primary for-profit operations (Carroll, 1979). However, contemporary perspectives suggest that CSR extends to 'how business is performed' within the organization, impacting not only external philanthropic activities but also internal operations, such as employment, supply chains, and reporting (Porter & Kramer, 2021). Furthermore, there is a growing emphasis on the 'business case' for CSR, highlighting its role in creating value for the corporation and contributing to community employment, thus transcending profit-oriented motives (Rangan, Chase & Karim, 2015).

Embedded within the concept of CSR are Ubuntu principles that promote community and interconnectedness (Machi & Kunene, 2018). The Ubuntu philosophy, deeply rooted in South African culture, underscores the belief that individuals and organizations are interdependent and should act in ways that benefit the community as a whole (Tutu, 1999).

Despite the growing awareness of CSR's importance, there is a significant knowledge gap regarding the perceptions and practices of Small and Medium Enterprises (SMEs) in the field of CSR in South Africa (Bilankulu et al., 2014), with a particular lack of research in the eThekweni Municipality, situated in the KwaZulu-Natal Province. Many SMEs in underdeveloped areas seem to prioritize profit generation over social responsibility to the communities they serve (Bilankulu et al., 2014).



This limited attention to CSR in the SME sector potentially weakens social networks between businesses and local communities, hindering organizational growth and community development (Ciuchete, Grigore, Hornoiu & Padureju, 2012).

As shown by figure 1, the research problem at hand is to investigate the perceptions of CSR among SMEs in the eThekweni Municipality, addressing the extent to which they consider CSR, imbued with Ubuntu principles, as an intrinsic part of their conventional business functions. This exploration aims to ascertain the influence of CSR, driven by a sense of interconnectedness and community well-being, on both business sustainability and community development (Jamali, Lund-Thomsen, & Jeppesen, 2015).

Conceptual framework

CSR factors constitute the independent variables of this study. CSR has remained a broad, complex, and continually evolving notion that encompasses a variety of ideas and practices (Munasinghe & Malkumari, 2012:168). Carroll (1979:500) describes CSR as the economic, legal, ethical, and discretionary expectations that society has of businesses at a given point in time. However, Wood and Jones (1995) asserted that stakeholders are central in this aspect since they are the source of society's expectations about CSR; they experience the business's behaviour, and they evaluate the business's social performance by comparing their experiences with their prior expectations. Hence, CSR can be equated with the notions of giving back to the community, treating employees fairly and offering quality products and services. The common Reactivities include sponsorship programmes, the provision of career development and training to employees, waste recycling, and participation in community activities (Suprawan, De Bussy SAJEMS NS 17 (2014) No 2:157-172159&Dickinson, 2009). Like their larger counterparts, SMEs cannot operate their businesses without employees, customers, and community support. It is argued that SMEs act responsibly because their legitimacy with immediate stakeholders is at stake (Jamali, Zanhour & Keshishian, 2009). Carroll (1999) suggests that SMEs could implement CSR policies successfully and this would directly affect their competitiveness.

In line with the existing literature (Vaaland, Heide & Gronhaug, 2008), CSR is viewed as being implemented through stakeholder theory, where the main stakeholders include the environment, the community, customers and employees. CSR involves working in partnership with local communities, making socially sensitive investments, developing relationships with employees, customers and their families, and involvement in activities that promote environmental conservation and sustainability (Maimunah, 2009:2). Based on previous research (Kramer, Pfitzer&Lee, 2005:24; Mandl &Dorr, 2007:16; UNIDO, 2008:3 and Szabo 2008:21) and for the purposes of this study, some categories of CSR factors, which also apply to SMEs, have been taken to include workforce-oriented CSR factors, society-oriented factors, market-oriented CSR factors, and environmentally oriented CSR factors. These factors can individually or collectively lead to the increased competitiveness of SMEs in the long-term terms of increased sales volume, growth rate, market share and profitability (Jamaludin &Hasun, 2007; Mandl &Dorr, 2007:49; Salavou &Avlonitis, 2008:976). The proposed in Figure 2, below illustrates the conceptual Framework-SME-SR Perception.

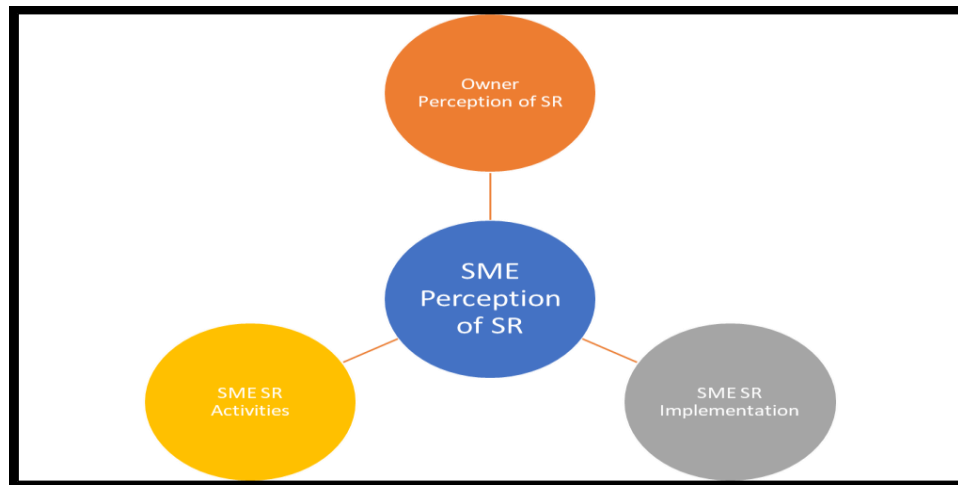


Figure 2: SME Perception of SR

Source: Authors Own

Literature review

Nejati and Amran (2009) conducted an exploratory study on Malaysian SMEs, in order to explore their motivation for practising CSR, with the aim of examining the issues from SMEs' perspective. They found that most of the interviewed SMEs were not receiving any benefits for practicing CSR activities and were practicing it for the sake of their own beliefs and values, with some of them mentioning the effect of religion on their motivation to engage in CSR activities. However, a recent study by Nejati and Amran (2011) on Malaysian SME owners/managers' attitudes towards CSR showed that Malaysian SMEs considered themselves to be responsible towards a wider group of stakeholders, but at the same time, most of them viewed CSR as a cost. While all of these studies provide invaluable insights into the CSR-SME context, they fail to investigate the impact of practising CSR on the image of SMEs (Nejati & Amran, 2011).

Nejati and Amran (2009) and Lee, Mak and Pang (2012) found that SMEs in Japan engage in CSR practices because of their own beliefs, values and religious consciousness. Haron, Ishmail and Oda (2015) and Sweeney (2007) argued that SMEs are perceived to be in a better position and more equipped to design appropriate CSR programmes that address the needs of local communities and the environment. Furthermore, the findings of Amran and Nejati (2012) revealed that Malaysian SMEs practice CSR, and the mean score for all types of CSR were higher than the average.

Drivers for SMEs to engage in CSR

According to the European Multi-stakeholder Forum for Corporate Social Responsibility apart from SMEs being driven to integrate CSR because of the personal beliefs and values of the owners/managers, many SMEs are driven by a combination of the desire to minimise risks and maximise opportunities (European Commission, 2004). In this regard, the Forum identified the following drivers of CSR for SMEs:

- Attracting, retaining and developing motivated and committed employees, especially since the speed of market and technology changes requires flexible and committed staff.

- Being a good neighbour - maintaining a licence to operate from the local community.
- Reputation - with internal and external stakeholders
- Product/market innovation, differentiation, and competitive edge; and the need for more sources of creativity and innovation in business.
- Winning and retaining consumers and business customers (supply chain pressures and opportunities).
- Changing perceptions of the role of business in society - through the media, education, and actions by stakeholders.
- Networking opportunities.

Corporate Social Responsibility (CSR) within Small and Medium Enterprises (SMEs) is a multifaceted concept with various components. These components are the independent variables in the context of our study. CSR is dynamic and has continuously evolved, encompassing diverse ideas and practices (Turyakira, Venter & Smith, 2014). Figure 1 illustrates the components of CSR activities that SMEs can integrate into their initiatives (Yusoff & Adamu, 2016; Reddy, 2007).

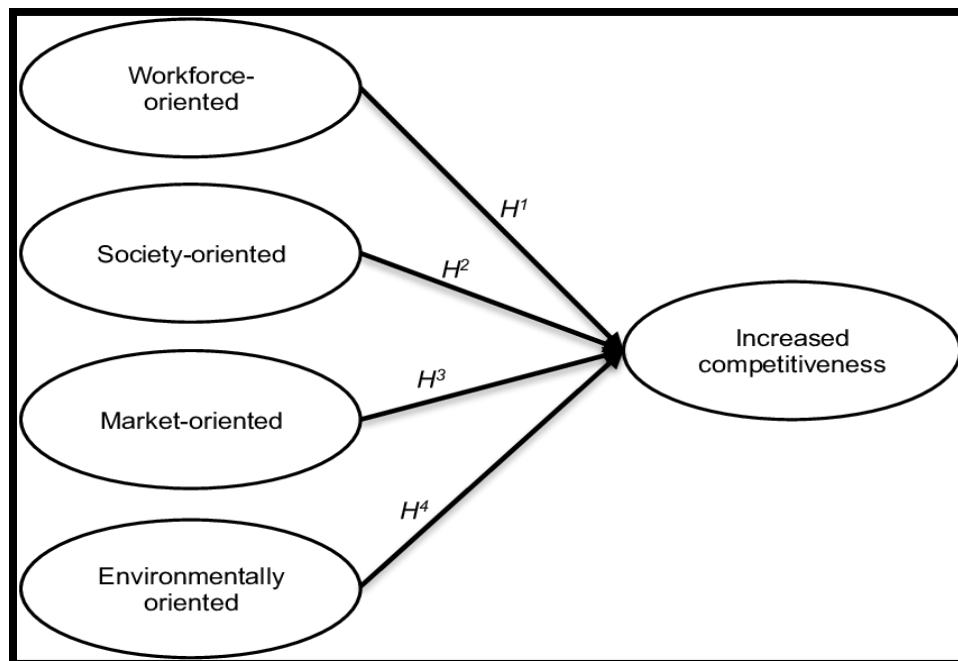


Figure 3: Components of SME in CSR activities
 Source: Yusoff and Adamu, 2016; Reddy, 2007

To align CSR initiatives with the principles of Ubuntu, which emphasize community support and the interdependence of business and society, the study focuses on actions that enhance community well-being (Haron, Ismail & Oda, 2015). This choice stems from the recognition that the community serves as the foundation of all economic activity, and without a thriving community, business cannot exist.

Workforce-oriented CSR

Activities focus on employee-related issues like labor relations, health, safety, discrimination, and harassment (Yusoff & Adamu, 2016). However, they go further to enhance working conditions by offering training, equal opportunity, and work-life balance. They also empower employees and encourage their participation in decision-making processes (Ashridge Centre for Business and Society, 2005). This category covers health and safety arrangements, employee motivation, flexible working hours, contributions to pension and insurance, and management consulting with employees.

Society-oriented CSR

Activities are expected to go beyond legal obligations and profit maximization to include economic and environmental sustainability and social development (Inyang, 2013). These activities fulfill the societal responsibility placed upon businesses by the communities they serve. A crucial element is the disclosure of community involvement actions, demonstrating corporate responsibility (Usman & Amran, 2014). The engagement of SMEs in CSR is crucial for creating employment opportunities, driving economic growth, and promoting private sector development. It ensures income distribution in society, fostering a harmonious relationship with the community where the business operates.

Market-oriented CSR

Activities encompass a business's ability to produce goods and services that meet society's needs while generating profit (Carroll, 1979). These activities prioritize customer service, supplier and service provider management, transparency, and ethical practices. They aim to meet customers' orders and address complaints, operate at convenient hours, provide useful information, treat customers fairly, charge reasonable prices, and ensure profitability without deception (Yusoff & Adamu, 2016). This category promotes transparency and fosters positive relationships with customers and partners, ultimately ensuring a lasting presence in the marketplace.

Environmentally oriented CSR

Activities aim to minimize a business's negative impact on the natural environment. They involve responsible resource usage, eco-friendly packaging, recycling, waste reduction, energy and water conservation, and pollution control (Yusoff et al., 2016). Such practices attract eco-conscious customers and create business opportunities. Examples include environmentally friendly manufacturing, distribution, and recycling, among others (Polášek, 2010). These activities support sustainability and foster a favorable business environment.

SMEs are encouraged to integrate these CSR dimensions into their operations to enhance their competitiveness. By improving products, increasing customer satisfaction, motivating employees, gaining publicity, and building relationships, SMEs can achieve cost savings, increased profitability, and competitive advantages (Yusoff et al., 2016). Thus, they should invest in CSR activities to gain a competitive edge in their respective markets.

Social responsibility and SMEs in South Africa

In South Africa, Social Responsibility (SR) is often perceived as an undue burden for SMEs, primarily due to their limited resources (Ramasobana et al., 2014). Challenges such as difficulties in accessing finance, a scarcity of available time and expertise, and the associated

administrative complexities act as substantial barriers to the implementation of programs that do not directly contribute to their core functions (Geldenhuys, 2009). According to Auken and Duane (2013), SR does apply to SMEs, albeit not to the same extent as it does to larger corporations. SR expectations are considerably higher for large businesses, mainly due to their heightened public visibility, economic clout, and extensive engagement with numerous special interest groups (Ramasobana et al., 2014). Auken and Duane (2013) posit that SMEs bear sufficient responsibility by providing quality products and services to society in a positive manner. To expect more from them would jeopardize their survival.

Sarbutts (2003) underscores that both SMEs and large corporations share the perspective that CSR operates within a framework constrained by concerns about cost avoidance, regulation, and litigation. It's imperative to recognize that all forms of businesses, including small and large enterprises, sole proprietorships, partnerships, and large corporations, engage in SR initiatives to strengthen their relationships with customers, employees, and the broader community (Erasmus, Strydom & Rudansky-Kloppers, 2013). Although the SR endeavors of large corporations typically receive the most attention, the activities of smaller businesses can exert a substantial impact on local communities (Miller & Besser, 2002).

Machi and Kunene (2018) argue that the success of businesses in the South African context hinges upon the relationship a business fosters with its community, which also constitutes its customer base. Ubuntu management principles, encompassing Stakeholders Respect, Responsible and Fair Business Practices, Collective Trust, and Customer Relations, advocate that success is attainable by incorporating these principles into the overarching business strategy (Machi & Kunene, 2018). Arguably, there exists a correlation between Ubuntu Management Principles and Social Responsibility (SR), which, in the context of corporate organizations, translates to Corporate Social Responsibility (CSR). Both paradigms underscore the importance of recognizing, including, and respecting the communities in which they operate.

Research methodology

This study employed a quantitative research methodology, which aimed to accurately measure and quantify phenomena, knowledge, opinions, attitudes, or behaviors (Cooper & Schindler, 2011). The research design adopted a combination of exploratory and explanatory approaches. This approach allowed the researcher to gain a comprehensive understanding of the perceptions held by SME owners/managers regarding Corporate Social Responsibility (CSR) activities and programs within the eThekweni Municipality.

Explanatory research went beyond mere description and sought to uncover causal relationships among variables, explaining the "why" and "how" of observed phenomena (Cooper & Schindler, 2011; du Plooy-Cilliers, Davis & Bezuidenhout, 2014). This research design aimed to uncover and measure causal relationships in the context of SME perceptions of CSR in the eThekweni Municipality. The positivist paradigm underpinned this study, as it emphasized an objective and scientific approach to understanding phenomena.

Sampling Design

The study focused on SMEs within the eThekweni Municipality. The target population consisted of owners or managers of SMEs, following the definition of SMEs provided in

Section 1 of the National Small Business Act of 1996, as amended by the National Small Business Amendment Acts of 2003 and 2004 (NSB Act). The estimated population of registered SME owners in the eThekweni Municipality was 5000. To ensure an appropriate sample size, 357 questionnaires were distributed, considering a 5% margin of error and a significance level of 95%, following the guidelines of Krejcie and Morgan (1970).

Data Analysis

Data collected during the study were analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were applied to summarize and organize the data, providing insights and meaning (Wiid & Diggins, 2013). Furthermore, multivariate data analysis was employed to assess the constructs beyond univariate impacts, recognizing the presence of multiple variables affecting CSR perceptions. To accomplish this, Exploratory Factor Analysis was employed.

Limitations of the Study

Two primary limitations of this study should be acknowledged. First, the study's scope was limited to the eThekweni Municipality, making it challenging to generalize results to other regions. Second, the research focused solely on SMEs, excluding the broader category of Small, Medium, and Micro Enterprises (SMMEs). Existing research suggests that social responsibility is also crucial within the informal trading sector of SMMEs, which this study did not address (Bilankulu et al., 2014).

Presentation of results and discussion

Out of the initial sample of targeted SMEs, a total of 210 responses were received, resulting in a response rate of 58%. Fryrear (2015) suggests that a response rate of 80% is preferable in research. Among the participating SMEs, 39% had been in operation for a duration ranging from five to ten years, while 66% had a business history of fewer than 15 years. A smaller proportion, constituting 24%, had been operating for more than 15 years.

Regarding the number of employees, a majority of respondents (51.4%) indicated that their businesses employed ten or fewer individuals. A further 14.3% had between 11 and 15 employees, and 11.4% had between 16 and 20 employees. Approximately 22% of the businesses had more than 20 employees. This distribution suggests that businesses with a larger workforce were more likely to engage in CSR activities due to their greater human resources capacity. Conversely, businesses with fewer employees might encounter challenges when implementing CSR activities.

SMEs have been recognized as significant drivers of inclusive economic growth and development in the eThekweni Municipal region. In South Africa, SMEs are estimated to account for roughly 56% of private sector employment and contribute approximately 36% to the country's gross domestic product (Idemudia, 2014). Given the pivotal socioeconomic role played by SMEs, it becomes imperative to foster their growth and success.

Exploratory factor analysis

The following table provides the number of factors extracted as well as the associated Eigen values and cumulative percentage variation explained by these factors. Nine factors were extracted, that explain 63.7% of the variation in the data. It is also necessary to investigate the communalities for the nine extracted factors

Table 1: Factors Extracted and Eigen Values

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a	
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.264	15.793	15.793	4.264	15.793	15.793	3.184
2	2.780	10.296	26.090	2.780	10.296	26.090	2.960
3	2.012	7.453	33.542	2.012	7.453	33.542	1.938
4	1.707	6.322	39.865	1.707	6.322	39.865	1.644
5	1.613	5.974	45.839	1.613	5.974	45.839	1.974
6	1.403	5.197	51.036	1.403	5.197	51.036	2.281
7	1.226	4.541	55.577	1.226	4.541	55.577	2.134
8	1.181	4.376	59.953	1.181	4.376	59.953	1.881
9	1.006	3.727	63.680	1.006	3.727	63.680	1.372
10	0.913	3.383	67.063				
11	0.893	3.307	70.370				
12	0.771	2.856	73.226				
13	0.700	2.594	75.820				
14	0.648	2.401	78.221				
15	0.617	2.286	80.507				
16	0.599	2.218	82.724				
17	0.547	2.025	84.749				
18	0.513	1.901	86.650				
19	0.492	1.821	88.470				
20	0.485	1.796	90.266				
21	0.461	1.709	91.975				
22	0.447	1.654	93.630				
23	0.397	1.470	95.100				
24	0.375	1.390	96.490				
25	0.357	1.323	97.812				
26	0.319	1.183	98.995				
27	0.271	1.005	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Communality indicates the proportion of common variance that an items shares with the other items of the factor structure (the rest of the items). A communality close to 1, indicates a high proportion of common variance. Communalities, which are low, less than 0.04, indicate that the associated item be removed and the EFA repeated.

Out of the nine factors that were identified, only five could be used, namely factor1, factor2, factor6, factor7 and factor8. Factors 3, 4, 5, and 9 could not be considered as they had loadings smaller than 0.4 and factors with less than 3 items cannot be tested for reliability. The valid factors produced by the EFA are provided in the following table in the order in which they were extracted.

Table 2: Five Valid SME CSR Factors

Factor	Item	N	Mean	Std Dev
Factor 1	C2 The business contributes towards employee's education.	209	2.019	1.196
	C3 The business offers bursaries to the dependents of the employees.	209	1.437	0.808
	C4 The business offers Staff development such as skills training.	209	2.454	1.267
	C6 The business is Involved in crime fighting initiatives in the community.	209	1.565	0.969
Factor 2	B1 Irrespective of the size a business has a responsibility to contribute to social issues.	209	3.823	1.149
	B2 Being socially responsible has return on investments.	209	3.813	1.117
	B3 Businesses that are socially responsible improve the quality of life.	209	3.813	1.139
	B4 Corporate social responsibility reduces societal problems.	209	3.533	1.347
	B5 Corporate e social responsibility is a critical success factor of a business.	209	3.493	1.131
Factor 6	C14 The business contracts its business In a transparent manner.	209	4.106	0.889
	C15 The business disposes of its waste in an environmental friendly manner.	209	3.684	1.146
	C16 The business disposes uses recycled materials in production and packaging.	209	3.354	1.192
Factor 7	C8 The Business is involved in efforts to improve the health of the community.	209	1.764	1.137
	D1 There are no clear government policies to Guide us regarding corporate social responsibilities.	209	3.400	1.044
	D2 The business lacks employees with expertise and unfavourable economic conditions to implement corporate social responsibility.	209	3.368	1.388
Factor 8	C5 The business obeys all relevant laws of the municipality.	209	4.005	1.146
	C9 The business contributes to sports activities	209	1.543	0.926
	C10 The business contributes towards cultural activities in the community.	209	1.764	1.053

Below the factors that are used are named and discussed in detail to expand their meaning and their context in understanding this phenomenon.

Factor 1: community involvement

Community involvement, within the framework of corporate social responsibility (CSR), encompasses a business's contribution to the overall well-being of the community in which it operates. The concept of CSR extends beyond mere compliance with legal obligations and

profit maximization, emphasizing economic and environmental sustainability as well as social development (Inyang, 2013). A business, in any form, is essentially regarded as a creation of society, and its survival is intricately linked to the health and prosperity of that society. In turn, society places certain responsibilities and expectations upon the business (Inyang, 2013).

CSR is a multifaceted approach that compels business enterprises to undertake a diverse range of activities aimed at satisfying the interests of multiple stakeholders and maintaining a harmonious relationship with the communities in which they are situated (Inyang, 2013).

The disclosure of community involvement initiatives is considered one of the most critical aspects of assessing a company's social responsibility (Usman and Amran, 2014). Nejati and Ghasemi (2012) emphasize that the disclosure of community involvement entails various ways in which companies can contribute to the betterment of society, integrating societal norms and values into their corporate strategy. These societal initiatives encompass a wide spectrum, including charitable donations, support for education, sponsorship of recreational activities, community-based skill acquisition training, anti-bribery and anti-corruption efforts, provision of water supplies, and support for medical healthcare services as part of their business decisions (Branco & Rodrigues, 2006). Such activities are believed to bring reciprocal benefits, enhancing the well-being of both the business and the society it serves when firms actively engage in socially responsible actions.

Factor 2: employee development

Employee development within the context of corporate social responsibility (CSR) entails a dedicated commitment to enhancing the professional growth of employees while simultaneously ensuring their well-being and security within their communities. The definition of workplace activities can vary, encompassing issues faced by both employees and employers during their work, such as labor relations, health and safety, discrimination, and harassment (Yusoff and Adamu, 2016).

Nonetheless, when focusing on workforce-oriented CSR activities, it pertains to endeavors aimed at improving the working conditions of employees. These activities involve offering training and staff development, promoting equal opportunities and diversity, and facilitating work-life balance for workers (Ashridge Centre for Business and Society, 2005). Such activities may also entail how employers communicate with employees and empower them, involving them in decision-making processes. A survey of Czech Republican small and medium enterprises (SMEs) revealed substantial engagement in workforce-oriented CSR activities (Polášek, 2019). This engagement included aspects like ensuring health and safety arrangements in the workplace, motivating employees and providing educational opportunities, offering flexible working hours, contributing to employee pensions, insurance, or life insurance, and involving top management in consultations with employees on important matters.

The application of CSR principles within the workplace can create a mutually beneficial relationship between businesses and their employees, resulting in a maximum degree of benefit for both parties (Steinerová & Makovski, 2018). In the highly competitive global market, where businesses face competition across various industries, considering the

workforce as a competitive resource is paramount (Wan, 2007). To develop a competitive advantage, businesses must view their employees as a critical asset and implement strategies to significantly enhance workforce productivity to create greater value for the business. Consequently, companies are investing resources in comprehensive development programs to ensure that employees possess the information, skills, and competencies required to perform effectively in an ever evolving and complex business environment (Wan, 2007).

Factor 6: community upliftment

Community upliftment within the realm of corporate social responsibility (CSR) entails businesses not only adhering to the laws and regulations but also actively engaging in charitable activities that have a positive impact on the communities they operate within. It is a fundamental expectation that socially responsible businesses conduct their activities in a transparent manner, fostering positive relationships with their customers, investors, suppliers, and other business partners.

The long-term success of a business is intricately linked to its capacity to establish enduring and high-quality sales networks for its products (Polášek, 2010). Market-oriented CSR activities are designed to align businesses with ethical standards, ensuring their policies guarantee adherence to these principles. Furthermore, these activities encompass the provision of clear and accurate information regarding products and services, the punctual settlement of liabilities, active monitoring and responsiveness to complaints from customers, suppliers, and other business partners, collaboration with other businesses on CSR initiatives and projects, and upholding high ethical standards in marketing and advertising practices (Turyakira et al., 2012).

By embracing market-oriented CSR activities, businesses not only ensure compliance with ethical guidelines and regulations but also contribute to building a positive reputation, strengthening customer relationships, and fostering long-term success in the market.

Factor 7: environmental awareness

Environmental awareness is a crucial aspect of corporate social responsibility (CSR), compelling businesses to dispose of and recycle materials in an environmentally friendly and transparent manner. As noted by Yusoff et al. (2016:346) and Turyakira (2012), environmentally oriented CSR activities are characterized by measures aimed at minimizing the adverse impact on the natural environment. These measures include the responsible and sustainable utilization of natural resources, environmentally friendly packaging, recycling initiatives, waste reduction, energy and water conservation, as well as pollution control.

The European Commission (2005) identifies the most significant environmentally oriented CSR activities, which revolve around the responsible consumption of materials and energy, and the environmentally conscious management of pollution and waste. Customers are increasingly inclined to align themselves with businesses and products that demonstrate eco-friendliness. Consequently, businesses that assume the role of environmental stewards often attract satisfied and loyal customers, thereby positively impacting their business performance in the marketplace (Yazdanifard & Mercy, 2011).

Polášek (2010) suggests that businesses committed to minimizing their adverse environmental impact can unlock new business opportunities. For instance, a business actively engaged in environmental conservation is more likely to succeed in securing contracts with large businesses and the public sector. Moreover, it stands a better chance of attracting new customers who prioritize environmental consciousness.

Examples of environmentally-oriented CSR activities encompass various practices, such as environmentally friendly manufacturing, the development of eco-conscious products, services, and packaging, sustainable distribution and transportation practices, recycling, the use of recycled materials, energy and water conservation initiatives, waste reduction strategies, adherence to environmental regulations and standards, the protection of natural resources, and the transparent provision of accurate environmental information concerning products, services, and business activities (Turyakira et al., 2013).

Factor 8: customer orientation

Community involvement plays a crucial role in ensuring the fair treatment of customers. Businesses should strategically focus on building customer loyalty to maximize their market share. Customer loyalty not only leads to increased revenues and profits but also offers the advantage of customers becoming advocates for a business's products and services (Rehman & Afsar, 2012: 185). Key indicators of customer loyalty, as outlined by Brimpong (2008: 60), include the duration customers stay with a business, their willingness to recommend products or services to friends, and their likelihood to repurchase.

Empirical research conducted by Gable, Fiorito, and Topol in 2018 underscores the significance of customer loyalty in achieving business success. It is well-established that retaining existing customers is a more cost-effective strategy than acquiring new ones. Customer loyalty contributes to customer retention, thereby enhancing a business's competitiveness (Gan, Cohen, Clemes & Chong, 2006: 14). A study of Pakistani bank account holders (Rehman & Afsar, 2012: 183) affirms that a business's long-term success and reputation are intrinsically linked to customer loyalty. The Bangladeshi Mobile Phone Operator Industry survey (Islam, 2008: 10) further emphasizes the importance of customer retention rates as a reliable indicator of customer loyalty. Therefore, an increase in customer retention rates can significantly enhance market share and positively impact a business's net operating cash flow and profitability.

These five factors that describe the corporate social responsibility as practiced by SMEs in the eThekweni municipality are best summarized by the figure below.

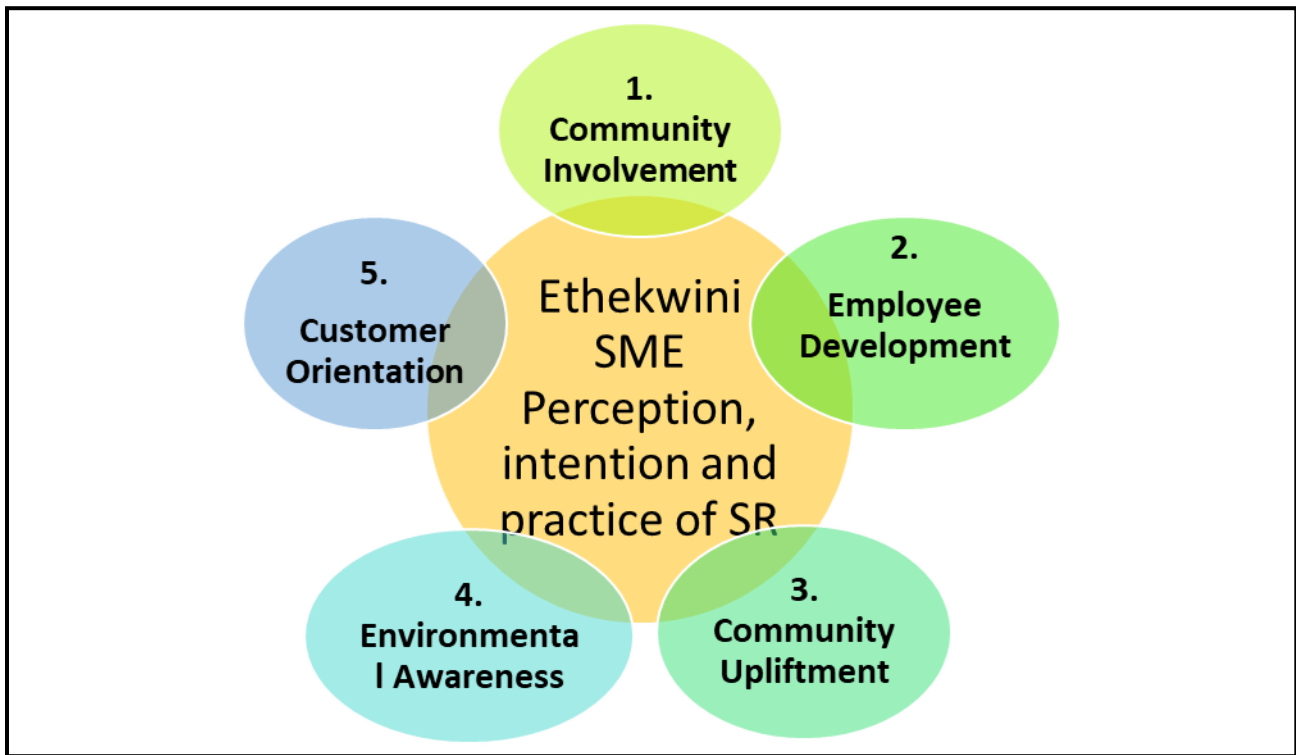


Figure 4: Ethekwini SME Perception, intention and practice

Source: Authors Own

CSR activities of SMEs in eThekwini municipality

This study revealed that SMEs primarily contributed to employee education, with the highest mean score of 2.02, which was particularly valued among the residents of eThekwini Municipality. The focus on education and sports is significant as it leads to the development of a highly competent, skilled, and resilient workforce. Corporate Social Responsibility (CSR) plays a pivotal role in enhancing SMEs' ability to attract and retain talented employees (Dias, Rodrigues, Craig & Neves, 2019).

The responsibility and support extended by SMEs towards CSR initiatives shouldn't solely revolve around environmental concerns. It should also encompass the development of employees, highlighting the importance of workforce capacity building (Beitzen-Heineke et al., 2017). Employees are fundamental stakeholders for SMEs and are vital to the overall success of the business.

Furthermore, this study revealed that SMEs in eThekwini Municipality actively engaged in various philanthropic activities, including donations to welfare organizations, sponsorship of community events, and contributions to public amenities such as bus stop shelters. They also supported initiatives related to crime prevention, education, and cultural projects. These philanthropic responsibilities align with societal expectations of businesses being good corporate citizens (Maome & Zondo, 2022; Carroll & Shabana, 2010).

Recommendation

It is crucial for SMEs, irrespective of their size, to embrace social responsibility and actively contribute to societal issues. This proactive engagement in social responsibility not only benefits the community but also yields a return on investments. The potential for financial gains should serve as an incentive to encourage SMEs to partake in responsible social contributions. Furthermore, government authorities at national, provincial, and municipal levels should develop educational programs aimed at upskilling SME owners and managers. These programs can familiarize them with government policies and guidelines for effective engagement in Corporate Social Responsibility (CSR).

For future research endeavours, expanding the sample size to encompass various municipalities within the province of KwaZulu-Natal and even extending to municipalities in other South African provinces is recommended. This broader scope would offer policymakers a more comprehensive understanding of SMEs' social responsibility practices. Additionally, further research is warranted in several action-oriented areas, such as evaluating the success of different policies and techniques to promote CSR adoption among SMEs. Investigating the economic, social, and environmental impacts of CSR at the sector level and developing a typology of SMEs based on their CSR engagement are also valuable avenues for exploration.

In future research, the integration of both quantitative and qualitative methodologies through methodological triangulation is advisable to enhance the credibility and validity of research findings. However, to address potential sample size limitations, researchers should consider either increasing the sample size or narrowing the focus to a reduced number of factors under investigation. This approach will help ensure that future studies yield robust and well-founded conclusions.

Limitations of the study

The scope of this study was limited to the eThekweni Municipality within the KwaZulu-Natal Province. Consequently, it did not encompass the entire geographical expanse of the province. Furthermore, the study primarily focused on an urban setting within this region. A valuable avenue for future research would be to extend the investigation to rural areas, offering an opportunity to explore how Small, Micro and Medium Enterprises (SMEs) in these environments perceive and engage with Corporate Social Responsibility (CSR). This extension would provide a more comprehensive view of CSR practices within KwaZulu-Natal, considering the potential differences in urban and rural contexts.

Additionally, the methodology employed in this study was primarily quantitative. While this approach offered valuable insights, future research could benefit from a more comprehensive research design that incorporates both quantitative and qualitative methods. Qualitative research would enable a deeper exploration of the nuanced perspectives and experiences of SME owners and managers regarding CSR. A mixed-methods approach would provide a more holistic understanding of CSR practices and perceptions among SMEs in the eThekweni Municipality. By combining quantitative and qualitative data, researchers can gain a more elaborate and comprehensive view of this critical subject, ultimately enriching the depth and breadth of the findings.

Conclusion

In conclusion, Corporate Social Responsibility (CSR) engagement not only offers a competitive advantage but also contributes to the reduction of societal problems. This study focused on five key components of CSR: community involvement, employee development, community upliftment, environmental awareness, and customer orientation. The findings reveal that there was limited CSR implementation among SMEs in the eThekweni Municipality, primarily attributed to resource constraints. This leads to a fundamental question: if both the level of CSR activity is low and its perception is limited, does this imply that SMEs in the broader eThekweni Municipality are potentially misaligned with the foundational African principle of Ubuntu?

The essence of Ubuntu, with its core principles of interconnectedness, collective well-being, and social responsibility, should ideally underscore the actions and perceptions of businesses, including SMEs, within the community. While the study's results suggest a deficiency in CSR activities and perceptions among SMEs, it is not too late for these businesses to embrace the spirit of Ubuntu. Adopting CSR initiatives not only aligns with this cherished African philosophy but also provides the potential for SMEs to foster sustainable growth, enhance their relationships with the community, and contribute positively to societal development. Thus, the path forward for SMEs in the eThekweni Municipality lies in reevaluating their CSR strategies, finding innovative ways to overcome resource limitations, and reaffirming their commitment to the principles of Ubuntu.

By embracing CSR and incorporating Ubuntu values, SMEs can become catalysts for positive change, both within their organizations and the communities they serve, ultimately contributing to a more prosperous and harmonious society.

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Investigating the obstacles to cloud computing adoption in the health sector: A case study of selected public and private health centres in Ghana

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Abstract

The study aims to investigate the obstacles to the adoption of cloud computing in both public and private health centres in Ghana. Despite the potential benefits of cloud computing, defined as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction (Mell, Grance, and Grance, 2011), such as cost-effectiveness, scalability, and accessibility, the health sector in Ghana seems to face barriers that hinder its adoption. Therefore, the study seeks to identify the obstacles to cloud computing adoption in Ghana's health sector, thereby helping decision-makers weigh the potential benefits against the risks and challenges of cloud technologies. The study adopted a mixed-method approach to gather data from respondents. A questionnaire was used to collect data from 76 employees and a semi-structured interview was conducted for 10 Information Technology (IT) experts to gain in-depth understanding. The study revealed that the major organizational obstructions faced by health centres in adopting cloud computing included a lack of technology expertise in cloud computing, the high cost of internet and IT equipment, and a lack of top management support. The study also revealed that the technological factors impeding cloud computing adoption include security and privacy concerns, the availability of internet connectivity to the cloud, and compatibility challenges with existing IT equipment. A recommendation has been made for key personnel to acknowledge the inherent risks associated with cloud computing adoption and take measures to mitigate these risks.

Keywords: Cloud computing, technology adoption, health centres, privacy, internet, security

Introduction

Cloud computing has gained widespread adoption globally, including in the health sector (Gupta et al., 2013). It offers unique characteristics such as pay-per-use, data concentration, ubiquity, low costs, elasticity, and resource sharing (Armbrust *et al.*, 2010). In Ghana, there

is a slow adoption rate of information and communication technologies (ICTs) in the health sector due to challenges like the lack of technical staff and high implementation costs (Acheampong, 2012). Cloud computing can address these challenges by improving efficiency, reducing expenses, and enhancing patient care (Acheampong, 2012). However, according to Ashtari et al (2015), the adoption of cloud computing in the healthcare industry has been slower compared to other sectors. This study aims to identify the obstacles to cloud computing adoption in health facilities in Ghana, with the primary objectives of understanding the specific challenges that hinder cloud adoption and providing insights to policymakers and decision-makers for improving healthcare through ICT. By addressing these obstacles, we aim to significantly impact healthcare delivery in Ghana, enhancing efficiency and patient care.

Literature review

The concept of cloud computing

According to Lele (2019), the core idea behind cloud computing is that computing takes place in the cloud. It refers to accessing software and storing data in the cloud representation of the Internet or a network, as well as using associated services. In other words, Cloud computing is an innovative method for delivering computer services, where computing is offered as a service over the Internet (Saini, et al., 2022). Most cloud computing infrastructures are built on servers and supply services through common centers (Katal, et al., 2023), which are often operated by third-party service providers, known as cloud service providers (CSPs) (Mahesh, et al, 2023). Users normally access these services on demand and typically through a pay-as-you-go model. According to Hung (2019), cloud computing services comprise three main categories: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). IaaS provides users with virtualized computing hardware and associated software resources, such as servers, storage, networks, virtual machines, and file systems (Bhardwaj, Jain, & Jain, 2010). PaaS offers a platform for users to develop, deploy, and manage cloud applications (Lele, 2019). SaaS delivers software applications over the internet for clients on a subscription basis (Bhardwaj, Jain, & Jain, 2010).

The emergence of cloud computing

According to Surbiryala and Rong (2019), cloud computing has advanced over traditional technologies such as grid and utility computing. The concept of cloud computing was first introduced by John McCarthy in 1961, imagining future computers as being organized as a public utility (Surbiryala and Rong, 2019). In the late 1990s, Salesforce established one company that started providing SaaS (Nayyar, 2019). This marked the beginning of cloud computing, followed by the emergence of PaaS and IaaS. In 2007, several US universities collaborated with Google and IBM to promote cloud computing programs, reducing costs for research, and facilitating resource sharing (Surbiryala and Rong, 2019). According to Lele (2019), since the widespread emergence of cloud computing in 2007, it has transformed how IT services are built, developed, implemented, modified, updated, and maintained. In 2010, the open stack project, which was initiated by NASA and Rackspace, gained support from many organizations, resulting in the open stack foundation (Zhang et al., 2020). Today, cloud computing has gained widespread adoption, with numerous companies deploying cloud services.

Cloud computing in the healthcare sector

According to Muhammad and Rimsha (2022), cloud computing has transformed the way healthcare organizations handle and store data, communicate, and offer patient care. Cloud computing is currently serving as the most adaptable and collaborative solution that can be implemented in a variety of public as well as private settings (Aceto, Persico, and Pescapé, 2020). Information and communication technology (ICT) has changed the way businesses do business and make decisions. Massive amounts of data are created in organizations, and software is used to manage and process that data. Organizations invest heavily in establishing the infrastructure required to handle and compute data. The volume of healthcare data has recently increased dramatically, and healthcare organizations are spending resources on data management and data processing technologies. The healthcare sector also plays an important role in saving the lives of many individuals. The lives of individuals depend either entirely or partially on their prior records, new developments in the health field, and connectivity among various health workers. All these aspects were not possible using traditional methods, but they are now possible because of the emergence of cloud computing in the health sector. However, developed countries are already migrating healthcare services to cloud computing for better and more standardised healthcare services and to prevent resource waste, but most developing countries are slow to adopt cloud computing in the healthcare sector.

Factors influencing cloud computing adoption in the healthcare sector

Several empirical studies have examined the adoption of new technology and cloud computing globally. In Africa, studies have focused on challenges and factors influencing cloud computing adoption. One study by Ahmad et al. (2021) highlighted security concerns, limited computational resources, issues related to deep learning, and obsolete laws as key obstacles. Maina et al. (2021) review study found that competitive pressure, top management support, complexity, technological readiness, relative advantage, and compatibility are factors influencing cloud computing adoption by organisations. In South Africa, a study revealed a lack of political will in bridging the digital divide through cloud computing adoption in the education sector. In Kenya, Makena (2013) environmental, technological, and environmental factors were identified as significant influencers of cloud computing adoption among SMEs. In a similar study, Rawal (2011) identified in India that government officials demonstrated a high level of trust, awareness, and adoption of cloud computing in e-Government. Factors such as top management support, data security, costs, complexity, and perceived technical competence were found to influence cloud computing adoption in Taiwanese hospitals (Lian et al., 2014). Additionally, studies by Oliveira and Martins (2010), and Zhu et al. (2003), have shown a positive relationship between firm size and the adoption of new technologies, suggesting that larger firms are more likely to adopt technologies like cloud computing.

Methods

This aspect of the research focuses on the methodology used in this study, including data gathering, processing, and analysis. It covers research design, study population, sampling procedure, sample size, data sources, data collection tools, data collection process, and data processing and analysis.

Research design

This study uses the descriptive research design. The main goal of descriptive research is to describe a phenomenon or characteristics of a certain population and its main concern is about the “what” of a phenomenon. The choice of research design is useful for this study because the findings have been further quantified and summarised to draw a meaningful conclusion.

Research participants

The participants for this study included clinical technicians, IT engineers, and medical doctors in ten selected health centres in Ghana. A sample size of 100 respondents was selected from ten (10) health organizations in the greater Accra region. Of the sample size of 100 participants, ten participants representing one (1) participant each were selected from the ten health institutions, and the remaining ninety (90) participants were offered questionnaires to answer. The sample size of 100 participants was chosen because it was considered sufficient to obtain a representative cross-section of the target population and to statistically represent the data meaningfully. The sample size provides a general view of the entire population, and it is a representation of the target population. The combination of purposive sampling for (10) participants and questionnaire distribution for the remaining (90) aimed to capture comprehensive data on cloud computing adoption in the selected health centres.

Data collection techniques

This study utilised structured questionnaires and interviews as data collection methods. A questionnaire is a means of gathering complete and high-quality data about a phenomenon. In this study, ninety (90) participants were requested to provide answers to questions, and ten (10) participants were requested to undergo interviews. The structured questionnaires were designed based on a comprehensive review of pertinent literature on cloud computing adoption in the healthcare sector. However, to rule out redundancies or issues with question clarity, a pilot test was conducted on a small group of healthcare professionals who part of the main study were not. The feedback was used to improve the questionnaire.

Data analysis procedure

This study made use of descriptive data analysis. This involves summarizing and interpreting data points in a constructive way. The findings were summarized and illustrated in figures. This helped in the conclusion of the distributed data.

Findings of the study

This part of the research presents the analysis of the field data, the findings, and the discussions of the findings. This begins with the analysis of the response rate and the biographic data of the respondents. This is followed by the analysis of the field data and the presentation of the results and finally, the chapter discusses the findings as established by the data analysis. The quantitative data was analysed using descriptive statistics while the qualitative data was analysed using thematic analysis based on themes related to the objectives and research questions of the study. The study made use of the SPSS software version 20.0 in analysing the quantitative data.

The awareness and attitudes of health centres towards cloud computing

Participants were surveyed to gauge their awareness of cloud computing, with 72% indicating their awareness and 28% being unaware. The 28% who were unaware of cloud computing were unaware of it because of limited exposure to technology, as was clearly seen from their responses. They were then asked to provide their own definitions of cloud computing, interestingly, 58% accurately defining it as the use of networked computers to access remote servers for data management. The findings highlight that many participants have a clear understanding of cloud computing. This information is illustrated in the figure below.

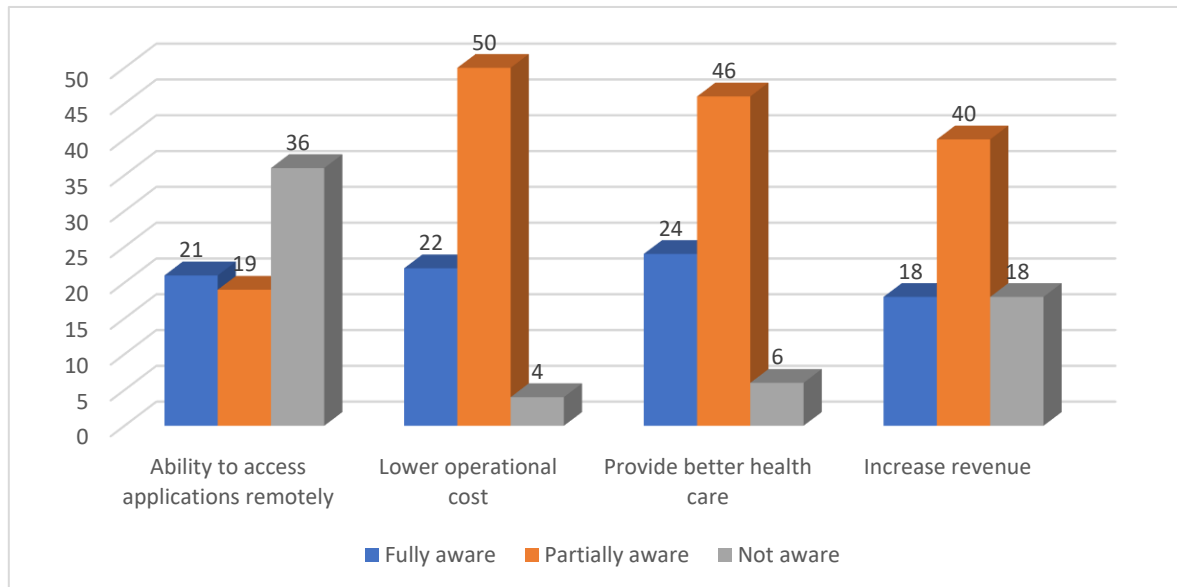


Figure 1: Awareness among participants about the importance of cloud computing

Factors driving cloud computing adoption

Participants were asked to rate factors that would drive their health centres to adopt cloud computing. Regarding the resizable capacity of infrastructure, most of the participants amounting to 79% agreed that this factor is important for the adoption of cloud computing in their health centres and 21% did not agree. Regarding the availability of a third party to manage IT services, 68% respondents agreed that this factor should be considered, while 32% disagreed. For reduced capital costs, interestingly, 100% of the participants agreed that this is a significant factor in adopting cloud computing. In terms of enhanced uptime or high availability of IT services and infrastructure, 100% agreed with this factor. Regarding rapid deployment of applications and IT infrastructure, 50% strongly agreed and 50% agreed, indicating unanimous agreement among participants. Similarly, 50% strongly agreed and 50% agreed that paying only for what they use is a key factor to consider when adopting cloud computing. Additionally, 50% strongly agreed and 50% agreed that higher performance of IT services is an important factor to consider. Overall, most of the participants either strongly agreed or agreed with these key factors for adopting cloud computing in health centres.

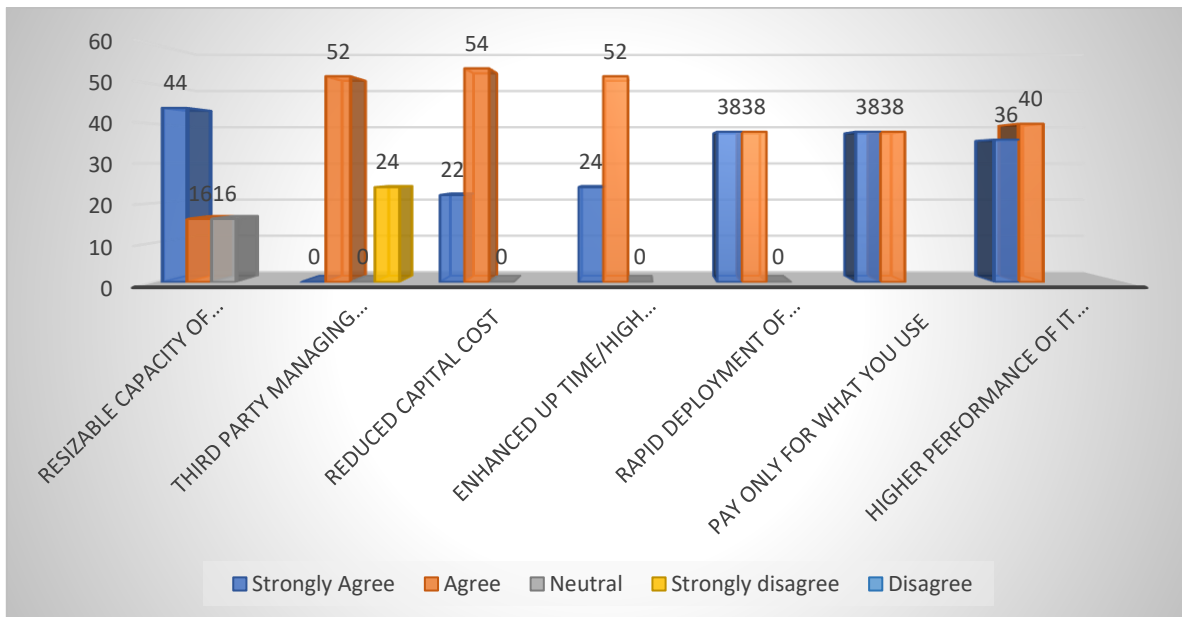


Figure 2: Rating of factors Driving Cloud Computing Adoption

Cloud evaluation

To tease out the current adoption and implementation of cloud computing in health centres, participants were asked to rate their level of agreement on different aspects of evaluating active cloud computing in health centres. Regarding the evaluation of active cloud computing through access to server capacity on the cloud, 50% strongly agreed and 50% were undecided. In terms of evaluating active cloud computing through application/software access from the cloud, 37% agreed and 63% either strongly agreed or simply agreed. For evaluating active cloud computing through backup and archival of data, 50% strongly agreed and the remaining 50% agreed. Finally, for evaluating active cloud computing through storage access from the cloud, 32% strongly agreed and the remaining 50% agreed. Overall, all participants either strongly agreed or agreed with the different statements regarding evaluating active cloud computing in health centres. The specific needs and challenges of the healthcare sector are closely aligned with the factors driving the adoption of cloud computing. These factors meet the needs of the sector for efficiency, flexibility, cost-effectiveness, data security, availability, and swift deployment. The high agreement rates indicate that healthcare professionals comprehend that cloud computing has the potential to meet these specific needs, making it a suitable choice for healthcare IT infrastructure.

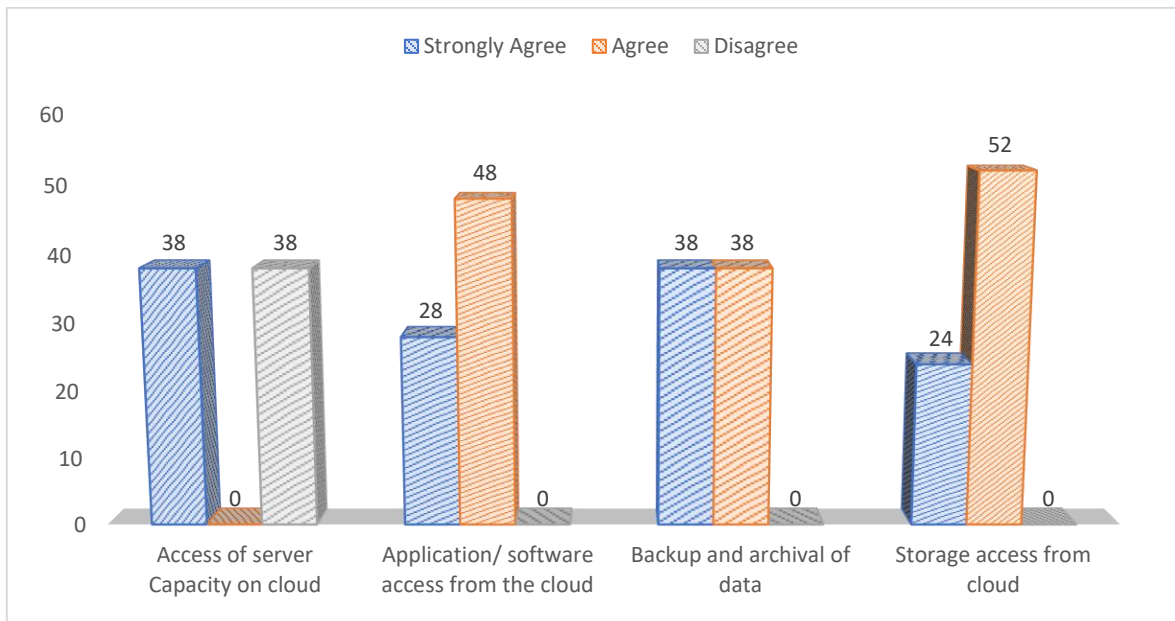


Figure 3: Level of agreement on different aspects of evaluating active cloud computing.

Technological barriers

Respondents indicated several major technological barriers faced by their health centres when adopting cloud computing services. The findings reveal that 20% of participants identified security and privacy concerns as a significant technological barrier. Lack of standardization was mentioned by 10% of participants, while 17% cited the availability of internet access to the cloud as a major barrier. Delays in data transfer were reported as a barrier by 8% of participants, and compatibility issues were highlighted by 21% of participants. Other barriers mentioned include reliability issues (8% of participants), complexity of moving applications to the cloud (7% of participants), and decreased flexibility due to the inability to customize (9% of participants). Overall, the study shows that health centres encounter multiple technological barriers, with security concerns, compatibility issues, and availability of internet access to the cloud being prominent challenges.

Thematic analysis of interviews

In all, ten (10) senior staff members from ten health centres in the greater Accra region were interviewed to tease out the expert perspective of identifying and understanding the obstacles hindering the full adoption of cloud computing in health centres in Ghana. Participants were first asked to indicate if their health centre has a dedicated IT department in their organisation and further indicated the number of staff in the department but to a large extent, most experts indicated that they do not have a fully functional dedicated IT department. The responses offered by participants are quoted as follows:

In response to the query, this is what a participant (**known as EXP1 henceforth**) said: “Well, for my health centre, we don’t have a dedicated IT department even though we use some IT equipment including internet services” [EXP1].

In another answer by one expert (**henceforth would be known as EXP2**), he explained that:

“There is no specific department dedicated for IT in the health centre where I work but that doesn’t mean we don’t use computers and other IT gadgets. In fact, we use a lot of tools and equipment that are IT related” [EXP2].

This is what one expert (**henceforth would be known as EXP3**) had to say:

“Our health centre has a dedicated IT department that oversees all the IT equipment and gadgets we use at the health centre. I must however admit that it is a small department in the hospital” [EXP3].

Another expert (henceforth would be known as EXP4) added that:

“We have an IT department which is well equipped and resourced with all the necessary human and material resources that helps with the IT issues in the health centre” [EXP4].

Participants were also asked to explain their understanding of the term cloud computing. In responding to the question, several answers were provided by participants. To a large extent, the experts understood what cloud computing is as they were able to offer an accurate definition of cloud computing. The following are the responses offered by participants:

In response to the query, an expert (**known as EXP5 henceforth**) said:

“To the best of my knowledge, cloud computing relates to the sharing of computer resources by several users without the reliance on individual devices that are connected to local servers to offer application access” [EXP5].

Another expert (**henceforth would be known as EXP6**) answered the question by saying that:

“I understand cloud computing to be an internet-based technology that allows individuals and corporate organisations to share computing resources with help of the internet” [EXP6].

This is what one expert (henceforth would be known as EXP7) had to say:

“Well, in my candid opinion, cloud computing relates to the offering of computing services from anywhere using any mobile device with internet access through a parallel distribution system linked with virtual computers” [EXP7].

This is how one expert (**henceforth would be known as EXP8**) defined cloud computing:

“I would define cloud computing simply as a computer technology that helps individuals and organisations to have access to a pool of shared computer resources” [EXP8].

The experts were further asked if their health centres have adopted cloud computing and most importantly majority of the health centres have not adopted cloud computing services. The following are the responses offered by the experts.

In an answer to the question, one expert (**henceforth would be known as EXP9**) said:

“I would say that my health centre has not adopted cloud computing yet, but we are in the process of adoption” [EXP9].

In another answer to the question, one expert (**henceforth would be known as EXP10**) answered that:

“Well, to the best of my knowledge my health centre has not adopted cloud computing, but we have plans to adopt it in the future” [EXP10].

This is what another expert had to say:

“Hmmm, I can say that we have adopted cloud computing to some extent, but we have not fully adopted it as we are still in the process of fully adopting and implementing cloud computing services in our health centre” [EXP1].

Another expert added that:

“We have not adopted cloud computing currently, but plans are far advanced to adopt and implement cloud computing in our health centre” [EXP2].

Participants were further asked to indicate how the adoption of cloud computing can affect the way their health centre operates. To a large extent, the expert suggested that adopting cloud computing will help their health centres positively by reducing operational costs, comply with privacy regulations and make patients data easily available. The following answers were provided by the experts.

This is the response of one expert:

“For me, I would say that, because we will only pay for the resources we use without any up-front costs, it will reduce operational costs of the health centre” [EXP3].

Another expert answered the question by saying that:

“The adoption of cloud computing will help my health centre in complying with privacy regulations because cloud computing comes with safety methods which are the most trustworthy solution for data-related demands” [EXP4].

Another expert answered the question by saying that:

“Cloud computing adoption will help my health centre make patients' data easily available for dissemination and obtaining insights to support planning and delivery as a result of interoperability” [EXP5].

Another expert added that:

“Well, the adoption of cloud computing will affect my health centre because it will enhance patients' data ownership which will increase the involvement of patients in health-related choices and leads to more informed patients' decisions” [EXP6].

To ascertain the barriers or obstacles to cloud computing adoption, the experts were asked to state and explain the obstacles militating against their efforts to adopt cloud computing services. Several responses were offered by the experts. According to the experts, health centres face technological, organisational, and external barriers including lack of top management support, compatibility challenges, reliability issues, lack of national IT infrastructure, high cost of internet and IT equipment, lack of standardisation, poor internet accessibility, lack of IT experts and security challenges. The responses offered by the experts are quoted as follows:

In response to the question, this is what one expects had to say:

“Well, I think the main obstacles to cloud computing in my health centre are related to technological obstacles including reliability challenges, compatibility challenges, lack of standardisation, poor internet accessibility among other technological challenges” [EXP7].

Another expects answered the question by saying:

“For me, I think the obstacles to our cloud computing adoption are related to both organisational and technological challenges. Technologically, our equipment is not compatible with cloud computing, there is also the issue of security and privacy concerns as well as the complexity of the cloud computing service. The organisational obstacles include lack of human resources with expertise in cloud computing, high cost of internet and IT equipment and lack of top management support” [EXP8].

In an answer to the question, this is what another expert had to say:

“Hmmm, we face a number of obstacles in our attempt to adopt cloud computing and most of the obstacles are related to organisational and external challenges including lack of

national ICT infrastructure, government policy, lack of top management support and high cost of internet and ICT equipment” [EXP9].

Another expert added that:

“My health centre faces several technological, organisational, and external obstacles in our attempt to adopt cloud computing. The obstacles facing my health centre include the high cost of internet, government policy, security concerns, compatibility issues, reliability issues and lack of top management support” [EXP10].

To find solutions to the identified obstacles, the experts were asked several questions. The experts were first asked to evaluate the tendency of their organisation to migrate to cloud computing. To a large extent, the experts suggested that the pace of cloud computing adoption in their health centres has rather been slow. The following are the responses offered by participants:

This is an answer offered by one expert:

“Well, my health centre is a little slow in their adoption of cloud computing as the pace of cloud computing adoption is very slow” [EXP1].

This is what another expert had to say:

“My health centre tends to be slow in our cloud computing adoption efforts as much attention is not given to cloud computing adoption and implementation” [EXP2].

In answering the question, this is what one expert said:

“Hmm, I think we have not paid much attention to our cloud computing adoption efforts as the top management have not paid much attention to cloud computing adoption” [EXP3].

Another expert added that:

“I would say my health centre has a high tendency of adopting cloud computing as a lot of efforts have been made by top management and staff to adopt cloud computing services” [EXP4].

Participants were further asked to describe some of the steps that are already taking place for a successful cloud computing adoption in their health centre.

According to the experts, several steps have been taken by their health centres to adopt cloud computing services including training of staff on the use and benefits of cloud computing, purchasing IT equipment that are compatible with cloud computing services and the establishment of a dedicated IT department. Participants offered several answers to the question which are presented in the following quotations.

In offering an answer to the question, one expert indicated that:

“Well, the management of my health centre are making efforts to acquire IT equipment that will be easily compatible with cloud computing services, and I believe that very soon we will fully adopt cloud computing services” [EXP5].

Another expert answered the question by saying that:

“I would say that the health centre is currently looking for both human and material resources that will enable it to adopt and implement cloud computing successfully” [EXP6].

One expert also answered the question by indicating that.

“Several steps are being taken by my health centre to fully adopt and implement cloud computing services. Some of these steps include the purchase of IT equipment that are compatible with cloud computing, establishment of a dedicated IT department and the training of staff on cloud computing services” [EXP7].

Finally, one expert explained that:

“For me I would say that my health centre is currently educating its staff members on the use and benefits of cloud computing services and in addition, incentives are being offered to ensure a successful adoption of cloud computing services in our health centre” [EXP8].

Discussions of findings

The research sought to identify and understand the obstacles hindering the full adoption of cloud computing in both private and public health centres in Ghana. On the current adoption and implementation of cloud computing in Health Centres, the findings demonstrated that, majority of participants were aware and familiar with cloud computing and understood cloud computing as they defined cloud computing as the use of network computers to access remote servers to manage and process data.

This finding is supported by Batola, Amoako and Addai (2016), whose study found that the awareness of cloud computing services in the services sector including health centres is high as compared to the manufacturing and agricultural sectors. The findings also demonstrated that their health centres have not adopted cloud computing services yet, but they are in the process of adopting cloud computing. This finding is supported by Yeboah-Boateng *et al.* (2014) whose study found that the level of cloud computing services adoption among the service sector is low in Ghana.

On the factors influencing cloud computing adoption, majority of the participants indicated that, the factors influencing their health centre cloud computing services include the resizable capacity of infrastructure, the availability of a third party who will manage the IT services for the health centre, reduced capital cost and enhanced up time/high availability of IT services and infrastructure. The findings also demonstrated that, the other factors considered by participants when adopting cloud computing includes the Rapid deployment of software and IT infrastructure, the payment for only what resources are used and the higher performance of IT services.

This finding is supported by Maina *et al.* (2021) whose study revealed that top management support, complexity of cloud computing, relative advantage, competitive pressure and security concerns are the main factors influencing cloud computing adoption by organisations.

The findings also demonstrated that participants rated the most promising active cloud evaluation as the access of server capacity on cloud, software access from the cloud, backup and archival of data and storage access from cloud.

On the obstacles encountered by health centres in their effort to adopt cloud computing, the findings demonstrated that they face three main categories of obstacles including technological, organisational, and external obstacles. The findings also demonstrated that the major organisational obstacle faced by their health centres is the high costs of the internet. The findings also demonstrated that the major technological obstacles faced by health centres are security and privacy concerns, availability of internet access to the cloud and compatibility issues. This finding is consistent with Ahmad *et al.*, (2021) whose study found that, one of the key obstacles to cloud computing adoption and implementation relates to the security of the software application which was found to be a major point of vulnerability in

information security as different types of vulnerabilities are linked with different platform and frameworks applications. High cost of internet or limited access to internet have a significant impact on healthcare delivery in the sense that it can slow down the use of cloud-based applications and data retrieval, which delays critical patient care processes. Security and privacy concerns also pose significant technological challenges. Inadequate security measures in cloud computing can expose patient data to unauthorised access, breaches, or data loss. This can jeopardise patients a privacy and lead to legal repercussions and a loss of trust in healthcare providers.

The findings further indicated that, the major organisational obstacles influencing cloud computing adoption by health centres are the high cost of internet and lack of top management support. In support of this finding, Ahmad *et al.*, (2021) found that, organisations also face obstacles related to limited computational resources as organisations are mostly not aware of how, where and where the chunk of the data and the workload are kept in the cloud-based systems. This finding is further supported by the report on Ghana's Internet Affordability in 2017 which indicated that, on average 3.89% of Ghanaian incomes are spent on 1 gigabyte (GB) of data per month.

On the external obstacles to cloud computing adoption and implementation, the findings demonstrated that, the major external obstacles include lack of national IT infrastructure, loss of control due to third party management, government interference and government policy. This finding is in line with the findings by Le Roux and Evans (2011), whose study found that there was lack of political will and determination on the part of policy makers which causes the wide gap in the digital divide in South Africa.

The findings further demonstrated that, the key solutions to the identified obstacles as suggested by participants include educating decision makers on the benefits of cloud computing, providing incentives for the use of cloud computing and educating staff on the use and benefits of cloud computing.

Limitation

This research has potential limitations. Limited sample size: the study has a limited sample size, focusing only on 10 selected public and private health centres within the Greater Accra region of Ghana. In addition, the process of selecting the public and private health centres for the study was based on biased selection. This restricts the generalizability of the findings to other health centres in other regions and countries because healthcare contexts vary significantly between different regions and countries. These contexts include size, resources, healthcare practices, and health policies.

Conclusion

This study investigated the obstacles to cloud computing adoption in healthcare centres in the greater Accra region of Ghana. The study came at the following conclusions after conducting a thorough data analysis.

Obstacles to cloud computing adoption

The study identified three categories of obstacles faced by healthcare centres towards embracing cloud computing: technological, organisational, and external. Technological

obstacles faced by health centres are security and privacy concerns, the availability of internet access to the cloud, and compatibility issues. Organisational obstacles influencing cloud computing adoption by health centres are the high cost of the internet and a lack of top management support. External obstacles include a lack of national IT infrastructure, loss of control due to third-party management, government interference, and government policy.

Factors driving cloud computing adoption

The study illuminated several factors driving the adoption of cloud computing, including the resizable capacity of infrastructure, the availability of a third party to manage IT services, reduced capital costs, enhanced uptime or high availability of IT services and infrastructure, rapid deployment of applications and IT infrastructure, paying for only what you use, and the high performance of IT services. Most participants agreed that these factors.

Recommendations

The study recommends the following actions to facilitate the adoption and implementation of cloud computing in health centres. By implementing these recommendations, health centres can effectively adopt and leverage cloud computing services to enhance the delivery of healthcare services.

- **Recognize Intrinsic Risks:** Considering the security and privacy concerns that our study highlighted as the main technological obstacles, stakeholders should acknowledge that cloud computing is accompanied by risk and take the necessary steps to mitigate them. By acknowledging these risks, health centres can take proactive actions to implement security measures and access control mechanisms to mitigate potential risks.
- **Promote Awareness:** As revealed in the findings, the 28% who were unaware of cloud computing were unaware of it because of limited exposure to technology. In view of this, healthcare management and policy makers should educate health centre employees about cloud computing and its benefits. By creating awareness, it empowers healthcare professionals to embrace cloud computing as a tool to facilitate patient care delivery.
- **Improve Internet Accessibility:** The availability of internet access to the cloud was identified as a significant obstacle to cloud computing. Policymakers should focus on making the internet more accessible to facilitate healthcare operations and enable health centres to adopt emerging trends like cloud computing. The government can work with Internet Service Providers (ISPs) to establish a robust and efficient wireless nationwide network. This will also facilitate the adoption of cloud computing and swift access to cloud-based applications and data retrieval.
- **Management Support:** Lack of top management support was also identified as a hindrance to the adoption of cloud computing in health centres. The top management of health centres should support cloud computing initiatives by providing physical and financial support. They can develop a cloud computing adoption strategy, allocate resources, and train employees about cloud computing and its benefits. This can help create a conducive environment for the adoption of cloud computing.

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Fostering resilience through emotional intelligence in an academic environment

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Abstract

Covid-19 evoked a wide range of emotions as people struggle to cope with its effect on the normal way of life. The World Economic Forum's Future of Jobs Report lists emotional intelligence as one of the top 15 in-demand competencies to trend 2025. Given the evolving situation of Covid-19 and the limited research on how university academics can use emotional intelligence to build resilience to cope with the emotional ramifications like Covid-19, this research would be beneficial to higher education institutions at large, in aiding academics in dealing with the ramifications of the pandemic or adversity. The aim of the paper is to ascertain how emotional intelligence and resilience influence academics to cope with adversity. A quantitative approach was implemented using Stratified Simple Random Sampling. A sample of 360 university academics from a population of 11325 was drawn from 5 campuses in a South African higher education institution. The findings revealed that there is a significant relationship between emotional intelligence and the resilience of university academics. Amongst others, respondents outlined that self-care and meditation are skills that are needed to build resilience for thriving during adversity. Additionally, the majority of respondents felt that there was an absence of well thought out strategies supported by empirical backing from the human resources division during the Covid era.

Keywords: academics, adversity, emotional intelligence, higher education, resilience

Introduction

Recovering from any traumatic event is critical, and, like Covid-19, challenges one's resilience. This is the first time that academics have been subjected to a life-altering natural calamity that will soon become the greatest pandemic of the twenty-first century (Schroder, Bossert, Kersting, Aeffner, Coetzee, Timme and Schluter, 2021), which has altered all elements of life. This study contributes to the body of knowledge on how emotional intelligence can enhance academic resilience in a higher education domain characterised by huge student numbers and barriers pertaining to work-life balance and gender inequality in the workplace (Jackson and Fransman, 2018). Given the evolving situation of Covid-19 and the limited research on how academia can use emotional intelligence to build resilience to cope with the emotional ramifications like Covid-19 (Ge, Wan, Zheng and Zhang, 2020), this research would be beneficial to higher education institutions at large, in aiding academics in dealing with the ramifications of the pandemic or similar occurrences.

Contextual framework

Emotional intelligence

There is a great plethora of empirical and meta-analytic research supporting a significant and positive relationship between emotional intelligence and improved emotional health with reduced psychological symptoms, enhanced physical health, lower emotional distress, increased life satisfaction, greater self-esteem, strengthened social support and improved levels of creative thinking (Peláez-Fernández, Rey and Extremera, 2021). Craig (2021) argues that the notion of emotional intelligence has been developed by three solitary theorists, namely: John Mayer and Peter Salovey (1990), Danielle Goleman (1998) and Reuven Bar-On (2012).

Mayer and Salovey (1990) illustrates emotional intelligence is the ability to monitor one's own and other's feelings, to recognise emotions and to access and generate them in order to aid thought, comprehend emotions and emotional knowledge, and to reflectively control them to advance emotional and intellectual growth. Goleman (1998) is of the opinion that emotional intelligence is recognising our own feelings and those of others, to motivate ourselves, and to handle our emotions well in order to have the best for ourselves and for our relationships. Bar-On (2012) on the other hand views emotional intelligence as a non-cognitive matrix of skills, competencies and abilities that influence a person's ability to succeed in dealing with environmental demands and pressures.

The Ability Model (1990) by Mayer and Salovey (1990, p. 189) describes the salient sub-dimensions that influence emotional intelligence: “appraisal and expression of emotion (the ability to show and to understand own and others’ verbal and nonverbal emotion expressions); regulation of emotion (the ability to control own and others’ emotions) and utilisation of emotion (the ability to use emotion to enhance flexibility, creativity, and motivation by facilitating logical thinking processes)”. These salient subdimensions aid with controlling distressing emotions which invariably assists in overcoming adversity (Peláez-Fernández et al., 2021; Maharaj and Ramsaroop, 2022). Theoretical understandings have expanded emotional intelligence significantly; hence many scholars are continuing to conduct research with regards to its impact, especially in the midst of the pandemic.

The World Economic Forums Future of Jobs Report (2020) lists emotional intelligence as one of the top 15 in-demand talents expected to trend in 2025 onwards. In relation to the research, the numerous challenges caused by Covid-19 elicited negative emotions such as fear and anxiety, which affects university academics’ overall well-being as they lack the resources to deal with the new realities, demonstrating that emotional intelligence levels are low (MacIntyre, Gregersen and Mercer, 2020; Smit and Serfontein, 2020). In light of this occurrence, university academics are still developing their emotional intelligence, which is ideally a skill that can be taught, allowing them to deal with stressors and adversities. University academics with poorer emotional intelligence are less able to recognise and grasp what they feel, and as a consequence may have serious challenges classifying their emotional condition, leading to a deterioration in their capacity to control their perceived stress (Sadovyy, Sánchez-Gómez and Bresó, 2021). Maharaj and Ramsaroop (2022) found that when challenged with setbacks, people with high levels of emotional intelligence enhance their quality of life.

Resilience

Resilience is the “process of adapting well in the face of adversity, trauma, tragedy, threats and even significant sources of stress, such as family and relationship problems, serious health problems or workplace and financial stressors” (Charney and Southwick, 2018, p.8). Resilience is one of the primary psychological variables associated with an individual's response to adversity, hence it necessitates the adoption of positive reinforcement tactics that promote individual well-being (Trigueros, Padilla, Aguilar-Parra, Rocamora, Morales-Gázquez and López-Liria, 2020). Connor and Davidson (2003) cited in Sarrionandia, Ramos-Diaz and Fernandez-Lasarte (2018, p. 2) outline that resilience has been found to be related to “personal competence, high standards and tenacity, trust in one’s instincts, tolerance of negative affect, strengthening effects of stress, positive acceptance of change, secure relationships, control, and spiritual influences”.

Even though resilient people encounter stress, setbacks, and distressing emotions, they draw on their strengths and seek assistance from support systems to overcome obstacles and work through difficulties (Hurley, 2020). As a result, people may turn obstacles into opportunities, learn from adversity, and devise strategies to keep their physical and mental collateral manageable (Kahn, 2020). The Covid-19 pandemic has resulted in severe adversity and trauma for academics working in higher education institutions, in light of their individual difficulties and challenges (Aras, 2020). Craig (2020) states that there are two significant challenges overcoming the initial hurdle and the resilience required to remain engaged with the ongoing changes and uncertainty.

Due to the multimodal character of resilience, various reactions to a stressor may occur (Connor and Davidson, 2003). On the one hand, the stressor may offer a chance to build and enhance the person's resilience, thereby supporting a return to a more balanced state. To deal with the stressor, the individual may struggle with adjustment and revert to negative coping patterns (Sarrionandia et al., 2018). This implies that resilient people can maintain their emotional health by reducing the negative effects of setbacks.

The following factors are seen to influence resilience, namely adaptability, self-efficacy, spirituality, and relationships. Adaptability is the ability to adjust and thrive in the face of change and uncertainty which is associated with effective emotional regulation (Collie and Martine, 2016). Individuals who are adaptable are better able to manage and regulate their emotions in response to challenging situations (Stockinger, Rinas and Daumiller, 2021). Human beings always want to seek connections that require the companionship of others to make progress in life (Baumeister and Bushman, 2021; Karim, Oyewande, Abdalla, Chaudhry and Khan, 2020). This is when people have had a tough day or are going through a crisis, being able to talk about their feelings and share their experience will release their stress, hence making them feel better about themselves. This is why relationships are important for safeguarding emotional health (Ravenscraft, 2020).

Self-efficacy, which refers to an individual's belief in their ability to accomplish tasks and overcome challenges through the individuals' appraisal of stressful situations (Sharma and Nasa, 2014; Shamizadeh, Jahangiry, Sarbakhsh and Ponnet, 2019). Those with high self-efficacy tend to interpret challenges as manageable and within their control, leading to a more positive appraisal and an optimistic outlook (Wang, Li, Jiang, Han, Liu, Xiang and Zhu,

2022). Spirituality provides individuals with a sense of meaning and purpose in life, which serves as a foundation for resilience (Krok, Zarzycka, and Telka, 2019; Ai, Hu and Wang, 2020). This helps individuals find value and significance in their experiences, enabling them to navigate through hardships with a greater sense of purpose and determination (Krok et al., 2019; Ai et al., 2020).

Research design and methodology

The research objectives are:

- To ascertain academics level of resilience with the influence of adaptability, self-efficacy, relationships and spirituality during adversity.
- To ascertain academics level of emotional intelligence in terms of appraisal and expression of emotion, regulation of emotion and the utilisation of emotion during adversity.

Sampling and sampling design

A descriptive design with a quantitative research approach was used to provide adequate data to examine the relationship between emotional intelligence and resilience. The target population adopted in this study were university academics (junior lecturers, lecturers, senior lecturers, associate professors and professors) from 5 campuses in a recognised South African higher education institution. Participants were recruited using Stratified Random Sampling whereby the population was divided in subgroups, called strata, and then randomly sampled within those subgroups to ensure a representative sample. The total population size of university academics is 11325, the sample represented 360 university academics, mostly females (62.5%) with the dominant race being Indian (33.9%). Majority of respondents were between the ages of 30 and 39 with 48.6% married, 65% in possession of a doctoral degree, and 51.4% with a length of service more than 10 years.

Data collection methods

Close-ended and open-ended online questionnaires were utilised and administered online in 2022. Participants' biographical information was gathered using nominal and ordinal scaling. The Schutte Self-Report Emotional Intelligence Test was used to evaluate emotional intelligence on a five-point Likert scale (Schutte, Malouff, Bhullar, 2009). The Schutte Self-Report Emotional Intelligence Test is a 15-item self-report questionnaire that comprises 3 sub-scales: appraisal of emotions (5 items – “I know why my emotions change”), regulation of emotion (5 items – “I seek out activities that make me happy”) and utilisation of emotion (5 items – “I am aware of the non-verbal messages other people send”).

Resilience was examined using the Connor-Davidson Resilience Scale (2003) on a five-point Likert scale. Connor-Davidson Resilience scale is a 16-item self-report questionnaire that comprises 4 sub-scales: adaptability (6 items – “I can bounce back after illness, injury, or other hardships”), self-efficacy (5 items – “When things look hopeless, I do not give up”), relationships (2 items – “I have at least one close and secure relationship that helps me when I am stressed”) and spirituality (2 items – “Good or bad, I believe that most things happen for a reason”).

Data Analysis

The study utilised descriptive and inferential statistics. Data collected from the responses were analysed with Statistical Package for Social Sciences version 28.0.

For evaluating biographical data, frequencies and percentages were used. Measures of central tendency were used to assist the researcher in interpreting the sample's features, while measures of dispersion were used to determine how spread out a set of data is. Chi-square tests were used to see if the score patterns per statement differed statistically from the nominal (gender, race, marital status, campus site and level of academic post) and ordinal (highest level of completed education, number of years in the institution and age) biographical variables.

Pearson's Correlation Coefficient was utilised to assess the statistical significance and strength of the correlation between emotional intelligence and resilience. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy value was more than 0.500 and the Bartlett's Test of Sphericity sig. value was less than 0.05, indicating that all requirements for factor analysis were satisfied. Chi-square, section analysis using mean scores, crosstabulations using Kruskal Wallis test with Anova and Bivariate correlation were employed to interpret the data.

Reliability

The two most important aspects of precision are reliability and validity. Reliability is computed by taking several measurements on the same subjects. A reliability coefficient of 0.70 or higher is considered as “acceptable” for a newly developed construct. Table 1 reflects the Cronbach's Coefficient Alpha score for all the individual items that constituted the questionnaire. Additionally, open-ended questions were self-developed to assess potential trends pertaining to emotional intelligence and resilience which focused on themes pertaining to appraisal and regulation of emotion, human resource management and assessing skill set during and post Covid-19.

Table 1: Cronbach's Alpha score

		Section	Number of Items	Cronbach's Alpha
Emotional Intelligence	B1	Appraisal of emotions	5	0.946
	B2	Regulation of emotions	5	0.946
	B3	Utilisation of emotion	5	0.929
Resilience	C1	Adaptability	6	0.940
	C2	Self-efficacy	5	0.941
	C3	Relationships	2	0.928
	C4	Spirituality	3	0.947
Emotional Well-being	D1	Stress	5	0.938
	D2	Anxiety	5	0.947
	D3	Human resource management	5	0.936
	D4	Coping	6	0.950
	D5	Post-traumatic growth	6	0.941

The reliability scores for all sections exceed the recommended Cronbach's alpha value. This indicates a degree of acceptable, consistent scoring for these sections of the research.

Emotional intelligence scoring patterns

Table 2 summarises the emotional intelligence scoring patterns.

Table 2: Emotional intelligence scoring patterns

Appraisal of emotions		Count	Mean	Standard Deviation	Median	Percentile 25	Percentile 75	Maximum	Minimum	Binomial p-value
I encounter obstacles that allow me to remember times I encountered similar obstacles and overcame them	B1.1	360	3.13	1.33	3.50	2.00	4.00	5.00	1.00	1.000
Solving problems is easy for me when I am in a positive mood	B1.2	360	3.72	0.86	4.00	4.00	4.00	5.00	1.00	< 0.001
I motivate myself by imagining a good outcome to tasks I take on	B1.3	360	3.44	1.02	4.00	3.00	4.00	5.00	1.00	0.155
I help other people feel better when they are impacted upon psychologically	B1.4	360	3.93	0.98	4.00	4.00	5.00	5.00	1.00	< 0.001
I use good moods to persist in the face of obstacles	B1.5	360	3.46	0.89	4.00	3.00	4.00	5.00	2.00	0.004
Regulation of emotions										
Empathy benefits my well-being	B2.1	360	3.74	0.93	4.00	4.00	4.00	5.00	1.00	< 0.001
I know how to make my positive emotions last	B2.2	360	3.08	1.00	3.00	2.00	4.00	4.00	1.00	0.031
I sought out activities that make me happy	B2.3	360	3.57	1.23	4.00	2.00	4.00	5.00	1.00	< 0.001
I know why my emotions change	B2.4	360	3.74	0.94	4.00	3.00	4.00	5.00	1.00	< 0.001
I have control over my emotions	B2.5	360	3.14	1.05	3.00	2.00	4.00	5.00	2.00	< 0.001
Utilisation of emotions										
Verbal cues of communication assist me in better understanding the emotional states of others	B3.1	360	3.56	0.70	4.00	3.00	4.00	5.00	2.00	< 0.001
Non-verbal cues of communication assist me in better understanding the emotional state of others	B3.2	360	3.43	0.80	3.00	3.00	4.00	5.00	2.00	0.958
I am aware of the non-verbal messages I send to others	B3.3	360	3.33	0.93	4.00	3.00	4.00	4.00	1.00	< 0.001
I can tell how people are feeling by listening to the tone of their voices	B3.4	360	4.04	0.56	4.00	4.00	4.00	5.00	3.00	< 0.001
It is difficult for me to understand why people feel the way they do	B3.5	360	2.45	1.02	2.00	2.00	4.00	4.00	1.00	< 0.001
It is difficult for me to understand why people feel the way they do	B3.5_R	360	3.55	1.02	4.00	2.00	4.00	5.00	2.00	< 0.001

B3.5_R is reverse coded

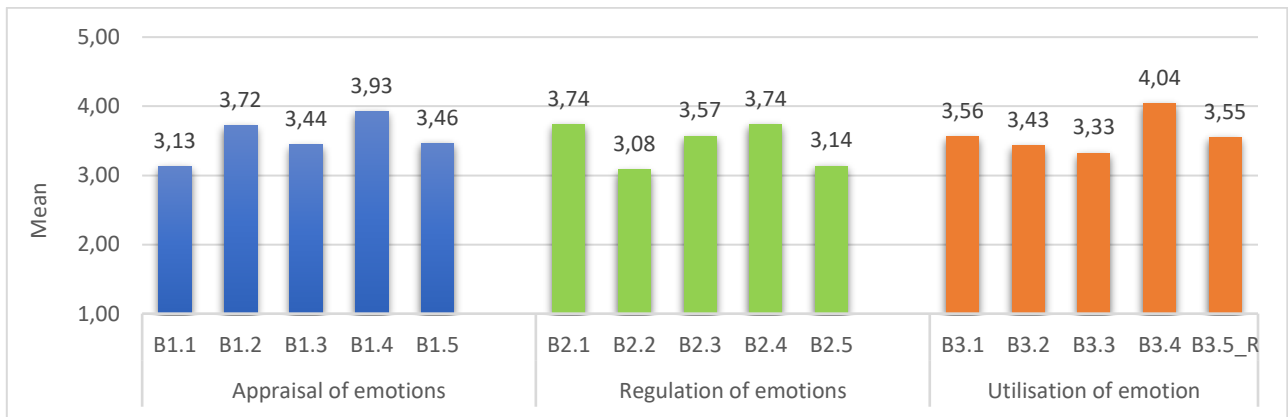


Figure 1: Emotional intelligence mean scores

To determine whether the scoring patterns per statement were significantly different per option, a binomial test was done with a cut-off = 3.0. The null hypothesis claims that similar numbers of respondents agreed as there were those who disagreed.

Results from Table 2 illustrates the following patterns per dimension with the mean score of $m=3.54$ shows that respondents had a strong level of agreement for **appraisal of emotions** during Covid-19 indicating respondents' cognition about events, predict their emotional reactions to those events. $m=3.45$ outlines that respondents had a strong level of agreement for **regulation of emotions** during Covid-19 indicating that respondents can effectively manage and respond to an emotional experience. $m=3.58$ highlights that respondents had a strong level of agreement for **utilisation of emotions** during Covid-19 indicating how respondents' adaptive cognition and action are motivated by emotion experience.

Covid-19 erupted a wide range of emotions as people struggle to deal with its effect on the normal way of life (Ahmadi and Ramezani, 2020). The Ability Model (1990) by Mayer and Salovey (1990, p. 189) showcased that the abilities of emotional intelligence comprising of appraisal and expression of emotion, regulation of emotion and utilisation of emotion helps manage negative emotions during adversity. The model thus conceptualised emotional intelligence as the capacity of an individual to “monitor one’s own and others’ feelings and emotion, to differentiate among them and to use the information to guide one’s thinking and action” (Salovey and Mayer, 1990 cited in Hölling, 2019, p.4). The research advocates that the model assists in building emotional intelligence within academia which positively influences resilience during adversity. Hence, the model proposes that emotionally intelligent individuals can perceive emotions in themselves and others and utilise that information to influence and alter the environment.

Consequently, being able to appraise, manage, regulate and use unpleasant emotions are linked to several positive results, such as improved emotional health, clear decision-making and enhanced well-being (Sutte, 2019). Academics who are trained to appraise, express, regulate and manage their own emotional abilities not only develop relationships but also experience greater job satisfaction and effectiveness while working with challenging students (Hammond, Flook, Harvey, Barron and Osher, 2019).

In relation to the study, the numerous challenges triggered by Covid-19 elicited negative emotions such as fear and anxiety, which had an effect on academia's overall well-being because they lacked the resources to deal with the new realities, demonstrating that emotional intelligence levels are low (MacIntyre et al., 2020; Smit and Serfontein, 2020). Academics who are emotionally intelligent provide a method for this ability to operate as a "stress buffer" by reducing stress related to demanding conditions, turning off the "fight or flight" reaction once the stressor has passed, and, measuring the level of stress reactivity as a measure of physiological and psychological capacity (Sadovyy et al., 2021).

Emotional intelligence hence serves as a mediator for resilience, meaning that when emotional intelligence is low, resilience levels drops (Trigueros et al., 2020). Salovey, Bedell, Detweiler and Mayer (1991, p.161) confirm that people with better emotional intelligence fare better with the emotional requests of stressful situations as they are able to “accurately perceive and appraise their emotions, know how and when to express their feelings, and can effectively regulate their mood states”. Therefore, having the ability to appraise, regulate and utilise emotions, showcase that the person has emotional intelligence within them to deal with the difficult emotions caused by adversity. Objective 1 is thus achieved.

Resilience scoring patterns

Table 3 summarises the scoring pattern for resilience.

Table 3: Resilience scoring patterns

Adaptability		Count	Mean	Standard Deviation	Median	Percentile 25	Percentile 75	Maximum	Minimum	Binomial p-value
I can adapt when changes occur	C1.1	360	2.85	0.62	3.00	3.00	3.00	4.00	1.00	< 0.001
Past successes give me confidence in dealing with new challenges and difficulties	C1.2	360	2.75	0.73	3.00	3.00	3.00	4.00	1.00	< 0.001
Coping with stress makes me stronger	C1.3	360	2.09	1.20	2.00	1.00	3.00	4.00	0.00	0.018
I can bounce back after illness, injury, or other hardships	C1.4	360	2.47	1.26	3.00	2.00	3.00	4.00	0.00	< 0.001
I can handle unpleasant or painful feelings of sadness, fear, and anger	C1.5	360	1.92	1.01	2.00	1.00	3.00	4.00	1.00	< 0.001
I think of myself as a strong person when dealing with life's challenges and difficulties	C1.6	360	2.49	0.88	3.00	2.00	3.00	4.00	1.00	< 0.001
Self-efficacy										
I give my best effort no matter what the outcome is	C2.1	360	2.90	0.85	3.00	2.00	4.00	4.00	1.00	< 0.001
I believe I can achieve my goals, even if there are obstacles	C2.2	360	2.61	0.93	3.00	2.00	3.00	4.00	0.00	< 0.001
When things look hopeless, I do not give up	C2.3	360	3.03	0.70	3.00	3.00	3.00	4.00	1.00	< 0.001
I am not easily discouraged by failure	C2.4	360	2.39	1.22	3.00	2.00	3.00	4.00	0.00	0.493
I feel in control of my life	C2.5	360	1.49	0.86	1.00	1.00	2.00	4.00	0.00	< 0.001
Relationships										
I have at least one close and secure relationship that helps me when I am stressed	C3.1	360	3.12	0.76	3.00	3.00	4.00	4.00	1.00	< 0.001
I know where to turn for help	C3.2	360	2.74	1.09	3.00	2.00	4.00	4.00	0.00	< 0.001
Spirituality										
When there are no clear solutions to my problems, sometimes fate or God can help	C4.1	360	2.41	1.19	3.00	2.00	3.00	4.00	0.00	0.005
Good or bad, I believe that most things happen for a reason	C4.2	360	2.38	1.14	3.00	2.00	3.00	4.00	0.00	< 0.001
I have a strong sense of purpose in life	C4.3	360	2.13	1.24	2.00	1.00	3.00	4.00	0.00	0.493

To determine whether the scoring patterns per statement were significantly different per option, a binomial test was done with a cut-off = 2.0. The null hypothesis claims that similar numbers of respondents indicated low levels of truth as there were those who indicated higher levels of truth. Results from Table 3 illustrates the following patterns per dimension with the mean score of $m=2.43$ shows that respondents had a strong level of truth for **adaptability** during Covid-19 indicating respondents can adjust to change and overcome adversity. $m=2.48$ indicates that respondents had a strong level of truth for **self-efficacy** during Covid-19 indicating respondents' belief in their own capacity to achieve goals and recover from adversity. $m=2.93$ illustrates that respondents had a strong level of truth for **relationships** during Covid-19 indicating respondents seek support from social connections, family, friends, work colleagues and the community. $m=2.31$ outlines that respondents had a strong level of truth for **spirituality** during Covid-19 indicating respondents seek and express meaning and purpose from a higher being.

Examining the differentiation between resilience and adaptability, Collie and Martine (2016) confirm that resilience involves a response to adversity, whilst adaptability concerns responses to change, novelty, and uncertainty that may be positive or negative in nature. The study advocates that being able to persevere through challenges (resilience) and adapt to change (adaptability) are both key skills that will help academia to learn and thrive presently and in the future. This is supported by Professor Motulsky cited in Heath (2020), who highlights that adaptability is a skill that can be learned to ascertain resilience. Rascoff, DeVaney, Shimshon and Maggioncalda (2020) explain that evolution in higher education ecosystems happens through 'punctuated equilibrium' which can be described as long periods of relatively slow change interspersed with occasional moments of rapid adaptation, hence Covid-19 is a punctuation moment. According to Veltheim (2020), Covid-19 initiated the largest and fastest remote learning experiment in human history; thus, the researchers argue that it forced academia to become agile in their response, thereby demonstrating their resilience and finding creative strategies to cope.



Figure 2: Resilience mean scores

The concept of self-efficacy derives from Albert Bandura's social-cognitive theory of behavioural change, which proposed that when faced with stress and problems, perceived self-efficacy impacts what coping behaviour occurs, as well as how much effort and time

will be displayed to attain one's objectives (Sharma and Nasa, 2014; Shamizadeh et al., 2019). Self-efficacy therefore facilitates an important role in promoting resilience, that is, when encountering adverse events for example, Covid-19. Those who retain the belief that they will be able to exert control over their thoughts by rejecting negative thoughts are more likely to preserve their efforts against the turmoil that the virus exerts (Tien, 2019; Kovesdi, Toro, Hadhazi, Takacs, Rozsa, Csikos and Foldi, 2020; Pradhan, Panigrahy and Jena, 2020).

The research by Maharaj and Ramsaroop (2023) ascertains the stronger relationships with friends, family and colleagues are, the more one can withstand stressful situations and build on resilience. Several studies have confirmed this. For example, Bethune (2020) found that many employees in the educational fraternity turned to partners, friends, family, and colleagues for support during Covid-19. Also, survivors of Ebola indicated that support from friends and family members was an effective coping strategy for managing emotional distress (Rabelo, Lee, Fallah, Massaquoi, Evlampidou, Crestani, Decroo, Van den Bergh and Severy, 2016).

According to Koenig, King and Carson (2012) spirituality is to seek for a meaning in life pertaining to the relations with the sacred or transcendent, and the connection with a higher power or supreme-being. Roberto, Sellon, Cherry, Hunter-Jones and Winslow (2020) investigated the impact of spirituality and coping on women during the Covid-19 crisis, with findings illustrating spirituality being positively correlated with disaster resilience. Additional findings from the thematic analysis supported the positive influence of spirituality on resilience, suggesting that spirituality will be a critical dimension as the pandemic continues to unfold (Roberto et al., 2020). Therefore, in essence, the higher a person's spiritual level, the better his or her resilience in facing adversities (Dewi and Hamzah, 2019). The research views adaptability, self-efficacy, relationships, and spirituality as important dimensions for increasing resilience in academia, whereby each dimension facilitates a pivotal role in overcoming the ramifications caused by Covid-19. Objective 2 is thus achieved.

Potential recommendations

Based on the research findings, the recommendations below are envisaged in the context of higher education for fueling emotional intelligence so that academics can develop resilience and improve their emotional well-being, hence protecting their mental health.

Advancement of HR initiatives through data driven approaches

Human Resources facilitated a crucial supportive role during the pandemic. HR provided support through employee communication: communicating information about health and safety measures, remote work policies, and any changes in employment conditions. Support was provided in terms of remote work transition (providing guidance and support in setting up home offices, accessing necessary technology and tools, and addressing any challenges or concerns related to remote work arrangements; mental health support (sharing mental health resources, offering virtual counseling services or employee assistance programmes (EAPs), organising wellness webinars or workshops and employee engagement and morale (organisation of virtual team-building activities, recognised employee achievements and contributions, and encouraged open communication channels to address concerns and maintain a sense of community); and training and development (facilitation of virtual training

and development opportunities to help employees upskill or reskill during the pandemic (Hamouche, 2021; Bieńkowska, Koszela, Sałamacha and Tworek, 2022).

Table 4: UKZN academics’ perceptions on the supportive role of UKZN HR during Covid-19

	Percent	Valid Percent	Cumulative Percent
No support: Solutions were not supported by quality empirical evidence	19.7	19.7	59.2
Allowed employees to work from home	17.5	17.5	30.8
Workshops	16.1	16.1	100
Webinars	12.2	12.2	83.9
A lot of communication emailed on ICAS Wellness Centre	10.3	10.3	10.3
Appreciating and recognising employees who had to work long hours	8.6	8.6	39.4
Regular email communication on wellness benefits offered and tips	7.5	7.5	71.7
Psychologists were reserved	5	5	64.2
Adjustments were made to key performance indicators	3.1	3.1	13.3
Total	100	100	

Table 4 indicates UKZN academics’ views on the supportive role of UKZN’s HR during Covid-19. The highest response of 19.7% was for no support: solutions were not supported by quality empirical evidence, second highest was 17.5% for allowing employees to work from home, third highest was 16.1% pertaining to workshops, and fourth highest of 12.2% for webinars. Naveen Bhateja, chief people officer and executive vice president of Medidata Solutions stressed that it is imperative for HR to understand employees’ challenges inside, and outside of work (Harbert, 2021). This sentiment supports the study’s findings whereby UKZN’s HR did not undertake the groundwork research with academics directly to understand their concerns so that there could be tailor-made support strategies.

During the abrupt shift to remote working, the well-being of academia continues to be in question. Browner (2020) cited in Nutsubidze and Schmidt (2021, p.2) stipulates that “taking the lead in reimagining the organisation, developing talent strategies, addressing well-being and work-life, administering HR systems and facilitating reentry to the office are all critical and uniquely skilled contributions HR can make”. In light of this, it is critical for the human resource department to advocate for the integration of well-being initiatives into the university culture, structures, and processes. There is a need to carry out research to understand what challenges academics are encountering and what support academics would need. Data driven approaches, for example, workforce analytics and observations of initiatives from other institutions will allow HR to design well thought out strategies that pertain to academics’ needs by incorporating emotional intelligence into it and initiatives that enhance resilience.

This study indicates that failing to protect employees' emotional well-being during Covid-19 is associated with negative outcomes such as job dissatisfaction, reduced job performance, burnout, and employee turnover. With this being said, it is important for well-being initiatives to be closely integrated with related HR functions. It can be deduced with the HR department transforming their practices in line with empirical research and trends, in order to improve

academic emotional well-being and performance. Well-being initiatives result in improved quality of educational practices thereby enhancing student outcomes during and post Covid-19.

Virtual therapy awareness

Meditation and mindfulness are terms that have crept into mainstream culture (Behan, 2020). As a result, Covid-19 has led to people searching for virtual well-being wellness applications on Google Playstore in order to manage anxiety and help users fall asleep (Pandya and Lodha, 2021). Virtual therapy is another example of disruptive innovation in which consumers seek affordable and accessible services. Guided imagery in the form of mindfulness meditation can alleviate anxiety, chronic pain, and improve lifestyle behaviours because it is an immersive experience in which people apply all of their senses and emotions to visualise a scenario or situation (Gordon, Sbarra, Armin, Pace, Gniady and Barraza, 2021).

The most downloaded meditation mobile app was ‘Calm’ during Covid-19 (Perez, 2020). ‘Calm’ offers a range of mindfulness and meditation practice guide modules that vary in length, instruction, and content which focuses on different aspects such as anxiety, stress, focus, gratitude and sleep (Smith, 2020; Garg, 2021). Few studies on the use of ‘Calm’ exist with raving reviews on the reduction of stress benefits especially during Covid-19 and other forms of social isolation (Hurberty, Green, Glissmann, Larkey, Puzia and Lee, 2020; Smith, 2020).

The utilisation of meditation apps is a modern innovation, therefore introducing these well-designed mindfulness and meditation practices to the South African higher education fraternity during this pandemic. The app has the potential to complement treatment whilst also being a low-cost helpful technique for providing support for all employees from the comfort of one’s own space. Additionally, practicing meditation via the app will assist in strengthening academics’ emotional resilience and it provides an opportunity to manage difficult emotions thereby aiding the dimensions (appraisal, expression and utilisation of emotion) of emotional intelligence.

Utilisation and benefits of employee assistance programmes (EAPs)

The pandemic continues to have a significant impact on people's emotional health, leading to a variety of distressing emotions. Distressing emotions refer to negative or unpleasant feelings that cause discomfort, distress, or psychological pain. This comprises of fear and anxiety, stress, isolation and loneliness, depression and grief and loss. Individuals have employed various techniques to manage distressing emotion with the most used techniques being mindfulness and meditation, Cognitive-Behavioural Therapy (CBT), self-care and well-being practices, social support and virtual connections and physical activity. Mindfulness practices, including meditation, deep breathing exercises, and guided imagery, have been widely utilised to reduce stress, anxiety, and promote overall well-being during the pandemic (Behan, 2020; Niu and Long, 2023). These techniques help individuals focus on the present moment, cultivate self-awareness, and develop resilience (Behan, 2020; Niu and Long, 2023).

CBT techniques have been adapted for virtual therapy sessions to address distressing emotions related to Covid-19 (Puertas-Gonzalez, Marino-Narvaez, Romero-Gonzalez, Sanchez-Perez and Peralta-Ramirez, 2020; Weiner, Berna, Nourry, Severac, Vidailhet and Mengin, 2020). CBT focuses on identifying and challenging negative thoughts and beliefs, developing coping strategies, and promoting adaptive behaviours to manage anxiety, depression, and other emotional health concerns (Gautam, Tripathi, Deshmukh and Gaur, 2020; Nakao, Shirotaki and Sugaya, 2021). Engaging in self-care activities has been vital in managing distressing emotions (Bartlett, Arslan, Bankston and Sarabipour, 2021; Sebastian, Rajkumar, John, Daniel, George, Greeshma and James, 2022). This includes maintaining a balanced routine, engaging in hobbies, getting regular exercise, practicing good sleep hygiene, and maintaining social connections through technology (Bartlett et al., 2021; Sebastian et al., 2022).

Maintaining social connections through phone calls, video chats, or virtual support groups has been essential in managing distressing emotions during the pandemic (Longest and Kang, 2022; Maharaj and Ramsaroop, 2022). Seeking support from friends, family, and mental health professionals can provide comfort, validation, and a sense of community (Longest and Kang, 2022; Maharaj and Ramsaroop, 2022). Regular physical activity has been recommended to manage stress, reduce anxiety, and improve overall well-being during the pandemic (Abdelbasset, Nambi, Eid and Elkholi, 2021; Ai, Yang, Lin and Wan, 2021). Engaging in home workouts, yoga, or outdoor activities adhering to public health guidelines can help individuals cope with distressing emotions (Abdelbasset et al., 2021; Ai et al., 2021).

Table 5: Techniques used by UKZN academics to manage distressing emotions

	Percent	Valid Percent	Cumulative Percent
Enjoying a hobby	10.6	10.6	20.3
Mindfulness	10.6	10.6	45.3
Spirituality	10.6	10.6	81.1
Staying connected through technology	10.6	10.6	91.7
Exercise	10	10	30.3
Spending less time on social media	10	10	70.6
Being in nature	9.7	9.7	9.7
Practicing gratitude	8.3	8.3	53.6
Work from home	8.3	8.3	100
Self-care diary	6.9	6.9	60.6
Introspection	4.2	4.2	34.4
Learning off Youtube	0.3	0.3	34.7
Total	100	100	

Table 5 indicates several coping techniques UKZN academics utilised often for helping them manage their distressing emotions. Salient techniques that were employed by UKZN academics to manage distressing emotions are: enjoying a hobby (10.6%), mindfulness (10.6%), spirituality (10.6%), staying connected through technology (10.6%), exercise (10%) and spending less time on social media (10%). The role of religious coping in response to the pandemic showcases how religious beliefs and practices, such as prayer, religious attendance, and seeking support from religious communities, have been utilised to manage distress and

promote resilience during the crisis (Coppola, Rania, Parisi and Lagomarsino, 2021; Le-Roux, Denton, Malan and Malan, 2022).

An integrative review was conducted by searching databases between 2020 and 2021 for academic articles using the following keywords: “religious coping and COVID-19”, “religion, mental health, and Covid-19”, and “religiosity, spirituality, and Covid-19” (Imran, Zhai and Iqbal, 2022). Twenty papers were chosen for examination in total whereby positive religious coping, intrinsic religiousness, and confidence in God were shown to be connected with decreased anxiety and a larger positive outcome, but negative religious coping and distrust in God had the opposite effect (Imran et al., 2022). It is a common recommendation for individuals to reduce their social media usage to support their mental health during the pandemic. Research indicates that excessive time spent using social media platforms during the pandemic were associated with anxiety symptoms and depressive symptoms because of sustained exposure to excessive information and misinformation (Lee, Jeon, Kang, Shin, Jung and Jung, 2022; Longest and Kang, 2022).

Interestingly, there is no visibility of EAPs. An EAP is a voluntary programme that provides employees with free and confidential services to address a variety of occupational and personal challenges (Chen, Chu and Wang, 2021). The aim of an EAP is to improve employees’ quality of life by aiding with resolving or managing concerns that may impede employee performance (Veldsman and Aardde, 2021). The pandemic has brought forth new considerations for this initiative, especially in light of the challenges that academia is experiencing and how their role is changing during Covid-19. The use of EAPs grew throughout the Covid-19 era. Employee well-being and EAPs were scrutinised as businesses fought to remain productive while aiding employees in dealing with unprecedented change (Pompe, 2021; Veldsman and Aarde, 2021).

Miller (2019) argues that the EAP is an underutilised initiative that represents a missed opportunity to assist employees since employees are unaware of it, the lack of educational awareness on services provided and employees may feel there is a stigma associated with accessing these services. Higher levels of stress, anxiety and financial pressure has a significant impact on the workforce during Covid-19, hence EAPs are being highly utilised by employees for security and support (Couser, Nation, and Hyde, 2020). Pompe (2021) advises that EAPs be incorporated into workplace policies, such as leave and disability policies. This will inculcate continuous awareness of EAPs in the workplace.

The study recommends for higher education institutions to design and utilise EAPs for supporting their academics in line with the latest well-being trends popularised by Covid-19 and including organisational culture and practices. Cole and McCullough (2020) argue that mobile-based counselling companies are marketing itself as ‘digital EAPs’, hence making it a digital-only model to disrupt the market. However, post-pandemic workforce needs are swiftly exposing the shortcomings of these techniques, such as limited access options, a lack of work-life integration, minimal organisational support, and limited crisis management experience (Veldsman and Aarde, 2021; Beyer, 2020; Derr, Dyme and Greer, 2020). Establishing top-tier EAPs that expand their services can aid in the post-pandemic return to work by customising services to all demographic groups and the use of disruptive innovation

in the form of several options including telephonic, in-person, video chat and social media interactions (Derr et al., 2020).

EAPs must now collaborate with organisations to focus on: practical care-giving support for post-pandemic day-to-day life, including but not limited to childcare and eldercare; funeral concierge services and estate planning; financial wellness which refers to an individual's or household's financial security, which includes budgeting assistance, debt repayment, the establishment of an emergency fund, or a strategy to attain good spending habits; executive coaching to strengthen leadership skills that are essential to revitalise the organisation; manager and supervisor education and support services on issues such as having collegial conversations with employees, managing staff that has undergone abrupt change, and aiding readjustment to former routines; planning for potential disruptions such as recurrence risk, and non-virus-related traumas; and, ongoing outreach initiatives to promote the EAP's services for ensuring maximum engagement (Derr et al., 2020; Hughes and Fairley, 2020; Sukumaran and Alamelu, 2021).

Conclusion

The research discovers that Covid-19 imposed a severe impact on academics' emotional responses and coping styles, because when coping strategies fail individuals find themselves encountering stress, anxiety, and a suite of distressing emotions that negatively influences resilience and emotional well-being. Nevertheless, the research showcases that academics' have satisfied levels of emotional intelligence and resilience, thus indicating the flourishing of post-traumatic growth. Furthermore, the research argues that the quality of HR practices must be revisited as majority of UKZN academics were dissatisfied with the support received from UKZN's HR. The disruption caused by Covid-19 placed emphasis on innovative coping techniques for employee well-being and initiating new ways of working, in which HR had to become more creative and mindful of the needs of academia.

Covid-19 has popularised the importance of emotional intelligence and it will become increasingly important in the post-Covid-19 period as work becomes ambiguous, requiring people to use creative thinking which is influenced by emotional intelligence (Uniyal and Rawat, 2020; Drigas and Papoutsis, 2020). Academic emotional well-being is linked to student well-being which simply means that academics with higher emotional intelligence will be able to manage their own emotional well-being, thus filtering through to supporting students in navigating the educational hurdles caused by Covid-19. This invariably influences resilience levels towards adversity.

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Fourth Industrial Revolution: Survival skills for the South African job market

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Abstract

In a rapidly developing world, the future of work is ever-changing, with the fourth industrial revolution (4IR) well underway. The paper used a systematic literature review methodology to explore the ‘future of work’ in South Africa, focusing on the skills for 4IR, examining the 4IR impact on the South African job market and investigating ways to help the country stay ahead of the curve. The findings showed that 4IR skills include skills like creativity, critical thinking, and communication, and some of these skills can be classified as digital skills, such as those in the information technology and computer science field. The findings also reveal that 4IR has a massive impact on the South African job market, as numerous jobs are at risk of becoming obsolete due to advanced 4IR technologies. These 4IR technologies are also expected to create new job opportunities. However, such opportunities will benefit those with the necessary 4IR skills. Hence academic institutions will play a role in helping the country stay ahead of the curve by providing South Africans with these necessary 4IR skills.

Keywords: fourth industrial revolution (4IR), South Africa

Introduction

One of society’s most significant challenges is ensuring that everyone has the skills and knowledge to participate in the 4IR. This is particularly relevant in South Africa, where the unemployment rate is 34.9% (STATSSA, 2021), and many people lack the skills required for new jobs. The 4IR is impacting the South African job market and will continue to do so. Hence, ensuring everyone has the skills to partake in this new economy is essential. Thus, this systematic literature review aims to identify the skills for 4IR and examine the 4IR impact on the South African job market.

The term “fourth industrial revolution” was first coined by Klaus Schwab, the World Economic Forum founder and executive chair (Schwab, 2017). It refers to the ongoing transformation of the global economy driven by advanced technologies, such as robotics, artificial intelligence (A.I.), and 3D printing (Schwab, 2017). The pace of this technological revolution advancement is unheard of (Ross & Maynard, 2021), hence the reason why it makes it impossible to predict how this revolution will unfold (Schwab, 2017). However, 4IR profoundly impacts all aspects of society, including the economy, education, and the workforce (Frey & Osborne, 2017). In South Africa, the 4IR is likely to impact the job market significantly, because most of the jobs being created in the 4IR require new skills and knowledge (World Economic Forum, 2020). Moreover, 4IR is likely to contribute to inequality, which disrupts the labour market (Rapanyane & Sethole, 2020). For example, jobs in A.I. and robotics require a distinct set of skills than traditional jobs.

To better understand this phenomenal revolution, we must look back at the past industrial revolution. As the term suggests, the “fourth industrial revolution” implies that there have been three other industrial revolutions. Namely, the first industrial revolution (1IR) went from 1760 to 1840 (Ross & Maynard, 2021; Schwab, 2017). 1IR was “triggered by the construction of railroads and the invention of the steam engine” (Schwab, 2017, p. 11). The second industrial revolution (2IR) then followed, which started in the 19th century (Ross & Maynard, 2021; Schwab, 2017), till the early 20th century, which made “mass production possible, fostered by the advent of electricity and the assembly line” (Schwab, 2017, p. 11). Then it was the third industrial revolution (3IR) brought automated production in the early 1960s (Ross & Maynard, 2021; Schwab, 2017). 3IR is usually referred to as the ‘computer or digital revolution’ as it introduced personal computers (P.C.s) in the 1970s to 1980s and gave birth to the Internet in the 1990s (Schwab, 2017). Now we are in the 4IR dubbed ‘technological revolution.’

Rationale

This study is significant for several reasons. Firstly, it will provide insight into improving South Africa’s readiness for the 4IR, which is essential because the 4IR has a profound impact on the country, and it is crucial to ensure that the country is prepared for it. Secondly, the study provides a greater understanding of the skills required for the 4IR, which is important because the 4IR will likely create many new jobs requiring new skills. Thirdly, the South African government has acknowledged the possible effects of the 4IR in the country; hence, the establishment of the National Skills Fund (NSF) provides funding for initiatives focusing on developing South Africans’ skills (NSF, 2019). Furthermore, the government created the National Skills Development Plan (NSDP), which “seeks to ensure that South Africa has adequate, appropriate and high-quality skills that contribute towards economic growth, employment creation and social development.” (Department of Higher Education and Training 2019, p. 11). Hence, this study will provide valuable insights into skills that the NSF and NSDP will have to focus on in terms of funding to ensure the employability of South Africans under the 4IR. Finally, the study will contribute to the 4IR body of knowledge, and this is important because the 4IR is a relatively new phenomenon, and there is still much to learn about it.

Research questions

- a) What skills are required for the 4IR?
- b) How will 4IR impact the South African job market?
- c) How can South Africans be equipped with the necessary skills for the 4IR?

Literature review

This study follows a thematic review approach to synthesize the findings of the existing literature on the skills required for the 4IR and how they will impact the South African job market. This review will include looking at the following concepts: the future of work, skills for the 4IR, followed by technology impact, impact on the S.A job market and finally.

The concept of the future of work is complex and ever-evolving, making it difficult to pin down, as the future of work cannot be determined definitively (PwC, 2018). The World Economic Forum (2020) explained the concept of the future of work as a new workplace relationship between technology and people. This outlook is significant because it highlights

technology's role in the future of work. Technology has always played a role in work, but it is set to become even more integral in the 4IR, as it is also increasingly becoming a part of our lives (Ross & Maynard, 2021). According to the 2020 report on the 'Future of Jobs', “the twin forces of technology and globalisation have brought profound transformations to labour markets” (World Economic Forum, 2020, p. 9).

Furthermore, the workforce of the future report by PwC (2018) identified some key megatrends which have incredible forces in changing the world of work and society as a whole, and these megatrends include technological breakthroughs, demographic shifts, rapid urbanisation, resource scarcity and climate change, and the global economic power shift. Each of these megatrends is set to impact the future of work profoundly. Thus, these megatrends can determine how the future of work will play out towards 2030 (PwC, 2018).

Skills for the 4IR

To fully prepare for 4IR, it is essential to understand the skills required by the workforce. Nonetheless, 4IR is still an ongoing phenomenon, and the skills necessary for it are not yet fully known. However, as it is dubbed the 'technological' revolution, it is without a doubt that it will require a lot of technical skills with a higher level of digital literacy and a greater ability to use data and analytics. Furthermore, it is suggested that as many as 9 out of 10 jobs will require some sort of technical skills (Ayinde & Kirkwood, 2020). Additionally, Magwentshu et al. (2019) suggested that technology-enabled jobs will be in demand and require higher-skilled personnel compared to other jobs. Furthermore, a report by the World Economic Forum (2020) suggests that some skill sets (shown in Figure 1) will be critical for every employee in the 4IR era.

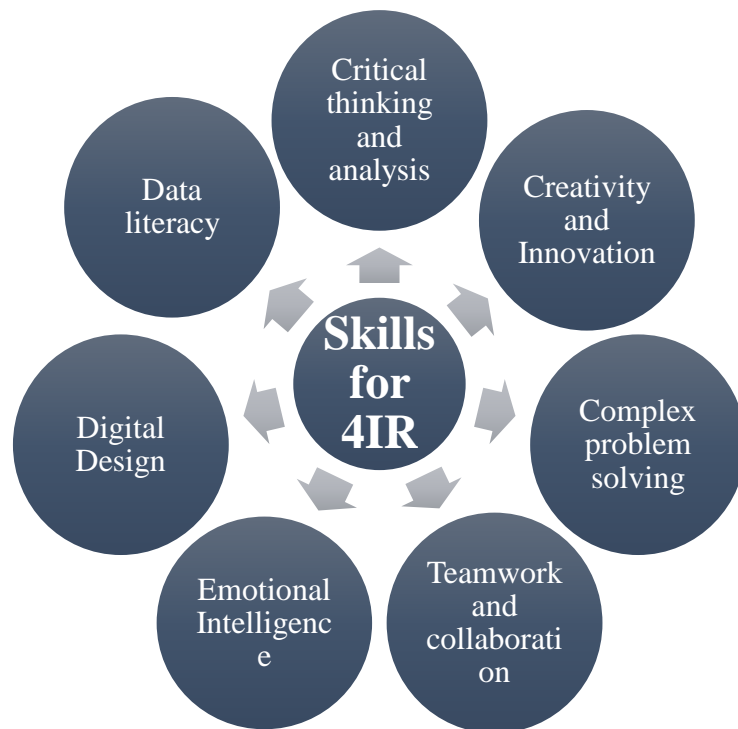


Figure 1 - Graphical Presentation of ‘Skills for 4IR’ (World Economic Forum, 2020)

These skills were also priorities for the majority (52%) of business leaders in the workforce of the future report (PwC, 2018). Consequently, 74% of the respondents in the report are willing to learn new skills or retrain to be employable in the future. It is to be noted that the list of skills will only grow as the impact of 4IR becomes clearer. However, what is clear is that the skills required for jobs are changing rapidly. Consequently, the World Economic Forum (2020) report estimates that by 2025, almost 50% of all employees will need to retrain or upskill to keep up with the technological changes.

4IR technologies: automation and artificial intelligence

Technology is dubbed the most significant factor of this latest revolution. It has increasingly become part of our everyday lives (Ross & Maynard, 2021). Moreover, technologies, such as artificial intelligence are blurring the lines between the “physical, digital, and biological worlds” (Schwab, 2017, p. 7). According to Bughin, Hazan, Ramaswamy, Chui, & Allas (2017), A.I. is positioned to disrupt digitally. Furthermore, it is expected that in South Africa, one in three jobs of the 5.7 million low-skill jobs will likely be automated (Rapanyane & Sethole, 2020). Most importantly, Anakpo & Kollamparambil’s (2021) study suggests that there is a link between automation and unemployment. Rapanyane & Sethole (2020) state that unemployment in South Africa, especially among youth, has become a national crisis.

With all this, A.I. and automation can potentially add value. It is projected that A.I. has the potential to add more than 16% to the current global economy (Marwala, 2019). Companies are investing billions in A.I. in a race to become a digital frontier (Bughin et al., 2017) as it can make production efficient and increase accuracy (Marwala, 2019). However, according to Bughin et al. (2017), for businesses to fully capture the powers of A.I., they

must also commit to it, not only with financial investment. Hence, the jobs report by the World Economic Forum (2020) suggests that “many companies across the private sector have embarked on a reorientation of their strategic direction” (p. 8). The report further suggests that by 2025, the use of machines and algorithms will become more broadly than in the prior years and will match the time spent working by human beings. This increase in capability and employment will result in humans and machines working together more often, with machines performing more work than ever before.

Impact on the S.A job market

In the past, industrial revolutions have led to a net increase in employment, but this time may be different. The changes in scale, speed, and depth mean that many jobs are at risk of automation. The situation in South Africa is even direr. The country has a yearly economic growth of less than 1% and skyrocketing unemployment (Marwala, 2019). A study by Magwentshu et al. (2019) found that as many as 3.3 million of the country’s workforce could be unemployed by 2030 due to the 4IR and half a million in manufacturing alone. Frey & Osborne (2017) further suggest that the number of jobs in South Africa is expected to decrease by 5% by 2030 due to automation. The 4IR is said to present both challenges and opportunities for the South African job market. On the one hand, the 4IR is said to threaten jobs, as automation and A.I. will increasingly replace human workers, especially low-skilled and repetitive jobs (Rapanyane & Sethole, 2020). Rapanyane & Sethole (2020) further suggest that 4IR is likely to further inequality, contributing to the job market disruption.

On the other hand, Ayinde & Kirkwood (2020) suggest that the 4IR will also bring new jobs and opportunities to compensate for destroyed ones. Thus, it brings the idea of continuous learning, allowing individuals to upskill themselves with the necessary 4IR skills. Another study by Bughin et al. (2017) found that the 4IR is likely to create a number of new jobs in South Africa, particularly in the fields of data analytics, cloud computing, and artificial intelligence.

4IR skills development: S.A academic institutions

As Anakpo & Kollamparambil (2021) state, investment in learning and skills development is necessary to ensure everyone is competitive in the labour market. One way to ensure South Africans have the skills required for 4IR is to invest in skills development. Hence, South African academic institutions play a vital role in this regard, as they are uniquely positioned to provide these skills. Researchers such as Mkansi & Landman (2021) have conducted studies in an attempt to understand Academic Institutions’ readiness for 4IR and readiness to produce graduates that meet the demands of the ‘future of work’ in the 4IR.

Marwal (2019) pointed out that universities have a fundamental role in helping youth develop the skills they need to cross this technological bridge of revolution. Another study by Mkansi & Landman (2021) suggested that industries and academic institutions must hike the supply of high-value skills to meet the demands of high-value tasks, as these institutions are the “brewing pot of knowledge and skills and serve as the life hood that generates 4IR skills in the country” (Mkansi & Landman, 2021, p. 22). However, the study clarified that, in the current state of South Africa, it would be almost impossible for these institutions to meet the 4IR skills demand as they have outdated pieces of equipment that are behind the 4IR standards. Thus, younger students are better educated in technology and digitization than

lecturers (Mkansi & Landman, 2021). They also pointed out that graduates must compete in the global market as the local market is struggling to provide jobs. Hence, only 7% of graduates that went through their entire schooling phase eventually get a job.

Despite this, Mkansi & Landman (2021) outlined some initiatives that can be done to capture the value of the digital shift entirely. One was for STEM (Science, Technology, Engineering, and Mathematics) skills to be prioritized by academic institutions since these skills will become valuable in the 4IR era and offer ‘future-proof’ employment opportunities without worrying about changes in the job market. These studies suggest that 4IR presents both challenges and opportunities for the South African job market. Some challenges include A.I. and automation increasingly replacing human workers and taking over repetitive low-skilled jobs (Rapanyane & Sethole, 2020). As a result, millions risk losing their jobs (Magwentshu et al., 2019; Rapanyane & Sethole, 2020). Rapanyane & Sethole (2020) further suggested that 4IR will likely increase inequality, contributing to job market disruption.

On the contrary, researchers such as Ayinde & Kirkwood (2020) and Bughin et al. (2017) suggest that the 4IR will also bring new jobs and opportunities to compensate for destroyed ones, particularly in the fields of data analytics, cloud computing, and artificial intelligence. Furthermore, the skills required for the 4IR are diverse and multidisciplinary. They include technical skills such as programming and data analytics, as well as emotional and social skills such as creativity and communication. While opportunities for those with the right skills will arise, there are also risks. Hence, the S.A. academic institutions have a role in helping South Africans acquire the necessary skills for 4IR, and researchers such as Mkansi & Landman (2021) recommend that academic institutions prioritize STEM skills, since they are valuable in 4IR era and offer ‘future-proof’ employment opportunities.

Theoretical framework

The Readiness Diagnostic Model Framework (RDMF) was the framework reviewed to help assess the impact it is likely to have on the South African job market. RDMF was created to help countries assess their readiness for the 4IR and identify areas that need improvement are where they should focus their efforts (World Economic Forum & Kearney, 2018). The framework consists of the Drivers of Production component, which comprise drivers (shown in figure 2) that enable the country to capitalize on modern technologies (World Economic Forum & Kearney, 2018).



Figure 2 - Graphical Presentation of RDMF Drivers of Production Component (Forum & Kearney, 2018)

Technology & Innovation: Assesses the country’s readiness to adopt and work with innovative technologies in production (World Economic Forum & Kearney, 2018). Thus, showing that 4IR will primarily require technical skills. Unless South Africans are equipped with the necessary technical skills, this will significantly impact the South African job market, potentially causing mass unemployment. Bridging the skill gap will require the government and private sector to work together (Wightman, 2020) and invest in training/upskilling and education programs, especially STEM programs, as suggested by Mkansi & Landman (2021).

Human Capital: This driver assesses the country’s capability to respond to 4IR-triggered labour market changes by looking at its workforce and the long-term ability to develop the skills for the future workforce in the ‘future of work’ (World Economic Forum & Kearney, 2018). In order to benefit from 4IR technologies, it is essential to have a workforce skilled in using such technologies. Ensuring the upcoming workforce has such skills requires a shift in education and training, with a greater focus on STEM subjects, as suggested by Mkansi and Landman (2021). Investment in employee training and upskilling programs in 4IR technologies is necessary for the existing workforce.

Global Trade & Investment: Assesses a country’s contribution to international trade and how it facilitates the exchange of products, knowledge, and technology (World Economic Forum & Kearney, 2018). Information and capital flowing across borders enable South African businesses to access advanced and latest technologies; this creates opportunities for South African businesses to compete globally, but also requires that the employees have the necessary technical knowledge and skills to take advantage of these technologies.

Institutional Framework: Assess government institutions’ effectiveness in promoting technology, business, and advanced manufacturing development (World Economic Forum & Kearney, 2018). How South African businesses are regulated and the financing available will play a role in whether South Africa can adopt 4IR technologies and maintain a workforce with the necessary skills. Hence, the government will need to create an enabling environment for South Africa to flourish, including the right policies, regulations, and access to financing for businesses and academic institutions to undertake the skilling and upskilling of South Africans.

Sustainable Resources: Assess how the country’s production affects the environment, including the usage of natural resources and alternative energy sources (World Economic Forum & Kearney, 2018). The use of renewable energy sources and the efficient use of resources will become increasingly important as businesses look to reduce their environmental impact. This will create opportunities for businesses that can provide sustainable solutions. As businesses look to reduce their environmental impact, companies like Google have relied on 4IR technologies (A.I.) to help reduce energy consumption in their data centres (Bergen, 2022). Hence, South African businesses need to invest heavily in such technologies.

Demand Environment: Assesses a country’s ability to expand production by looking at foreign and local demand (World Economic Forum & Kearney, 2018). As 4IR technologies are adopted, consumer behaviour and business demands will also change. Thus, for businesses to stay relevant, they will need to adapt to these changes, from acquiring new talent with the necessary skills to upskilling the workforce with 4IR skills.

The World Economic Forum & Kearney (2018) Readiness for Future of Production report used these drivers to rank countries’ readiness for the future of production influenced by modern technologies. The report ranked South Africa as a ‘nascent’ country (shown in figure 3), and according to the report, nascent represents countries that “exhibit a low level of readiness for the future through weak performance across the Drivers of Production component” (World Economic Forum & Kearney, 2018, p. 9). Other ranks included ‘Leading’: countries that are most ready for the future, ‘Legacy’: countries with weakening drivers of production and ‘High-Potential’: countries that have a potential to grow in the future. Further, in “Technology & Innovation,” the most crucial driver in terms of 4IR, the report scored South Africa a 4.49/10, putting it in the 46th position of the top 100 countries in this driver. However, in the overall score for all drivers of production, the report scored South Africa 5.02/10, putting it in the 49th position.



Figure 3 - South Africa's rank in the "Readiness for Future of Production Report 2018."
Adapted from World Economic Forum and Kearney (2018)

This review suggests that 4IR presents both challenges and opportunities for the South African job market. Some challenges include A.I. and automation increasingly replacing human workers and taking over repetitive low-skilled jobs (Rapanyane & Sethole, 2020). As a result, millions risk losing their jobs (Magwentshu et al., 2019; Rapanyane & Sethole, 2020). Rapanyane & Sethole (2020) further suggested that 4IR will likely increase inequality, contributing to job market disruption.

On the contrary, researchers such as Ayinde & Kirkwood (2020) and Bughin et al. (2017) suggest that the 4IR will also bring new jobs and opportunities to compensate for destroyed ones, particularly in the fields of data analytics, cloud computing, and artificial intelligence. Furthermore, the skills required for the 4IR are diverse and multidisciplinary. They include technical skills such as programming and data analytics, as well as emotional and social skills such as creativity and communication.

While opportunities for those with the right skills will arise, there are also risks. Hence, the S.A. academic institutions have a role in helping South Africans acquire the necessary skills for 4IR, and researchers such as Mkansi & Landman (2021) recommend that academic institutions prioritize STEM skills, since they are valuable in 4IR era and offer 'future-proof' employment opportunities.

Based on the framework (RDMF) by the World Economic Forum & Kearney (2018), there are drivers of production that countries can use to capitalize on modern technologies. However, looking at the framework indicators and South Africa ranked as ‘nascent’ makes it clear that the job market is not yet fully prepared for 4IR, as there are significant weaknesses, such as high levels of inequality and unemployment.

Methodology

A systematic literature review was adopted in order to achieve the objectives of the study.

Eligibility criteria

In order for a study to be included in the review, a study or research article had to meet the inclusion and exclusion criteria shown in Table 1.

Table 1: Inclusion and Exclusion Criteria used in Study Selection

Inclusion criteria	Exclusion criteria
Papers published in well-established journals or institutions and available online.	Papers published in lower-quality journals or institutions, self-published papers, and papers not available online
Papers published from 2017 onwards.	Any articles published before 2017.
Papers that focus on the future of work in the context of 4IR.	Papers that do not focus on the 4IR
Papers that focus on the future of work in the South African job market context.	Papers that do not focus on the South African job market.

Search strategy and sources

The search strategy for this systematic literature review first involved searching for studies in peer-reviewed journals relevant to the research questions and objectives. In particular, the following databases were explored: Google Scholar, Science Direct, and EBSCOhost. This electronic search used a combination of keywords such as “future of work,” “fourth industrial revolution,” “employment,” “labour market,” and “South Africa.” Thesaurus was also used to identify any relevant synonyms of these keywords that other studies might have used. In addition to the studies obtained from these databases, the reference lists of these studies were also explored to find any additional relevant studies that may have been missed. Lastly, grey literature was also searched for additional relevant studies. These sources included the websites of organizations, such as the World Economic Forum, the World Intellectual Property Organization, and McKinsey Global Institute.

Selection process

The selection process of the study began with an electronic search of Google Scholar, Science Direct, and EBSCOhost databases and registers. The results returned were Google scholar (3200), Science Direct (42), and EBSCOhost (6). However, in databases that yielded more than 50 results, only the top 50 were selected. Ninety-eight studies were found, of which twelve were identified as duplicates and excluded. A total of 78 studies were then selected for a title and abstract screening, of which 68 failed the inclusion criteria (shown in Table 2)

and were excluded, and ten were selected for full-text screening. After the full-text screening process, six studies were included in the review.

The next step was to seek additional studies from grey literature sources and reference lists of relevant studies. A total of five websites were retrieved, including one book. In addition, three studies were gathered from the reference list of relevant studies. Thus, totalling nine additional pieces of literature, seven were retrieved, and two were not retrievable. Finally, the additional retrieved studies (7) were assessed for legibility and inclusion. All seven met the requirements and were included in the review. A total of six studies and seven reports were included in the review.

Literature included

This section represents the studies that were used for this systematic literature review. These studies are presented in a table format (shown in Table 2), which includes general data extracted, namely Title, Author, Year, and Source.

Table 2. Literature Included in the Systematic Literature Review

Author(s)	Year	Source	Type of Source	Method	Sample
Klaus Schwab	2017	World Economic Forum	Book	N/A	N/A
Frey & Osborne	2017	Technological Forecasting & Social Change	Journal	Quantitative	702 Occupations
Bughin et al.	2017	McKinsey Global Institute	Report	Surveys and expert opinions	3000 Senior executives
World Economic Forum & Kearney	2018	World Economic Forum	Report	Mixed-methods	100 Countries
PwC	2018	PwC	Report	Surveys	10029 workers
Magwentshu et al.	2019	McKinsey Global Institute	Report	Analysis and Surveys	70 South African leaders
Tshilidzi Marwala	2019	WIPO Magazine	Article	N/A	N/A
Ayinde & Kirkwood	2020	Business Information Review	Journal	Literature Review	N/A
Rapanyane & Sethole	2020	Contemporary Social Science	Journal	Qualitative and literature analysis	N/A
World Economic Forum	2020	World Economic Forum	Report	Mixed-methods	15 industry sectors and 26 countries
Mkansi & Landman	2021	Africa Journal of Management	Journal	Interpretive interview	Three leading company directors
Ross & Maynard	2021	Intelligent Buildings International	Journal	Descriptive methodology	N/A
Anakpo & Kollamparambil	2021	Development Southern Africa	Journal	Quantitative	10 Southern African countries

This study adopted a systematic literature review methodology. It provided a comprehensive overview of the research topic. The studies were retrieved from various database sources, including grey literature. After the comprehensive screening, using the exclusion and inclusion criteria, 13 studies were relevant to the research questions and objectives. The reviewed studies were conducted in different ways: surveys, interviews, document analysis and quantitative methods. All the studies were published in English between 2017 and 2021.

Results/Findings

This section seeks to present the findings of the systematic literature review in relation to the research questions. These results/findings are presented in a table format, which includes the author and relevant findings and the heading of the table representing the research question. Each research question has its table and all the findings related to that question. Meaning for RQ1 findings (shown in table 4), for RQ2 (shown in table 5), and for RQ3 (shown in table 6).

Table 1. RQ1 Relevant Findings from the Systematic Literature Review

What skills are required for the 4IR?	
Author	Relevant Findings
(Frey & Osborne, 2017)	<ul style="list-style-type: none"> To triumph against computerization, workers must develop social and creative skills.
(Marwala, 2019)	<ul style="list-style-type: none"> In the 4IR era, professionals will need to have skills combination of science and technology with human and social sciences
(Magwentshu et al., 2019)	<ul style="list-style-type: none"> Behavioural capabilities and skills such as communication, problem-solving and leadership are essential.
(World Economic Forum, 2020)	<ul style="list-style-type: none"> In the age of technology, skills such as complex problem-solving, critical thinking and analysis will be the most critical leading up to 2025. Greater focus must be placed on digital skills, such as those in the field of information technology and computer science.

Table 2. RQ2 Relevant Findings from the Systematic Literature Review

How will 4IR impact the South African job market?	
Author	Relevant Findings
(Frey & Osborne, 2017)	<ul style="list-style-type: none"> Jobs in transportation and logistics, including most office and administrative support work and production lines, are at risk of computerization.
(Magwentshu et al., 2019)	<ul style="list-style-type: none"> By 2030 about 3.3 million jobs could be lost due to 4IR digitization.
(World Economic Forum, 2020)	<ul style="list-style-type: none"> 43% of businesses say there are willing to cut down their workforce as they migrate to technology.
(Rapanyane & Sethole, 2020)	<ul style="list-style-type: none"> The reality of 4IR in South Africa will have a significant impact on job opportunities

Table 3. RQ3 Relevant Findings from the Systematic Literature Review

How can South Africans be equipped with the necessary skills for the 4IR?	
Author	Relevant Findings
(Ayinde & Kirkwood, 2020)	<ul style="list-style-type: none"> • A great deal of investment in learning and skills development is necessary.
(Marwala, 2019)	<ul style="list-style-type: none"> • Universities have a role to play in developing 4IR skills for the youth. • Universities need to work with businesses, so the necessary skills they require are part of the curriculum.
(Mkansi & Landman, 2021)	<ul style="list-style-type: none"> • Academic institutions, businesses, and government must work together to ensure successful skills development for South Africans.

Discussion

It is essential to understand this technological phenomenon. It constantly changes things, from how they are done to how we interact with them, blurring the line between what is reality and what is fiction. For instance, traditionally seen as different jobs will now have to merge or more or less work as one. For example, a doctor and a computer scientist may now have to work together to develop new medical treatments since advanced technologies, such as A.I. and robotics, have promising use cases in many fields.

The skills required for the 4IR are not only technical, but also social and emotional. These skills can be divided into three categories: technical, soft, and adaptability. ‘Technical or digital’ skills are those that are specific to a particular job or industry, such as computer science. These skills are often acquired through formal training and education and are required for jobs involving technology, which 4IR is all about. Followed by ‘soft’ skills, referred to as ‘human’ skills by World Economic Forum (2018), these skills are not specific to any one job or industry, such as critical thinking and analysis.

As the 4IR progress, it will become more and more important to be able to think critically and analytically. With so much data and information available, people will need to be able to go through it and understand it; this will require thinking logically, figuring out patterns, and coming to conclusions. Such skills are often related to personal attributes and interpersonal skills. They are essential for jobs that require working with people and for managing change. Then there are ‘adaptability’ skills, and these are traits that enable people to adapt to new situations and learn new skills quickly. They are essential for jobs that are likely to change in the 4IR and for people who need to be able to adapt to modern technologies. These skills are not independent of each other per se, but complement each other in a way that for someone to be successful in the 4IR era, they will need each of these skills. Hence, companies value the idea of upskilling the workforce to ensure everyone has these skills.

Looking at the job market, 4IR presents both challenges and opportunities for the South African job market. On the one hand, automation will lead to large-scale unemployment, as many jobs that machines can do will make human labour obsolete. Companies are always looking for a way to maximize profits, and automation is more than a solution; it is a double win; it not only cuts down on labour costs but also has the potential to double labour output and production. Conversely, 4IR also presents lots of opportunities to the market. For instance, jobs that require technical skills, such as software development and cyber security, will continue to be in high demand. Furthermore, there is also a possibility that 4IR will create new jobs that never existed before, as has happened historically (Manyika et al., 2017).

However, for South Africa to capture all these opportunities coming with 4IR, investment needs to be made for skills development since these opportunities will only benefit those with the right skills, and they are not many in South Africa, as stated by the former DG of DHE in the ‘Skills Supply and Demand in S.A.’ report by Asmal et al. (2020). Academic institutions must respond to 4IR as they have in past revolutions (Penprase, 2018). Hence heavy investment by the NSF in education is necessary, as South African academic institutions have a huge role to play in equipping South Africans with 4IR skills, especially the ones categorized as technical or digital. If necessary, the curriculum in science and technology will need to be changed significantly to be a “futuristic curriculum” (Olaitan, Issah, & Wayi, 2021, p. 8), and this will enable students to develop skills in rapidly emerging areas such as A.I., robotics and data science (Penprase, 2018).

Conclusion

The 4IR is upon us, and with it comes a host of new challenges and opportunities for South Africa. One of society’s most significant challenges is ensuring everyone has the knowledge and skills to participate in the 4IR; this is particularly relevant in South Africa, where the unemployment rate hovers around 34.9% (STATSSA, 2021), and many people lack the skills required for the ‘future of work’. The study’s findings showed that some of the skills for 4IR are ‘transferable skills’, namely creativity, critical thinking, and communication, meaning that they are not specific to a particular role or job function, once developed, can be applied to many jobs.

However, some digital skills, such as those in computer science and information technology, are hard to obtain. Hence, researchers such as Mkansi & Landman (2021) raised the importance of academic institutions in equipping South Africans with such 4IR skills. Furthermore, 4IR has a massive impact on the South African job market, with numerous jobs at risk of becoming obsolete due to automation and advanced technologies such as A.I. and robotics. However, new opportunities and jobs will arise, but only those with the necessary 4IR skills will rip the benefits. In conclusion, while the 4IR poses challenges, it also provides many opportunities. Those willing to adapt and learn new skills will be able to take advantage of these opportunities. The 4IR can positively change South Africa with the right approach, creating new jobs and opportunities for all.

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Cybersecurity in developing countries: A case of South African Small-Medium Enterprises (SMEs)

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Abstract

Research suggests that cybersecurity in Small-Medium Enterprises (SMEs) in South Africa, is inadequate. One of the main issues that SMEs face is that their information systems are frequently attacked and their data/information is threatened. This issue causes a negative impact not just for the SME but holistically affects the economy, as this sometimes leads to the SME being forced to shut down or financial constraints. In light of the seriousness of cybersecurity threats faced by SMEs, this study focuses on improving cybersecurity awareness of SMEs with the intention of enhancing cybersecurity in enterprises. A systematic literature review was used as the research methodology to conduct this research. This research aims to make SMEs aware of the importance of cybersecurity and the possible risks/threats they could face. The findings suggest that ransomware and malicious software are some of the most significant risks and threats that SMEs encounter today. The vulnerability of their information systems are attributes to poor infrastructure and poor finances. Cybersecurity has been identified as a major security problem, which South African SMEs face. It was also found that South Africa mainly focuses on providing cybersecurity to many large enterprises, often ignoring the cybersecurity needs of SMEs.

Keywords: Small-Medium Enterprises, Cybersecurity, South Africa

Introduction

Small-Medium Enterprises (SMEs) are considered to be a country's economic engine that makes an increasing contribution in the global economy which drives economic growth, alleviates poverty and promotes strategies for job creation, especially in developing countries like South Africa (Masocha, 2019). According to The World Bank (2023), SMEs represent around 90% of businesses and make up more than 50% of employment, worldwide. Formal SMEs form about 40% of national GDP in developing economies, and this figure is significantly greater when informal SMEs are considered (The World Bank, 2023). For this reason, research around the sustainability and cybersecurity of SMEs is vital to the success of an economy, particularly in the contemporary world (Masocha, 2019).

Given the great value that SMEs add to a country's GDP, SMEs in South Africa are highly vulnerable to all cybersecurity risks, which could harm organizational assets stored in the organization's information system. Threats can destroy the information system, which will result in the loss of assets. The risk related to cybersecurity is often planned by an attacker or a hacker who wants to control the information system or steal data from the system. Cyber risks and threats are linked to the lack of privacy and confidentiality of the data relating to the enterprise or organization (Ncubukezi, 2020).

Cybercrime has become an international matter due to the rapid improvement in technology. Parker and Brown (2018) justify that professionals in cybersecurity protection are required to work more than they usually would, and the job scope for these employees is also increasing. Cybersecurity needs to be examined in South African organizations and SMEs, globally. These organizations should be able to prevent cyber threats and risks (Parker and Brown, 2018). This study intends to make SMEs aware of the possible cybersecurity threats and risks that their information systems may face, and to alert them to the importance of cybersecurity management, so that they can protect their information systems.

The research objectives guiding this study are:

- To identify the common risks and cybersecurity threats that affects SMEs in South Africa.
- To investigate the strategies used by SMEs to examine risks and threats related to cybersecurity.
- To ascertain how SMEs can be protected from cyber-attacks.

The study further aims to enlighten SMEs on the various cyber-attacks that they can become a victim of, so that they may reduce the risks of such threats and attacks. A lack of knowledge or affordability of cybersecurity makes SMEs in South Africa most vulnerable to cyber-attacks. System damage, financial information theft, and compromised data are some of the effects resulting from cyber-attacks (Malumo, ND).

Related work

Studies have shown that SMEs in South Africa need more cybersecurity management, as developing countries are often ignorant of the various cyber-security threats that exist and the strategies that can be used to examine and prevent cyber-attacks. Nauman, Qadri, Amjad, Zikria, Afzal and Kim, (2020) have shown that many large organizations have cybersecurity management and cybersecurity protocols in place. Many organizations experience challenges that consider reputation, business operations, compliance, and financial matters in the context of cybersecurity. These cybersecurity attacks drastically affect organizations (Nauman et al., 2020). SMEs contribute significantly to the South African economy and the business sector. They also bring in many job opportunities and resolve business-related issues. SMEs have a few employees compared to large enterprises, but are still susceptible to cyber-attacks.

Recent organization breaches in South Africa

According to Seacom (2022), over the past two years, there has been a staggering 80% increase in ransomware attacks in South African organizations. The country is increasingly suffering from cybercrime in terms of lost revenue and productivity. Enterprises need to pay attention to cyber protection after the many ransomware attacks were reported in the first half of 2021 in South Africa (Seacom, 2022).

Seacom (2022) describes several cyberattacks, and these are, the electricity supplier for Johannesburg, City Power, was targeted by ransomware in 2019. Due to the attack, prepaid electricity was unavailable to a quarter million residents. Malware crippled Transnet in 2021. A massive attack disrupted the logistics company's supply chain, which resulted in trucks and ships not being processed. Several devices connected to Transnet's network needed to be

shut down. Malware spreading laterally into other vital systems raised concerns (Seacom, 2022).

An attack on Transunion in South Africa that compromised four terabytes of data resulted in cybercriminals demanding R225 million in ransom. During the March 2022 attack, 54 million personal information records were compromised (Seacom, 2022). A targeted ransomware attack on critical infrastructure can also affect crucial infrastructure in South Africa, where it occurred the most in the first quarter of this year. Two hundred and ninety-nine million email threats were detected in South Africa. A large number of ransomware attacks were also launched against South Africa, as well as attempts to compromise business email accounts (BECs) (Dolley, 2021).

Recently, a ransomware attack occurred at the Justice and Constitutional Development Department, affecting all electronic services provided by the department, including e-mail and the department's website. The department was also affected by this attack (Moyo, 2021).

SMEs in South Africa

SMEs are businesses that contain assets, personnel, and revenues. A small and medium-sized firm (SME) is defined according to countries globally. Specific requirements like size should be fulfilled, and the field in which the enterprise operates will also be considered. Liberto (2020) claims that despite their small size, (SMEs) is significant for a country's economic development. They outnumber many firms, employ a large workforce, and are often innovative, contributing to how innovation is shaped (Liberto, 2020). Kalidas (2020) suggests that SMEs are accountable for almost 98% of the business sector in South Africa, employing approximately 50 - 60% of the country's employees throughout all industries, and these also account for a fraction of the private business sector's employment growth. South Africa's SMEs contribution is less to GDP than other regions (39% vs. 57% in the EU), and there is a slight doubt that these industries form part of the economic engine (Kalidas, 2020).

Cybersecurity in South Africa

Belli (2021) speaks of the South African government's significant concern about cyber threats. The government acknowledges that security breaches and mitigation have individual, governmental, and international implications. While also ICT systems are implemented, like E-education, E-commerce, E-health, and E-government, these are viewed as improvement enablers. Participants are indeed susceptible to the dangers that come with the commitment of technology, most notably widespread cyber criminality (Belli, 2021).

Cybersecurity threats

An increasing number of cyber threats suggests that security policies must consider incomplete information about potential threats or efforts out of proportion to the organization's size. Armenia, Angelini, Nonino, Palombi and Schlitzer, (2021) states that studies have already been conducted on cyber risk management and allocating a solid budget related to cybersecurity defence as a risk mitigation measure. They have shown that evaluating cybersecurity risks and planning for functional investments is already widely understood (Armenia et al., 2021). The main threats of cybersecurity include physical threats, human threats, communication and data threats, and active threats. These are the most common threats that occur when handling an information system. The attacker will use these

forms to try and get information or damage the data stored in the information system (Belli, 2021).

Cybersecurity measures for SMEs

South Africa has the NCPF, which includes a cybersecurity hub that is one of its critical components. This was created to complete audits, exercises, and cybersecurity assessments. According to Belli (2021), cybersecurity protection methods should include the following:

- Computer Security Incident Response Team (CSIRT) Membership - This membership can correct cybersecurity weaknesses. CSIRT can prevent threats from spreading. Organizations should continue working together due to fear of losing trust, as many organizations are reluctant to report cybersecurity breaches. It promotes the spread of a threat from one establishment to another (Belli, 2021).
- Awareness training concerning cybersecurity: South African SMEs need to gain cybersecurity awareness. These enterprises need to be made aware of cybersecurity and what happens to their systems. It is an excellent decision to alert all organizations of cybersecurity issues. One of the most significant challenges facing the South African economy is the need for more awareness about the threats available. The IT department often assumes cybersecurity awareness responsibilities, and a weakness in one department can harm another (Belli, 2021).
- Staff should be upskilled - A training program to alert company employees is an excellent way to promote cybersecurity awareness. These training programs will help employees understand how to prevent cybersecurity attacks and counteract these attacks and threats. This study indicated that, regarding information security training, 61% of businesses surveyed used in-house training, 8% used external vendors, and another 4% used affiliated organizations. 10% provided no cybersecurity training. Companies should understand and deliver targeted training on personalized staff members' needs to ensure high worker productivity. According to this metric, 27% of institutions offered novice training, 25% provided blended training programs, 19% provided intermediate training, and only 5% provided advanced training (Belli, 2021).
- Threat actors and targets should be identified - Since the greatest threat to the enterprise is its employees, data can be stolen for fraudulent purposes, and the company is most vulnerable to data theft. If any organization is to implement an effective cybersecurity response mechanism, it needs to identify and comprehend the types of threats it faces and the threat actors. As per the cybersecurity preparation report from this study, staff members (69%) and perpetrators (64%), including both, pose a large percentage of threats to South African enterprises (Belli, 2021).
- Performing risk assessments frequently - Risk assessments should be performed often as this can help the organization to understand if the system is being compromised and what methods can be put in place to remove these threats. Results of this study show that over a third of organizations (36%) conduct risk assessments yearly, and 20% do more frequent inspections than once a year. Additionally, 14

percent of the businesses needed clarification when risk assessments were performed, and four percent of companies did not achieve them. An organization must determine the frequency appropriate to its needs to conduct risk assessments. Furthermore, the organization's risk appetite will determine risk assessment frequency (Belli, 2021).

Cybersecurity frameworks

The NIST Framework

According to Brook (2018) there are several reasons for using the NIST as the framework is used across the globe as this framework assists in developing various protection measures for information systems and organizations. This NIST framework can address all principles that concern protection and security. There are presently significant contrasts in how organizations utilize advancements, dialects, and rules to battle programmers, information privateers, and ransomware. Cyberattacks are becoming more inescapable and complex, making it considerably harder to battle these assaults (Brook, 2018).

The ISO Framework

ISO/IEC 27000 is the farthest and most comprehensive series of security evaluation and affirmation principles (ISO/IEC 27000 2018). A few of the security controls proposed by the norms in this series are material information. Verdugo and Rodríguez (2020) suggest that the ISO/IEC 27000 guarantees the board frameworks' data security (in light of the Deming PDCA cycle). However, it does not explicitly address the assessment and accreditation of information security (Verdugo & Rodríguez, 2020). ISO/IEC 27001 is presumably a very famous framework, the third inescapable ISO affirmation worldwide, after ISO 9001 and ISO 14001 (ISO, 2019). The standard had been planned and distributed together by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) in 2005 as a development of BS 7799 (Culot, Nassimbeni, Podrecca and Sartor, 2021).

NIST relating to cybersecurity in SMEs

Cruzado, Rodriguez-Baca, Huanca-López and Acuña-Salinas (2022) explain how NIST presented the Cybersecurity Framework, which proposes a gamble-based way to oversee network protection chances and comprises the reference report for the US public system for online protection risk the board. It spotlights the NIST structure as it is utilized as the structure square of the philosophy. It comprises three sections: centre, levels, and profiles.

According to Cruzado et al. (2022), the NIST (National Institute of Standards and Technology) suggests organizations of various sizes oversee and alleviate risks and threats connected with cybersecurity. NIST will be able to limit the access given to all enterprise employees relating to information. NIST will assist in training all employees when doing cybersecurity training. Policies and procedures can be created for the information system from NIST (Cruzado et al., 2022).

ISO relating to cybersecurity in SMEs

Renvall (2018) suggests that SMEs' security arrangements cautiously cover requests for information and exertion. An essential supposition among the clients is that data is protected from unapproved use. Improvement and keeping up with data security strategy are more

straightforward with a coordinated approach with data security norms. ISO/IEC 27001 data security standard is an efficient and helpful norm for various SMEs worldwide. ISO/IEC 27001's adaptability makes it famous among organizations (Renvall, 2018). That adaptability makes it workable for tiny SMEs to get valuable data without costs and simultaneously standard backing ventures to fabricate enormous-scope ISMS. SMEs practice progressively business around the world. When organizations need to ensure that data is protected, a few structures are prescribed for use (Renvall, 2018).

Comparing NIST to ISO

According to Cruzado et al. (2022), the reference structure and the standard related to data security or potential network protection contain many measures that permit dealing with the different data frameworks. Reciprocity (2019) explains that NIST provides more security and control over security, driven by various organizations that facilitate cybersecurity practices concerning federal systems. ISO is more focused and less technical concerning risk. Figure 1 shows a comparison of NIST to ISO done by Cruzado et al. (2022).

Criteria	Frameworks, Standards			
	NIST	ISO 27002	ISO 27032	ISO 27001
Security Policies and Procedures	X	X		X
CID safeguard	X	X	X	X
Incident management	X	X	X	X
Resource management				X
Risk management	X			X
Attacks			X	
Internet security	X	X	X	X
Continuous improvement	X	X	X	X
Malicious code			X	X
Transfer of information	X	X	X	X
Mobile devices				X
Infrastructure management	X			

Figure - 1 Comparing NIST to ISO (Cruzado et al., 2022)

Critical analysis

Rae and Patel (2019) proposes that more modest organizations would not attempt the more enormous layout guidelines, for example, ISO 27001. It also revealed difficulties related to mentalities and mindfulness, such as a lack of interior skills or an understanding of the hazards associated with not having one in place; the cost and complexity of implementing the standard; SMEs viewed ISO27001 as suitable for just more significant associations.

Many SMEs supported 70 cybersecurity readiness exercises within the significant five elements of the National Institute of Standards and Technology (NIST) cybersecurity framework to evaluate SMEs' degrees relating to cybersecurity readiness (Eilts, 2020). The framework selected for this research project is the NIST framework. various researchers like Reciprocity (2019), Roy (2020), and Gordon, Loeb and Zhou (2020) have used NIST and ISO the most compared to any other cybersecurity framework. Many organizations use ISO,

but it was built to help larger organizations, although SMEs could use it. The NIST framework will provide more significant assistance in cyber risk management and prevention of risks and threats in SMEs.

Research methodology

This research was conducted using a systematic literature review. The systematic literature review aims to collect evidence that has already been collected and does already exist relating to cybersecurity in South African SMEs. This evidence will help achieve the research objectives and answer the research questions. This study also performed a critical analysis, while Indeed Editorial Team (2022) says that in critical analysis, ideas or works of another researcher are carefully examined and evaluated. The work is interpreted and analysed by breaking it down and studying its constituent parts. As a result, it is subjective writing of many studies to decide the best way to answer the research questions created.

According to Melnikovas (2018), this methodology includes interpretivism philosophy that interprets previous studies and has an induction approach. The systematic literature review picked as a methodology is a qualitative study that provides qualitative data. Previous articles and papers will be used to conduct a systematic literature review. The research methodology used in this study was adopted from Qasem et al. (2019). This research methodology contains four phases, each of which has stages within them. The first phase consists of the search strategy and the research questions. This creates a companion to any existing research's extensive theoretical questions. After selecting the data, the next step was to sort it and extrapolate it. Data collection and refinement form this exercise in data processing. The third stage, extraction, evaluates the data by applying rigorous assessment criteria to the data. The fourth stage involves synthesizing data, which involves a structured analysis of data by step.

This study targets South African SMEs the most. Smaller organizations have been used and the survey is used to understand the cybersecurity's importance and why it is needed in every organization.

Data analysis and findings

For the research questions, the researcher gathered 30 papers. For research question 1, the researcher found ten papers in which valuable information was included; however, after further analysis, three articles were excluded as there was no relevant information to be extracted from those papers. For research question 2, the researcher found ten papers in which helpful information was formed; however, after further investigation, five papers were excluded as there was no relevant information to be extracted from those papers. For research question 3, the researcher found ten articles in which valuable information was included; however, after further analysis, four papers were excluded as there was no relevant information to be extracted from those papers.

Commons risks and cybersecurity threats

All organizations are affected by cyber risk. Firewalls and passwords have traditionally been used to protect against cyber threats. This tool's costs and benefits have not been quantified until recently (Pate-Cornell and Kuypers, 2021). According to Pate-Cornell and Kuypers (2021), the prominent cyberattacks include:

- Data spillage means unauthorized access to sensitive information, such as the accidental disclosure of social security numbers in an email.
- Malicious email: email-based attacks infect a user's machine with malware, such as "phishing" emails or attachments to emails with malware.
- Lost or stolen devices, including laptops, tablets, phones, and other hardware. The type, contents, and encryption level of a device determine the level of investigation necessary for different incidents.
- An organization may experience website incidents when attacks such as website defacements, SQL injections, and server compromises may exploit its websites.
- Web browsing and USB incidents: A user may accidentally download malware when visiting a compromised website or using a USB device.
- Another type of incident would be the denial-of-service attack and the insider attack.

Alahmari and Duncan (2020) suggest that the information systems of SMEs are usually at risk of cyberattacks, such as data breaches, data destruction, and refusal to let them access data. These attacks may negatively impact several activities of the company. Although SMEs do not use adequate security measures, there is evidence that they underestimate cyber threats. Spamming and piracy are the main cybercrimes accompanied by botnets and malicious code that can be worms and trojans. Phishing is one of the most dangerous cybercrimes, as users often click on links or open spam emails when they are not supposed to (Du Toit, Hadebe and Mphatheni., 2018). According to (Du Toit et al., 2018), a significant cyberattack is done through malicious software, also known as malware.

Haddad and Binder (2019) believe that the most significant risks and threats are hacker attacks and ransomware attacks. White, Allen, Samuel, Abdullah and Thomas (2020) also agree that ransomware and phishing via spam emails are one of SMEs' most significant threats to cybersecurity. Tam, Rao and Hall (2021) mentions the term 'formjacking'. Using malicious JavaScript code to compromise checkout pages of online stores. Formjacking involves stealing credit card details and other details from payment forms (Tam et al., 2021). In one study, open-source intrusion detection systems, such as SNORT and pfSense, were compared with Commercial Network Intrusion Detection systems, such as Cisco, based on the threat levels of attacks, including Ransomware, Phishing, Malware, and Social Engineering (Wylde, Rawindaran, Lawrence, Balasubramanian, Prakash, Jayal, Khan, Hewage and Platts, 2022). The outcome of this was that Commercial Network Intrusion Detection Systems are the better option.

Strategies used to examine cyber risks and threats in SMEs

Benz and Chatterjee (2020) presented a methodology that builds upon the National Institute of Standards and Technology's (NIST) cybersecurity framework (CSF). A helpful evaluation and recommendation system can be developed using the NIST CSF, even though it may not meet all the security needs of SME IT leaders. Cybersecurity activities, risk profiles, business objectives, and goals for enhancing cybersecurity can all be described in a common language in the NIST CSF.

The existing cybersecurity vulnerabilities assessment tools were developed according to policies and standards set by organizations such as the Energy Department and the National Institute of Standards and Technology (NIST). Owners and operators often use frameworks

such as the cyber capability maturity model (C2M2) and the NIST Cybersecurity Framework (CSF) to determine the cybersecurity maturity of critical infrastructure facilities (Gourisetti, Mylrea and Patangia, 2020). Threats and breaches in cyber/information security are dealt with by Cyber Security Frameworks and ISO 27001 methodologies. Both of these methodologies can be implemented and achieve excellent results when dealing with security, in all likelihood and reality.

In either case, confidentiality, integrity, and availability are the three pillars they strive to maintain. Information Security Management Systems (ISMSs) can be built using guidelines, policies, and procedures provided by ISO 27001 and NIST CSF. Other approaches can be supplemented with these guidelines, including ISO 27002 (implementing controls), ISO 27004 (metrics), and ISO 27005 (risk management) (Roy, 2020). It is concerning to note that ISO/SAE 21434 only lays out what must be done without defining HOW this must be accomplished. At the beginning of the product development process, ISO/SAE 21434 will require the creation of a cybersecurity concept. This is intended to ensure functionality and security from the start (Japs, 2021).

It has become widely accepted that organizations should manage cybersecurity risks following the NIST Cybersecurity Framework.

As a significant feature of the NIST Cybersecurity Framework, it explicitly recognizes that managing cybersecurity risk is an organization-specific activity. A cost-benefit analysis should also be performed by organizations when managing cybersecurity risks. However, cost-benefit analysis guidance is not provided in the NIST Framework (Gordon et al., 2020).

Protection against cyberattacks in SMEs

Access Control Lists (ACLs), smart cards, network authentication, antivirus software, and file integrity auditing software are some of the most frequently used technical controls. Approximately 7% of SMEs do not have any technical or logical controls in terms of security risks (Pawar and Palivela, 2022).

According to Pawar and Palivela (2022), these controls include disaster preparedness and disaster recovery plans, recruitment of personnel until their resignations, separation of duties, and many others. Standards establish minimum requirements based on the organization's security policies, while policies set a set of broad principles. Generally, the little need for assessing if an employee is qualified for security clearance is securing their laptops or desktops while away.

de Vicente Mohino et al. (2021) suggest the GEIGER platform which was created by him and his team in 2021, this can protect, detect, and make users aware of cybersecurity risks and threats. SMEs can use GEIGER to strengthen their cybersecurity. As part of the GEIGER program, users are protected, assured of their rights, and trained. The program is designed to be implemented with no disruption to company operations. GEIGER offers a variety of possibilities (de Vicente Mohino et al., 2021).

The following are some of GEIGER's objectives:

- Educate platform users on cybersecurity. Users may need to be aware of the risks and threats they face every turn due to a lack of awareness.
- Assist and manage Mid-Size Enterprises (MSEs) in protecting their privacy, which has become increasingly crucial as third parties handle more and more information.
- Training in cybersecurity at different levels can be delivered to the users. Providing cybersecurity solutions is also a part of this process.
- Ensure that the MSE is protected at a high level. Users are more aware of the GEIGER Indicator because it provides timely, up-to-date information.
- Maintained business operations with minimal disruption during integration and deployment.
- Inform the organization about the current level of business risk and other threats, vulnerabilities, and cyber-attacks (Ncubekezi, 2020).

Ahmed and Nanath (2021) explored how SMEs in the Middle East seek their setup and solution options. The findings indicated that there was no clear majority in the submitted list. Next-generation endpoint security, firewalls, email security, encryption, network access controls, vulnerability management, cloud security, network performance monitoring, password management, and data leakage prevention were all on the list. This supports merchants' claims of delivering an all-in-one solution rather than shaming each provider for distinct requirements. Every vendor would need help matching consumer requests over various options.

To maintain excellent cybersecurity hygiene, align and adhere to the NIST cybersecurity framework. The fundamental goal of the NIST Framework is to offer a formal structure for companies to enhance methods of preventing, detecting, and responding to different cyber disasters. The NIST framework is divided into five key roles and categories: identifying, detecting, protecting, responding to, and recovering from cyber threats (Ncubekezi et al., 2020). They also suggest that hygiene poses a significant risk to enterprises and the same is true for the need for best practices to maintain excellent cyber health. They further discuss the following:

- Defending against all cyberattacks and dangers related to external and internal suppliers.
- Threat identification and mitigation.
- Sorting and categorizing corporate assets and services
- Reacting to possible threats by developing an appropriate reaction strategy.
- Providing cybersecurity training and instruction.
- Establishing continuous network monitoring and access control that accommodates various user rights.
- Having consistent setups will aid in data protection and recovery.
- Keeping an eye on cyber risks (Ncubekezi et al., 2020).

Ncubekezi (2022) explains that when questioned about security precautions in their firms, participants said they use passwords to secure critical information and resources. On the other hand, passwords are ineffectual unless they are periodically changed and fulfil accepted password parameters. Weak passwords create a significant security flaw in the

system. Firewalls identify information security risks that attempt to enter the system. Ncubukezi (2022) maintains that businesses should use cloud storage as a safe backup solution because cloud storage has a high degree of security, which increases the security and safety of information. The aim is to back up data based on the needs of each organization, mainly free cloud storage, which will most likely suit the demands of small businesses (Ncubukezi, 2022).

NIST's cybersecurity framework serves as the U.S. government policy framework for evaluating and improving the capacity of organizations to prevent, detect, and respond to cyberattacks. Still, it can be used in South African organizations as well. It provides computer security guidance, best practices, and standard practices. Frameworks define methods for managing cyber risks. To meet the needs of all business sectors, NIST offers a cybersecurity program that is broader in scope and balanced. Identify, Protect, Detect, Responding, and Recover constitute the framework, which works through five concurrent and continuous functions (Ncubukezi, 2020).

Conclusion

This study makes an original contribution, as it uses a systematic literature review to examine cybersecurity threats, measures and frameworks in a South African context. The study examines how cybersecurity may be managed by SMEs, as well as the cybersecurity needs of South African SMEs. It discusses theoretical frameworks that may be used by SMEs as a cybersecurity protection mechanism. This paper also consisted of a literature review that was previously written but summarized. Later, a research methodology was discussed, as the different phases of finding data and how it will be analyzed. The threats and risks in cybersecurity were discussed by taking information from different researchers and their articles. Strategies were also examined relating to how risks and threats could be monitored in SMEs.

This research aims to make SMEs aware of the importance of cybersecurity and what risks and threats they may face; the paper went in-depth about SMEs and the protection they require. This paper discussed three research questions, which were also answered using a systematic literature review format. The findings from others' research were discussed, as well as concluded. This study consisted of certain limitations that were handled well. The results of this study showed how SMEs could protect their information systems and the different risks and threats SMEs can face. SMEs must be educated on cybersecurity and what is required to keep their systems safe.

Recommendations and future work

SMEs are a major contributor to South Africa's GDP, and cyber threats are continuously evolving, therefore SMEs should take all precautions to prevent cybersecurity breaches and vulnerabilities to prevent cyber-attacks. Some vital precautions include, but not limited to, employee training on e-commerce technology in addition the implementation of strong policy and regulations.

Future empirical studies may be carried out involving various users of technology within SMEs. Comparative studies may also be carried out in other countries, both, in the developing and developed worlds.

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Evaluating citizen satisfaction of Southern Africa electronic government information services

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Abstract

Despite the introduction of electronic government services in Africa, some citizens still prefer to visit government offices in person for personal reasons. This article proposes appropriate criteria for assessing citizen satisfaction with the electronic government information services provided by the Southern African Development Community (SADC) governments. The electronic government services provided by SADC countries have so far been assessed through the government portals. An electronic government satisfaction model was created using an indiscriminate method that employs interactive quality proxies. The data was collected from 364 people from the selected SADC countries. The Partial Least Squares (PLS) structural modeling tool was used to predict the factors that significantly increase citizen satisfaction with the electronic government information services provided across the SADC governments. The resulting global model has a high goodness of fit of 0.62 and a model predictive power of 0.60. According to the findings of this study, perceived quality is the most important factor influencing citizen satisfaction with electronic government information services, followed by citizen complaint management and, finally, citizen expectation.

Keywords: Citizen Satisfaction; Government Service; Information Service; Southern Africa; Structural Model

Introduction

Since the introduction of digital platforms governments in different nations have introduced the use of this technology to improve service delivery to its citizens. According to Siyavizva, Munuhwa et al. (2022) stated that all government institutions The main purpose of any government embracing e-government is to provide its citizens with necessary basic services to enhance transparency, efficiency, and accountability (Siyavizva, Munuhwa et al. 2022) and Africa is not an exception. Electronic government is typically connected with the use of Information and Communication Technology (ICT) to improve government service delivery, such as Web 2.0, cloud computing, grid computing, and mobile web services. These technologies support efficient and successful governance, make government services more accessible to the general people, and allow the government to be more accountable to citizens (Morris 2008, Zhao 2010, Sigwejo and Pather 2016, Maharaj and Munyoka 2019, Mishra and Geleta 2020). As a result, many governments around the world are putting up efforts to provide their citizens with high-quality electronic government services (Onyanha 2007,

Fröhlich 2019). The goal of this study is to identify elements that affect citizen satisfaction with SADC electronic government information services.

To further develop the SADC region, the countries involved met in Namibia in 1992 and signed the 'Windhoek Treaty.' The original goal of the treaty was to establish standards for resolving political disputes. The 'Windhoek Treaty' became the fundamental foundation for the regional economy and development, which the region improved over time (Tafese 2014). Among its other principles and objectives, one of the pact's main missions was to promote technological mastery, development, and transfer both within and outside the region (Tafese 2014). Africa cannot continue to underperform, according to Markowitz (2019), and the adoption of new technology will offer sustainable productivity and economic growth. Policymakers will utilize this knowledge to chart a way forward. The most effective technique to establish working policies for policymaking is to determine how citizens experience the present technologies in use. The six English-speaking SADC countries included in this study are Zimbabwe, South Africa, Namibia, Botswana, Tanzania, and Lesotho.

Electronic government services which are hosted on government portals were examined in this study. Due to a shortage of infrastructure, low economic growth, low literacy rates, and cultural considerations, African countries show a limit in the ICT required for electronic government services as compared to other parts of the world (Mukumbareza, Olugbara et al. 2022). Despite these flaws, several African countries, notably SADC countries, have made significant progress in the deployment of electronic government (Mutula 2008, Rorissa and Demissie 2010, Fröhlich 2019). In the SADC area, electronic government projects have lately accelerated, with countries like South Africa, Botswana, Mauritius, and Seychelles leading the way in the delivery of electronic government services (Mutula 2008, Bhattacharjee and Sanford 2009, Bwalya and Healy 2010, Okike and Lobadi 2019). Several scholars examined the websites of SADC nations and discovered that all of them have electronic government and that most of them are in the second stage of electronic government Namibia (Fröhlich 2019), Zambia (Munyoka 2020), South Africa (Korsten 2005, Sigwejo and Pather 2016), Zimbabwe (Kilpin, Sainidis et al. 2023) and Mauritius (Okike and Lobadi 2019, Sanmukhiya 2019).

E-governance, like any other organization, includes new ways of contacting governments, new business strategies, new leadership styles, and new systems of organizing and providing information and services (Finger and Pécoud 2003, Rorissa and Demissie 2010, Correa Ospina and Díaz Pinzón 2018). The electronic government also refers to how well government information is delivered online via the Internet or other comparable technologies (Shareef et al., 2011). When measuring citizen satisfaction, the quality factor gives crucial information on the order of services, which includes electronic services (e-services) (Hewett 1999, Jinhua, Yong et al. 2010). Consumers of e-services expect to access and quality factors such as user satisfaction and service quality to be satisfied with citizen-focused electronic government services. This study presents unique research into the development of a citizen satisfaction measuring model for assessing public satisfaction with electronic government information services. Six English-speaking countries in the Southern African Development Community (SADC) always expect a functioning system; they also want the system to give what they want and meet their expectations (Mishra and Geleta 2020).

Citizenship satisfaction is measured using characteristics such as accuracy, completeness, relevance, and conciseness, (Kaisara and Pather 2011). These traits are regarded as significant aspects in attracting large citizen investment and loyalty to the electronic government and must be evaluated. According to Korsten (2005), the provision of comprehensive and updated content is a critical component of efficient electronic government. As noted on various government portals, government services are also “classified as services for citizens, such as health, services for organizations, for example, corporation registration or deregistration, municipal services, and services for foreign nationals like permanent residence (Chen 2002).”

The main goal of electronic government is to offer digital information services that allow citizens to participate in government activities in large numbers. Citizens use government websites to find relevant government information or to complete transactions like database access, online registration, form downloads, online application, online complaints, government contact information, vacancies, government news, department calendar of upcoming events, call for tenders, site map and links to related or useful sites (Wang, Bretschneider et al. 2005).

Researchers can use citizen satisfaction with electronic government services to develop realistic citizen requirements and expectations, as well as learn how individuals view their electronic government service experience (Gu, Meng et al. 2023). These features aid researchers in identifying characteristics that influence citizen satisfaction with electronic government and assist government web designers and governments in determining what adjustments to be made during government portal maintenance. This knowledge aids in identifying key aspects that influence citizen happiness and e-service quality in general (Nookhao and Kiattisin 2023).

The approach for evaluating citizen satisfaction with electronic government services included a series of processes, beginning with determining the characteristics considered relevant for reaching levels of public satisfaction with electronic government information services. This study used the Partial Least Squares (PLS) method and an electronic government-citizen satisfaction index (CSI) model to determine the criticality of components. CSIs and service quality measures have proven to be effective in assessing customer satisfaction (Xue 2008).

Over the years, many studies on electronic government have been conducted in individual SADC nations, but no evaluation has been conducted at the regional level. The SADC regional countries have been given the mandate to strive toward achieving the goals set out in a series of meetings and treaties. Developing the use of technology to improve citizen livelihood is one of the goals. As a result, the purpose of this study is to establish the characteristics that influence citizen satisfaction with electronic government information services in the SADC region. These characteristics will help policymakers understand public expectations and contribute to the SADC's work plan for assisting citizens in making use of electronic government.

Related work

Citizen satisfaction with electronic government information services is covered in this review, which contains ideas, concepts, models, and factors. The goal is to lead the process of reaching the research's goals systematically. Electronic government is described as the distribution of government-related information and services to citizens, employees, corporate affiliates, and other government bodies via the Internet or other digital means (Zhao 2010). Information, transaction procedures, and interactive items are mostly supplied through government portals in electronic government (Jinhua, Yong et al. 2010). Every government's goal is to expose citizens to more comprehensive, relevant, and expedient services (Maharaj and Munyoka 2019). This can be efficiently accomplished by evaluating the quality of electronic government services from the perspective of citizens. Electronic government is thought to have the potential to change the connection between citizens and government in this way (Zhao 2010).

Electronic government services focused on citizens

The quality component must be included in the measurement of citizen satisfaction to provide crucial information about the quality of services (Wilkin and Hewitt 1999, Verkijika and De Wet 2018, Nookhao and Kiattisin 2023). As a result, little study has been done on the factors that influence an electronic government evaluation index. Electronic government is a form of e-service that is unique. All interactive services can be distributed via the Internet engaging advanced multi-media technologies, telecommunications, and information, referred to as e-services (Al-Kaseasbeh, Harada et al. 2019). The concept of e-service quality refers to how well a website expedites the distribution of e-services. When nationals have access to high-quality e-services, they will realize the advantages of using the internet.

Papadomichelaki and Mentzas (2012) define service quality as the direction and level of consistency between consumers' expectations and perceptions. The discrepancy between the prospects of consumers for service functionality before using a service and their assessment of the service provided is also known as service quality (Connolly 2008). As a result, perceived service quality can be outlined as the distinction between a customer's anticipations and perceptions. When individuals' expectations about the services provided are met in an electronic government context, quality can be realized.

If security, communication, trust, design, access, and site aesthetics are not addressed, the quality of electronic government information services might be jeopardized, causing citizens to be unwilling to utilize them (Kaisara and Pather 2011, Munyoka 2020). The extent to which an electronic government website allows businesses, citizens, or agencies to complete their governmental transactions is referred to as electronic government service quality. When the quality of electronic government services progresses, so does the efficiency of government, and citizens are satisfied.

Citizens are more inclined to trust electronic government services that meet their demands, are citizen-centric, and respond quickly (Munyoka 2020). Citizens who are satisfied with the electronic government are more likely to trust it, and they prefer to use digital services over traditional methods such as mail or counter. Apart from the aforementioned important areas of electronic government service quality assessment, Halaris, Magoutas et al. (2007) provided an overview of quality assessment layers as (a) Customer satisfaction - deals with

citizens' perceptions of quality comparison to their prospects. (b) Site quality - this refers to the serviceability and interface aspects of a website. Technical performance - the technical aspects of websites. (d) Process performance - characteristics of traditional government services that are often associated with quality.

Models of electronic government satisfaction

Many models, like SITEQUAL, SERVQUAL, EGOVSAT, ATIS, ISO/IEC 9126, and electronic government-citizen satisfaction indices or models like g-CSI Taiwan, EUSI, eGov-ACSI, can be used to quantify citizen satisfaction with electronic government information services. As a background to the selection of the evaluation criteria, some of these frameworks and aspects of citizen satisfaction with electronic government information services and electronic government services will be explored.

Initially, public sector quality was given less weight than in the private sector. The model SERVQUAL has been used to assess service quality in several industries and organizations; however, the basic SERVQUAL aspects of reliability, tangibles, assurance, responsiveness, and empathy remain (Parasuraman 1985, Raza, Umer et al. 2020). Due to the variations in ways of calculating service quality in electronic government and the physical market, SERVQUAL was mostly employed in physical market services. It was necessary to reformulate scale items for them to be used in the context of online government, and this included some technological dimensions (Alanezi, Mahmood et al. 2011).

The electronic service quality (e-SQ) development with dimensions from the customer's or provider's point of view was one of SERVQUAL's progeny. E-SQ considers, graphic style, information availability, and content, privacy or security, simplicity of use or usability, and reliability or fulfillment when determining service quality (Zeithaml 1987, Alanezi, Mahmood et al. 2011, Papadomichelaki and Mentzas 2012, Raza, Umer et al. 2020). Another regularly used scale to assess e-service quality is Site Quality (SITEQUAL). The scale claims that the ease of use, aesthetics, processing speed, and interactive response of online services may all be measured. SITEQUAL, on the other hand, is unable to assess the service quality of websites (Connolly 2008). Another widely used methodology for evaluating e-service quality is E-S-QUAL. E-S-QUAL (e-service quality) is a set of 22 criteria based on four dimensions: fulfillment, efficiency, privacy, and system availability. Since the quality standards for e-commerce and electronic government cannot be identical, measuring electronic government service quality is not the same as measuring electronic service quality for other domains like electronic commerce. This sparked the development of e-government quality (e-GovQual), a refinement of SERVQUAL models specifically built for the electronic government context (Papadomichelaki and Mentzas 2012).

The Swedish customer satisfaction barometer (SCSB) concept was used to create ACSI in 1994 (Cronbach 1951, Johnson, Gustafsson et al. 2001). ACSI permits government bodies to monitor citizen satisfaction and the quality of their services over periods (Sheibani and Fariborzi 2011, Noor 2020). Citizens' perceptions of electronic government information services are referred to as ACSI. Content, look and feel navigation, functionality, site performance, and search are all important aspects of electronic government satisfaction (Sheibani and Fariborzi 2011). With over 300,000 surveys performed in the first quarter of 2011, the ACSI model is one of the most exhaustive and representative representations of

citizen experience with government websites in the United States of America (Freed 2011). The egov-ACSI model, which has been around since 2006, is the most well-known in this category (Freed 2011, Noor 2020). It can be used to evaluate approximately 90 online electronic government services each quarter, which are divided into four categories: transactions or e-commerce, news or information, portals or departments, recruitment, and carriers (Halaris, Magoutas et al. 2007).

Citizen Satisfaction Index for electronic government (CSI)

As discussed in the preceding sections, there are several approaches and models for measuring citizen satisfaction, and CSI is one of them. To calculate overall satisfaction, CSI techniques identify important factors of satisfaction and summarize their relationships. The original CSI models were updated for the electronic government context for citizen satisfaction with electronic government information services assessment. Such models as the government customer satisfaction index (g-CSI), the European user satisfaction index (EUSI), and the electronic government customer satisfaction index (egov-ACSI) emerged because of this evolution (Fornell, Johnson et al. 1996). Accessibility, ease of transaction, information correctness, transparency, cost of services, interactivity, kindness, and expertise, and are all quality dimensions in these models. The concept of cumulative satisfaction was used to build citizen satisfaction indexes.

The g-CSI was created expressly to assess electronic government service quality satisfaction to address the shortcomings of the original CSI for the electronic government (Kim, Im et al. 2005). The advent of g-CSI was a response to the issues with the previous CSIs not being specifically tailored to electronic government (Kim, Im et al. 2005, Al-Ammary, Al-Kaabi et al. 2017). It's also known as the Korean g-CSI, and it's based on the ACSI concept, so there are a lot of parallels. The ACSI paradigm was unable to accommodate or consider the online environment. The purpose of introducing g-CSI was to create results for electronic government assessment that would extend management's mind to provide citizen-focused services and permit management to render economically viable service quality. The g-CSI ignores or ignores two aspects that are irrelevant to the electronic government environment: perceived value and consumer loyalty. Perceived quality is linked to other related government operations (Kithandi and Ambale , Kim, Im et al. 2005).

In this model, the quality factors for citizen service are information correctness, information ease, and cost of service, as well as expertise and kindness. G-CSI assists in predicting how an improvement in citizen satisfaction may inform citizens' imminent conduct (referrals to the site and return visits). The latent variables in G-CSI include cause and effect linkages, which comprise manifest variables that operate as solid proxies for latent variables.

Factors affecting Citizen Satisfaction Index

Latent factors such as perceived quality, citizen expectation, citizen satisfaction, citizen confidence, government trust, and citizen complaint management make up citizen satisfaction indexes for electronic government service assessment (Kim, Im et al. 2005, Jinhua, Yong et al. 2010, Alanezi, Mahmood et al. 2011, Alkrajji 2020). The writers decide whether to include or exclude these or other elements. Citizen expectation, perceived usefulness, perceived ease of use, perceived quality, citizen satisfaction, perceived ability to use, citizen involvement, citizen reliability, and government image were all characteristics

used by Jinhua, Yong et al. (2010) to create a satisfaction index system. In these models, some of the latent variables contain manifest variables that serve as solid proxies for the latent variables.

Citizen expectations are the standards of quality that citizens anticipate from electronic government services before they use them (Di Nisio and Di Battista 2010, Jinhua, Yong et al. 2010). It assesses citizen expectations for complete quality, service quality, and personal needs fulfillment. Another measure of service reliability is perceived service quality, which is an overall assessment of online service quality when citizens have utilized government electronic services (Jinhua, Yong et al. 2010, Zaim, Turkyilmaz et al. 2010, Alkraihi 2020, Obaid and Ahmad 2021). Citizens' evaluations of service in comparison to their expectations are sometimes referred to as perceived quality. Perceived quality is the assessment of recent consumption experiences of services such as correctness of the information, access to information, and citizen service (O'Loughlin and Coenders 2002, Kim, Im et al. 2005). It is the citizens' opinions about an entity's general excellence or superiority (Zeithaml 1987). The severity of citizen complaints and how the government handles them are referred to as citizen complaint handling (Turkyilmaz and Özkan 2007, Di Nisio and Di Battista 2010).

In general, a customer complaint refers to a dispute concerning a company and its customers (Fornell and Larcker 1981, Thierry and Priyambodo 2017). The government must respond to citizens' wants and questions, and service quality must be good. The number of citizens who are satisfied and in what way their expectations are met is measured by citizen satisfaction (Zaim, Turkyilmaz et al. 2010). It is a customer's opinion based on previous experiences with the use of services (Howard and Sheth 1969). It assesses if electronic government service performance is up to par, as well as overall citizen satisfaction (Kim, Im et al. 2005, Hafeez and Hasnu 2010).

Between the cause-and-effect variables, the latent variable of citizen satisfaction is at the centre of the model. However, the primary goal of citizen happiness in electronic government is to earn citizen trust (Hao 2011, Zhang, Xie et al. 2017, Nookhao and Kiattisin 2023). Reusability, aid, justice, and encouragement are all benefits of electronic government trust (Kim, Im et al. 2005). Citizen trust assesses a citizen's level of satisfaction with an electronic government service transaction from the first point of contact to the final stage of contact. This also includes the government's trustworthiness and the citizens' sense of trust. This can be accomplished if the government performs its duties. Citizen trust determines whether citizens will continue to utilize electronic government services rather than switching to other sources, suggest electronic government services to others, as well as expand engagement in electronic government service ways (Anderson and Sullivan 1993, Hsu 2008, Di Nisio and Di Battista 2010, Zhang, Xie et al. 2017). Citizen pleasure is correlated with citizen trust, according to studies (Hsu 2008, Jung and Yoon 2012, Zhang, Xie et al. 2017).

The importance of citizen happiness with electronic government is highlighted in the preceding discussion. Citizen satisfaction can be well-defined in a variety of ways, but in this study, it can be defined as a citizen's level of satisfaction with their expectations being met or surpassed after receiving electronic government services. Several models can be employed in citizen satisfaction that can be utilized to review the quality of electronic government services, each one is unique. The purpose of this study is to provide a set of appropriate

criteria for evaluating citizen satisfaction with the quality of electronic government services in SADC nations while considering the level of electronic government usage.

Materials and methods

An electronic government-citizen satisfaction model was created using the consumer satisfaction index modeling idea. Based on the literature, an electronic government satisfaction evaluation criteria and an electronic government-citizen satisfaction index were chosen. The goal was to find a set of evaluation criteria that could be used to assess citizen satisfaction with electronic government information services. To find a consortium of tenets that influence citizen happiness with electronic government information services, a reasonable method based on structural equation modeling (SEM) and the citizen satisfaction index was utilized. SEM is a multivariate statistical analysis method that is widely used to analyze structural relationships among multiple dependent and independent factors. It has been applied in numerous application domains such as municipal e-government readiness (Olugbara and Joseph 2018), analysis of student priorities in using course management systems (Kalema, Olugbara et al. 2011), studying the moderating effect of innovation consciousness and quality consciousness on the intention-behavior relationship in e-learning integration (Munyoka 2020), and investigating the computer application technology procedural knowledge and pedagogical of practices of teachers in ICT-enhanced classrooms (Adegbenro and Olugbara 2019).

Research model

This study employed an electronic government-citizen satisfaction index (CSI) model to assess citizen satisfaction with electronic government information services, based on the characteristics listed in the previous section. Even if citizens have never interacted with internet services, CSI models can directly explore how well they perform in terms of citizens' wants and expectations (Wang, Bretschneider et al. 2005, Fitsilis, Anthopoulos et al. 2010). Because it is commonly used as a quantitative way of gauging citizen satisfaction, the research model used was chosen (Yuan-yuan, Yi-jun et al. 2007). CSI models are well-known and are adaptable across a variety of disciplines (Fornell, Johnson et al. 1996, Johnson, Gustafsson et al. 2001, Inch and Florek 2008, Li 2021). Fornell, Johnson et al. (1996), (Türkyılmaz and Özkan 2007) used the ACSI model to examine 35 industries and more than 200 corporate entities. As a result, government CSI was chosen for this research. The research model depicts the link between the variables chosen for this investigation, as described in the previous section. The study's conceptual framework is depicted in Figure 1.

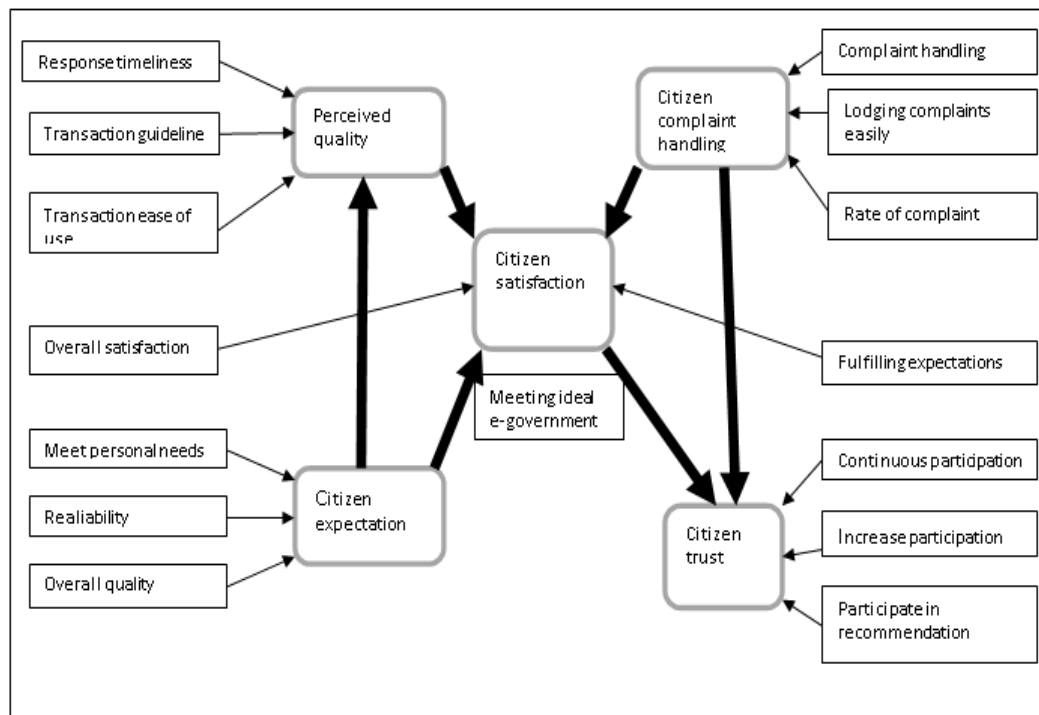


Figure 1: Conceptual Framework

Data gathering

To examine already existing methods of evaluating customer satisfaction with service offerings, the researcher used a positivist research philosophy in this study. Users of selected e-governance services in SADC members aged 14 to 75 years old were interviewed. This study employed a modified model (CSI) taken from NCSI to assess citizen satisfaction with e-governance services (Kim, Im et al. 2005, Halaris, Magoutas et al. 2007, Sheibani and Fariborzi 2011, Zhang, Xie et al. 2017). In quantitative studies, CSI was commonly utilized as a measure of citizen satisfaction (Yuan-yuan, Yi-jun et al. 2007). An online survey is found on the following link (https://docs.google.com/forms/d/e/1FAIpQLSfEkAkFTfTIPI_kHcS94vj37Yjdx5TAp0Ogls70JtpyeAdDg/viewform?fbclid=IwAR2himXPA7usSj-q0N77HXfecwhyOk9kCPogN-fLX-NHIFGK5kMxvJrfDvs&formkey=dDZzMzZBaDBZQlpLSFBVSzI3QVUtZVE6MQ&fromEmail=true) and physical questionnaires of 364 SADC users of e-governance services was conducted to collect data from 364 respondents using a 15-item questionnaire. The study used a multivariate analysis employing Structural Equation Modelling- Partial Least Square (SEM-PLS) to predict satisfaction. Because the goal of the study was to investigate correlations between exogenous and endogenous factors, the researcher used both Path Analysis and Confirmatory Factor Analysis (Kaplan 2008). CFA was employed to corroborate the variables' dependability.

Model of evaluation

The approach for assessing citizen satisfaction with electronic government information services is based on National Customer Satisfaction Index (NCSI) models such as the American Customer Satisfaction Index (ACSI) and the European Customer Satisfaction

Index (ECSI) (ECSI). Early models like these were utilized in the private and public sectors to assess consumer satisfaction with products and services. They couldn't be utilized to assess electronic government. As a result, adjustments were made to electronic government-citizen satisfaction assessment, with models like g-CSI and egov-ACSI being introduced to match electronic government characteristics (Halaris, Magoutas et al. 2007, Sheibani and Fariborzi 2011). The electronic government-citizen satisfaction model does not incorporate perceived value or consumer loyalty, unlike the original NCSI. Customer loyalty is thus substituted with citizen trust, as the objective changes from profit increase to acquiring citizens' trust (Yuan-yuan, Yi-jun et al. 2007). This component was not included in this study since measuring value in electronic government is not required (Kim, Im et al. 2005).

To evaluate citizen happiness with electronic government information services, this analysis uses an electronic government-citizen satisfaction model with interaction (transaction) quality elements that operate as concrete proxies for the latent variable of perceived quality. Citizen expectation, perceived quality, citizen satisfaction, citizen complaint management, and citizen trust were identified as factors for evaluating citizen satisfaction with electronic government services (Kim, Im et al. 2005, Mutula 2008, Alshawi and Alalwany 2009, Adeyemo 2011, Noor 2020). Because SADC regional nations are mostly at this level of electronic government development, the perceived quality of interaction (transaction) was examined in this study (Mutula 2008, Report 2008, Alshawi and Alalwany 2009). If the elements used to assess citizen satisfaction with electronic government information services are applicable in that context, they can be accepted for that country (Alshawi and Alalwany 2009). The perceived quality indicators in this research were chosen based on the SADC region's level of electronic government maturity.

Factors affecting citizen satisfaction

The Structural Equation Model-Partial Least Squares (SEM-PLS) analytic technique, as implemented in SmartPLS software, was used to uncover aspects that inform consumer satisfaction with electronic government information services. SEM is a multivariate method that examines the relationship between exogenous (independent) and endogenous (dependent) latent variables (LV) within a model at the same time (Kline 1998). PLS can accommodate measurement errors in the construction of LVs by working with unobserved latent variables (Chin 1998). As shown in Figure 1, the electronic government-citizen satisfaction index model comprises precisely five latent variables in this study: perceived quality, citizen expectation, citizen satisfaction, citizen complaint management, and citizen trust.

Kaplan (2008) defines structural equation models (SEM) as a set of statistical approaches for estimating a system of essential linkages. This is described by a theoretical model that connects more than two latent complex notions, each of which is calculated by a set of observable markers. A fundamental network among LV, each assessed by many observed indicators commonly designated as Manifest Variables, can be used to investigate the complexity of a system (MV). In this way, SEM bridges the gap between Path Analysis (Alwin and Hauser 1975) and Confirmatory Factor Analysis (CFA) (Thurstone 1931).

PLS Path Modelling (PLS-PM), commonly known as PLS (Partial Least Squares). The approach to SEM is a component-based estimate method (Spiegel 1972). PLS-PM is

essentially a set of interconnected equations built on simple and multiple regressions. The PLS-PM is an iterative approach for estimating the link of latent variable relationships as well as the ties between manifest variables and their latent variables.

Path modeling is a powerful method for analyzing cause-and-effect relationships between latent variables that are used by most researchers and business practitioners. According to Sarstedt and Ringle (2010), PLS Path modeling is becoming more widely used, particularly in service and consumer research. The key benefits of PLS route modeling are that it may be utilized efficiently, mainly when the sample size is small-scale, the information is, non-convergent non-and non-normally distributed findings are probably due to complex models with numerous variables and parameters being estimated (Fornell, Johnson et al. 1996). The measurement model is the structural model and (the outer model) is the two sub-models of structural equation modeling (inner model). The structural model reflects the relationships between latent variables, whereas the measurement model reflects the relationships between manifest variables and their latent variables.

Model of measurement

The reflecting model (outwards directed model), the formative model (inwards directed model), and the MIMIC model are the three types of measuring models accessible (numerous effect pointers for numerous causes). The reflecting model assumes a homogeneous condition or one-dimensional, according to which all positively linked MVs in a block must be proven on actual data by assessing model dependability. The degree to which the measurement of factors, measured with a multiple-item scale, indicates the true scores on the aspects compared to the error is referred to as individual item reliability. (Hulland 1999, Aibinu and Al-Lawati 2010). In the context of Cronbach's alpha (α) a block of MVs is deemed homogenous when (α) is larger than 0.7. (α) Cronbach (1951) stated that Internal consistency refers to how accurately a set of MVs assesses a single homogenous factor. The interior consistency of a factor is a measure of how consistently people respond to items on a scale (Shin 2009). Manifest variables block related to a latent variable in a reflective model is expected to be unidirectional and homogeneous. The reflective model operates under the hypothesis or assumption that the error ϵ_{pq} as a mean of zero and is uncorrelated with the LV of the similar block. Each manifest variable in the reflective model is associated with the corresponding latent variable by a particular regression model.

Each MV or sub-block of MVs in the formative model represents a distinct dimension of the original concept. As a result, dissimilar to the reflecting model, the formative model does not assume that the block is homogeneous or uni-dimensional. Each MV is an exogenous variable in the measurement model since the LV is defined as a linear combination of the associated MVs. The MIMIC model is a combination of the reflective and the formative models contained by the same block of MVs. The standardized LV scores (ξ_Q) correlated with the q-th LV (ξ_Q) is computed as a linear merger of their block of MVs utilizing weighted relation.

The significance of path coefficients among the variables of the egov-CSI models is assessed using a bootstrapping approach with 500 resamples of construct level sign change

and several instances equal to the initial sample size. The research model quality must, however, be tested as a prerequisite for any route analysis technique through the examination of validity, predictive power, and reliability.

Results and discussion

Critical factors of citizen satisfaction with electronic government information services

The rationality of all components utilized in the model must be evaluated using confirmatory factor analysis to discover crucial aspects that inform citizen satisfaction with electronic government information services applying standard PLS (CFA). This is accomplished by determining whether the item loadings, average variance expected (AVE), and Cronbach's alpha composite reliability (CR) values fulfill the minimum standards. If all elements are distinct from one another, discriminate validity will be assessed.

After estimating the quality of the model, which was tested in terms of validity metrics and reliability, the predictive potential of this study's research model was determined. CFA was accomplished by using SmartPLS Version 2.0 software to assess the quality of the research model in this study to obtain improved efficiency. All measured items were described as reflecting indicators of their related factors for the CFA analysis, and each factor was given leeway to co-vary freely with all other factors. Path significances were assessed using the bootstrapping re-sampling technique with 500 sub-samples utilizing the raw dataset as input to the PLS software.

Validity and reliability

Convergent validity of scale items was measured using three key criteria: (a) all item factor loadings must be significant and greater than 0.50 (Hair, Black et al. 2006, Pahnla and Warsta 2010); (b) composite reliability for each factor should be greater than 0.70, with the lowest value of 0.81 for citizen complaint handling (Pahnla and Warsta 2010); and (c) average variance obtained for each factor must be greater than 0.70 (Hair, Black et al. 2006, Bhattacharjee and Sanford 2009, Aibinu and Al-Lawati 2010, Pahnla and Warsta 2010). The findings of the CFA are shown in Table 1, where item loadings were significant at $p < 0.05$ and above 0.50, with the least loading of 0.69 for the citizen complaint handling item CC3.

Table 1: Confirmatory Factor Analysis

Factor	Item	Item Mean	Std Dev	Item Loading	T-value
Citizen Complaint handling	CC1	4.38	2.00	0.81***	17.99
	CC2	4.17	2.04	0.80***	17.35
	CC3	4.20	2.15	0.69***	7.63
Citizen Expectation	CE1	5.26	2.40	0.85***	24.57
	CE2	5.55	2.35	0.87***	28.98
	CE3	5.51	2.47	0.87***	27.63
Citizen Satisfaction	CS1	4.85	2.29	0.84***	22.83
	CS2	5.00	2.06	0.83***	19.93
	CS3	5.31	2.17	0.84***	22.63
Citizen Trust	CT1	5.32	2.64	0.89***	33.98
	CT2	5.52	2.62	0.89***	38.19
	CT3	5.48	2.68	0.86***	25.91
Perceived Quality	PQ1	4.73	2.17	0.85***	23.31
	PQ2	4.88	2.24	0.83***	24.56
	PQ3	4.80	2.41	0.87***	32.62

*** $p < 0.0001$, ** $p < 0.01$ and * $p < 0.05$

The criterion for discriminant validity was that the square root of AVE for each factor should be greater than the associations between that factor and all other factors (Fornell and Larcker 1981, Bhattacharjee and Sanford 2009, Pahnla and Warsta 2010). Table 2 displays the scale properties data, revealing that the maximum correlation between any two factors in the CFA model is 0.76 (citizen trust and citizen satisfaction). All factors' composite reliabilities are above the required minimum of 0.70, with the citizen complaint handling factor having the lowest score of 0.81. Citizen complaint behavior has a score of 0.65, the outcomes for Cronbach's alpha demonstrate that all of the other four factors' MVs measure perfectly the subsequent factors (internal consistency) with a score of greater than 0.70. (Cronbach 1951, Shin 2009). Furthermore, contentment had the lowest AVE value of 0.59, which was higher than the intended minimum of 0.50 for all five components in the CFA model. Apart from one factor with a little lower Cronbach's alpha value, all three conditions for convergent validity were met.

Table 2 shows the scale properties.

Inter-factor correlation (Discriminate validity)					
Factors	1	2	3	4	5
1. Citizen Complaint handling	1.00				
2. Citizen Expectation	0.38	1.00			
3. Citizen Satisfaction	0.60	0.56	1.00		
4. Citizen Trust	0.56	0.55	0.76	1.00	
5. Perceived Quality	0.58	0.60	0.73	0.73	1.00
Internal Consistency (Alpha)	0.65	0.83	0.79	0.86	0.81
Composite Reliability	0.81	0.90	0.88	0.91	0.89
AVE	0.59	0.75	0.70	0.78	0.72

Predictive power of a model

After determining the research model's reliability and validity, the structural model was calculated to determine the predictive power of the research model. Equation (5) was used to calculate the research model's predictive power (R^2). Figure 2 shows this conclusion, with R^2 values of 0.36, 0.60, and 0.59 for perceived quality, citizen satisfaction, and citizen trust, respectively. This indicates that the model's fit to the data is adequate in terms of citizen satisfaction ($R^2 = 0.60$).

The goodness of fit (GoF index) developed is a global evaluation criterion for model quality (Kim, Im et al. 2005). Its goal is to account for PLS model performance at both the measurement and structural model levels, with an emphasis on the model's overall estimated performance. The GoF index is generated using equation (6) as the geometric mean of the average commonality index and the average R^2 value (Kim, Im et al. 2005). Overall, the model-to-data fit of 0.62 was found to be of a higher level.

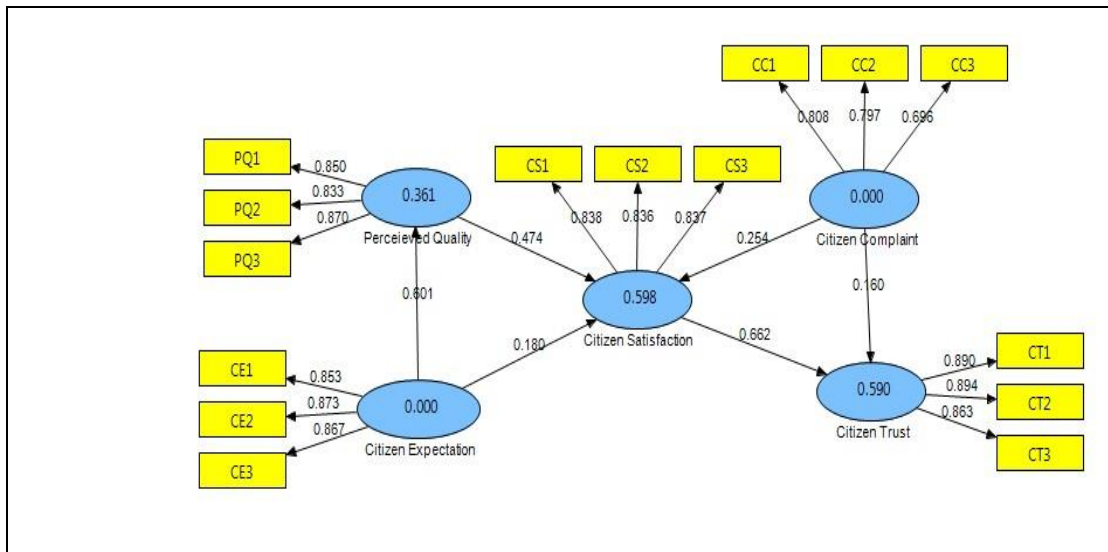


Figure 2: Structural Model Estimation

Direct effect

This study investigated the direct effect among model elements to determine the robustness of the developed research model. The SmartPLS 2.0 bootstrapping approach was used to obtain the standard deviation, path coefficient, and t-value of postulated casual paths. This is seen in Table 3. With a projected path coefficient of 0.2581, a t-value of 3.1326, and a p-value of 0.0019, citizen complaints management has a direct impact on citizen satisfaction. This finding indicates that citizen complaints will have a direct impact on citizen satisfaction with SADC countries' electronic government information services. With a t-value of 2.1141, a path coefficient of 0.1819, and a p-value of 0.0352, the results show that citizen expectation has a direct effect on citizen satisfaction. As a result, public expectations have a direct impact on citizen satisfaction with electronic government information services. The impact of citizen anticipation on citizen happiness, on the other hand, is weak, as evidenced by the p-value. With a t-value of 10.2326, a path coefficient of 0.6062, and a p-value of 0.001, citizen anticipation has a direct effect on perceived quality. This demonstrates that citizens' expectations have a direct impact on the quality they perceive.

With a t-value of 6.8131, a path coefficient of 0.6713, and a p-value of 0.001, citizen happiness has a direct effect on citizen trust. Citizen satisfaction, it can be concluded, has a direct impact on citizen trust. With a t-value of 4.8275, a path coefficient of 0.4689, and a p-value of 0.001, perceived quality has a direct influence on citizen satisfaction. With a path coefficient of 0.1530, a t-value of 1.5447, and a p-value of 0.1233, the results likewise suggest that there is no direct association between citizen complaint handling and citizen trust. This means that citizen complaint management does not affect citizen trust.

Table 3: Direct Path Coefficients Test

Factor Relationship	Path Coefficient	Std Dev (STDEV)	T-Value	P-Value
Citizen Complaint Handling ->Citizen satisfaction	0.2581	0.0809	3.1326**	0.0019
Citizen Complaint Handling -> Citizen Trust	0.1530	0.1036	1.5447	0.1233
Citizen expectation -> Citizen satisfaction	0.1819	0.0851	2.1141*	0.0352
Citizen expectation -> Perceived Quality	0.6062	0.0587	10.2326***	0.0001
Citizen Satisfaction -> Citizen Trust	0.6713	0.0971	6.8131***	0.0001
Perceived Quality -? Citizen satisfaction	0.4689	0.0981	4.8275***	0.0001

*p<0.0001, **p<0.01 and *p<0.05

The effects of perceived quality, citizen expectation, citizen complaint processing, and citizen trust on the R² value of citizen satisfaction obtained using equations (7) and equation (8) are shown in Table 4. The effect size of perceived quality was 0.215, for citizen complaint handling was 0.095, and for citizen, expectation was 0.47. According to these findings, perceived quality is the most important element in predicting citizen satisfaction after service consumption, while customer expectations are the least relevant component in predicting citizen satisfaction with electronic government information services.

Table 4: Independent Factor Effect Sizes

Factors	R2	R2	F²	F-test	P-Value
	Included	Excluded			
Citizen satisfaction Handling	0.598	0.556	0.095	33.959	0.0001
Citizen Expectation	0.598	0.578	0.047	17.014	0.0001
Perceived Quality	0.598	0.488	0.215	77.129	0.0001

The discoveries of this study suggest that the electronic government-citizen satisfaction index methodology is appropriate for evaluating citizen satisfaction with electronic government information services not just in the SADC area, but everywhere in the world. This is supported by the findings of this study, which demonstrate that the model has a GoF of 0.62 and a predictive power of 0.598 when fitted to data. Only in the arena of electronic government can the electronic government-citizen satisfaction index model proposed in this study be tested further.

The most important driver of citizen satisfaction with electronic government information services is perceived quality, according to the findings of this study. This is not unexpected because when citizens contact with government online, they receive timely responses, find it simple to interact with the government online and receive guidelines to assist them in assessing if they are satisfied or not during exchanges. According to a prior study, perceived quality is one of the most important drivers of citizen satisfaction (Halaris, Magoutas et al. 2007, Zaim, Turkyilmaz et al. 2010, Sheibani and Fariborzi 2011, Verkijika and De Wet 2018). This means that each SADC country must improve its electronic government services to make them more dependable, user-friendly, and simple to use.

Another important issue that influences citizen satisfaction with electronic government information services is how complaints are handled. When citizens do not file complaints regularly, their issues are handled efficiently and promptly. Citizens are satisfied with the electronic government information services given as a result of this. SADC governments must put in place processes to help individuals when they file an online complaint, reduce

citizen complaints, and make complaints easier to file so that residents are satisfied with the electronic government information services supplied.

As much as the results of this study reveal that citizen expectation has a p-value of 0.05, it is not a determinant of citizen satisfaction. When it comes to what citizens anticipate from government information services, the results are mixed. Some researchers discovered that citizens would rather use electronic government over visiting government offices (Kaisara and Pather 2011), while others discovered that citizens are uninterested in electronic government since they do not anticipate much from it (Bwalya and Healy 2010, Kunstelj 2010, Kaisara and Pather 2011). Citizens must be made aware of electronic government services for them to have faith in them.

Citizen trust is a small component of this model because it focuses on elements that impact citizen satisfaction with electronic government information services. Nonetheless, it is vital to highlight that the treatment of public complaints has no impact on citizen trust, whereas citizen satisfaction does. When citizens are contented with electronic government information services, they build trust in them, carry on to use them instead of other means, and recommend them to friends and family.

The presence of internet facilities in the country also contributes to citizen contentment. Many of Zimbabwe's inhabitants have access to the internet. According to (Argaez 2009, Munyoka 2020), Zimbabwe has a higher %age of internet users (12.5%) than the majority of its neighbors. The last two countries on the list were Tanzania and Lesotho. According to a (Report 2008), Lesotho and Tanzania are among the less developed countries when it comes to online services, which means that despite the introduction of e-services, citizens are dissatisfied with the quality of interaction. Their residents have higher expectations than what they get from electronic government interactions. To satisfy their citizens, SADC governments must concentrate more on increasing the value of their services.

Conclusions

The impact of electronic government-citizen satisfaction models revealed that perceived quality is the most important determinant of citizen satisfaction with the quality of electronic government information services, followed by citizen complaints and, finally, citizen expectation. Citizen complainants and citizen trust were expected to have an impact on citizen trust, but research findings show that citizen satisfaction was the most influential. This means that citizens can only have trust in their electronic government information services if they are satisfied with the quality of the service. Citizens' contentment, according to the concept, was contingent on citizens' expectations being met by providing citizens with an ideal electronic government, which increased satisfaction.

As a result, the electronic government information services provided by SADC governments must be improved. The SADC states must also provide citizens with simple electronic government services with clear rules and prompt responses. Governments must also improve service delivery by responding to the concerns of citizens and making it easy for citizens to file complaints. All of these components will increase the trust of citizens in their electronic government services, leading to citizens recommending electronic government services to their friends and relatives as a better option and the only way to obtain

government information. This study did not include all SADC nations due to a lack of resources. In conclusion, the results show that South African citizens are more satisfied with the quality of their electronic government information service than citizens in any other SADC country, which is why South Africa came in first place. In general, satisfaction was low in all of the countries studied. The goal of future research will be to rank SADC regional countries. In the future, the researcher hopes to apply the research approach used in this study to other domains to assess citizen satisfaction with e-services. Furthermore, the researcher wishes to rank various electronic government information services in terms of public satisfaction.

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Investigating online learning with digital storytelling

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Abstract

This study seeks to comprehend how students view a particular experience—the abrupt transition from conventional to digital classroom environments. With the help of digital storytelling, rich and informative data was produced by getting participants to reflect on their experiences and express how they perceived certain events. Hence, this study aims to investigate the online learning experience of digital natives during COVID-19 by using digital storytelling as an arts-based research method. The innovative edge is examining students' feelings under challenging circumstances by merging traditional qualitative instruments and digital storytelling a participatory research methodology. Therefore, the conventional above-mentioned qualitative instruments are interviews and theme analysis. Understanding how students view this phenomenon is critical to provide them with an improved online learning environment. This sudden overnight change sets the stage for this study. The scope of the study will focus on the impact of this challenging circumstance on learners aged 18-24 in Mauritius. Indeed, digital storytelling helped learners to engage in a deep reflection and make meaning of that particularly difficult situation they experienced.

Keywords: digital storytelling, online learning, COVID-19

Introduction

Digital storytelling can prove to be a useful research technique because it gives the voiceless a voice while making room for changes in procedures and policies (Durant and Kortes-Miller, 2023). Hence, these authors (Durant and Kortes-Miller, 2023) state that the pandemic's novel shift in the order of things forced researchers to pivot and look to creative means of conducting qualitative research. Digital storytelling (DST) is one of the many art forms that have been adapted for use in a research environment, as there is a growing surge in scholarly interest in arts-based genres (De Jager, Fogerty, Tewson, Lenette and M. Boydell, 2017). The unexpected switch to online education brought about by the COVID-19 pandemic serves as the study's context. The need to deal with Covid-19, which caused a significant upheaval in our lives, necessitated maintaining continuity in education. There was a lockdown to stop the disease from spreading, which led to turmoil. Since the pandemic's start, 1.7 billion students across 195 countries, or 90% of the world's student population, have been prevented from entering physical classrooms because of stringent policies governing access to universities or schools (UNESCO, 2020). Therefore, technology-based education in the form of online classes was seen as a boon to ensure class continuity when COVID-19 forced students to stay at home due to the use of social distancing as a method of controlling the spread of the COVID-19 pandemic (Adedoyin and Soykan, 2020). Consequently, online education has been referred to as a "panacea" in these hard times (Dhawan, 2020). The

Mauritian government was forced to swiftly respond and adjust to the circumstances to maintain continuity in the educational sector. The Ministry of Education was forced to adapt and propose educational programs on one of the channels of the national television (Mauritius Broadcasting Corporation) for primary students and lower secondary, however, for upper secondary level students from grades 10 to 13 and post-secondary students -Google Classroom, Zoom, and Microsoft Teams were used to deliver online classes. With the aid of Class Captains and Prefects, many teachers established "WhatsApp groups" as part of an informal effort to facilitate contact with students. The quick transition to online and distance learning caught students, professors, and the institution off guard (Padachi, Mauree-Narrainen, and Boolaky, 2020). As a result, there were many school dropouts when classes resumed, and many pupils expressed a lack of enthusiasm because they had struggled to attend class regularly. This study investigates how students experienced this challenge to provide them with a better online learning environment in the future. The inquiry has been conducted through the lens of digital storytelling as an arts-based research tool.

Problem statement

The pandemic set the scene for a sudden and widespread shift to online learning. Consequently, it is crucial to understand the perspectives of students and assess the effectiveness and implications of this educational transformation. This novel educational landscape brought forward both new challenges and opportunities for students.

Aim of study

This study aims to examine the experiences and issues regarding digital equity, as well as the levels of satisfaction of students who pursued online classes during the COVID-19 pandemic.

Objectives of study

The objectives of an investigation determine its focus and conclusion. In this study, the objectives are to understand how students feel about their ad-hoc online learning experience during the lockdowns.

- a. To recognize and categorise the particular hurdles and troubles that students face while taking online courses, such as time management issues and mental health issues.
- b. To examine how students feel about their online learning experiences, taking into account things like the extent to which they engage with the classes and their connections with peers and teachers.

Research Questions

- How do students who have experienced online learning describe their experience of this abrupt transition?
- How do students who have experienced online learning describe the challenges they met?

Literature review

Adhoc online learning transition

Digital technology has long provided the foundation for change-making strategies (Chan and Sage, 2019). Technological affordances, a term defined as the possibility created by digital

technology and computer-human interaction, can offer special opportunities (Chan and Sage, 2019). So, when the COVID-19 pandemic forced changes in the world, there was no other option but to resort to technology, which has long permeated the classroom walls. Unfortunately, the shift was overnight in the middle of a difficult situation and occurred without any preparation both for teachers and learners (Padachi et al., 2020). The shifting process may have been carried out without regard for delivery modes due to the urgent necessity to establish continuity in terms of knowledge acquisition. On the other hand, well-prepared instructional design is crucial for the creation of engaging and useful digital courseware for students (Branch and Dousay, 2015). In other words, we need to increase online learner engagement to advance online learning (Mekdessi, Makdissi and Almouchachar, 2021). Indeed, though online learning has increased significantly due to the use of the internet, which has developed considerably in the past few decades because of its growth in popularity (Kuong, 2015), a transition should not be done without prior in-depth planning. Undeniably the advent of online learning because of the Covid-19 massive quarantines, brought about a pedagogical movement from the conventional to the contemporary methods of teaching-learning, from the classroom to Zoom, from the in-person to the online, and from seminars to webinars (Mishra, Gupta and Shree, 2020). There is a need to investigate the issues of digital access, inclusion, and equity during the period when educational institutions had to convert from traditional to online learning owing to the rampant pandemic (Mathrani, Sarvesh and Umer, 2021). Some research work reported that lockdowns themselves correlated with lower mood and a lower quality of life, while online educational activities took more mental effort and motivation was hindered (Merlo, Hendriksen, Garssen, Bijlsma, Engels, Bruce and Verster, 2021). Consequently, the following might be the cause for the large percentage of students failing to attend online classes: poor design, ad hoc transfer to online classes and insufficient access to technology.

Challenges faced by learners in online classes during the lockdowns

Students participating in online distance learning face great difficulties because it completely changes their daily routines (Merlo et al., 2022), the novel, the unresolved and uncertain situation brought about by the crisis worsened the situation of anxious learners. Indeed, major changes in the environment for teaching and learning, as well as the method of knowledge acquisition, are all impacting the lives of learners (Junglin and Wanyu, 2022). An example of a negative impact of the lengthy online study time and concentration on electronic displays may be important variables affecting college students' "physical-psychological" health, such as eye strain, which is especially important for students under age (Junglin and Wanyu, 2022). Hence, it is quite clear that although online learning has grown more common around the globe, teachers and students still need to prepare for it (Yeung and Yau, 2021). Consequently, massive disengagement from learners was noticed, hence, to improve online learning students' online participation should be increased (Mekdessi et al., 2021). The students in the virtual classroom struggle with a variety of challenges, including a lack of motivation, inadequate internet bandwidth, Wi-Fi access and availability of digital devices. For instance, there are still some households in Mauritius without even the most basic connectivity tools and resources for online education (Padachi et al., 2020). Some students do not have access to a smartphone or laptop, so they must share one with their family (parents and siblings) (Maru and Nur, 2020). Indeed, a family can comprise of several siblings having to access online classes at the same time, as only synchronous connection to those classes has been proposed, therefore it might have been difficult for certain students

having to share only one digital device. Offline solutions should have been accommodated to avoid creating a divide between those who have ease of access and those who have connectivity issues. In order to bridge the digital divide and boost higher education resilience in the event of a pandemic, access to information and communications technologies is essential (Aumjaud, 2020). Hence, it deems important to empathise with our learners and investigate those challenges impacting their studies.

Investigating online learning challenges with digital storytelling

A contemporary example of an arts-based research methodology is digital storytelling (De Jager et al., 2017). Arts-based research procedures and approaches are becoming more and more popular in the social and health sciences due to their capacity to elicit richer, more pertinent data from participant viewpoints (Nathan, Hodgins, Wirth, Ramirez, Walter, and Cullen, 2022). Due to the vital benefit the arts offer to research communities, researchers are using this channel to generate new ways to perceive, think, and communicate (Leavy, 2018). Digital storytelling is the process of telling stories with digital technology (Rincon., Cruz, Daum, Neubauer, Comeau and Liu,2021). It combines "digitized video," "photography and art," as well as "traditional storytelling" which includes text, pictures, recorded voice narration, music, and video (Atchley and Lambert, 1999; Meadows, 2003; Rincon et al., 2021, Robin, 2016). Amid a challenging circumstance, researchers might find themselves compelled to pivot from traditional avenues to explore an innovative digital tool that can be used in virtual spaces, for instance (Durant and Kortes-Miller, 2023) discovered that digital storytelling enabled them to pursue their investigation of the lockdowns. These authors stated that the original workshop structure of digital storytelling proved to be a valuable research method in a troubled time as it allowed them to reach out to their participants through digital mediums. Moreover, the choice of digital storytelling seems appropriate to provide a voice to the voiceless ((Durant and Kortes-Miller, 2023). The results of a theme analysis, according to De Jager and colleagues (2017), demonstrated that the use of digital storytelling (DST) in research was especially well suited for usage with disadvantaged populations. Since digital storytelling is a versatile technique that may be applied in a virtual environment in a creative, sensitive, and effective way (Durant and Kortes-Miller, 2023) and the vulnerability of learners thriving to meet the requirements of virtual classrooms in a difficult situation made of DST the ideal research tool to conduct this inquiry. However, the means and ways in which arts-based research methodologies can be integrated into other research methodologies in education are yet to be explored (Morris and Paris, 2021). Indeed, in a recent review, the authors concluded that there is a need to support the use of digital storytelling as an arts-based research method with solid foundations in theoretical and conceptual foundations (West, Rieger, Kenny, Chooniedass, Mitchel, Hippenstein, Zaborniak, Demczuk and Scott, 2022). Hence, this study will look into ways in which digital storytelling can be integrated into other research methodologies using a revisited framework to explore the perspective of learners on their online learning experience during a challenging situation, so as to address the above-mentioned gaps in the literature.

The theoretical framework

The IBBT research cycle revisited framework

Participants in study projects highlighted various advantages of digital storytelling as a research tool (De Jager et al., 2017); hence, these authors stated that though there were a few drawbacks, overall the advantages of employing a respectful, participatory research practice

outweighed them. Consequently, an open environment that allows for participatory research techniques considered relevant for the inquiry has been chosen. It has been revisited to make the new from the old, as by merging different objects one can bring novelty. There was no need to reinvent the wheel. In this study, the IBBT living lab research cycle is revisited for the development of information-rich data that combines design thinking approaches and multimodal analysis (Arekion, 2023). According to Pierson and Lievens (2005), the living lab can serve as a platform for granting access to open and innovation-driven services like internet service providers and cutting-edge technological gadgets like optical broadband. Since modern digital tools must be taken into account for knowledge creation in a world where information is regularly generated across many digital platforms (Arekion, 2023), the living lab milieu was thought appropriate as it provides facilities for the design, development, testing, and evaluation of communication-based technologies which may also be included in living labs services (Pierson and Lievens, 2005). Open living labs are built on the involvement of users, so determining the level of user involvement is crucial (Stalhbrost and Holst, 2008). Involving users as co-creators has long been a fundamental idea, therefore living labs can apply the participatory design (PD) approach that was first applied to information systems (Bergvall-Kareborn, Howcroft, Stahlbrost, and Wikman, 2010). Digital storytelling can also offer an avant-garde tool as an arts-based research approach, as it can promote the co-creation of knowledge and change the relationship between the researcher and the participants, changing the power hierarchy present in such interactions (De Jager et al., 2017). This allows the use of digital storytelling in research to go beyond what has already been accomplished, more so, bringing users to the forefront makes it suitable to be integrated into the IBBT living lab research cycle and the design thinking process. Using a reputable participatory research methodology has been successful, more theorisation may arise in domains where participants become co-creators alongside the researcher (De Jager et al., 2017). Hence, this surely can be achieved by interweaving the IBBT living lab research cycle with the design thinking process to bring the emergence of a novel theoretical framework.

The IBBT living lab cycle is an open milieu that involves users as co-creators (Almirall and Wareham, 2009) and comprises four phases:

- Contextualization is the initial phase and entails identifying the technological and social setting of the investigation.
- Concretization is the follow-up stage, where the concept is created from an initial measurement.
- Implementation and testing in actual scenarios are part of the third and final phase.
- The fourth stage is an ex-post evaluation, which includes project completion and may result in a new iteration of the project depending on the participant or cocreator feedback.

Phase 1: Contextualization: At this stage, the study unit is identified, and homogenous intentional sampling is used in this instance.

Phase 2: Concretization: At this stage, step 1 of the design thinking process is added to the IBBT living lab research cycle -it is known as ‘Empathize’ whereby the participants’ viewpoints are sought through open-ended questions. (Participants’ assessment needs conducted)

Phase 3: Implementation: Themes are identified through content analysis. At this level, content analysis is used to make meaning of learners' experiences. The feelings, attitudes, and behaviours are understood. It is an enhancement of ‘empathize’, where emotions are defined.

Phase 4: Feedback: To sketch concepts, a coding system is developed and analysis is carried out until saturation is reached.

The IBBT living lab research cycle is illustrated below in its original form (with all of its phases):

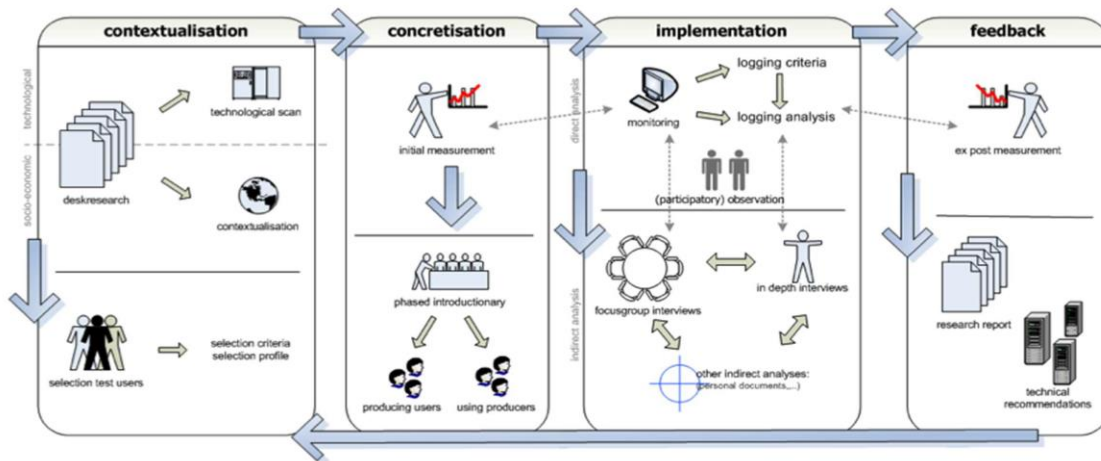


Figure 1: IBBT, iLabo methodology

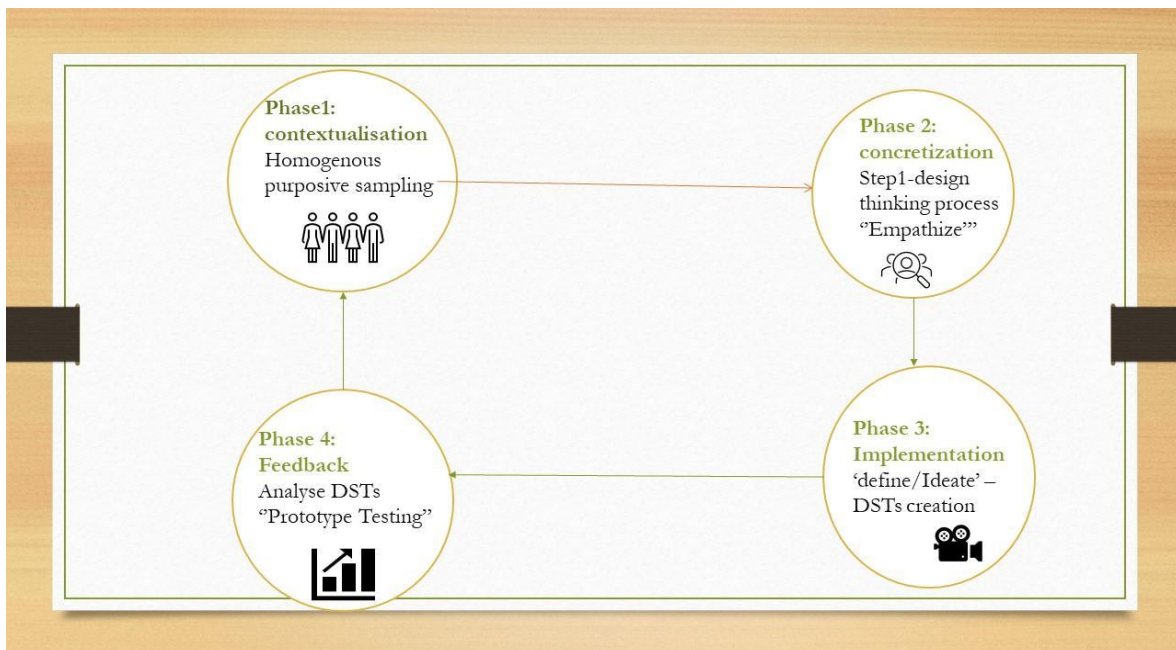


Figure 2: Novel Framework: Revised version IBBT Living Lab research cycle.

Methodology

Digital storytelling has become increasingly popular in recent years as an arts-based research methodology (Morris and Paris, 2022). It has been employed in this study as an arts-based research tool for qualitative research to start a dialogue with participants. Indeed, the researcher has created a storyboard to describe the digital storytelling initiative for this study. This author created a digital storytelling piece (DST) that aligns with the research question and sent it to the participants over WhatsApp (refer to Fig. 4 in appendixes). The digital stories in the form of videos were obtained from the participants over WhatsApp. The DST in the form of videos obtained from the participants were analyzed qualitatively to seek themes, patterns and insights that can emerge from the stories. The inquiry was carried out using the above-revised framework which also addresses a gap in the literature (Leavy, 2018).

Sampling

In this study, the sample size would be determined by the researcher using the non-probability sampling method known as purposive sampling. The characteristics of the population, which includes digital natives who have experienced online learning and are particularly active on social networks, have been used to develop the sampling procedure.

Primary data

A group of 10 participants (8 females and 2 males) participated in the study. They are very conversant with digital platforms, come from public institutions and have all experienced the abrupt shift to online learning during the COVID-19 pandemic. The researcher sent a DST with guidelines asking the respondents to answer open-ended questions related to the online learning experience. They devised DST (videos) which were sent via WhatsApp to the researcher. The responses were transcribed and inductively coded to depict emerging themes.

The virtual open-ended question instrument

Participants were asked to express themselves using this unique literacy style while reflecting on their online learning experience. The researcher utilised a DST to demonstrate to the participants how to participate in the exchange of ideas by developing a digital narrative to represent their experiences. A link to the researcher's DST was discreetly shared with each participant through "WhatsApp". A set of open-ended questions was used by the researcher in the digital storytelling to trigger answers from participants.

Findings

The novel tool of using digital storytelling in research has been used in this investigation to engage in a dialogue with participants. The participants were able in turn to send their DST (videos) over digital media to the researcher. The researcher analysed the data obtained to answer the research questions. Hence, since this study finds means and ways to integrate traditional research approaches with more innovative ones it addresses a gap highlighted by Morris and Paris (2022). Another innovation is to conduct theme analysis using 'Atlas ti' software to obtain word frequency, coding and theme patterns.

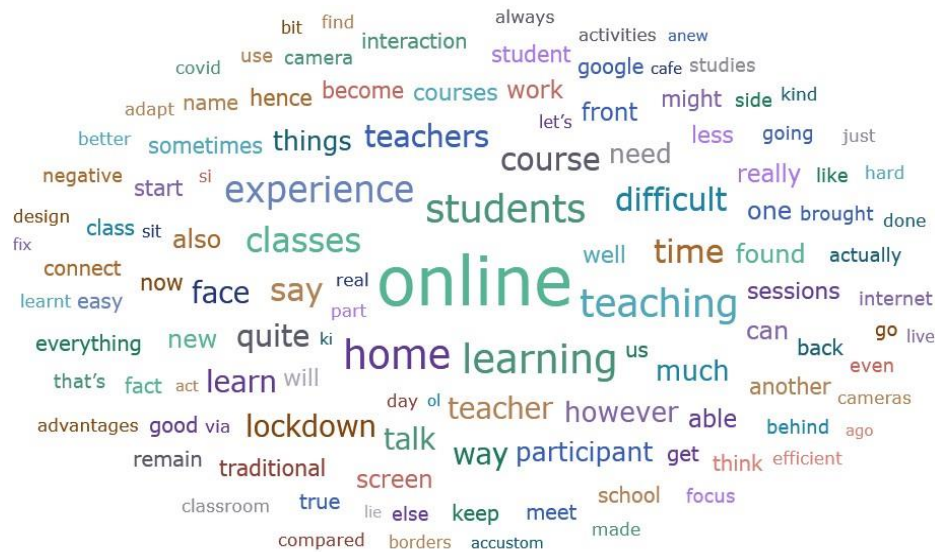


Figure 3: Word Cloud: showing word frequency.

The above word cloud shows the words which are most frequent from the data collection. The words coming out most frequently stand out bigger ‘Online’ for instance which specifically illustrates the main focus of the study. Around the word ‘online’ we also have ‘difficult’, then ‘learning’, ‘teaching’, ‘home’, ‘experience’ and ‘students’. It provides a graphical visualisation of the data being analysed and brings out the fact that the study is about the students’ experience of online learning while remaining at home

Theme Analysis

A deeper analysis of the data obtained from the participants brought forward initial codes (refer to the table1 in the appendix: labelled Initial code)

- Online learning confined within the four walls of a room at home
“...as we were deprived of the freedom of going outside...no room for much physical activities”
- Overnight shift created a need for adaptation
“...Everything is new for us. We didn’t really have time to adapt to this new teaching mode, so it was complicated for me...”
- Difficulties in the face of a novel circumstance
“...we have had to start a new...”
- Perception of the experience
“There is no interaction so one gets bored easily. One feels sleepy.”

Grouping the Initial codes to form themes (refer to Table 2 in the appendix). Themes were obtained based on the word occurrence and number of participants referring to a recurrent word.

- Theme 1: Online learning ensuring the continuity of education at home
- Theme 2: Adaptability is a quality developed over time to thrive in a novel circumstance
- Theme3: Challenges in the midst of an exceptional occurrence
- Theme4: Evaluation of a novel learning landscape

Research questions related to emergent themes (refer to the table 3 in appendix):

RQ1: How do students who have experienced online learning describe their experience of this abrupt transition? (Below are themes that address the research questions)

- Theme 1: Online learning ensures the continuity of education from home was described as being convenient sometimes, as it was from the comfort of the participant's home, there was no need to travel, no need to dress. Some learners even say that they remain in pyjamas.
- Theme 4: Evaluation of a novel learning landscape where some participants related to ubiquity whereby moving outside the four walls of a classroom made room for any time and anywhere access to classes

RQ2: How do students who have experienced online learning during Covid-19 describe the challenges they met?

- Theme 2: Adaptability is a quality developed over time to thrive in a novel circumstance. Many participants related to the fact that once they were able to adapt to the novelty of the situation, they were able to make the most of it. Moreover, this phenomenon offered them the opportunity to build resilience.
- Theme 3: Challenges in the midst of an exceptional occurrence mainly related to technical issues such as connectivity. Moreover, some participants referred to the fact that the teachers and peers have access to the intimacy of their homes

Conclusion

The overnight transition from traditional brick-and-mortar classes to virtual environments has certainly transformed the educational landscape. Some students perceived that particular experience as beneficial, while others found it very challenging. The issues encountered by learners mainly relate to technical issues such as connectivity, access to computer facilities, the digital divide and the novelty of the teaching mode. Further challenges were isolation, health issues and intimacy violation. However, in the face of the challenge, participants related to the fact that over time adaptability was developed. Hence, we can say that a time of crisis or a major transition can bring an opportunity to adopt a novel approach to education and research. Digital storytelling was a convenient tool to obtain rich data over digital media. While exploring this phenomenon using this novel avenue, it was found that challenges urged humans to build on their resilient quotient. The findings of this study can be used by policymakers and educational leaders to develop a contingency plan to be adopted in times of crisis.

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Appendices:

Table1 Initial Code

Initial code	Number of Participants contributing (N=10)	Number of word occurrence	Sample quote
Online learning confined within the four walls of a room at home	10	10 participants out of 10 related to this sudden shift from traditional classes to virtual environments	"...as we were deprived of the freedom of going outside...no room for much physical activities" "I woke up 5 minutes prior to the start of the online course. I connected directly from my laptop through Zoom or Google meet..."
Overnight shift created a need for adaptation	10	9 participants out of 10 express the need for a time of adaptation to this novel environment	"...Everything is new for us. We didn't really have time to adapt to this new teaching mode, so it was complicated for me..." "...we have had to start a new..." "There was a need for a lapse of time for adaptation which created a need for learning to learn..."
difficulties in the face of a novel circumstance	10	9 out of 10 participants related to the challenges faced in occurrence -connectivity issues/ health issues	"We didn't know how to use the software as there were no teachers to help us in 'live' so it was pretty difficult to cope with that and to learn..." "And it also brought up other health issues, for instance, my sight was affected, I suffer from eyes strain"
perception of the experience	10	5 out of 10 perceived the experience as negative while 5 others refer to an experience that helped to build resilience	"There is no interaction so one gets bored easily. One feels sleepy." "I would say it was an enriching experience...I found th tool quite accessible and flexible for me"

Table 2: Grouping the Initial codes to form themes

<p>Online learning confined within the four walls of a room at home</p>	<p>Theme 1: Online learning ensuring the continuity of education from home</p>	<p>“At home, there were no restrictions, no rules” “There was no need for me to spend time travelling...” “I jumped out of bed 5 minutes prior to the start of the class”</p>
<p>Overnight shift created a need for adaptation</p>	<p>Theme 2: Adaptability is a quality developed over time to thrive in a novel circumstance</p>	<p>“...during the first lockdown...things were rather complicated” “...however, the second lockdown, was calm and went down smoothly”</p>
<p>Difficulties in the face of a novel circumstance</p>	<p>Theme 3: Challenges in the midst of an exceptional occurrence</p>	<p>“Another key challenge...I would say is internet connectivity...” “...experience from this ‘exceptional occurrence’ is that the teacher with whom you are studying has had access to the intimacy of your home...”</p>
<p>Perception of a novel experience</p>	<p>Theme 4: Evaluation of a novel learning landscape</p>	<p>“That being said from my personal viewpoint, online courses are quite accessible, very efficient and flexible too.”</p>

Table 4: Emergent themes and Research questions

<u>Research Questions</u>	<u>Themes that address questions</u>
RQ1: How do students who have experienced online learning describe their experience of this abrupt transition?	Theme 1: Online learning ensuring the continuity of education from home was described as being sometimes convenient, as it was from the comfort of the participants home, there was no need to travel, no need to dress. Sometimes learners remain in pyjamas.
	Theme 4: Evaluation of a novel learning landscape where some participants related to ubiquity whereby moving outside the four walls of a classroom made room for anytime and anywhere access to classes.
RQ2: How do students who have experienced on online learning during Covid-19 describe the challenges they met?	Theme 2: Adaptability is a quality developed overtime to thrive in a novel circumstance. Many participants related to the fact that once they were able to adapt to the novelty of the situation, they were able to make the most of it. Moreover, this phenomenon offered them the opportunity to build resilience.
	Theme 3: Challenges in the midst of an exceptional occurrence mainly related to technical issues such as connectivity. Moreover some participants referred to the fact that the teachers and peers have access to the intimacy of their homes.



Fig. 4 Digital storytelling used by the researcher to engage in conversation with participants

Journeying through the tempest: A council member's reflection on the South African TVET college governance system

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Abstract

This article examines the challenges and complexities of implementing compliance in the Technical Vocational Education and Training (TVET) college governance system. It draws on my experiences and insights from my involvement in college governance, using a qualitative approach and referencing my research diary and relevant policy and governance documents. The article highlights the disparities between corporate governance's anticipated roles and desired achievements, revealing the obstacles TVET management and governance face in effectively managing stakeholder relationships. The article focuses on three key areas: compliance challenges, stakeholder engagement, and the transition period between council terms. While acknowledging the article's limitations, it emphasises the importance of addressing compliance challenges, enhancing stakeholder engagement, and improving the transition process within the TVET college governance system. By establishing clear handover mechanism, encouraging stakeholder participation, and providing proper oversight during transition periods, effective governance, transparency, and accountability in TVET colleges can be achieved. The article concludes by offering insights and recommendations for improving management and stakeholder engagement in TVET colleges, highlighting the potential value of using stakeholder theory to enhance college governance. Further research is encouraged to explore the broader TVET governance context and diverse perspectives of stakeholders.

Keywords: compliance, governance, stakeholder engagement, challenges, TVET colleges

Introduction and background

The high unemployment rate among South Africa's youth, standing at 50.6% according to the Quarterly Labour Force Survey released by Statistics South Africa in the fourth quarter of 2021, has significant implications for the country's economy, social well-being, and prospects. This pressing issue underscores the urgent need to address the root causes of unemployment, including inadequate education and training programmes, limited job opportunities, and barriers to entrepreneurship and business development. Collaborative efforts among the government, private sector, civil society, and youth are essential for creating a more inclusive and sustainable economy that benefits all South Africans.

Technical and vocational education and training (TVET) institutions play a crucial role in addressing the challenge of high youth unemployment. These institutions provide practical, job-oriented training that equips young individuals with the necessary skills and knowledge to secure employment and contribute to the economy. However, effective governance of TVET colleges becomes imperative for their success. In recent years, the governance of

TVET colleges in South Africa has been a subject of debate due to recurring challenges, including poor performance, financial mismanagement, and governance dilemmas. As a council member of a TVET college, I have first-hand experience in grappling with these challenges, particularly in balancing the expectations of various stakeholders and making decisions that best serve the college's interests. This article aims to problematise governance in TVET colleges, focusing on the council's role in navigating challenges and complexities while seeking to meet the stakeholders' needs.

This article reflects my experiences as a council member, employing stakeholder theory as a lens to examine the complexities of educational governance and leadership. Drawing on my first-hand experience in a TVET college in the KwaZulu-Natal (KZN) region, I have gained valuable insights into the nuances of educational governance and leadership complexities. Over the years, I have served as a deputy chair and participated in the executive committee (EXCO) and various sub-committees, engaging in critical decision-making processes shaping the institution's trajectory and outcomes. Reflecting on the personal experiences as a council member highlights the vital role of effective governance and leadership in promoting the quality and relevance of TVET education in South Africa. This article aims to share my insights and reflections and contribute to ongoing conversations surrounding educational reform and transformation in South Africa.

Literature review

TVET has become increasingly important in global education as governments and employers recognise the critical role of technical skills and competencies in driving economic growth and development. However, managing and governing a TVET college can be complex and challenging, requiring leaders to navigate various stakeholder expectations and governance dilemmas. This literature review explores critical governance and stakeholder management issues in TVET colleges, drawing on diverse academic and policy literature. The section begins by examining the characterisation of corporate governance within the TVET sector, followed by exploring the restructuring and governance challenges faced by the TVET sector.

Context profiling, King IV Code of Corporate Governance in the South African TVET sector
 In 1994, South Africa introduced the King I Report, which institutionalised corporate governance frameworks. This framework evolved into the King IV Report Code of Corporate Governance, enacted in 2017 and applied to all organisations, including the TVET sector (Institute of Directors [South Africa], 2016). The conditions for establishing the King IV Report are well-documented in the literature, as Doni, Martini and Corvino (2016) and Crous (2017) discussed. The King IV Report can be understood within the context of the Sustainable Development Goals, which explicitly call for institutional governance. It defines corporate governance as "about exercising ethical and effective leadership by the governing body" to achieve ethical culture, good performance, effective control, and legitimacy as governance outcomes (Institute of Directors [South Africa], 2016, p. 11).

In the TVET sector, the governing body is known as the college council, as stipulated in Chapter 3 of the Continued Education and Training (CET) Act 16 of 2006 (as amended) (Republic of South Africa [RSA], 2006). The governance approach of TVET colleges should align with the principles recommended in King IV, particularly the first principle, which pertains to steering and setting a strategic direction (Department of Higher Education and

Training [DHET], 2019). This article focuses on the fourth cluster of the King IV Report, which relates to Stakeholder Relationships and, more precisely, principle 16, as outlined in Table 1 below, stakeholder inclusiveness and the effective management of relationships.

Table 1 - The abridged version of King IV Report on Corporate Governance and Leadership Practices (Dwayi, 2021)

Leadership by the Governing Body/ Corporate Governance Roles	Principles of Corporate Governance: Guidelines and Aspirations	Corporate Governance Outcomes: Benefits to the organisation
Steers and sets strategic direction	Principles 1 to 3	Ethical Culture
Strategy, Performance and Reporting	Principles 4 to 5	Good Performance as sustainable value creation
Overseeing and Monitoring	Principles 6 to 15	Effective control
Stakeholder Relationships: Ensures Accountability and Disclosure	Principles 16; 17	Trust, Good reputation and Legitimacy

This principle emphasises the governing body's responsibility to adopt a stakeholder-inclusive approach that balances stakeholders' needs, interests, and expectations in the organisation's best interest. The governing body should set the direction for stakeholder relationships, delegate responsibility for their management, and exercise ongoing oversight to ensure effective methodologies are in place to identify and engage stakeholders based on their impact on the organisation's activities, outputs and outcomes (DHET, 2019).

Restructuring and governance issues in the TVET sector

Since 2000, the government has systematically restructured TVET colleges in South Africa (Gewer, 2002). This restructuring has entailed the migration from provincial departments to the national Department of Higher Education and Training (DHET), resulting in the need for the DHET to address governance issues across the sector. Gewer (2002) argues that this migration led to the need for clarity in leadership, lines of accountability, and decision-making, as well as the resolution of governance concerns, ultimately stabilising the governance of the colleges. The importance of effective governance and stakeholder management in TVET colleges has been increasingly recognised globally as governments and employers acknowledge the crucial role of technical skills and competencies in driving economic growth and development. Notably, the Minister of Higher Education and Training appointed the first cohort of councils in 2014, followed by a second cohort in 2019, signifying a shift towards more structured governance within TVET colleges.

Ontological assumptions about corporate governance in TVET colleges

According to McGrath, Lugg, Papier, Needham and Neymeyer (2013), issues such as uneven or weak quality assurance systems, policy incoherence, complex governance, and low levels of employer participation were identified in the South African TVET sector. The fact that TVET, over the years, has been put under administration or had qualified audits speaks to the fact that there have been governance issues. Gewer (2016) argues that these governance failures had to be addressed when TVET migrated to DHET after the FET Colleges Amendment Act No. 3 of 2012. These new responsibilities meant increased stakeholder involvement in decision-making to ensure the relevance and effectiveness of TVET programmes (Boonzaaier, 2020).

There is evidence that governance in the TVET colleges has been researched, and the focus has been on specific lenses that touch on distinct aspects. One group of studies examined the governance system. These studies centred on the foundations of good governance to ensure that the core functions of the colleges were grounded on and able to operate and generate the highest possible impact for the college stakeholders. These foundations for good governance included policies, systems and engagement of stakeholders in decision-making in TVET (Apilada, Bandola, Bonsilao and Cardenas 2021; Gewer, 2016; Mende, Oswald-Egg and Caves, 2023; Schröder et al., 2023b). Mende et al. (2023) argue that effective governance of TVET systems should establish an efficient, effective, and equitable system that meets the needs of students while balancing the supply and demand for skills in education and employment. This highlights the need for TVET colleges to respond to labour market needs and gain industry confidence, which drives the motivation for partnerships and stakeholder engagement. In contrast, Darling-Hammond, Flook, Cook-Harvey, Barron and Oshe (2020) suggest that this notion means that policymakers rely on external forces to influence educational reform and shape the operations of colleges.

A second group of studies focused on the governance benefits, challenges, and stakeholder engagement strategies that TVET colleges have recently been experiencing (Graham and Dean, 2018; Schröder et al., 2023a; Wedekind, 2010). These challenges included power imbalances, limited resources, conflicting stakeholder interests, and a lack of awareness and understanding of governance processes among stakeholders. Overcoming these challenges requires proactive efforts to foster a culture of stakeholder engagement, provide adequate resources, enhance stakeholder capacity, and establish clear communication channels (Graham and Dean, 2018; Schröder et al., 2023a).

While Mokoena (2020) argues that successful governance in TVET colleges requires a clear understanding of the roles and responsibilities of different actors and a commitment to ethical and transparent decision-making, Boonzaaier (2020) suggests that stakeholders can participate in decision-making and other activities. However, stakeholders often work against each other and face uncertainty, posing a challenge (Boonzaaier, 2020). Boonzaaier highlights the importance of understanding the needs and to interests of each stakeholder group, thus forming the basis for effective communication and transparency. Both Mokoena and Boonzaaier have identified that balancing the conflicting demands of stakeholders is a key challenge.

It is, therefore, important that the governing body is aware of the risks the college faces and its role in mitigating them. The governing body and its members have to play a significant role in balancing the interests of all its stakeholders and must ensure that it is well managed. This will enhance the college's reputation within its community and thus attract students who will appreciate attending the local TVET college as part of their educational development.

While the studies above provide broader perspectives on governance and decision-making in TVET, Mokoena (2020) narrows the focus to stakeholder accountability within the TVET council. I emphasise that adopting this strategy will establish accountability mechanisms and practices to foster transparency and effective communication between the college council and its stakeholders. Such a college will be able to attract partnerships with local employers

to place students as part of the work-integrated learning core of the TVET sector (Mokoena, 2020).

As mentioned earlier, effective governance is essential because it provides a framework for managing relationships between TVET colleges and their stakeholders, fostering collaboration, and aligning institutional goals with the broader societal context. However, there needs to be more research that explicitly explores effective governance systems in TVET colleges. Some empirical studies offer insights into related areas, such as stakeholder engagement in industry partnerships for work-integrated learning (WIL). However, a notable gap exists in understanding how stakeholders provide input that informs the governance structure and decision-making processes within TVET colleges. Literature evidence on TVET partnerships in South Africa has reflected that the overriding focus tends to be on the breadth or number of partnerships from a statistical perspective, however defined, rather than the qualitative dimensions, modalities and outcomes of partnerships. For instance, the Department of Education's Linkages and Partnerships: Audit 2003 is essentially a quantitative description of the relationships developed by TVET Colleges with industry, non-government organisations, communities and government (DHET, 2014).

Overall, these studies have contributed to the literature by highlighting the significance of stakeholder engagement and the involvement of stakeholders in decision-making processes within TVET institutions and councils. Their insights have provided valuable perspectives on the benefits, challenges, and strategies associated with stakeholder engagement and accountability in the context of TVET. This article, therefore, seeks to contribute to this debate and the existing literature by providing information on governance challenges and complexities of compliance in the TVET college governance system.

Theoretical framework

The stakeholder theory emphasises the necessity of enterprises considering the demands and interests of stakeholders, including consumers, suppliers, the community, and shareholders. It was later elaborated upon and refined from the work of researchers like R. Edward Freeman, Donaldson and Preston, Clarkson, and others. Stakeholder theory has been used in various contexts, including governance and sustainability. Since then, it has become more widely accepted, relevant, and used to manage business and research practices and examine situations in higher education (Langrafe, Barakat. Stocker and Boaventura, 2020). It has been used in several nations to study the stakeholder roles in TVET institutions.

The stakeholder theory proposes that organisations are accountable to shareholders and other stakeholders. The theory underscores the importance of considering stakeholder interests in decision-making and management practices. Figure 1 provides an overview of the critical tenets of stakeholder theory.

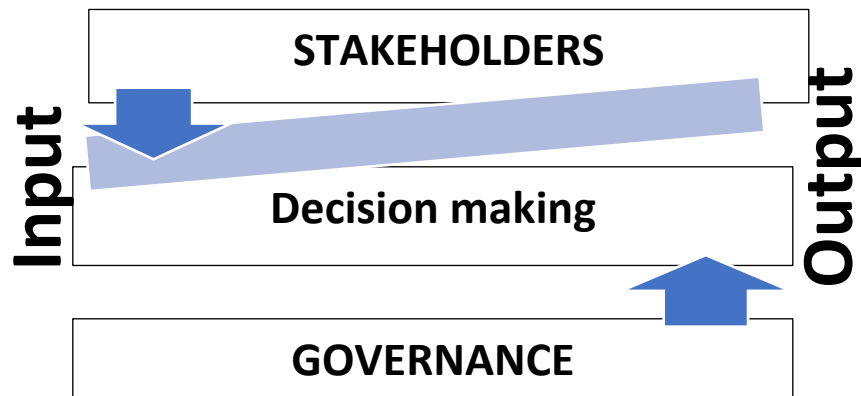


Figure 1- Stakeholder theory tenets (own compilation)

The above emphasises the need for governance structures to consider the stakeholders' input in making decisions and promotes two-way communication between the governing body and stakeholders.

Langrafe et al. (2020) support the use of stakeholder theory to understand the relationships between TVET colleges and their stakeholders. Effective stakeholder management and engagement can help address governance system challenges in the sector and improve outcomes for all stakeholders. By prioritising stakeholder engagement and incorporating stakeholder theory into decision-making processes, TVET institutions in South Africa can enhance their effectiveness and contribute to national development goals.

Managing stakeholder relationships

Donaldson and Preston (1995) have defined stakeholders as any group or individual who can affect or is affected by achieving the organisation's objectives. Clarkson (1995) has further expanded on this definition by distinguishing between primary and secondary stakeholders, with primary stakeholders having a direct stake in the organisation's activities and secondary stakeholders having an indirect stake.

Stakeholders in higher education institutions can be categorised into four groups: providers, users of products, users of outputs, and employees of the sector. Each stakeholder group can participate in decision-making and other activities (Srikanthan and Dalrymple, 2003; Westerheijden, Epping, Faber, Leisyte, and de Weert, 2013). According to Freeman (2010), stakeholders in the context of TVET colleges include owners, management, employees, suppliers, the local community, and customers. The college council members represent these stakeholders, as depicted in Figure 2 below. The internal and external stakeholders play a vital role in the colleges existence and must be managed effectively to support ethical and effective governance.

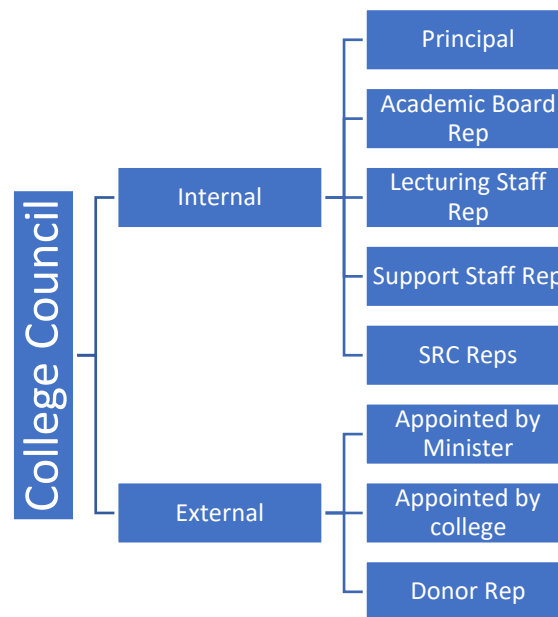


Figure 2 - TVET College Council (own compilation)

The college council serves as the highest decision-making body with a three-fold purpose: providing strategic direction to the college, developing and adopting policies, and monitoring and reporting on college performance. To ensure governance best practices, the council should have a stakeholder plan reported at all council meetings. Additional council responsibilities include developing a college statute, determining a language policy, ensuring accreditation compliance, and adopting a student support service policy in consultation with the Student Representative Council (SRC) and the Academic Board (DHET, 2019).

This article is significant because stakeholder theory advocates for managing relevant stakeholders as a means for organisations to cultivate valuable relationships and foster accountability. Sharing the experiences and insights, I hope to contribute to a deeper understanding of the complexities and dilemmas involved in the governance of TVET colleges. Furthermore, I offer insights and recommendations for improving governance and stakeholder engagement in TVET colleges by suggesting strategies the TVET council can employ to effectively navigate governance challenges in a TVET college and align with the college's best interests.

Research methodology and primary data source

This reflective paper adopts a qualitative research approach to elucidate crucial themes associated with the equilibrium of competing interests, the cultivation of accountability, and the preservation of institutional integrity within the context of TVET colleges. The study spanned a five-year period from 2019 to 2023 and was grounded in my firsthand experiences, personal observations, and comprehensive diary entries during my involvement with the TVET college. Diary entries, as per Krishnan and Lee's (2002) definition, serve as first-person observations capturing a nuanced understanding of experiences.

During the study's duration, I actively engaged with the research setting, dedicating five years to the TVET college. Integral to my immersion was participation in the college council as a deputy chairperson, in addition to membership in five sub-committees and chairing one sub-committee. The council and its sub-committees convened regularly, with a minimum frequency of four times a year, and each session lasting approximately 3 to 4 hours.

To enrich the first-hand accounts, the research incorporated document analysis involving an in-depth scrutiny of various sources, including policy documents, reports, governance documents, media statements, and other publicly available information. This triangulation of data sources—personal reflections, direct experiences, and documentary evidence—facilitated a comprehensive exploration of critical themes. The resultant analysis identified significant disparities between envisioned corporate governance roles and actual achievements, shedding light on the intricate challenges faced by TVET management and governance in the effective navigation of stakeholder relationships.

As this article is based on one council member's reflection, several limitations must be acknowledged. Firstly, the experiences and perspectives shared by me may differ from the broader TVET governance context. Secondly, I may have biases that could limit the depth and accuracy of the analysis. Thirdly, the reflection may be influenced by my motivations, interests, and priorities, which may not necessarily align with those of other stakeholders. These limitations should be considered when interpreting this article's findings. However, my prolonged engagement and verification of results with council members are measures used to enhance credibility.

Some delimitations include that the article focuses on a specific college, and the findings may need to be more generalisable to other TVET colleges or regions. Therefore, the findings may be limited to the context and characteristics of the specific college. The results may not reflect changes or developments after my term.

Analysis and findings

The findings of this article shed light on the disparities between the anticipated roles and desired achievements of corporate governance in TVET colleges. Despite regulatory frameworks, the practical challenges in implementing corporate governance in the TVET college governance system have become apparent.

The disparities and compliance challenges in TVET college governance

The article's findings identified challenges and complexities related to compliance with regulatory frameworks in the TVET college governance system. For instance, the composition of the council and the representation of students have specific criteria that must be met. One such is the Guidelines on student leadership and governance (DHET, n.d, p.12) that explain the term of office and eligibility for the SRC members on College Council.

The term of office of the SRC shall be one (1) academic year (12 months). No SRC member may serve in the college or campus respectively for more than two terms, whether consecutively or separately

Only students who have achieved 60% per subject on all ministerially-funded programmes are eligible to stand for election. Only students who pass 7 out of 7 NC(V) subjects and 4 out of 4 Report 191 subjects (Sec 8.2.4).

These eligibility requirements are in place to ensure academic competence and provide opportunities for fresh perspectives and inclusive decision-making. Furthermore, the limitation on serving more than two terms within the SRC introduces an element of rotation and fresh perspectives into the governance structure, prevents the concentration of power and promotes inclusivity by providing opportunities for new individuals to participate in decision-making. The one-year term of office limit for the SRC and the requisite minimum of 60% academic achievement for officeholders, necessitate frequent bi-elections.

The TVET sector offers various programmes with different duration (trimester, semester, and annual). While I harbour no concerns about the programme structures, a notable consequence of this diversity is the frequent inflow and outflow of students, given that registrations occur four times a year (in February, April, June, and July). Consequently, the council experiences an annual turnover of SRC members due to the cyclical nature of programme enrollments and the term constraints imposed on the SRC.

Each new term brings a learning curve for the SRC members, potentially delaying the implementation of projects or policies as they familiarise themselves with their roles and responsibilities. According to researcher field notes from June 2021, one council member highlighted the turnover issue, stating, *"We have yet another new SRC member in council. This is the second one in our tenure."* Information from my fieldnotes show that between 2020 and 2022 SRC representations in council changed three times'. This signifies the frequent changes in SRC composition and further underscores the challenge of maintaining stability and institutional knowledge within the council. This observation aligns with Zulu and Mutereko's (2020) arguments, emphasising the significance of SRC involvement in decision-making to address student concerns.

Additionally, in terms of Section 10.4.2 of the guidelines for student leadership and governance in TVET colleges (DHET, n.d., p.12) it states that "SRC must be briefed (handing over process) by the outgoing SRC". However, this handover did not happen. When engaging with the new SRC members, they mentioned that there was *"no handover from the previous incumbent has happened"*. As a result, they expressed an inability to provide insights or comment on the issues that the last representative was expected to report back on. A proper handover process is necessary for effective governance within the SRC. Access to information about past decisions, ongoing projects, and stakeholder relationships is essential for the new representatives to make informed choices and effectively contribute to the council's work. The continuity of governance becomes compromised as valuable insights, lessons learned, and established relationships may be lost in the transition between incumbents.

Lack of diversity in the governance structure

Theoretically, governance structures need to consider the stakeholders' input in making their decisions, as shown in Figure 1. However, there is a general understanding within the sector

that no group interests are represented at the council level. Therefore there is no need for any council member to report back to any group of stakeholders.

The individuals on the council are acknowledged as stakeholders, except for the external members, and the internal members are elected to present the respective groups. However, they cannot report back to the group that elected them since they are not answerable to them (DHET, 2019, p. 49).

The statement above implies that there may be a gap between the actual representation of group interests at the council level and the theoretical expectation of taking stakeholders' input into account in practice. The statement highlights the need to examine the current mechanisms for stakeholder input and how stakeholders can effectively influence decision-making processes.

In addition, updating stakeholders is a crucial part of stakeholder interaction. It enables stakeholders to give input, express issues, and participate in decision-making by providing two-way communication between the governing body and stakeholders. The need for the governing body to report back results in a limited comprehension of the various views and demands of those affected, as stakeholders must provide valuable input.

The results show that it is necessary to resolve the problems with policy compliance. To address these challenges, it is crucial to establish a structured approach to stakeholder engagement, including clear channels of communication and coordination. This will enhance decision-making, transparency, and accountability in TVET colleges, ultimately improving the quality of education and training.

The transition period between council terms in colleges and institutional memory

While there is limited academic research specifically focused on the challenges that can arise from the lack of continuity in TVET college councils, the importance of effective governance and leadership in these institutions has been highlighted in studies such as the ones by Apilada et al. (2021), Mende et al. (2023), Schröder et al. (2023a), Gewer, (2016) which emphasise the need for strong and effective governance structures to ensure the success and sustainability of TVET colleges.

Other council terms lapsed before the Minister could reappoint new members. This placed the college management in a highly precarious and vulnerable position as the accounting officer, as it invariably indicated shortfalls in financial accountability and other forms of governance (Gewer, 2016, p. 37).

The above confirms that before the appointment of the council for the term under review, the college needed a functioning council. The process of appointing a new council by the Minister takes approximately one year after the previous council's term has ended. Researcher observation notes confirm that the previous council's time was completed in March 2018. This meant that there was a vacuum of two years where the council college was operating without legitimate authority. The Minister appointed the new council in March 2019, and the induction for council members was conducted in May 2019. However, it was in November 2020 that the first college council meeting was held to elect office bearers. The first full council meeting occurred in April 2021. Mokoena (2020) concurs with the above as one of the findings was that there were delays in the appointment of council members in

terms of section 10(6) of the CET Act and this caused delays in the formation of sub-committees and delays in the oversight role which is crucial for stakeholders.

Discussion

I argue that there needs to be a proper handover between council members, especially the SRC. The qualifying standards, such as the term restriction, pass rate requirements, and the cyclical nature of programme enrollments are essential to appoint SRC members. However, these conditions and restrictions may also present difficulties for governance. First, the rigorous academic schedule, which includes tests during election season, puts competent candidates in a position where they risk being disqualified owing to performance or a lack of preparation time. As a result, there may not be enough qualified candidates for the SRC. Secondly, a loss of institutional memory and consistency in governance may result from the continual change of SRC members caused by the term limits.

Although these standards and restrictions may be in place for legitimate academic and governance reasons, their practical ramifications may make the SRC and overall college governance less effective and continuous. Additionally, the shifting make-up of the SRC may bring new viewpoints, priorities, and degrees of experience. Diverse views might be advantageous, but frequent changes can undermine the council members' ability to work together effectively. It can take some time for the new delegates to get along well with one another and agree on the goals of the college's governance.

A structured handover mechanism within the SRC is essential to lessen these effects. This procedure should guarantee that leaving representatives provide new members with pertinent insights. Specific rules and expectations should be established to support knowledge transfer and a smooth transition between terms. The SRC can improve its governance practices and strengthen stakeholder participation by encouraging continuity and knowledge sharing, ultimately moving towards more effective representation and decision-making.

I maintain that the ability to successfully incorporate stakeholder input into decision-making processes and create feedback loops between council members and the organisations they represent may have limitations. Recognising council members as stakeholders is appropriate because they have a stake in the TVET college's operation and performance. However, it is implied by the policy (*DHET, 2019, p. 49*) that they "are not accountable to the group that elected them", and this viewpoint raises significant problems about stakeholder responsibility and representation within the governance framework.

The issue of not reporting back should be addressed by actively incorporating stakeholders in the governance process and providing them with chances for meaningful participation. This can be accomplished by creating advisory committees or getting their opinions through surveys or focus groups. Actively including stakeholders strengthens the decision-making processes by incorporating their viewpoints and input.

I further contend that the vacuum between council terms undermines the principles of good governance. To solve this problem, it is necessary to minimise governance voids, provide a smooth transition between council terms, and provide enough oversight during

these times. This will help TVET colleges avoid financial and operational difficulties and lessen the possible adverse effects of decisions without the proper council input.

Conclusion and recommendations

The challenges and complications that TVET college governance systems face, particularly concerning compliance and stakeholder involvement, have been discussed in this article. The results show the discrepancies between the expected roles and desired outcomes of corporate governance in TVET colleges, exposing real-world difficulties in putting governance frameworks in place. Compliance issues, like the demands and restrictions placed on the governance structure and the uneven length of council mandates, represent severe impediments to the council's efficient operation and the general management of the institutions. Several suggestions can be made to overcome these issues and improve governance effectiveness. First and foremost, it is essential to set up a methodical handover procedure between council terms to ensure the transfer of information, and expectations should be established to encourage knowledge sharing and a seamless transfer between incumbents. Second, it is critical to have distinct channels for stakeholder involvement, coordination, and communication within the governance structure. The application of these ideas and their effects on the efficiency of governance in TVET colleges should be further investigated in future studies. Further research is recommended that will utilise alternative theoretical frameworks which could use quantitative or mixed methods and this would contribute to the generalisability of the outcomes.

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The effects of a growth mindset in South African Small Businesses

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Abstract

The study aims to identify whether businesspersons' growth mindset virtues affect the performance of small, medium, and micro-sized enterprises (SMMEs). Existing growth theories assert that the ability to attain is one's ability to see attainment before it even materialises. According to Maslow's Hierarchy of Needs, when the lower physiological essential need is met, the following needs on the hierarchy become a deliberate effort to attain. An alternative mindset theory asserts that success factors are credited to conscious deliberation or effort as innate and, thus, malleable. This study is guided by the psychological theory based on evidence that explains human thoughts, emotions, behaviours, and ideas. The theory suggests that attitudes are built and transformed based on evaluating belief systems and the need for achievements. At the same time, attaining success or growth is closely related to performance, and desire is intrinsically linked to choices. If true, this theory is of great importance in this study regarding the consequence of willpower necessary for navigating through the adverse and ambiguous conditions prevalent in which SMMEs operate. This research was exploratory, using qualitative methods to collect and analyse data, which gave this research an interpretative character. Validation entailed online questionnaires and in-depth open interviews to extract raw textual data focused on establishing tenets of businesspersons about business virtues. Using purposeful sampling, eighteen business owners were dispatched with questionnaires, the sample size for this research. Thirteen questionnaires were received and administered. The interpretative analysis of this exploratory study shows that personal virtues of SMMEs' businesspersons affect the performance of SMMEs. This is a narrative that is targeted in this paper as there is still deep-rooted silence in the field of behavioural attitude with relevance to the performance of SMMEs.

Keywords: Intrinsic, extrinsic, tenets, growth mindset, reinventing

Introduction

For a long time, studies have overly emphasised extrinsic factors primarily referable to the crippling failure rate or lack of growth in the SMMEs sector (Chimucheka and Rungani, 2013). Nonetheless, there is no question as to the high rate of failure in SMMEs due to external factors. Friedrich (2016) reports that 70 to 80 percent of small businesses fail prematurely in South Africa within the first five years of their operations. The picture overly painted is one in which the external environment has created this dilemma outside individual responsibility and accountability. Still, there is a serious question about the amount of actual failure contributed by the "mindset" possessed by owners, managers, and inventors of

SMMEs, referred to as businesspersons. That is underexplored, yet has an equal chance of dismay within the SMME sector, a problem worth investigating and solving.

Little systematic evidence is found on the habits of thinking and living standards of business persons of SMMEs in connection to the almost insuperable to the failure rate or lack of growth in this sector. This paper is about identifying whether businesspersons' growth mindset virtues affect the performance of SMMEs.

Literature Review

The role of SMMEs in the economy

Within the field of business, the interest in the growth of small businesses has been reflected in several academic and business debates. A growing number of studies have been presented on the role of small businesses in job formation, recently on the roundtable discussion on 'Productive Employment' in Africa (Hollander and Dekker, 2017). The role of small businesses in an economy (MCEE, 2008, EdinburghGroup, 2012, OECD, 2017). Small businesses operate in supportive and discouraging business conditions (Muriithi, 2017). The interest in the subject of SMMEs, with particular reference to developing countries, has increased during the past decade due to its power to advance economic freedom.

Moreover, several studies have attempted to conceptually improve this sector, showing potential for any economy Nxaba (2014). However, it has not fully realised its full ability nor its accurate measure as a true reflection of its significance (Pandya, 2018). This paper advocates that one of the significant contributions to a fully not realised value by this sector is the little evidence of documented studies that critically examine the habits of thinking and the standard of living by businesspersons as determinants of the lack of growth or high failure rate as a contributing factor to the performance of SMMEs, globally, and in South Africa.

The psychological theory is a good tool for this study because of its ability to convey deliberate desires to achieve by explaining and understanding human behaviour and motivations (Jan et al., 2015). An alternative mindset theory asserts that success factors are credited to conscious deliberation or effort, as to innate, and thus, malleable (Blackwell et al., 2007). This suggests that a growth attitude can be built and transformed based on the evaluation of belief systems and values while expectancy for success is closely related to performance, value is intricately linked to choices.

In general, small business tenets within the South African business environment, it is okay to start a small business and remain small. It is okay to run a small business for generations after generations. It is okay to run a business to serve the theory of physiologically basic human needs or just for a mere service of extravagant lifestyles. The ultimate challenge for developing countries such as South Africa would be to fully understand intrinsic influential factors which make businesspersons resilient, adaptable, willing to learn, and persistent in growing their businesses so this sector can fully realise its full ability as a true measure of its significance in sound economic contribution.

Employment contribution

In the African continent (South Africa included), researchers of SMMEs recognise the potential role of SMMEs in their contribution to employment creation. Harper (1984, cited

in Luiz (2002), generalises that small business carries more labour per unit of capital and require less capital per unit output when compared to larger businesses. This position is also noted by Muriithi (2017); SMMEs are the engine of founding new ventures, income generators and employment to millions of Africans. Without them, African policymakers will be in the abyss of financial contrails and poor development, which would only worsen the living standards of low-income people often served by this sector Santrelli and Vivarelli (2017, cited in Murrithi).

Despite the evidence presented in favour of SMMEs centred on their role in creating jobs, some problems need to be clarified in the intent of doing well by creating job opportunities in the sector. In their study, Discovery of Field Page and Söderbom (2015) primarily focused on SMMEs Aid and Employment in Africa.

Self-imposed controls

Clason (2002) described several cures for a lean purse. On the second cure, he refers to the control of expenditure. Han-yu Shen (2011) evaluated the importance of self-control, sometimes referred to as self-regulation. It was detected that self-control significantly correlates to success and general improvements in life outcomes. SMMEs in South Africa do not deploy sound systems of intrinsic controls, ultimately resulting in their demise (Bruwer, 2020).

Profits reinvesting and skills reinventing

Hoepli (2012) explored the role of continuous learning, training and education in businesses to ensure that skill sets remain relevant. He further discussed the prudence to ascertain different considerations for implementing controls to encourage skills development within the company's and its partners' structures for both current goals and future relevance. The discussions indicated a positive trend in skills development. Businesses must commit to and promote continuous skills development through formal and informal education, which will help them improve service delivery and quality of their goods to customers and create a prosperous competitive advantage. Extra rollover profits, reinvested into the business, have the potential to produce more profits in the future, according to (Ajunwa and Leyira Christian, 2018). This means that SMMEs that put an effort to rollover profits into the business and continuously reinvent their skills are more likely to achieve economic growth objectives and reduce the risk of failure.

The value of a growth mindset in business

The primary source of the growth mindset discipline is contracted from two words: growth and mindset. In this study, growth means development; mindset implies a set of thinking habits and living standards that are assured of attaining or creating desirable circumstances (Dweck (2014). In his first letter on “Disciplines of Meditation and Realization”, Hall (1940) wrote:

“Regardless of how deeply a man studies and improves himself outwardly”, and adding to that, even how marvellous supportive the outside environment, “..., he is not complete until he has perfected his inner disposition”.

If this is acknowledged, it applies the same to businesspersons of SMMEs.

A growth mindset helps SMMEs overcome challenges away from outsider problems by motivating them to grow through superior learning, capacity development, and the belief in their ability to do so (Horatio, 2020).

Methodology

The research follows a qualitative stance. Two selection criteria were used in this study. Firstly, the business had to operate for at least five years, and secondly, it had to have less than 250 paid full-time employees -- excluding contract workers. (OECD, 2005, European Commission, 2003, Page and Söderbom, 2015, Muriithi, 2017). The purposeful sample size was 18 SMME businesspersons operating in distinctive industries in South Africa. This form of sampling is most suitable and relevant to a study based on distinctive characteristics such as experience, attitudes or perception in an attempt to obtain deep-rooted sensitive data (Cooper and Shinder, 2012). Online questionnaires were distributed to all 18 SMME businesspersons to collect data, and thirteen questionnaires were received and administered. On average, questionnaires took respondents just under 37 minutes to complete without interruptions. Of the thirteen businesspersons who responded to the questionnaires, six participated in face-to-face interviews; moreover, two participated in secondary discussions.

The mode of ethical requirements in this research was adhered to. Participants had an opportunity to voice their concerns and ask any questions about the study with a choice to withdraw participation. Thematic analysis was used using NVivo.

Findings and results

In the results section, quotations from the interviews are labelled O (Owner), I (Investor), D (Director), and M (Manager)— numbers 1 to 9 where applicable, and quotes from online respondents are labelled R (1-9).

Drive to pursue businesses

While assessing the drive to venture into business, the initial intent, this part of the interviews shows that businesspersons see themselves as valuable assets for improving the standard of their lives and profoundly the lives of their families and loved ones.

There are several reasons why people would do business. It can be social pressure and all sorts of reasons, but in most cases, it is to make more money than the alternative: employment. [D4]

The underlying tenet to venture into business was interpreted as an indication to improve the standard of living. The five most noted drives to venture into business are (1) compensating salary from a day-to-day job, (2) retreatment, (3) source of income, (4) financial freedom, and (5) economic growth.

Table 1: Summary of responses that drove the influences venture into Business

Drive	Condensed meaning	Interpretation
Compensating salary	<i>I'm doing a business not because I'm desperate but because I want to supplement my lifestyle, and when I die, I want to leave something little more for my kids. So, more of it must come with enjoyment. I need more than the salary to sustain the lifestyle that I want to live. The business will support the life that I want to live but, at the same time, grow it slowly. [O3]</i>	Survival
	<i>I will grow my business moderately because It's like a salary. So, when you get a fixed salary every year, everything goes up, and if your salary is still the same, it will be a problem; that is why you need to grow to sustain the standard of living and create wealth. [D1]</i>	Survival
Source of income	<i>You see, the challenge is that people use businesses for their security, especially with small businesses. I am talking about your shelter, food, etc., so they depend on it; for them, emotions will be there because immediately, if things don't go right in the business, what do they think of? How and where I'm going to sleep, what I'm going to eat, and how I will support my family. [O3]</i>	Survival
	<i>That is why most SMMEs sometimes fail in business; some business owners commit suicide and all those things because they're running the business with emotions. They are putting emotions first. They start to have egos and all those things, so if it doesn't work, they look at themselves as failures, not the business idea, but the right attitude is that if the business doesn't work, it's not me who is the failure. It's the business idea that failed, as to me. With that attitude, I can start another business with a revised idea. [O3]</i>	Survival
	<i>..., if you are saying, this is me who is failing- you might have difficulty starting another business if the last one didn't work. [I4]</i>	Survival
Financial freedom	<i>I started businesses because of pride and glory; life is too short. [O3]</i>	Lifestyle
	<i>When you grow up poor, you have this mentality that you want to have more. When the money is there, you are so caught up in the money that you forget you're running a business. You are so worried about making a profit. You're not worried about what you are giving to the client. That's the biggest problem. [O7]</i>	Lifestyle
	<i>It's the mindset that is the beginning, ... people must understand what business is about: business is work. It is not the glossy situation that people sometimes fantasise about, and people must understand that business will be different from normal skills; some must be developed, and vision needs to be there. If you don't know why you started the business in the first place, except that my neighbour is in business, you won't see an end to what this business is supposed to do, be, or get to be. You're not working towards anything; the copycat will lead nowhere. [O4]</i>	Lifestyle
Economic growth	<i>I can start my business here and grow across African continents... More than that, I want to see my business listed in the JSE, growing, and becoming one of the biggest companies in the country, providing technical services to clean water to people and wastewater to industry. [O3]</i>	Growth mindset
	<i>The ultimate goal is, to be listed into the JSE. What it means is that I am confident enough to say that the business can go public because I can demonstrate to everyone that the business is growing, and the business is sustainable, so, people would have interest in my business because who would have interest in a business that's not growing, that has no hope? [O4]</i>	Growth mindset
	<i>Passion and independence. I opened my business because I needed to see the world through my own eyes. Not to be governed by bureaucracy. My passion for marketing and events played a very big role in my decision. I can do more of what I love now, and I am growing. [R7]</i>	Growth mindset
	<i>The day I wanted to start business, I told myself that I am going to run a business not a Spaza shop. [O2]</i>	Growth mindset
Retreatment	<i>One can see that in this economic lifestyle, things are very challenging. So, I can't rely on salary only. You need to substantiate your salary so that you know, you'll get something else because salary is never enough, for example, you look at technology and everything that's coming into play, the chances are sooner or later, all of us will be out of our jobs, technology is coming to replace us. [O3]</i>	Security

Source: Primary data

Table 1 above confirms the relevance of the underlying tenet (Security, Survival, Growth mindset and Lifestyle) to venture into business in modelling desire towards business ventures.

Casualties of failure and lack of growth in SMMEs

Concisely, this part of the study intended to explore casualties of failure and lack of growth in SMMEs experienced by businesspeople in their businesses or by their observations in business ventures and how it has impacted them over the years. In this regard, the respondents identified five casualties. Among the concertation of their experiences include: (1) *lack of capital injection and cash flow*, (2) *lack of vision and focus*, (3) *lack of structure*, (4) *lack of right fit skills*, and lastly, (5) *lack of discipline* were held in the highest veneration.

Lack of capital and cash flow

The chain reaction action is quite expensive. I have done the work. ... If my client has not received their money, they will not pay me.... So, it becomes a repo effect down to me..., because most people use us as SMMEs because they can get away without paying us on time. It's an unfortunate reality. [O6]

Harmonising...

We are living in very evolving markets. I only got a little work this year; even if I did get work, people are paying very late. So, what was happening was that if I got in some work, I could not pay the suppliers. So, even if another client comes to me and says I need work done for me. [O7]

Lack of vision and focus

The study revealed that SMMEs are growing little because the business needs to set a purpose-driven brand statement regarding the organisation's direction, i.e. where is it going, what is the focal point of services to render, and what products to prioritise? Besides that, they are in business and will take everything that comes their way. Taking everything that comes their way makes growing the business challenging.

The main cause of failure or lack of growth in my business is the need for good business sense and vision. [R1]

In an attempt to qualify the difficulties that can arise due to lack of vision and focus, the respondents had this to say:

I am dealing with tenders and all those things, so, in tenders, you get something today, and tomorrow you get something else, which might not be related to what you did yesterday; it is not easy to grow a business like that [O3]

Lack of structure

Respondents portrayed discomfort with inconsistency in structures and processes in their businesses because they felt that time and resources were being wasted. The theme is that money does not buy structure, and consistency is worn out.

We intend to grow. Nevertheless, we have not grown, We are amazing in what we do, but unfortunately, the brand is stagnant. Nobody can hire us because of the inconsistency in how everything is done. Staff is not skilled properly., Everything stops If the boss is not there; the boss runs the whole company in the head, and we have no documentation. [M7]

Furthermore, reflected on how lack of structure remains a sailor limitation to other vital spheres of business management is expressed by these responses:

Communication is minimal, freedom of expression is limited, and the relationship between superiors or supervisors and normal employees needs to improve. [R 6]

Having based a large portion of the client base on government tenders, which can sometimes be unstable. [R5]

Other respondents have pointed out that a lack of structure negatively influences business management. To the busy, time management is sacred. The un-resourceful find comfort in resource leveraging. Therefore, choosing a structure and process that will save the most time and use the least resources is necessary.

Lack of right-fit skills

The analysis from businesspersons' perspectives on right-fit skills highlighted the cost magnitude associated with the wrong hire. In this case, it was possible from the data to detect a clear pattern where the wrong hire was a significant point of reflection for the businessperson towards skills audit. It seems even more probable with SMMEs as they are the primary source of income for family members, friends, and local communities.

...You see, in 2015, I was booming. I think I made about R3 million gross; that was a lot to me. I think I even made more, but what did I do? I didn't employ properly. [O7]

In addition to the right hire, quite a few businesspeople stories include tales of skills development deficiencies in their businesses.

Not so many managers, directors, owners, and investors in SMMEs and their teams cultivate relevant training and technical expertise to manage different areas of their businesses. [R1].

On delegation....

You never made the right decisions by yourself, especially when you start growing in the start-up of the business; it's fine when you're still small. The minute you start becoming a medium enterprise, you cannot because, more often, an owner makes decisions with their heart, not their mind. [O7]

Lack of discipline

Discipline, in its efforts to capture the under-shadowing influence of business, has served to be useful in its self-imposed standards for the sake of the vision or higher goal. Those who have control of appetite and control of enthusiasm have sufficiently managed to save their businesses from liquidation. This subtheme presents examples of what controls mean to suitability.

On the control of spending appetites...

The business can be successful, but then what happens is that the owner tends to want to live a better lifestyle. It starts by eating into the cash flow of the business. By eating into their cash flow, the business will slowly lack enough money to replenish stocks,

*which is cyclic. It has a **snowball effect** because, slowly but surely, the snowball will get bigger and bigger. [D1]*

Harmonising...

We destroy our business, thinking that we are doing well, whereas we are destroying it. For instance, if a person can take money from the business to spend on something else with the hope that maybe they are going to get another job and then recover it, that is not good business ethics because that money you took will never be recovered..., any new job becomes new money for the business, not what you took. [O4]

On the control of enthusiasm...

When I was booming, I knew what I did wrong; due to excitement, my biggest mistake was the wrong hire. [O7]

On the control of risk appetites

You have to take risks but control your risk appetite; you must understand the numbers of your business and be able to take the loss. Most people do not want to take the loss; when they lose, they want to keep going until the loss is too big.... Then, it is unlikely that you will have any courage left to start another business, for the previous losses left you demotivated. [O3]

On knowing your business...

Besides extravagant spending, controls can be knowing what to buy, how much to buy, and when to replenish it. For example, say if you buy ten litres of milk per day, tomorrow do not buy 20 litres of milk if you only sell nine litres daily. So, it is best to control expenses in the business, too. You need to control the electricity and water, you need to control labour, and you need to control everything that's using money from the business because the profit that you make has to pay for those things before you can see the result of profit. [M1]

On reinvestment, it includes skills reinventing, community reinvestment and capital reinvestment, expressed in sorrowful tones in this interview:

... exaggerated lifestyles, it is tough not to be like that, especially when you grew up poor and saw what money can do. You need to look at this from a psychological point of view and be very careful about this ... the sad reality is that most of us come from poverty. [O7]

Harmonising emphatically from observations, one respondent had this to say...

I deserve that car. It is I who was living in poverty; it is I that for years I was penniless even to put food on the table, and so, I deserve that car. [O7]

In summary, although the study has anticipated mentioning the external factors to have a notable impact on the growth and success of SMMEs. However, some business succeeds in the most gruelling of these circumstances because of how they respond to the situations presented to them.

The business and its owners are one person. The reputation of a director or partner can affect the business in a good or bad way. The controlling parties of the businesses are the agents of the business. [R8]

Attributes related to a growth mindset

Focus on the customer

Customer satisfaction was shown as the most critical measure of business growth. That is, all respondents in their respective business sectors offering different products and services agree that the survival of their businesses relies on customers.

Remember, for a business to be successful, the business needs a customer. You can't run a business without customers. So, as much as you can have the best business model existing, your business model is as good as dead if you can't make your customers happy. [03]

The satisfaction and excitement with the client mostly encourage us to produce even better quality and increase our standards of work and delivery. [R6]

..., so every customer that came to us. We knew them personally and have a relationship with these customers....[M1]

Although in some instances contrasting, neglect of this overly highlighted sphere seems to be overshadowed by chasing of money, the attitude portrayed by the respondents that when serving the customer forget entirely any financial considering. That is expressed sorrowfully in this following interview extract.

We must teach our people that when money comes, there is no need to try to fill the gap of all the years that you were poor... but because there's lots of money, you forget to save to reinvest into the business. To service the client so it can come back. [07]

Furthermore, the importance of distinctively noting your competitors but still being obsessed with customer satisfaction held the highest veneration from the respondents, as expressed by these interviews:

No one has to fail for us to succeed.... my business is customer-focused because your competitor will not pay or contribute to your profits. I don't worry about what the guy is selling next door; I worry about myself because as long as my customers are happy to shop here and my pricing is fair, they will shop with me. [D1]

There's little competition in my business;..., this business requires certain skills, but reputation is what counts the most. [03]

Positive relationships and partners

According to the respondents, all relationships are based on open intent. In one instance, it was clear from one respondent that a businessperson unwilling to strengthen whichever business qualities seem the weakest is destined to run the business down. That is credited with this saying:

...I think I'm failing to support my business based on one, two, and three effects. Come and partner with me. I'll give you this percentage out of this business. [04]

Delegation of authority, trusting others to do tasks that seem the weakest in capacity with no or minimum interference to the entrusted individual to deliver the job, benefits the business.

Realising that the person you are paying monthly can execute more for you is an advantage to the business. You need an accountant in your business. You need an HR manager in the business. [M7]

Focusing not just on relationships but also on the effects on positive relationships formed in a spirit of cooperation and harmony, one respondent had this to say:

Positive relationships and partnerships are important. Without them, the business will not be sustained, and it will not grow. [D4]

The supposition is that working with others in harmony benefits all involved. The business is conducted without any secrets according to the founding principles of most successful societies: positive partnerships.

Economic growth

Economic growth creates an advantage, and it facilitates each entity's ability to be an effective agent in service delivery, expressed as follows:

The service I supply also depends on the economy because if the economy is doing well, people can market. If the economy is not doing well, they do not market because all they are trying to do is to sustain themselves. Getting more business for most people is hard when the economy is bad. [O7]

Contrasting...

You cannot run a business and still look outside; the business is a one-stop shop, and accountability must be there. For anything that happens, you must be able to give reasons; as the owner, you must be capable of fixing most problems or challenges within the business and responding to them accordingly; nobody else has to respond to that, irrespective of the markets and economy but the owner. [O4]

Accountability

It was clear from some respondents that it is necessary to try sincerely to strengthen accountability if it seems weak for the benefit of the business.

...Business is different from just everyday interactions. In business, you have to wear different hats ... just like being accountable, sometimes, to people who do not even know you. You are expected to behave professionally [D4]

We as individuals are also very sucked in self-pity and entitlement... the government is not giving us money, but we do not realise the negative aspect of entitlement. [O7]

Discipline

The respondents specifically discussed self-imposed controls, a core aspect to attract admiration, as they mentioned that it is proper to do what is pleasurable at times when earned. Some, specifically, championed a structured approach to discipline in this narrative.

Success needs to be celebrated. In many incidents, you'll find people who think that whenever you are doing business, you need to focus on the business only until you reach a certain age before you reward yourself; that is not a great attitude. [O3]

While probing for instances when celebrations are considered earned.

When we have reached our target, we plan to keep aside a percentage of our success to celebrate; we still want to keep our staff motivated and delighted to delight our clients. But that percentage is minimal. As much as we enjoy pleasurable things, we discipline ourselves to act for the benefit of the growing organisation. [O3]

Vision and goals

...Every business I have, I see myself taking it to another level. [D1]

... So, especially with the people here at the township, people who don't know our business will probably think that, Um, it's just another small shop. Just a shisa "nyama nyana" – (translated tiny meat market).. [M2]

In this case, it was possible to detect an apparent attitude from these narratives where focus and vision was a significant point of gratitude for respondents when they reflected on their journey from starting small to their current growth status.

Continuous skills reinventing

Firstly, we hire people for the job. They must understand us and understand the service that we provide. And then we also do ongoing training. There are different types of training within hospitality. We will do beverage services, we do food services, and we do health and safety. Those are ways that our staff can keep up and continue doing what they do for the customer and aid their personal growth. [M2]

An educated workforce adopts contemporary skills and value-added products and services with ease. They have a high appetite to adopt new contemporary skills, often necessary to solve current problems and have the same capacity to perceive future issues and, thus, avoid them. For this reason, education institutions need to produce more specialised individuals, such as entrepreneurs, who can contribute to these highly versatile markets at a very tender age.

There must be more training for entrepreneurs at an early age. Entrepreneurship should be encouraged as a career choice. The incubator programmes should make a more meaningful contribution to the success of smaller businesses. More mentorship would make a positive impact on the growth of SMMEs. [R4]

Discussions

This study aimed to investigate the influence of personal virtues on businesspersons' growth mindset relating to the performance of SMMEs. A direct and significant relationship was shown to exist, indicating that the high failure rate and lack of growth in SMMEs can be attributed to certain behavioural conducts and lack of self-imposed controls in attitudes and actions by business owners. The growth mindset virtues of businesspersons correlate with the performance metrics of SMMEs. Intrinsic metrics, i.e. thinking habits and living standards, merged as a contributing factor to the success or failure and lack of growth in small businesses. There are evident a few SMMEs that start small yet can thrive under the most gruelling extrinsic circumstances. Growing into big business reveals that something special should be done for small businesses to grow. Businesses are run by people, which indicates that their actions will impact the outcomes of their businesses.

Conclusion and recommendations

The findings of this study have, without bias, acknowledged that the contemporary external environment is both complex and ambiguous, and the risk factors associated with it are even more fragile for SMMEs. The human brain is the only sphere with unchallengeable freedom and anonymity by far complex – much like the external environment. By appreciating its complexity and power to influence the outside environment, noted already that” it is outside because it inside first”, the findings, to the least, have demonstrated the importance of interplay between a growth mindset and the performance of business with particular reference to small business.

The whole matter of this study takes the view that underperformance is seldom relative to external tenets within the microeconomic conditions. Chiefly, it points to more profound intrinsic individual tenets responsible for the current dismay within the SMME sector. The data analysis, in conjunction with the existing literature in this study, also suggests an unsophisticated process to grow SMMEs. It is instead a process that puts vision and self-imposed standards or disciplines above any extrinsic forces.

Businesspersons who exhibit a growth mindset virtues positively influence the performance of SMMEs. To do so moderately, businesspersons should consistently reinvent themselves through capital reinvestment, skills reinvestment and calm the desires of ostentatious living, shunning displays of extravagance such as proper administration of financials, in the manner which best provides moderate for the most beneficial results of their businesses.

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The impact of disruptions on the operations and performance of the Durban Port

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Abstract

The Durban Port is one of the largest and busiest seaports in Africa – it plays a significant role in the South African economy. However, the port has been experiencing disruptions that affect its operations and performance, for example, labour strikes, COVID-19 and the heavy rains in KwaZulu-Natal during April 2022.

The main aim of this paper was to explore the disruptions experienced by the Durban port and their impact on its operations and performance, and find out what strategies the port has in place to mitigate these disruptions. This is an exploratory and qualitative study. Primary data was collected through semi-structured interviews with 11 participants at the Durban Port. A non-probability, judgmental sampling method was used to select the participants. Employees with at least three years of experience, knowledge, and skills within operations, supply chain management, and managerial skills were included in this study. Data was analysed using thematic analysis.

The findings reveal that technical failures, labour strikes, bad weather conditions, security threats, government regulations, and congestion at the port are disruptions that affect the Durban Port's operations and performance. They resulted in decreased revenue, higher costs, interrupted and delayed cargo. Mitigation strategies to address these disruptions include and improvement in information technology, increased collaboration between employees and improved communication and training. Recommendations are presented in this paper suggest that if Durban Port wants to remain competitive, serious intervention is needed to improve and expand infrastructure, improve security, and implement and develop technologies and train existing employees to improve their skills and ensure that going forward, appropriately qualified and skilled persons are appointed.

Keywords: disruptions, operations, performance, mitigation strategies, Durban Port, Transnet SOC Ltd

Introduction

The maritime industry has long been recognised as pivotal in promoting economic growth and facilitating trade worldwide (Nguyen, Tran, Duc & Thai, 2022). The 2022 review of maritime transport by the United Nations Conference on Trade and Development (UNCTAD) indicated that over 80% of global trade is seaborne. According to this report, the maritime transport and logistics industry has been significantly impacted by various disruptions, such as the COVID-19 pandemic, the war in Ukraine, climate change, and geopolitical factors. These disruptions have resulted in the congestion of specific ports, the closure of others, the alteration of shipping routes, prolonged delays, and increased shipping

expenses. Therefore, Port and shipping channel interruptions prevent food, energy, medication, and other essentials from reaching needy people.

This study was carried out at Durban Port, South Africa, as it is recognised as one of the leading seaports in Africa. Matibe (2021) points out that the Durban Port handles 60% of all containerised trade in South Africa. Thus, this port plays a vital role in the South African economy by functioning as a central point for creating job opportunities, transporting commodities, and facilitating domestic and international trade (Dwarakisha & Salima, 2015).

This paper was prompted by the recent events – labour strikes, heavy rains, and the coronavirus—that negatively impacted the operation and performance of the Durban Port. This resulted in longer lead times, decreased revenue, and increased costs (Ajdin, 2021). Therefore, this paper aims to provide insight into the impact of disruptions on the operations and performance of the Durban Port. Against this background, the problem statement is as follows:

"There is a lack of information on disruptions that threaten the operations and performance of the Durban Port, which could reduce its efficiency unless these disruptions are addressed and managed timeously."

The next section explores existing literature on the topic to provide insight into the impact of disruptions on maritime ports. As such, it presents an overview of the Durban Port, a definition of disruptions and the impact of disruptions on maritime ports.

Review of related literature

The maritime industry has gained momentum and importance for the international supply chain (Munim & Schramm, 2018). This section aims to provide an overview of the literature to provide insight into the impact of disruptions on the operations and performance of international and domestic ports.

Overview of the Port of Durban

The Port of Durban was established during the 19th century, when the initial European settlers conceived the idea of a commercial port. The Natal Bay, wherein the Port of Durban was situated, represented a limited number of naturally occurring harbours accessible along the eastern coastline of South Africa (Scholtz, 2017). It is ideally a hub for containerised cargo from the Indian Ocean Islands, the Middle East, and the Far East (Zangwa, 2018). The Port of Durban is the largest in Africa in terms of the value of cargo and the number of vessels handled. It has the largest container terminal in the southern hemisphere (Mhlongo, 2022). The Durban Port consists of five distinct precincts comprising the terminal infrastructure: The Island View Precinct, the Container Precinct, the Point and Recreational Precinct, the Maydon Wharf, and the Bayhead Precinct (Transnet National Ports Authority, 2020).

Maritime transportation has become a critical tool in the transportation and shipping industries. Maritime transportation is responsible for shipping and transporting global trade (Bosco and Nicholson, 2019). It accounts for over 90% of global trade (International Maritime Organisation, 2018). The predominant mode of exporting goods from South Africa is through the country's biggest port, Durban Port. The port is a crucial node in the transportation network, facilitating the movement of goods and providing transportation

services. The port in question plays a pivotal role in promoting the transportation of imports and exports in and out of South Africa with optimal efficiency and effectiveness.

Globally, ports have experienced disruptions caused by different elements, such as climate change, coronavirus, and strikes. The Durban Port is no exception, as it experienced various disruptions in its supply chain and business operations. The July 2021 violence and looting affected the supply chain of Durban Port – the entire supply chain was closed, including the roads that move in and out of Durban Port. This resulted in long lead times, revenue decreases, and cost increases (Ajdin, 2021). Another significant disruption that is on the rise, are cyberattacks. The Durban Port became the victim of a cyber-attack in 2021, the company’s IT was attacked and the IT system resulted in the disruption that halted operations at the port terminals. It resulting in the Durban Port to declare force majeure at several key container terminals, including Port of Durban, Ngqura, Port Elizabeth and Cape Town.

Rousset and Ducruet (2020) observe that one reason ports are more vulnerable to climate change disruptions is that most ports are located near the sea or rivers, exposing them to a variety of environmental issues such as floods, large storms, and rising sea levels. In 2022, the area surrounding the Durban Port experienced heavy floods, which resulted in serious damage to road, which prevented the movement of employees and vehicles and also negatively impacted the Durban Port’s supply chain and business operations.

Definition of disruptions

Disruption can be defined as a breakdown or interruption of traditional practices resulting from unforeseen incidents or risks within or outside of a company (Ali, Arsl, Khan, & Tarba, 2021). Maritime ports are subject to numerous disruptions that cause issues with port operations and increase costs resulting from late delivery penalties (Asadabadi & Miller-Hooks, 2020). It has been observed through various studies that businesses across all industry sectors are susceptible to operational disruptions, and those disruptions may have negative consequences for the businesses and result not only in lower performance but also in reputational damage (Wagner, Mizgier, & Papageorgiou 2017).

Internal disruptions are unplanned events that disrupt the normal operation of a business and take place within a business. For example, Vedhathiri (2020) found that numerous internal disruptions can be attributed to poor management, failure to implement continuous improvement strategies and poor collaboration with internal departments. Güner (2015) notes that internal disruptions at ports can be attributed to poor management of the port.

External disruptions are unanticipated events that interrupt the traditional operation of a business over which a business has little or no control (Katsaliaki, Galetsi & Kumar, 2021). External disruptions, among others, include the war in Ukraine, climate change, and COVID-19. Existing literature reveals that the Durban Port experienced operation disruptions during the heavy rains and floods in KwaZulu-Natal in 2022. The floods caused extensive damage to containers and the roads leading to Durban Port (Longari, 2022).

Causes of disruptions in maritime ports

Seaports are essential nodes in maritime supply chains and play an important role in the socioeconomic development of local communities. (Hossain, Adams, Walker, 2021).

However, there is an increase in risks and catastrophic losses in maritime transport, including cargo (Lam & Lassa, 2017). These risks are associated with large-scale natural hazards, such as earthquakes, tsunamis, cyclones, and other extreme weather events (Lam & Lassa, 2017). Zhang, Wei, Shen, Bai, and Lu (2020) indicated that disruptions could be caused by natural or man-made hazards such as typhoons and fires and may result in long delays of cargo flows at ports, negatively impacting multiple stages in the supply chain. The following sub-sections provide insight into some of the factors that cause disruptions in maritime ports.

Climate change

Climate change is regarded as one of the causes of disruptions in maritime ports. Natural disasters and labour strikes are the two main causes of port disruptions. For example, Ports in China experienced economic losses from port disruptions due to typhoon-induced wind disasters (Lam & Su, 2015).

Port congestion

Port congestion is one of the causes of disruptions in maritime ports. The Port of Paranaque in Brazil suffered from port congestion which caused operational disruptions such as lengthy loading times, ships waiting to berth, which resulted in low revenue and additional costs (Naude, 2016). Major congestion at ports was identified as a cause of disruption in maritime shipping systems post-COVID-19. This resulted in economic losses and delays (Huang, Tan & Guan, 2022).

Poor infrastructure

Munim & Schramm (2018) opine that the standard of port infrastructure significantly influences logistical efficiency and economic advancement. Thus, a good infrastructure is required in the maritime industry. Poor port infrastructure from the port may include a lack of capacity to accommodate a large number of ships simultaneously, which could result in port congestion, increased turnaround time, and long transit times (Konstantinus, Zuidgeest, Christodoulou, Raza, & Woxenius, 2019). Causes for poor infrastructure include obsolete procedures, lack of infrastructure, inadequate cargo handling equipment, and misuse of handling equipment (Konstantinus et al., 2019).

Furthermore, due in part to problems with integrated logistics that feed into the ports, poor rail infrastructure causes delays and underuse of the rail system for cargo transit (Humphreys, Stokenberga, Herrera Dappe, Hartmann, & Iimi, 2019).

Poor Human Resources planning

Blagovest, Hanzu-Pazara & Nistor (2010) observe that human resource management is an important aspect of the maritime industry. This involves employee development, which begins in the recruitment stage and continues while interviewing prospective cadets and seafarers in order to find the best employees. The implementation of human resource development, such as workforce skills and knowledge development, is important for the port's success (Thai, Yeo & Pak, 2016). The implication of poor human resource planning is that it affects the quality of service delivery (Khumalo, 2019).

Coronavirus

The COVID-19 pandemic affected all seaports, such as the temporary closure of ports and a decrease in demand for cargo which led to reduced income. Various academics conducted studies about the impact of covid-19 on the maritime industry. Hand (2021) noted that the terminal of one of the busiest ports in China (port Ningbo Zhoushan) was temporarily shut down for two weeks after one of the staff members tested positive for COVID-19. The pandemic forced the closure of maritime businesses and restricted the movement of humans and goods due to the quarantine periods in place and to safeguard the well-being of employees (Maliszewska Mattoo, & van der Mensbrughe 2020). Hayakawa and Mukunoki (2021) reported that China experienced a decrease in the amount of exported inputs and an increase in prices, which raised importers' costs and reduced their productivity. Maliszewska et al. (2020) found that COVID-19 affected most countries, and it is estimated that the pandemic increased internal trade costs of imports and export by 25%. An increase in trade costs affects the productivity of maritime businesses.

Impact of Disruptions on Maritime Ports

Adam, Brown, Nicholls, & Tsimplis (2016) remark that maritime disruptions can negatively affect ports. These negative implications, among others, affect business operations financially, regional and national economies and cause damage to vessels (Zhang & Lam, 2016). The potential hazards encountered by ports have a significant impact not only on the functioning of the ports themselves but also on the movement of goods and services and the various entities involved in the supply chain, and any alterations in the operational status of ports may directly influence the transportation of goods, thereby impacting regional and potentially global activities (Zhang & Lam, 2016).

Financial implications

Asadabadi and Miller-Hooks (2018) found that port disruptions can negatively affect a port, resulting in a substantial immediate loss of profit and a potential long-term market share decline. Lam and Su's (2015) findings revealed that port disruptions in Asia result in significant financial consequences and may have a prolonged impact. Moreover, in 2017, Maersk, the global maritime container shipping enterprise, experienced a computer virus attack that resulted in a financial setback of approximately \$200–300 million (Novet, 2017).

Operational disruptions

Cargo disruptions

Any port disruptions put cargo at risk by potentially lowering cargo volumes. The cargo movement in the port may be disrupted if extreme rains, floods, or tsunamis cause infrastructure damage. (Gou & Lam, 2019). Basarici & Bas (2021) note that the maritime sector experienced major delays in receiving goods and frequent roll-overs of cargo resulting from the congestion caused by COVID-19. Therefore, it is important to manage port interruptions to lessen their impact on port cargo and increase cargo handling efficiency within ports. (Loh & Thai, 2014).

Delivery disruptions

Achurra-Gonzalez, Angeloudis, Goldbeck, Graham, Zavitsas, & Stettler (2019) opine that delivery delays can come from port disruptions, which increase shipping costs and cause items to depreciate in value. The extension of delivery and cycle time results in inefficient

service delivery by the facilitators and forwarding agents (Govender, 2014). The delays in the deliveries of cargo may increase shipping costs and cause congestion problems at the port (Brouer, Dirksen, Pisinger, Plum and Vaaben, 2012). For example, bad weather problems led Maersk Sarnia to be 30 hours late departing Kwangyang, South Korea, during cargo collection in South-East Asia. The delay resulted in the ship missing an essential planned port call in Panama's transshipment port of Balboa. As a result, portions of the cargo missed further arrangements, and most arrived late (Brouer et al., 2012).

This concludes the literature review section. The next section presents the method of research.

Method of research

This is an exploratory and descriptive study, and qualitative method was deemed appropriate. The purpose of the empirical research was to: determine the disruptions in operations experienced by the Durban Port; determine the impact of disruptions on the operations and the performance of the Durban Port; and ascertain how the Durban Port addresses the challenges associated with the disruptions in operations. A semi-structured interview guide was designed to achieve this.

Sampling

A target population can be defined as “the entire group of individuals or objects to which researchers are interested in generalising the conclusions” (Sekaran and Bougie, 2016, p. 56). The target population of this study were the employees at the Durban Port, which Transnet operates in the KwaZulu-Natal province and has over 10,000 workers.

A total sample size of 11 participants across different divisions was selected, however, one participant withdrew from the study. The selection criteria involved selecting employees who had been employed for at least three years and have sound knowledge about the operation and performance of the Durban Port. Hence, experts that were not readily available or did not have at least three-years' experience were excluded from the sample.

Data collection

Interviews were conducted via MS Teams by the authors using a semi-structured interview guide to elicit insights from participants regarding the disruptions encountered and the resulting impacts on the operation and performance of the Durban Port. The interview guide, comprised open-ended, probing questions. The interview session was recorded, and the recordings were kept safe with the aim of analysing the collected data at a later stage. This data-gathering technique was suitable for this research study, as it allowed the researcher and participants to engage freely during the interview sessions.

Data analysis

Thematic analysis was used to analyse the findings, which is commonly used in qualitative research. This tool allows researchers to analyse data through the identification of themes, sub-themes, and codes. Vaismoradi, Jones, Turunen and Snelgrove (2016) define thematic analysis as the method used by researchers to identify and report patterns in data. Kenny, Kashy, and Cook (2020) indicate that the processes of data analysis involve sorting, detecting, and well as organising themes and patterns in qualitative data. The thematic

analysis for this study was done by understanding the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the findings report.

Data Quality Control

Data quality control is a formal procedure for controlling the quality and validity of the research data, as well as its integrity across the whole investigation. Lincoln and Guba (1985) identified specific standards that can enhance the trustworthiness of the findings. Lincoln and Guba (1999) observe that the idea of trustworthiness encompasses a range of standards that are essential for ensuring the reliability, dependability, transferability, and confirmability of research data. The interviews were recorded, the recordings transcribed verbatim, and the data cleaned for accuracy to ensure its trustworthiness.

Findings and discussion

This section presents the results of the study. Data was collected through semi-structured interviews with participants at the Durban Port (Table 1). The interviews were conducted to identify the operations disruptions experienced by the Durban Port, the impact of operations disruptions on the performance of the Durban Port, and how the Durban Port addresses (mitigates) the challenges associated with the operations disruptions. Four themes were identified, which are dealt with hereafter.

Table 1: List of Participants

Participant	Position of the Participant	Name of Precinct
Participant A	Senior Manager- EPMO	Container Precinct
Participant B	Manager Marine Operations	Container Precinct
Participant C	Planning Officer	Container Precinct
Participant D	Maritime Safety and Environmental Administration	Container Precinct
Participant E	HR Manager	Container Precinct
Participant F	Risk and Security Manager	Container Precinct
Participant G	Senior Project Manager	Bayhead Precinct
Participant H	Supply chain management Officer	Head office
Participant I	Marine Engineer	Container Precinct
Participant J	Procurement Systems Support	Container Precinct

Source: Compiled by the Authors

As can be seen from Table 1, the ten participants are in a managerial post and work in various precincts at the Durban Port.

Thematic Map/Themes

Table 2 presents the summary of all themes, sub themes and codes that were identified through analysing the raw data.

Table 2: Thematic Map of the Interviews

Theme	Sub-Themes	Codes
Theme 1: Disruptions experienced	Technical failure	Machine breakdown
	Labour strikes	Blockage of roads
	Bad weather conditions	Floods Wind
	Security threats	Cable and fuel theft
	Government regulations	Change of Procurement laws Environmental laws compliance
Theme 2: Causes of disruptions	Congestion	COVID-19
		Shortage of Resources
		Lack of Technology Investment
Theme 3: Impact of disruptions	Financial Loss	Lockdown
		Poor management
		Poor Forecasting
		Cargo Delays
Theme 4: Mitigation strategies	Continuous Improvement	Skill Development and training
		Information technology implementation
		Increase communication and collaboration

Source: Compiled by the Authors

Theme one: Disruptions experienced

The first objective of this paper was to find out the operational disruptions experienced by the Durban Port. Theme one of this research study listed all five operational disruptions experienced by the Port of Durban. The disruptions involve technical failure, labour strikes, bad weather conditions, security threats, and government regulation.

The findings revealed that technical failure affects the Port's performance and that the breakdown of cranes, ships, and machines within the port affects results in slow productivity. Durban Port also experiences delays and late cargo deliveries due to tugboat breakdowns. Another finding revealed that an electricity problem resulted in a fire in Durban's Maydon Wharf Precinct, which affected the operation of the port because some conveyor belts burned.

"Any breakdown of machines within the port operations results in slow production, which is why we always have engineers in place to manage and minimise the damage and any human faults such as electricity errors can cause a lot of damage. The fire that took place in Durban's Maydon Wharf Precinct was a result of electrical faults and the outage caused disruptions as it affected the conveyor belt handling grain." (Participant I)

"Over the past weeks, we experienced several tugboat breakdowns and affected our deadlines because of delays, but the management is planning to add four tugboats to increase production." (Participant B)

The labour strike involved a refusal to work by employees, and the blockage of the road to Durban Port by employees affected the operation and performance of the port as trucks and employees were prevented from entering the port.

Transporting goods during the strike was a challenge because the employees were furious and blocked all roads leading to Durban Port terminals. All port operations

were moving too slowly because sometimes we were advised not to come to work because of our safety. Do you remember the strike that took place over wages last year? That strike led to a shutdown of Pier 1, Pier 2, and Durban Ro-Ro Terminal, and it impacted the operation of the port as there was a shortage of staff and all roads leading into the terminals were blocked, so some trucks were not allowed to enter." (Participant A)

"Blockage of the roads by workers caused delays in trucks carrying coal and chrome at Bayhead. The trucks usually spend four to five hours at the staging area, but during the strike, they spent almost a day there. But not only do the labour strikes affect us, but violent activities around the port premises also affect the port operations and the violence like the one that took place in 2021. We suffered a huge financial loss during looting after the protest action in Kwazulu-Natal as the entire supply chain was closed." (Participant G)

Bad weather conditions, such as heavy rains recently experienced in Durban, affected the operation of the port because the floods damaged Bayhead Road, which leads into the Port of Durban and damage to the port's facilities. This prevented employees and trucks from travelling into the port, which resulted in port closure, delays, and loss of revenue.

"The road going to Durban Port was damaged by the heavy rains, especially in Pier 1 and Pier 2, and the floods affected the access of transportation to the terminals.. This resulted in interruptions such as delays and the port revenues dropped rapidly last year because some Port operations stopped due to heavy rains. If I remember very well some of our containers were damaged, and others even went missing." (Participant C)

Security incidents impact on the operation and performance of the port. Security incidents include theft of fuel in the Port itself and the stealing of cable. This then affects freight rail, port operations and increases repair costs of the Port.

"Yes, the stealing of cables is still happening, and many cases were reported last year. This affects freight rail and other illegal activities relating to fuel theft in Durban Port, Gauteng and Mpumalanga are affecting the operation as well as the costs of the company." (Participant F)

"Yes, Cable theft is not a new issue for Durban Port, as similar events have occurred in the past. For instance, in 2018, cable theft in Durban Container Terminal caused a power outage that hindered port operations for several hours" (Participant A)

Government policies also have an impact on port operation, as changes to laws affect the port processes because staff need to adapt to new legislation. Moreover, often the port needs to change the way it operates or limits the use of certain equipment due to compliance with laws protecting the environment. This results in delays and higher costs.

"I believe the decisions made by the National treasury or government to remove the local content declaration affected us because we had to adapt and comply with new legislation whenever we were purchasing. This resulted in delays when purchasing goods and also affected the entire port supply chain." (Participant H)

"Government policies or customs procedures affect the operations of the port, and sometimes the port needs to alter the way it operates or limit certain equipment

because they want to comply with frequently changing laws of the Environment. This causes delays and higher costs." (Participant B).

Theme two: Causes of disruptions

In the second theme of this paper, congestion was identified as one of the causes of operational disruptions in the Durban Port. During the lockdown as a result of COVID-19, ships and trucks were unable to move due to travel restrictions, which affected the normal operation and revenue of the port.

"I am sure you are aware that most of Durban Port's functions are to transport cargo to different places, and lockdown regulations set by the government affected us and resulted in goods being stored in depots as ships and trucks carrying cargo were unable to move due to travel restrictions. I can say that Covid-19 had a material adverse impact on the operational performance and financial results of the Port. Some of the negative impacts were having a shortage of workers to load and unload ships" (Participant B)

During this time, there was also a staff shortage and shortage of equipment which resulted in longer waiting times for cargo and shipping vessels. To exacerbate this challenge, after the Durban floods in 2022, which have been identified as the most catastrophic recorded in KwaZulu-Natal, Bayhead Road was damaged, which in a heavy congestion of trucks. Moreover, there was a shortage of crafts to support bigger vessels which resulted in the slow movement of operations.

"It's difficult to work if there is a shortage of equipment and staff; sometimes such a situation leads to longer waiting times for cargo and shipping vessels the issue of crafts shortage to support of bigger vessels is a problem we are facing " (Participant A)

"After the April floods, many roads were damaged, especially Bayhead Road and this caused heavy congestion of trucks. This then increased waiting times for vessels. The processes of getting contractors to fix the road were delayed due to funds as well as procurement policies." (Participant C)

The lack of technology investment in Durban Port terminals was noted to be one of the causes of operational disruptions. A lack of technology investment refers to a situation where the port authorities or operators do not invest sufficient resources, capital, or effort in adopting and implementing modern technologies to improve port operations and efficiency. This can include various technologies such as automated cargo handling systems, real-time tracking and monitoring systems, data analytics tools, and digital platforms to connect stakeholders. One of the participants found that the port had challenges with the navigation system in the past, where they lost signal to the ship. They indicated that Durban Port software requires an upgrade to minimise such problems.

"I believe that lack of technology improvement in Durban Port terminals might be one of the causes of operational disruptions such as ship and truck traffic. Software development is needed to manage port activities. In the past, we had challenges with navigation systems where we lost signal to the ships, but it is not something that happens all the time." (Participant J)

"In 2020, Durban Port experienced higher traffic of trucks due to network problems in Bulk Connections which resulted in trucks missing their slots in the Transnet booking system" (Participant G)

Theme Three: Impact of disruptions

The second objective of this paper was to determine the impact of operations disruptions on the performance of the Durban Port. The findings revealed that operations have a significant impact on the financial performance of the Port, and it also affects the delivery time of cargo.

The South African government executed different levels of lockdown to fight the spread of coronavirus. Thus, the lockdown severely affected the country's economy. These measures disrupted supply chains and reduced cargo volumes at the Durban Port (Grater & Chasomeris, 2022). The port experienced a heavy decrease in revenue in 2020 compared to the previous years and a decline in other cargo types, such as liquid bulk, dry bulk, and vehicles. Furthermore, Durban Port incurred high shipping and warehouse costs because of the lockdown.

"Yes, the port suffered a lot from lockdown. COVID-19 impacted the profit of this port as the port was running at cost and we experienced a heavy drop in revenue compared to other years. We experienced delays in cargo as a result of the lockdown and travel restrictions caused a huge impact on the financial performance of the port. And the costs for shipping increased and the port had to pay warehouse companies because the port was unable to transport goods, meaning more storage fees." (Participant E)

"We had to work from home and the business wasn't making any money" (Participant J)

Poor management and leadership can be blamed for operational disruptions affecting financial performance. Poor management is when the management of a business, team, project, or process fails to effectively and efficiently achieve the desired outcomes or objectives. One participant indicated that management needs to improve the facilities of the port to avoid operational disruptions

"I believe that management can do a better job by improving the port facilities. We have the issue of shortage of tugs within the port and it is management's job to attract more investors to inject money and develop the infrastructure." (Participant C)

"I believe the illegal allegations about the port management affected the image of the port, this made our port less attractive to potential customers and investors, resulting in a drop in demand drop as well as the port's revenue." (Participant H)

Poor forecasting systems impacted the operations of the port and revenue of the Durban Port. The port's systems failed to alert the port regarding the upcoming heavy rain, which caused much damage. The damage includes infrastructure damage, revenue decreases, and cost increases.

"We cannot suffer again the same way we suffered from floods last year; the port needs accurate weather forecasting systems to forecast and alert the port about the wind and rain to avoid major damage. More navigation and planning systems are required to avoid disruptions like ships colliding with quay walls and ships crashing." (Participant D)

Moreover, poor forecasting systems resulted in a profit loss due to systems failing to predict expected demand.

“Generally, I can say our systems have improved a lot over the past years, but we once suffered a significant loss in profit due to poor in the past due to poor forecasting of demand because we ended up experiencing congestion.” (Participant A)

Durban Port needs to improve its technologies related to forecasting equipment.

“The port still requires more technologies to assist in forecasting because sometimes the systems that control bookings of trucks have problems and result in disruptions within the port.” (Participant I)

Cargo delays are a problem in the Durban Port, as operational disruptions result in delayed cargo. Cargo refers to a situation where the movement or processing of cargo is delayed beyond the expected or agreed time.

“In the past, we have experienced cargo delays from bad weather and equipment breakdowns, and the delay of cargo frustrates our clients because they can’t receive their goods on time in most cases, this results in additional costs and revenue decreases.” (Participant C)

Furthermore, cargo delays increase the costs of the Durban Port, such as logistics costs, fuel costs, and other penalties. Therefore, this finding reveals that the operational disruptions affected the financial performance of Durban Port.

“Yes, late delivery is something that affects the port profit and increases logistics costs because of lengthy delivery times since ships spend a lot of time in the water and the trucks on the road. This means more costs for additional resources such as labour costs and fuel costs. Sometimes we are fined for late cargo deliveries.” (Participant B)

Theme Four: Mitigation strategies

The last objective of this study was to determine the mitigation strategies Durban Port has in place to address the challenges associated with disruptions in operations. Mitigation strategies deployed to address challenges related to operational disruption include continuous improvement, skills development and training, information technology implementation, and increased collaboration and communication.

Continuous improvement as the method used to address the challenges associated with the disruptions in operations. Continuous improvement refers to the ongoing effort to enhance and optimise various aspects of port performance. Appropriate and effective training and development of an organisation's workforce ensure the growth of new abilities and contributes to an improvement in the quality of goods and services as a consequence of successful performance (Kum, Cowden, & Karodia, 2014).

Skills development and training play a significant role in improving the port's operations. Skill development training is essential in improving the business's performance and achieving the company's goals (Gurav, 2020). Staff have received training from the Durban Port, which helped the port increase the quality and reduce defects within the port operations.

This finding aligns with the literature, which states that improving human resource competence, education, and training is important in maintaining and reducing port disruptions (Hoa & Haasis, 2017).

"We have faith in continuous improvement; that is why we adopted TQM programs such as educational training and teamwork programs, leading to an improved outcome of maintaining higher quality and reducing defects within the port operations. Over the past years, we adopted efficient recruitment procedures with the HR department to help to select suitable candidates and provide them with continuous training." (Participant A)

Furthermore, Durban Port hosted a skills development programme to help boost the leadership skills of employees to perform at the highest level.

"Improving the skills of our staff is our priority as the Port, and we want them to understand all operations fully. Last year we hosted a leadership skills program intending to empower employees, especially the ones who are doing graduate programs." (Participant G)

The findings revealed that the port adopted new technologies in the procurement department to speed up the purchasing processes.

"We are given training about ways to select vendors and also given training for new systems such as Sage and Microsoft Excel. This tool is vital for us as the procurement department, and we are using it to create scorecards to evaluate vendors. We attend training on how to communicate with external service providers and conduct due diligence before appointing any vendor. This is very important because we can get higher quality and also maintain good communication with our service providers." (Participant H)

Radio-Frequency Identification (RFID) is one of the important technologies used by the Durban Port

"Earlier on, I mentioned that we had some navigation problems, but fewer cases have been reported since we started using a tool like Radio-Frequency Identification." (Participant J)

Management adopted new technology systems to recover from the coronavirus, which enabled them to manage bookings.

"In 2021, Durban Port adopted a new booking system for scheduling the routes for ships and trucks, and the systems helped us recover from COVID-19." (Participant B)

Information sharing is one of the tools used by seaports to prevent and minimise operational disruption. Information sharing is important because it creates transparency among internal port personnel and increases the visibility in the port and visibility is (Heilig, Schwarze, & Voß, 2017). The findings revealed that communication and information sharing are essential aspects of the port to increase profit and reduce costs.

"Transparency is vital, especially in a large organisation like this. We, as engineering teams, need to communicate with the finance or procurement teams regarding the purchase of new equipment or the advertisement of tenders regarding maintenance, resulting in time savings" (Participant I)

"I believe sharing information with colleagues is essential, and rightful resources are needed. For example, at the office, we all have landline phones, which makes everything easier because it is easy to share information without walking."
(Participant H)

Seamless communication is crucial in the port – communication as an uninterrupted and efficient exchange of information between all parties involved in port operations. Seamless communication allows smooth movement of information and operation.

"I created a seamless communication within the Department to allow employees to communicate with each other and share all information than only reporting to me. I have experienced good results because the operation runs more smoothly, more efficiently, and with fewer disruptions." (Participant B)

Conclusion and recommendations

This research examined how port interruptions affect Durban Port, South Africa's biggest port. Operational disturbances, including unexpected weather, equipment failure, strikes, and government regulations, affect port performance, resulting in poor productivity, revenue, expenses, losses, cargo delays, infrastructure damage, and port congestion. Recommendations include information sharing, port strategic partnerships, infrastructure enhancement, communication and cooperation improvement, personnel training, and IT deployment to reduce operational interruptions. Improved forecasting and prediction technologies may help the port mitigate external disturbances like severe weather. It is suggested that Durban Port invest in infrastructure, hiring, training, security, and technology to be competitive. Overall, improving Durban Port operation and financial performance requires a comprehensive approach that incorporates technology, process improvement, infrastructure upgrades, safety measures, partnerships, improved supply chain efficiency, and cost controls.

The limitation of this paper is that the study was conducted at the Durban Port and not all six major commercial ports in South Africa. Therefore, the data and findings of this research cannot be generalised to other ports in South Africa. Future similar research could be undertaken to include all six major commercial ports in South Africa to explore the impact of operational disruptions on the operation and performance of those ports. However, it is suggested that the findings and recommendations of this paper could play an essential part in the port industry by contributing new and fresh perspectives to the knowledge base.

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Challenges in inclusive social innovation for informal waste pickers in South Africa: insights from a pilot study

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Abstract

Informal waste pickers are part of a marginalised population in South Africa. Many of their interests are represented by social innovations that aim to promote their integration, or inclusion, into the wider waste management system. A study based in critical theory and systems thinking is proposed to evaluate to what extent their inclusion is conceptualised as a social transformation to avoid their exploitation, disempowerment, and lack of sustainable livelihoods in the long-term. Research on marginalised groups may be challenging due to the contextual and cultural differences between the participants and researcher, thus, possibly deterring certain researchers from research on marginalised groups. Under a lens of decolonisation, this is an undesirable outcome. Thus, publications on the pilot studies of such research could encourage researchers to engage with marginalised groups and aid them in designing efficient and effective research. This meta-analysis of the pilot study demonstrates the challenges of conducting qualitative research on informal waste pickers and the value of publishing pilot studies to assist emerging researchers and decolonise higher education. In particular, this study finds that bridging the linguistic divide is challenging in the South African context, and universities should consider making translation resources more accessible to emerging researchers.

Keywords: waste management; marginalised groups; communication in research; decolonising universities; critical theory

Introduction

As the movement towards the decolonisation of universities grows in South Africa, there is a pressing need to identify areas of the colonial legacy that impact on the development of emerging researchers (Le Grange, 2016). South Africa is a multicultural country with 12 official languages, however, the majority of its tertiary institutions are English-medium, with a minority being Afrikaans-medium; the native African languages, if these are used, are done so secondarily and optionally (Madadzhe, 2019) This may challenge researchers who are not able to speak certain languages and who may be in experiences with conducting research in unfamiliar cultural environments. These challenges may discourage emerging researchers from pursuing such cross-cultural qualitative research when there no practical guidelines from prior research and when there are a lack facilities to overcome these challenges. This could lead to a neglect of marginalised groups or certain linguistic groups, which would

hinder attempts at decolonising research. It may also force researchers of particular cultural groups to steer away from qualitative research on marginalised groups.

To being to address this issue of decolonisation of research, meta-analyses of research through self-reflection may assist researchers to identify problematic areas. This study aims to meta-analyse a pilot study conducted on the marginalised group of informal waste pickers in South Africa. Waste pickers in South Africa are mostly black African individuals for whom English is not a home language. They are often characterised by low levels of education and a distrust of authoritative figures, such as academics. They often work itinerantly and in environments that are regarded as precarious and resource constrained. By self-reflecting to meta-analyse the piloting process, the researcher aims to identify problematic areas inherited from a colonial education and propose directions for future research to address these challenges, thus decolonising the research space in universities.

Background to the pilot study

Social innovations for waste picker integration: a movement towards social transformation

The Sustainable Development Goals (SDGs) of the United Nations aim for the responsible consumption and production of waste to reduce the need for landfills and incineration, which lead to pollution, health hazards and environmental degradation (United Nations Department for Economic and Social Affairs, 2022). Recycling is favoured as a means to reduce waste entering these streams, however, it is a poorly managed process in many developing countries as recyclables are not separated from general waste to be inputted into suitable recycling streams (Kasinja & Tilley, 2018). This surplus of recyclables from various waste producers, such as residences, retail, industry etc., has resulted in the phenomenon of informal waste pickers who collect and sort the recyclables before selling these to recyclers or middlemen (buy-back centres), thus forming integral components of a circular economy (Barford & Ahmad, 2021). As these waste pickers, or pickers, have proven effective in increasing the recycling of waste, many developing countries, such as Brazil, Colombia and India, have advocated for the integration of waste pickers into city-wide recycling initiatives (Ambati, 2019; Rosaldo, 2022). However, historical marginalisation and persistent power asymmetries drove their exclusion. Consequently, social innovations emerged that engender the inclusion of informal waste pickers (Gutberlet, 2021). These mainly comprise of a nucleus of informal waste picker associations, non-governmental organisations and/or social enterprises working with a wider network of residents, corporate sponsors and local government.

In South Africa, recycling led and organised by municipalities is absent or weak. This gap in waste collection, sorting and recycling is filled by waste pickers, who recognise the financial opportunity of recycling (Samson, Timm, Chidzingu, Dladla, Kadyamadare, Maema, Mahlase, Mokobane, Molefe, Ndlovua, Phakoe, Pholoto, Sekhwela and Shogole (2020). National estimates cite at least 90 000 waste pickers involved in transactions with recyclers and intermediaries estimated at R872 million in 2017 (Godfrey, 2021). Although the country has a national Waste Picker Integration Guideline, attempts at integration are non-existent or poor in most of the country (Department of Environment, Forestry and Fisheries & Department of Science and Innovation, 2020; Pholoto, 2018). Thus, social innovations have emerged to protect the interests and inclusion of waste pickers in certain areas. These social innovations take the form of waste picker associations, cooperatives,

support organisations, sorting facilities, and self-claimed inclusive buy-back centres that offer better prospects to waste pickers (Pholoto, 2018).

Samson (2020) asserts that waste picker integration should be considered as a social transformation, rather than as merely utilitarian integration. The latter promotes the exploitation of waste pickers as cheap labour and absolves the municipality of their civic duty to provide proper recycling services (Samson, 2020). It is proposed in this study that this also leaves waste pickers in a precarious position when initiatives begin to reduce the amount of waste produced or increase reuse, therefore reducing the amount of waste available for collection. For example, Coca-cola recently produced a multi-use bottle that can be returned to retailers by consumers for remuneration. This may have an unintended impact on informal waste pickers because they are not regarded in the system. Thus, social innovations for waste picker integration should promote social transformation wherein waste pickers are recognised as valuable co-designers, co-creators and co-innovators of the waste management system. In this way, waste pickers can weigh in on new solutions and practices that may affect them and find suitable solutions with stakeholders in the wider waste management system. Thus, waste pickers needs to be included not just in service provision, but in the innovation of the waste management system itself so it better integrates them.

This inclusion of marginalised groups in innovation is a type of social innovation that reconfigures the role of the marginalised from purely beneficiaries to contributors, creators and innovators (Foster and Heeks, 2013). This requires that the intention, benefits, processes, structures and narratives of the system are aligned with the inclusion of the marginalised, as proposed by the Ladder of Inclusive Innovation (Foster & Heeks, 2013) and the Transformative Social Innovation framework (Avelino, Wittmayer, Pel, Weaver, Dumitru, Haxeltine, Kemp, Jørgensen, Bauler, Ruijsink, and O’Riordan, 2019), which are both based in systems thinking. Critical systems heuristics, developed by Ulrich and Reynolds (2010), proposes that power is represented by involvement in processes such as decision making and knowledge production, and that marginalised groups ought to be involved in such processes (Jackson, 2019). This innovation requires shifts in power that have historically favoured stakeholders such as the municipal waste management entities and private waste management companies. However, such power shifts have not been analysed within the context of inclusion in many of the above-mentioned social innovations. It is unclear whether they are limited to assisting waste pickers as informal service providers, or whether they radically transform the lives and livelihoods of the waste pickers by empowering them as decision-makers and knowledge producers (Fougère & Meriläinen, 2021). It is also unclear how the nucleus organisation which represents the interest of the waste pickers interacts with other stakeholders in the system. Thus, a substantive study is proposed to contribute to two gaps in the practical knowledge of the social innovations: (1) how radical is the inclusion of informal waste pickers within these social innovations; (2) how is power managed between the nucleus organisation and other stakeholders of the social innovation.

Conceptual and theoretical frameworks of the substantive study

A theoretical framework employing critical theory is used, as proposed by scholars such as Ito and Igano (2023) and Mlotshwa, Dayaram, Khanyile, Sibanda, Erwin, and Fleetwood (Mlotshwa et al., 2022) in research on waste pickers. Critical theory seeks to understand power and how it is used to reproduce, or change, social inequality and power asymmetry

(Avelino, 2021). According to a systems thinking approach, power affects the processes of an organisation in terms of who is involved and in what roles (Jackson, 2019). The theoretical framework employs theories on power-over, power-to, power-with and power-within to analyse the power dynamics and shifts towards inclusive innovation. Power-over is defined as coercive, manipulative or dependency-based, and is the ability of an actor to constrain the choices available to another actor or set of actors in a significant way (Pansardi & Bindi, 2021). Power-to, as defined by Bertrand Russell, is the capability to produce intended effects (Avelino, 2019). Linked to this conceptualisation is empowerment wherein an actor can achieve a “more legitimate distribution of power” (Pansardi and Bindi, 2021, pg. 53). This may also link to theories on power-within, which is defined as “individual’s awareness of her own capacities which motivate the action” (Pansardi and Bindi, 2021, pg. 53).

In systems, stakeholders may exercise the various forms of power to influence the behaviour of the system (Jackson, 2019). When power over marginalised groups dominates, they are limited as beneficiaries and innovators of the system. Avelino (2019) cautions against proposing that power-to is necessarily beneficial for inclusion and transformation. Whilst capacity, empowerment and an awareness of one’s capacities are imperative to asserting one’s role as an innovator in a system, this does not inherently dismantle coercive and manipulative exercise of power that exclude marginalised groups. Rather, a situation may arise where marginalised groups are empowered within their own separate systems (Ridley-Duff et al., 2018).

Thus, what is necessitated for an inclusive system is for power to be shared. The conceptualisation of power sharing, or power-with, was propagated by management consultant and social worker, Mary Parker Follett, and has since been expanded by social change scholars (Pansardi & Bindi, 2021). Power-with implies that two or more parties share power within a system (Pansardi & Bindi, 2021). Avelino (2019) theorises that this contributes to inclusion and collaboration.

The aims and objectives of the pilot study

This substantive study is preceded by a pilot study to assess the feasibility of the study, i.e. aspects of its implementation and utility, such as resources, time constraints and costs; and a pre-testing of the research instrument to assess whether the instruments are suitable for the quality of data required for the study. (Gudmundsdottir & Brock-Utne, 2010) maintain that a pilot study has the potential to increase the research quality along various stages of the interview process, most importantly, enhancing the reliability and validity of the research and the acquisition of rich data in the substantive study. (Pratt & Yezierski, 2018) assert that a pilot study contributes to the credibility and dependability of a larger study, and “builds the researcher expertise in using/troubleshooting the interview platform”. Furthermore, a pilot study can improve the transparency of the interview process.

The lack of guidance in the methodological challenges may also discourage researchers from diverse backgrounds in engaging with marginalised groups due to the perceived difficulty of crossing cultural and contextual barriers, leading to less diversity of researchers and participants. This is anti-thetic to the social transformation South African higher education institutions aim to achieve through their efforts of decolonisation to develop demographically diverse research and student cohorts, and the establishment of African

scholarship and languages (Fomunyam, 2017). Thus, structures in universities that facilitate the inclusion of researchers across demographics into African-centred research are imperative. It is argued herein that the publication of pilot studies facilitates this inclusion.

The pilot study is of particular importance in this case as the researcher was unfamiliar with the context of the waste pickers, many of whom are marginalised, itinerant or seemingly vagrant, and of different linguistic and socio-economic backgrounds to the researcher. Although studies on waste pickers have been conducted in South Africa, few cite the methodological challenges in data collection and fieldwork management. Thus, the aim of the pilot study is to: critically assess the qualitative data collection to guide a substantive study on social innovations facilitating waste picker inclusion. The objectives are: (1) to critically assess the reliability and validity of the research instruments in terms of theoretical and practical use; (2) to evaluate the data collection process and fieldwork management through meta-analytical discussions with the research team; (3) to contribute to methodological knowledge on conducting qualitative pilot studies to guide emerging researchers.

Analysing literature on pilot studies and marginalised and vulnerable groups

Examining the paucity of publications on pilot studies

Whilst the value of pilot studies for feasibility and research instrument suitability is established, publications are not widely available from empirical qualitative research to guide researchers in designing and implementing pilot studies (Malmqvist et al., 2019). An extensive review of the literature indicated that there is a paucity of publications on qualitative research in waste picker management in South Africa, and the available substantive studies limit detailing the insights from the pilot studies. This results in a gap in understanding how amendments were made along the interview process for emerging researchers in the field.

The reason for the paucity of such publications is debatable. One suggestion is that qualitative data, unlike quantitative data, is based on interpretive inquiry of the research, which will not inform on the suitability of research instruments (Malmqvist et al., 2019). Therefore, whilst useful and pertinent to the researchers in the substantive study, it is far less useful to external researchers who would benefit from understanding the limitations and reflections of the substantive study when designing their own research.

This issue has persisted for many decades in the research community. As early as 2001, scholars such as van Teijlingen and Hundley argued that publishing pilot studies to elucidate hurdles along the interview process is critical to the accountability of the research and is an ethical obligation of the researcher. Others supplement this advocacy by suggesting the pilot studies create “methodological knowledge and awareness about conducting pilot studies” (Malmqvist et al., 2019, p. 2). By publishing pilot studies, it is clearly demonstrated how a researcher managed their own biases through reflective practice. Malmqvist et al. (2019) argue that this is especially useful for PhD students who must undertake lengthy, in-depth and often independent research, but may not have the experience in a new field of inquiry. Thus, it is critical for researchers to publish on the conduct of pilot studies and the reasoning behind the amendments they make. This knowledge could significantly support fieldwork management for emerging researchers to: (1) inform well-designed pilot studies

and prevent a waste of resources and time; and (2) guide research protocol amendments. The article aims to contribute to such methodological knowledge on conducting pilot studies in qualitative research.

Examining the need for pilot studies for research with marginalised and vulnerable groups

Marginalised and vulnerable groups are protected by research ethics to ensure that they are not exploited nor compromised (Dawadi, 2022). Thus, there may be unfamiliar or unexpected contextual or cultural differences for the researcher, for example, Dawadi (2022) finds that marginalised individuals were hesitant to participate because they were unused to the research culture and that their low education levels impacted how they could understand the consent forms and the researcher. V (van Teijlingen & Hundley, 2001) assert can be overcome by a pilot study. It is argued that conducting pilot studies may highlight challenges to the interview process and may also highlight excessive burdens placed on the participants, for example, expecting ill participants to travel far distances or be present for long periods of time to engage with the interviewer (Dawadi, 2022). Often, the decision to amend a protocol to accommodate these challenges occurs after a pilot, yet may not be reported in publications, increasing the likelihood of other researchers repeating the initial mistakes. By understanding the conditions, reasoning and logic behind the amendments, future researchers may design better studies and alleviate the burden on marginalised and vulnerable participants.

This is particularly the case in research on informal waste pickers who are socio-economically and politically marginalised and are characterised as itinerant and having poor educational backgrounds (Hayoun, 2021; Neville & Tovar Cortés, 2023; Ntuli, 2019). However, studies involving engagement with waste pickers do not adequately describe the challenges and limitations involved; at most, a brief limitations section will mention these challenges. Thus, there is little opportunity to understand how methodological shifts were made throughout the process, yet scholars acknowledge that interviewing waste pickers is a challenging experience (Ntuli, 2019; Seabi, 2022). It is proposed that reluctance to concede methodological flaws is detrimental to research in the field and future researchers. This pilot study attempts to demonstrate both the value of pilot studies in qualitative research involving marginalised groups and the value of sharing this information through publications.

Analysing the state of pilot studies on waste pickers in South Africa

In South Africa, Seabi (2022) notes that interviewing waste pickers is challenging. Firstly, obtaining gatekeeper permission can delay the interview process. Secondly, physically getting a hold of waste picker participants was difficult, and Seabi had to constantly follow up with them. Lastly, Seabi notes the issue of waste pickers having to respond in their home language (Setswana), which took a significant amount of time to transcribe and translate. Waste pickers range in cultural and linguistic groups, and many are foreigners (Ntuli, 2019; Yu et al., 2020). Ntuli (2019) reports that simplifying terms of power and integration to waste pickers or trying to explain these in vernacular where there were no direct substitutions, was a limitation in his study. Whereas Ntuli (2019), Seabi (2022) and Pholoto (2018) were able to speak the vernacular, or at least did not indicate the use of a translator, this is a hurdle for many researchers in South Africa who may want to engage with waste pickers as: 1) there are eleven official languages in South Africa; and, 2) many South Africans from different cultural or linguistic backgrounds may be limited in their proficiency in these languages. This implores the use of translators, such as in the study by Yu et al. (2020). This may introduce

subjectivity into the data collection process, compromise the meaning and complexity in responses, and compromise the credibility, dependability and confirmability of the research, particularly if the researcher resorts to translator from the community rather than a certified translator. The use of translators may also help identify improvements to the research instruments (Yunus et al., 2022). Yu (2020) does not elaborate on this concern but does suggest that fieldworkers were able to better explain the questions to participants. This suggests that using translators in a linguistically diverse setting is necessary. It is suggested that piloting the study will uncover the issues with the translators.

Pholoto (2018) also alludes to an important concern that arises in a country as diverse as South Africa, i.e. the position of a female researcher from a different background to the participants. She notes that white residents in Vaalpark were unwilling to engage in her data collection until her supervisor arranged for an experienced white researcher to accompany her as a liaison. This issue of race is an unfortunate legacy of South Africa's colonial and segregationist history but does raise concerns for emerging researchers who are demographically new to certain research fields. Furthermore, Pholoto (2018) also notes that her supervisor arranged for a black *male* researcher to accompany her, indicating issues with gender as a researcher. It is proposed that pilot studies by others in the field or, as in the case of Pholoto (2018), highly detailed substantive studies, must endeavour to guide emerging researchers, especially those who are female and from different communities to their participants. However, this is only possible if these studies are published, which is not often the case for pilot studies where a majority of the hurdles are encountered.

Yet, despite these many hurdles, most literature on informal waste pickers fails to present how these challenges were overcome. For example, Yu et al. (2020), in their study on waste pickers in Cape Town, advise that a pre-test and re-evaluation of the research instruments were conducted, but do not specify the logic behind these steps. On the other hand, Pholoto's (2018) insightful transparency clarified that focus groups are challenging with waste pickers as she could not intervene; she then amended her protocol to conduct one-on-one interviews. Whilst these hurdles arose in her substantive study, it is arguable that a pilot study would have revealed the several issues Pholoto mentioned. Nonetheless, her transparency guides further research.

Thus, it is suggested that the paucity of documenting the amendments in methodology, either at the pilot level or in the substantive study, fails to prepare researchers who are: a) new to the research area of informal waste picking; and/or, b) from different socio-economic, language or education backgrounds. This lack of critical analysis of the interview process may limit emerging researchers in the field, thus acting as a deterrent, and fails to inform research protocols and instruments to ensure effective and clear data collection instruments, and efficient data collection procedures. This paper will contribute to the gap in knowledge on conducting effective pilot studies in qualitative research, particularly in the field of informal waste pickers in the South African context.

From the literature on pilot studies, the following questions arise that guide this analysis:

- 1) How were the researcher's own biases addressed?
- 2) Theoretically, are there any questions that do not capture the concepts needed for the study? Alternatively, are there questions that are redundant or irrelevant to the theoretical concepts?
- 3) From a fieldwork management perspective, are there contextual or cultural challenges to conducting this research with the marginalised group of informal waste pickers?

Lens of the decolonisation of the university

In discussing the methodological findings of the pilot study, the lens of the decolonisation of the university will be used. Decolonisation focuses on rejecting intellectual imperialism that favours knowledge produced by Western scholars or that is based purely within Western knowledge systems. Rather, in the context of Africa, decolonisation aims to shift the balance of power in the knowledge hegemony towards African scholarship, i.e. scholarship produced by African scholars and situated within African knowledge systems and contexts (Fomunyan, 2017).

The conceptualisation of decolonisation is vast, and shall only be discussed in relation to university curricula and action. Drawing on Le Grange's (2016) review of decolonisation, it is imperative that academics and students are committed to including the voices of the colonised in the university curriculum and, by extension, research. Furthermore, Le Grange identifies that language is a critical factor, and that decolonisation entails teaching/learning in indigenous languages. It is also necessary for critique that dismantles imperialist models which force indigenous populations to communicate without their own frames of reference. As with critical theory, Hayes, Luckett and Misiaszek (Hayes et al., 2021) identify reflexivity as a tenet of decolonisation.

Whilst the body of work on decolonisation is significant, the practical results in South African higher education are less remarkable, according to Fomyunam (2017), and have largely focused on developing curricula and issues of access (Le Grange, 2016). This study endeavours to use this lens to understand how universities may, at a practical level, better support emerging researchers in conducting research across cultural and contextual divides, as in the case of marginalised groups. This will better include marginalised groups in research agendas and knowledge systems.

Methods

The pilot study for the qualitative aspect of the data collection was conducted with two groups: informal waste pickers associated to one of the social innovations and members of management of the social innovations in Johannesburg. The social innovations selected for this study had to have a mission and vision to improve the livelihoods of informal waste pickers and be distinguished from traditional for-profit companies that focused on profit maximisation.

Itinerant waste pickers were selected by convenience sampling whilst members of management were purposively sampled. In total, four waste pickers and two members of management were included in the pilot study. The in-depth semi-structured interviews with the with the waste pickers were conducted around an anonymised park in Johannesburg,

whilst the members of management were interviewed at their headquarters in Johannesburg. Table 1 below indicates the demographics of the population. The reason for using one organisation for the pilot study was based on logistics and the assumption that the waste picker population across the four social innovations of the substantive study would have similar socio-economic, cultural and education backgrounds. As the table below confirms, this assumption was reasonable as participants in the waste picker cohort demonstrated a wide range of educational experience and years in the sector, as well as a range of language groups. Importantly, the education levels of waste pickers ranged from senior primary (grades 4 to 7) to matriculation (grade 12), with one waste picker having a university degree.

Table 1. Demographics of research participants

Group	Native language groups	Language of interview	Experience in Sector (years)	Education (Grade)
Waste pickers* (n = 4)	Tsonga, isiZulu, Sesotho, eSwati	Sesotho, isiZulu, English	4 – 20	7 – >12
Management (n = 2)	English, isiZulu	English	2 – 9	12

*data for 1 participant was not captured

Face-to-face, in-depth, semi-structured interviews, ranging from 25 minutes to 52 minutes were conducted using an interview schedule for each group and the audio was digitally recorded. This was preceded by handing out informed consent forms in English, isiZulu and Sesotho, depending on the participants' preferences. The form was explained by either the researcher or the translator and signed before the research commenced. Interviewees were advised that the interviews would be recorded and used for research purposes, that there would be anonymity, and that they could withdraw from the interview or withdraw their responses from the research at any time.

The interview schedule was sent to the translator to review before the start of the interviews. Due to the prohibitive costs associated with hiring a translator for face-to-face interviews, the researcher approached the waste picker liaison from one of the organisations who was able to act as a translator. The translator was a black male, aged 29, who was fluent in isiZulu and Sesotho, English, and had matriculated secondary school. The researcher was aware of the possible compromise of the translation, however, was limited in her choices due to financial constraints. The translator was present at all the interviews with the waste pickers, as these were conducted in English by the researcher and translated into the home language of the waste pickers if they did not speak English. The translator was not required for the interviews with the members of management as they spoke fluent English. He was involved in the waste picking industry, and was, therefore, able to reconceptualise the questions into more understandable forms during the interview process. The interviews were transcribed, however due to the prohibitive cost to transcribe and translate the interviews, it was decided that the responses translated to English by the translator would be transcribed only.

Meta-collection of data on the pilot study

This sub-section describes how meta-collection of data on the pilot study. Challenges with the wording were observed by the researcher and translator during the interviews and were meta-analytically discussed with the translator during and between the interviews. In particular, the style of the questions was too academic, and the translator struggled to explain complex ideas, such as inclusion, knowledge production and formalisation without extensively rewording the questions and using more practical examples from the waste picker’s experience.

The interviews were thematically analysed using NVivo software to determine the validity of the constructs and the salience of the research instruments. The conceptual frameworks of the Ladder of Inclusive Innovation (Foster and Heeks , 2013) and the Transformative Social Innovation framework (Avelino et al., 2019), as well as critical systems heuristics developed by Ulrich and Reynolds (Ulrich & Reynolds, 2010) were used to elicit the themes from the data as follows: (1) intention of the social innovation (intention); (2) impact of the social innovation on waste pickers (impact/consumption); (3) processes waste pickers are involved in (processes); (4) structures of the system (structures); (5) narratives and mental models; (6) game changers. Under ‘processes’, two sub-themes were identified: (a) decision making; (b) knowledge production and exchange. Under ‘structures’, further sub-themes were identified: (a) relationships; (b) physical infrastructure; and (c) formalisation. ‘Relationships’ was further delineated into relationships with: (i) residents, (ii) corporate sponsors; (iii) municipalities; (iv) private waste management companies and competitors; (v) other waste pickers; (vi) the nucleus organisation of the social innovation itself. This initially captured the power dynamics between the waste pickers and the actors, as proposed by critical theory on power. However, ‘relationships’ become a confounded theme as it captured both the attitudes of the stakeholders and the actions. Thus, a separate theme of power was generated that overlapped with ‘relationships’. This theme was then sub-divided into: (a) power to; (b) power over; and (c) power with.

The following matrix, based on Malmqvist et al. (2019) was used for each question per group when analysing the usefulness and comprehensibility of the questions:

Table 2. Matrix for research instrument assessment

Question no.	Usefulness	Comprehensibility	Logic	Notes
	<i>(Did the question elicit a rich response? Was it relevant to the topic?)</i>	<i>(Did the participant easily understand the question or could it be reworded/reframed?)</i>	<i>(Did the question appear in the right place in the interview schedule?)</i>	<i>(What additional questions repeatedly appeared as a follow-up or guide to this question?)</i>

Challenges to the management of the interview process were observed and noted by the researcher, and transcriptions were also used to note the researcher and translator’s conduct. These shall be discussed below. This reflexivity is a fundamental component of critical management studies theory (Durepos et al., 2021). Firstly, the researcher noted her attitude

and perceptions before beginning the data collection process, then compared these to her attitude and perceptions during and after the data collection. This elucidated any unconscious biases and outlined the conscious biases held by the researcher. Secondly, the researcher analysed each flaw with the research instrument and fieldwork management to determine which of her own biases informed the development of these flaws.

Results

Overall, the results evaluate the feasibility of the study and the reliability and validity of the interview instrument through the findings on the fieldwork management and interview format, respectively. The findings are critical to amending the research instrument and interview process to increase the content validity, reliability and dependability of the research. These findings are reported considering the researcher's reflections on her own biases and conduct: 1) the researcher was initially hesitant to travel to the locations due to unfamiliarity with the area and concerns of safety but was bolstered by the presence of the liaison; and 2) the researcher structured the questions from her own academic perspective and needed a better understanding of the respondents. This is a critical finding for emerging researchers as it links researcher bias and misconceptions to the research design. The subsections conclude with a guideline of steps for improving research design.

Findings on the interview format

The semi-structured interview elicited rich responses from the waste pickers and members of management. However, it must be noted that, at times, waste pickers provided yes/no answers and had to be prompted further by the interviewer. Nonetheless, the richness of the data indicates that this qualitative approach produced reliable data for the study.

Framing of the questions

The meta-analysis performed with the translator during the interview process revealed challenges with the academic style and complex wording of the questions, as mentioned above. This issue was less problematic for members of management or the one waste picker with a higher education level. These findings concur with Dawadi (2022) who finds that education levels may affect the extent of participation and the detail of the responses given. To overcome this, the translator had to discuss the complex terms with the researcher and then find a way to break them down into easily understandable versions for the waste pickers. A more thorough briefing should have been done beforehand to amend how the questions were asked, however, the pilot provided that opportunity. Terms that were particularly difficult for the waste pickers to understand were: inclusion, knowledge production and formalisation. Where the waste picker was struggling to understand the intent of the question, the translator would use an anecdote to lay the foreground before attempting to ask the question again in a different way. For example, when asked about sharing knowledge, which was misunderstood by one waste picker to mean sharing knowledge with competing waste pickers, the translator reframed the question into several shorter questions based on the waste picker's experience and understanding to clarify the intent of the question.

On the note of knowledge production and exchange, the question was not specific and waste pickers tended to reflect on exchanging knowledge with other potential pickers rather than with the social innovation or other stakeholders in the system. Rather than change the question and neglect the emerging views on building a community or competition with other

pickers, this question was retained but was followed up with a questions on knowledge exchange with the management of the social innovation and with other stakeholders.

Theoretical gaps in the questions

Data saturation was reached, indicating that the research instrument demonstrated content validity (Hennink & Kaiser, 2022). However, this validity was improved by addressing gaps in the theoretical knowledge in the instrument. The analysis of the interview schedule in Table 2 highlighted that the questions relating to engagement with stakeholders and systems change were not framed in a way that prompted sufficient responses on the relationships between the waste pickers and stakeholders (municipalities, competitors, waste picker associations, residents, buy-back centres, corporate allies). This compromised the validity of the research instrument and was, thus, reframed. Although some waste pickers naturally progressed to talking about these stakeholders, in most instances, multiple clarifying or follow up questions were needed. Thus, direct questions on these stakeholders needed to be included in the schedule to link to the theoretical framework on power relationships. Secondly, for both groups, the question on the measurements of inclusion was either redundant, as it was answered in other questions on inclusion, or poorly understood and difficult to break down by the translator. Thus, the interview schedule was amended to remove this question. Lastly, the interview schedule did not make explicit reference to the future plans for inclusion of the social innovation that deviated from its current model. This was added to the schedule after it was clear that members of management wanted to discuss this.

Findings on the fieldwork management

The management of the interview process was analysed to determine how the researcher could improve the dependability and confirmability of the data. Key issues arose due to the itinerant nature of the waste pickers, the language barriers and translator issues, and the atypical research environment, described below. However, the advantages of using a community liaison and translator were also highlighted.

Tracking the questions

The researcher also noted that as the interview was semi-structured and, at times, flowed according to the responses of the participants. Although this benefitted the richness of the data, the language barrier made it difficult to keep track of the order of the questions. The researcher was also overwhelmed at times by the research environment, i.e. the park where the waste pickers operated, because it was unfamiliar, raised concerns of safety, and did not have infrastructure (i.e. no chairs or desks) to make taking notes an easy process during the in-depth and long interviews. For example, during one of the interviews, an individual alleged by the waste pickers to be a substance abuser, approached the researcher for a handout. When it was clarified that that was not the researcher's intent, the individual became hostile towards the waste pickers and a tussle ensued. This was disconcerting for the researcher. Thus, when analysing the transcriptions, the researcher noted that there were a few missed opportunities to ask follow up questions to enrich the data. However, the results also illustrate that as the number of interviews progressed, the interviewer became more relaxed and familiar with the environment and was able to conduct the interview with greater ease and insight.

Value of a liaison between the researcher and waste pickers

A liaison was critical to the interview process and enhanced the feasibility of the study. As he was a known and trusted individual to the waste pickers, he could facilitate the introduction of the researcher and knew the points of the informed consent that needed to be emphasised to the waste pickers. Consequently, the waste pickers were amenable to being interviewed. The liaison also guarded the researcher from the altercation with the individual mentioned above.

Challenges and advantages of using a translator

The findings of the pilot study elucidated issues and advantages of working with a translator. The translator was from the nucleus organisation and within the field of waste management, thus, the objectivity may have been compromised. The translator engaged in lengthy discussions with the participants, leading to gaps in the translation. This jeopardises the accuracy of the translation and the dependability of the results. To resolve this, the researcher frequently paused the dialogue to ask for a direct translation, rather than have the translator summarise a lengthy response. However, the translator was able to elicit rich responses as he was from the field and understood the intent behind the questions and the responses. He also created a convivial environment that encouraged the waste pickers to respond as he could converse more colloquially with them.

Steps to guide research instrument design

- Practice reflexivity throughout the research design process
- Design the research instrument with both the community liaison and translator
- Break down loaded concepts into understandable units
- Gain an understanding of the physical environment of the research from the liaison and troubleshoot possible challenges to the fieldwork
- If the translator is not trained in translation techniques, develop and trial a strategy to ensure accurate and dependable translations

Discussion of the findings of the pilot study

This study contributes to the gap in pilot studies conducted on informal waste pickers to assist emerging researchers in the field with their research, particularly fieldwork, management. These findings may be useful to researchers who come from different cultural and contextual backgrounds to the waste pickers, for example, the researcher in this study is a South African Indian female who speaks only English and conversational Afrikaans. In a setting such as South Africa, which embraces many cultures, it is necessary to be aware of the challenges that also arise for researchers owing to this diversity. As detailed in the results above, emerging researchers should bear in mind that informal waste pickers may have lower education levels and speak a variety of native languages. Thus, it is beneficial to liaise with a community liaison and employ a translator who is either able to simplify complex terms found in academic research, and/or who is in the field of waste management. It is also important to develop the research instruments with the translator to ease the fieldwork. This is discussed further below.

Preparing researchers through pilot study publications

Firstly, the findings of the pilot study indicate the researcher was under-prepared for the rigours of conducting qualitative research with the marginalised population that is informal waste pickers. The review of empirical studies on waste picker interviews in South Africa fail to prepare emerging researchers in this field who are from different cultural and linguistic backgrounds to certain marginalised populations, which is anti-thetic to the aims of decolonisation in South African higher education institutions (Fomunyam, 2017). For example, Seabi (2022), Ntuli (2019) and Pholoto (2018) could speak in the vernacular and, thus, limited their challenges to breaking down the language and transcribing the interview. However, Ntuli (2019), who mentions that the concepts of power and integration were problematic to understand, did not go further to detail their method to address this problem. On the note of working with a translator, Yu (2020) indicated using experienced fieldworkers but did not detail the difficulties that arise from this process nor the effect on the dependability and accuracy of the data. Thus, the researcher could not gain a sufficient grasp of the challenges of interviewing across languages, nor a guide on how to tackle these. Furthermore, except for Pholoto (2018) who mentioned how difficulties in accessing participants was troubleshooted, Ntuli (2019) and Seabi (2022) do not describe the physical conditions that could prove challenging to the fieldwork, such as the lack of facilities and the presence of suspicious characters in the areas where waste pickers conduct their work.

It is highly unlikely, given the fact that many waste pickers operate in local parks and are itinerant, that such challenges would not arise. Yet, had these authors published in-depth on their pilot phases of their studies and their troubleshooting, certain difficulties could have been circumvented in this study. Thus, these findings concur with Malmqvist et al. (2019) who advocate for conducting and publishing on pilot studies rather than briefly mentioning these in substantive studies. Furthermore, these findings concur with the thoughts of Malmqvist et al. (2019) who value the insight of pilot studies and how these are conducted for the preparation of PhD students, and arguably other researchers, entering a new field of inquiry.

Secondly, on the issue of translators, this study provides insight on how to engage with translators who may be from the community and not trained in translation. Yunus (2022) notes that translators introduce issues with accuracy and objectivity; using untrained translators is, therefore, not the optimal route for researchers. However, literature on using trained translators neglects to consider the practical challenges of this, especially in a research setting where resources are limited (Yunus et al., 2022). This study finds that working with an untrained translator does raise issues with objectivity and accuracy, however, these issues can be troubleshooted, as suggested in the findings. Further research should be conducted on how to mitigate these issues when untrained community translators are used. This would widen the prospects for emerging researchers who cannot afford the exorbitant fees of translation in qualitative research, which requires hours of work.

Decolonising research in higher education through practical assistance

Universities could also consider having dedicated translators on retainer for students to access, although this is a daunting feat in a country that has multiple official languages. By either providing a guide to using community translators or by providing access to trained translators, emerging researchers may be less deterred from researcher across language

groups, enabling more research to be conducted by a more demographically diverse research cohort on marginalised groups. This would align with the decolonisation agenda of South African universities as it would draw on and build knowledge systems in African contexts, diversify the potential populations that could participate in research, and diversify the researchers active in researching specific knowledge systems (Fomunyan, 2017; Hayes et al., 2021).

It is further argued that by withholding the troubleshooting that occurs in research on marginalised communities, particularly in the pilot phases, universities abet the cultural divides between researchers and marginalised groups by restricting certain researchers to Western approaches and knowledge systems (Fomunyan, 2017; Hayes et al., 2021). Researchers from different cultural and contextual groups are reliant on supervisors/co-investigators with established networks in the field, of which there are few in South Africa, to navigate research on informal waste pickers, as in Pholoto (2018) and (Yu et al., 2020). As demonstrated above, reports on pilot studies or phases on the research could assist in bridging the gap between cultures, contexts or networks, yet these are negligible in South Africa.

Conclusion

This study demonstrates the need to conduct and publish on pilot studies not only to improve the theoretical underpinnings of the research instruments, but to prepare emerging researchers in unfamiliar and challenging fields. South Africa is a special case in that it does not have a majority language, and although English may be taught in many schools, the historical disadvantages of the past and poor education outcomes for certain marginalised groups, such as many waste pickers, means that their participation in research is limited.

This pilot study also suggests an avenue for further research on researcher development that is pertinent to the outcomes of this conference. Research should critically examine how research methodology curricula prepare postgraduate students for research with marginalised and vulnerable groups and in atypical fieldwork settings. Additionally, making resources such as translators more freely and cost-effectively available may encourage researchers from more diverse backgrounds to engage in research on marginalised and vulnerable populations.

Acknowledgements: The authors would like to acknowledge the NRF-SASAC doctoral scholarship that funded this research from the National Research Foundation and British Council.

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Forging a vibrant creative industry in KwaZulu-Natal (South Africa): A governance and organizational conceptualisation for KwaZulu-Natal United music industry association (KUMISA)

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Abstract

The paper examines the role of the music industry in KwaZulu-Natal (KZN), South Africa, in the broader context of the rapidly growing Creative Economies. South Africa's National Development Plan 2030 recognizes the creative and cultural industries as potential drivers of creating eleven million new jobs by 2030. However, the KwaZulu-Natal music industry is confronted by numerous challenges, prompting many artists and music professionals to seek better economic opportunities in Johannesburg and other regions worldwide. The primary aim of this paper is to evaluate the effectiveness of KUMISA, a government-established non-profit organization, in its support and development of the music industry in the province. It also seeks to offer recommendations for enhancement of the industry in the province. Furthermore, the paper compiles a framework to stimulate growth in the creative industry, not only for KwaZulu-Natal but as a replicable framework for other provinces, thus expediting music industry growth. Reflective praxis is employed to draw insights from the experiences of the authors, and other industry stakeholders who have been charged with developing the necessary infrastructure, resources, skills training, and collaborations essential for the music industry in the KZN province.

Keywords: Creative Economics, Economic Development, Business of Music

Introduction and background

In the realm of artistic expression, music is often considered a gateway to the depths of human emotion—a sentiment widely acknowledged. Many can vividly recollect the solace found in the resonance of a single note during the challenging days of the COVID-19 pandemic, a sensation that transcended time and place. Music is deeply woven into the very fabric of their being and soul, endowed with the remarkable ability to soothe and infuse vitality. As such, it becomes imperative not to overlook the role of music in the economic landscape, as its absence would undoubtedly lead to the withering of spirits. This paper is dedicated to the preservation of music, its industry, and its pivotal place in the economy and societal structure of human life. It stands as an indispensable component within every global economy, aligning itself with the creative industries that intricately weave through the socio-economic fabric.

This significance can be aptly defined as follows:

“creative economies generate value – sometimes economic but more often cultural, societal, educational or psychic in the form of personal fulfilment. Such creative economies can hardly be captured by traditional taxonomies as they exist at different scales and involve a diverse range of actors – from leaders in large public institutions

or corporations to regional arts councils, local community networks and individual artists”

- Comunian, Hracs, & England, (2021:8)

The Economic Forum on The Future of Jobs and Skills in Africa has highlighted Creative Economies as a thriving sector, with a 7% growth rate between 2011 and 2016. South Africa's National Development Plan 2030 aims to generate eleven million new jobs by 2030, focusing on specific sectors, including the Creative and Cultural Industries (CCI). These industries encompass various creative works, such as drama, music, film, design, and fashion, contributing to 2.95% of the workforce (Abisuga-Oyekunle and Sirayi, 2018).

The South African Music Industry Council (SAMIC) reports that the music industry contributed over R2.2 billion (approximately USD 150 million) to the country's economy in 2020 (SAMIC, 2020). However, many artists and music professionals from regions like KwaZulu-Natal often relocate to Johannesburg for better economic prospects due to infrastructure, knowledge, and governance challenges (Ngwane, 2022; Forbes Africa, 2022).

According to Kunene (2022) KwaZulu-Natal is an eastern province of South Africa which consist of eleven districts, with high poverty levels within most of them. National Treasury Republic of South Africa. In 2019 the population of this province was estimated to be at 11.5 million with an estimated GDP of R498.490 billion and 36% of the population living below the poverty lines (National Treasury , 2019). The World Bank (2018) attributed this dire poverty as a direct consequence of the province having been the biggest apartheid homeland which means most of the provinces' people were closed off from socio-economic resources, affecting them to present day (Kunene, 2022).

While some artists from KwaZulu-Natal gain global recognition, few leave a lasting legacy (Masuku, 2019). To address these issues, KUMISA (KwaZulu-Natal united music industry association) was established, supported by the provincial government (Moloi, 2019). This paper explores strategies to advance the music industry, focusing on KwaZulu-Natal. It assesses KUMISA's effectiveness and suggests improvements while creating a growth framework. Authors, Dr. Lindiwe Kunene (Chairperson for KUMISA and Management and Entrepreneurship academic in the School of Management Information and Governance at the University of KwaZulu-Natal) and Mr. Thando Nyameni (Managing Director at KUMISA) provide insights. The paper addresses challenges such as infrastructure and business knowledge hindering the music industry's development in KwaZulu-Natal.

Literature Review

The music industry grapples with a fundamental challenge: balancing music as an art form and as a revenue-generating commodity. This dual nature necessitates the cultivation of creative and business skills within the industry to produce high-quality music for paying consumers. Oyekunle (2017) advocates for intentional government participation in establishing a supportive policy framework, enhancing financial accessibility, and investing in creative infrastructure.

A conducive environment is pivotal for the music industry's success. Building a robust ecosystem involves financial support, government policies, education, skills development,

legal infrastructure, and adherence to cultural and social norms (Kunene & Fields, 2017). Add to that Joffe and Newton (2009) highlight key "soft skills," including business idea formation, opportunity recognition, communication, self-awareness, marketing, and teamwork, which are crucial for South Africa's creative industry and share commonalities with entrepreneurship development narratives.

According to The International Music Industry Paper Forum (2018), such an environment can attract talent and foster a vibrant and diverse music scene. It facilitates music promotion through events, festivals, and initiatives connecting artists with audiences (NEA, 2017). A nurturing environment and a strong ecosystem for the music industry can serve as a significant source of employment in various domains like recording, publishing, management, promotion, and live performances (WEF, 2019).

In this context, KUMISA, established by the provincial government in 2009, plays a pivotal role in supporting and nurturing the music industry in KwaZulu-Natal. KUMISA's primary mission as a cluster is to attract both public and private investments, fostering the creation of high-quality music, cultivating skilled musicians, generating jobs, and ensuring the sustainability of the music business in the province (Moloi, 2019).

Methodology

The foremost challenge faced by the creative industries is the need for faster development of decisions, strategies, and frameworks than the traditional academic writing and publishing process can accommodate. This time lag causes a disconnect with adopted solutions, as pointed out by SACO's Chief Research Strategist Jeanette Snowball, as cited by Comunian *et.al* (2021). To address this challenge, new, faster research methods are required, which can subsequently inform strategies and policies, as demonstrated in this paper's approach utilizing reflexive praxis.

In light of this, the authors engaged in reflection and feedback to drive effective change. Reflective praxis, as emphasized by seminal author Schön (1983), involves systematic learning from experiences to develop knowledge and skills, an approach that Bolton (2010) highlighted as reliant on documenting and analyzing experiences while cultivating insights. Through reflective praxis, the authors' biases are better understood, as they provide a disclaimer regarding their involvement in the business of KUMISA above, enhancing the trustworthiness and transparency of the data (Zawada, 2021).

As part of the broader creative industries agenda, a workstream was established during the COVID-19 pandemic, encompassing various creative industries domains beyond just music, it included film, performance art, and more. However, this paper's focus remains exclusively on the music aspect within KwaZulu-Natal. Notably, on May 24, 2020, a presentation and industry discussion took place, facilitated by the then Member of Executive Council (MEC) accountable for Economic Development, Tourism and Environmental Affairs (EDTEA), Honourable Ncube-Dube, titled 'Creative industries/economies in the time of COVID-19.' This presentation was the result of collaborative efforts involving representatives from film, visual arts, crafts and the two authors of this paper, representing the music business.

Additional sources of data were consulted, including government mandates for the establishment of KUMISA and the late Dr. Moloi's Ph.D from 2019 on Creative Industries, particularly his articulation of challenges hindering the music development agenda through KUMISA. Dr. Moloi was one of the founders of KUMISA, a government-established music cluster aimed at developing the music industry in KZN. The KZN provincial government, through EDTEA is the main funder of this non-profit organization.

Over the past six years, the organization, under the leadership of its Board, has gained a better understanding of the music industry's intricacies through interactions with various stakeholders. These interactions, along with the successes and failures of adopted programs, have yielded a diverse set of data on the requirements for building the industry in the province.

By triangulating this data, the paper derived more accurate and relevant solutions, definitions, and contextualization's of various activities and stakeholders beliefs, enabling KUMISA to craft a robust music industry development strategy for KwaZulu-Natal. This exercise also unveiled industry challenges, skills and resource deficiencies, institutional shortcomings, and alignment issues, along with a representative supply chain for the music industry.

Reflections and Discussion

During the exercises described above, two primary subcategories emerged. These subcategories were the value chain insights leading to the second, which is the challenges that KUMISA encounters in its efforts to build the music industry for the communities across KwaZulu-Natal, based on the South African accepted music value chain.

Music Supply Chain

According to Rappa (2006:23) “The music industry supply chain can be defined as the integration of key music business processes among a network of interdependent content suppliers (copyright owners), manufacturers, distribution channels, and retailers to improve the flow of products (e.g. music instruments, recording equipment, music devices, compact discs, music vinyl, etc.), services (artists, booking agents, music publishers, record label employees, etc.), and intellectual property content from copyright owners and ultimately to music consumers.” This music supply chain highlights the interconnectedness of the different players involved in the music industry (Davis, 2014).

Shaw (2017) argued that intellectual property was regarded as the basic unit of trade when considering music works, and this, in turn, sees the music industry deriving its revenue mainly from copyright in the music industry supply chain. This ultimately sees copyright owners transacting with enablers and revellers to reach their markets with the assistance of facilitators (Bannet, 2015).

While South Africa's live music industry has been on a growth curve, with revenue expected to rise to R1.7 billion in 2021, the COVID-19 global pandemic has negatively disrupted the supply chain process of the music industry, causing a massive economic slowdown due to the COVID-19 lockdown regulations (SACO, 2021). Therefore unlocking the provisions of the music supply chain is fundamental in creating solutions, which

KUMISA then hopes to achieve in through their programmes. According to Shaw (2017) the music industry supply chain can be best illustrated as per the diagram below which illustrates the sequence of the processes involved in the creation, production, and distribution of musical and literary works as a commodity, which without the business of music can never survive in South Africa.

The music industry, like many segments of the creative arts, has encountered significant challenges during the lockdown period. Cancellations of events, concerts, and festivals have had a severe impact on the industry. Live performances, which serve as a primary source of income for most artists, have been heavily affected, with events being called off, leaving artists and their technical teams without opportunities.

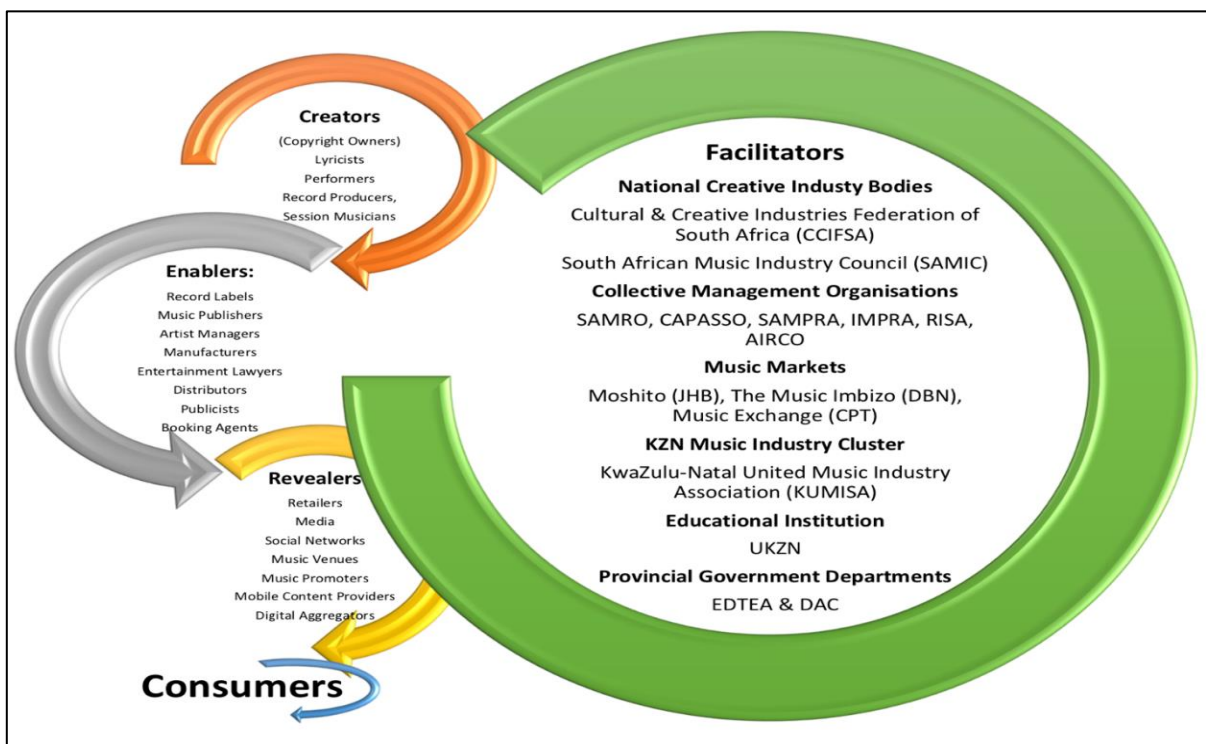


Figure 2: Music Industry Supply Chain in South Africa

Source: Shaw, J.G (2017)

The music industry, like many segments of the creative arts, has encountered significant challenges during the lockdown period. Cancellations of events, concerts, and festivals have had a severe impact on the industry. Live performances, which serve as a primary source of income for most artists, have been heavily affected, with events being called off, leaving artists and their technical teams without opportunities. There's also concern that live performances, including concerts, might continue to be restricted for an extended period. This has had a domino effect on the entire live performance value chain, impacting various sectors, including music promoters, booking agents, artist managers, record labels, and music publishers, which all derive income from live performances.

The lockdown has also led to a surge in music piracy, which directly affects composers, songwriters, and the owners of music recordings who are unable to collect royalties for their intellectual property. According to the Recording Industry Association of South Africa (RISA), legally downloaded songs have decreased during the lockdown, further impacting the income of copyright owners. For instance, RISA's statistics indicate a decrease in legally downloaded songs, with figures dropping from an average of 8,170 songs per week to 7,221 songs per week using a list of top 40 high-priority titles (Citizen, 2021).

To address these challenges, it's essential to encourage consumers to utilize existing music streaming platforms such as Spotify, Deezer, Apple Music, etc. While these platforms have their own set of challenges, they offer a means for copyright owners to earn music royalties.

Moreover, many artists are unable to apply for relief funds due to various reasons and criteria that do not align with their circumstances. These issues have been discussed in the Creative Industries forums, contributing to the challenges faced by artists and other industry professionals during these trying times, they are:

- Most artists have not registered their respective businesses.
- Musicians receive bookings randomly, meaning that most bookings are not received in advance.
- Many artists do not have systems in place for running their art form as a commodity. Often, their services are on an urgent reactionary acquisition basis without long-standing bookings, making it difficult for them to provide the required performance contracts and schedules, which are requirements for relief grants.
- Many artists do not manage their art as businesses and thus do not comply with business expectations, such as having a bank account or registering their service provision as a business. This lack of formal recognition makes it difficult for those providing financial relief to audit the authenticity of their existence, especially if they are regional artists not known beyond their local areas. Consequently, it becomes challenging to provide relief grants to them. Additionally, labor legislation does not recognize artists as employees, as they do not have employers, and they are thus not covered by the Unemployment Insurance Fund (UIF).

Many music businesses have turned to social media and internet-based distribution platforms as an alternative means of reaching their audiences. However, data costs can still be a significant issue, particularly in areas where costs are high, and some musicians, especially those in rural areas, still lack access to current digital platforms that could provide them with income. While technology and internet connectivity have proven essential for connecting with audiences and performing, not everyone has equal access to these resources.

Furthermore, certain radio stations continue to prioritize international music over local music. A shift towards playing more local music can have a positive impact as it enables composers, authors, arrangers, performers, and other stakeholders to receive music royalties from various collective management organizations like SAMRO, CAPASSO, SAMPRA, IMPRA, RISA AV (RAV), and AIRCO.

It is worth noting that only a select few individuals in the industry have access to private recording studios and equipment in their homes. This limits the ability of many industry participants to continue their work, particularly those tasks that would typically take place in a studio setting. Addressing these disparities in access to resources and opportunities is crucial for the sustainable growth and development of the music industry.

KUMISA Challenges

To be able to create an environment which can support the implementation and use of the Supply chain above it is important to understand the challenges that make it difficult to achieve the full implementation of this supply chain model. Between 2015 and 2023, a series of reports, including those presented at Board meetings and to the provincial government, along with Dr. Moloi's PhD thesis titled "Industrial Clustering as a tool to enhance competitiveness of the economy of the KwaZulu-Natal Province, South Africa," have identified several challenges that have shaped the strategies and solutions implemented by KUMISA in its mission to support the music industry in the province. These challenges include:

1. **Membership Development:** Expanding KUMISA's membership is crucial for music industry practitioners to access the services and programs offered. Membership is free for those within the value chain.
2. **Networking and Strategic Alliances:** KUMISA's ability to fulfill its mandate relies on building strategic alliances and networks with industry stakeholders, the private sector, government, municipalities, and potential funders.
3. **Skills Development and Capacity Development:** KUMISA is responsible for providing programs that help its members enhance their skills in various aspects of the industry.
4. **Business Incubation:** Providing training, support, and workspace for small businesses in the music industry to ensure their sustainability.
5. **Marketing and Promotion:** Strategically marketing and promoting KUMISA to attract funders and membership, thereby increasing its impact across the province.
6. **Fund-Raising and Income Generation:** Securing funding is essential for KUMISA to deliver on its mandate. Currently, it relies on funding from EDTEA and is exploring other sustainable funding sources.
7. **Funder Withdrawal:** The organization's reliance on funders means that funders can withdraw their support at any time, as previously experienced with the eThekweni Film office.
8. **KUMISA Goals Misunderstood:** There has been a misunderstanding among other organizations and industry stakeholders, with some perceiving KUMISA as an artists' union or a funder for artists.
9. **Recording Facilities:** There is a need for affordable recording facilities that members can access to record their work.
10. **Creative Industries Board:** A lack of diversity in knowledge and expertise on the board has led to governance challenges and strategic management issues, hindering KUMISA's growth.
11. **Board Remuneration:** Being an NPO (Non-Profit Organization) limits the board's ability to be remunerated according to their skill and contribution. This limitation poses a risk to continuity and succession within the organization.

Addressing these challenges and implementing effective strategies is crucial for KUMISA's ongoing efforts to support and develop the music industry in KwaZulu-Natal.

Recommendations

The authors, deduced the following recommendations as a way forward to restructure, build, and harness the business of music through KUMISA and other music organizations in the province. As of the conclusion of this paper, some of these recommendations may have already been achieved or were in ongoing discussions. The achievements related to the challenges laid out under the proposed program and interventions are summarized in the right-hand column. In red.

PROPOSED PROGRAMME	PROPOSED INTERVENTION	RESPONSIBLE BODIES AND STAKEHOLDER	KUMISA IMPLEMENTED
1. Buy Local Campaign – Public Sector	<p>Lobby for commitment to buying local products/services post lockdown by government – specific commodities will be identified in order to secure specific contracts</p> <p>Projects to utilize services eg stock footage of cities</p> <p>Lobby ICASA and broadcasters to reverse the amendments to rather support local content</p>	Public Sector – DTI has a major role to play here	In October, which is recognised as SA Music Month, KUMISA succeeded in lobbying two radio stations, Ukhozi Fm and Gagasi FM, to emphasise more airplay of local music.
2. Buy Local Campaign – Private Sector	<p>Lobby for Commitment of buying local by private sector – specific commodities will be identified in order to secure specific contracts</p> <p>Consideration of a tax rebate</p>	<p>Involvement of private sector buy in for their events and sponsoring. Engage with Business Chambers. Commercial Live Music Venues for all genres in all municipalities. Engagement and involvement of all provincial Business Chambers</p>	Through its Live Music Circuit programme, KUMISA was successful in persuading different important KZN events to host some of the region's most promising up-and-coming performers, who stood to expand their fan bases and attract new audiences. The Durban Fashion Fair, Drakensberg Extravaganza, and Harvest Festival are among the most renowned of these.
3. Promotion of local KZN talent	<p>Enter partnerships with media, radio and television to promote and market local artists e.g. interviews/performance/local content quotas. Consider funding through product placements</p> <p>Engage other creative industry sectors for dual collaborations.</p>	<p>Partnerships with Radio Stations SABC Provincial Stations Community Radio Stations Private Radio Providers Partnership with TV programming Social media Print media</p>	KUMISA will showcase and profile local KZN emerging musicians that were chosen to take part in the monthly KUMISA Live Music Circuit programme through partnerships with local radio stations.

		Partnership with national influencers and brands.	
	Government agents which provide funding to the sector should include contractual conditions for local spend eg Film Fund – local crew; events- local talent;	KZNFC DTI NFVF IDC	Collaboration discussions have started through the forums such as the one in this study. However, no tangible strategies are in place.
	Large creative industry projects seeking permission to work in the province must have quota requirement condition in terms of local content e.g. Film Fund – local crew; events- local talent; fashion, art pieces	Private Sector	
4. Accessibility to Facilities	<p>Provision of facilities (immediate EDTEA district offices) within communities to provide:</p> <ul style="list-style-type: none"> • Access to information • Assistance with applications for funding/support/compliance in communities • Computer with access to WIFI/internet in order to provide: <ul style="list-style-type: none"> ○ Recording space ○ Downloading content ○ Digitization and storage ○ Database filing and updating • Longer terms solution are district creative hubs to include the above with rental office space (linked to incubation) • Unused and under-utilised government facilities should be identified and process initiated for service level agreements for artists and arts associations to access these spaces 	EDTEA and DAC district offices	There are now recording studios, an incubator in partnership with black umbrellas and training Rooms to conduct programs.
5. Technological (and if possible, monetized solutions)	<ul style="list-style-type: none"> • Affordable wifi and/or Mesh technology in communities • Streaming “live” performance • Fund innovation solutions for the sector through a special grant • Provision of “locked” devices at community level <ul style="list-style-type: none"> ○ E.g. limited to Recording and downloading facilities • Access to digital platforms (download content) • Virtual markets (e.g music imbizo; DIFF) 	Vodacom/EDTEA IT KUMISA/CCFSA Organizations such as BAT Centre Community of artists Marketing agencies CSI commitment	In order to provide music creators with awareness and information about the advantages and drawbacks music related technology (e.g. AD), KUMISA has teamed with Unison Rights (Spain) and the Association For Electronic Music (Scotland).
6. Awareness Programmes	<ul style="list-style-type: none"> • Compilation of an inclusive comprehensive database per sub- 	All industry associations, EDTEA	

	<p>sector of all Practitioners/performers/artists (suggestion use UE graduates)</p> <ul style="list-style-type: none"> • Encourage membership in associations • Communication through mass SMS • Frequently asked questions e.g. IP; applicable legislation per sub-sector • Animated/ verbalized “how to” • Financial Wellness advisory • Information on industry associations • “Safety” operating Protocols • Equal resource and policy investment between the Sports, Arts and Culture 	<p>and Ministry of Sports, Arts and Culture</p>	<ul style="list-style-type: none"> • First Financial Wellness program in collaboration with the EDTEA youth office and ABSA has taken place with more planned. • Partnered with Concerts SA to create a music industry directory and music venue/gig guide. • Established a digital resource tool that contains relevant music industry information, e.g. online music workshops, research material, latest industry news, etc.
<p>7. Skills Development & SME incubation</p>	<p>Through partnering with tertiary institutions and TVET colleges (certified/accredited as well as non-accredited short-intervention programs)</p> <ul style="list-style-type: none"> • Compliance • Business management • Marketing • Costing/Pricing • Communication strategies • IT solutions (using technology) • Basic Intellectual Property and Copyright, Patents 	<p>Higher Education SMME Development agencies Community and FET Colleges, -Accredited Training organizations</p>	<ul style="list-style-type: none"> • In talks with Extended Learning at UKZN to develop short course through the school of music. • Agreement with Black Umbrellas concluded for the first SMME incubator for the music industry • 10 month long artist management and publishing master class program

8. Policy and Legislation	Lobby to have the drafted legislation finalized through extensive consultation across all sectors: <ul style="list-style-type: none"> • White paper: creative sector • Creative Industry Protection Amendment Bill separated (Copyright Amendment Bill) • ICASA Regulations regarding quotas for local content by broadcasters 	Industry associations Government IT industries	<ul style="list-style-type: none"> • Actively driving interactions around the copyright amendment bill and the performer's protection amendment bill.
9. Board	<ul style="list-style-type: none"> • Only industry Board members with no governance background • Minimal remuneration 	KUMISA & EDTEA	<ul style="list-style-type: none"> • The Board is inclusive of governance specialists and music industry individuals. • Discussions are underway on remuneration strategies that are more aligned

Figure 3: Challenges and Proposed Solutions

Conclusions and further research

In this paper, as set out in the objectives, it was found that KUMISA had made strides in building the ecosystem in the past 14 years, however there are still some gaping holes that needed to be filled into the future, especially post COVID-19 for the music industry to economically thrive in KwaZulu-Natal. There was a need for both longitudinal and cross-sectional studies to be conducted to measure the developments, appropriability and model design for all the recommendations made. This meant that monitoring and evaluation had to be part of the work that KUMISA embarks on to ensure sustainability and the building of a robust industry. Through informed strategy, reliable governance KUMISA can forge a vibrant music industry in KwaZulu-Natal for all.

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The correlation between perceived leader's conduct and employee engagement in the public sector

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Abstract

Orientation: In this era where public institutions are faced with the world pandemic COVID-19, new coalition governments and continue to battle with the provision of efficient service delivery, maladministration, bureaucratic milieu, and low staff morale, it is imperative to explore the leadership trials that affect the extent to which employees are engaged or disengaged.

Research Purpose: The study investigates the correlation between perceived leader's conduct and employee engagement in a Category A metropolitan municipality of South Africa.

Motivation of the Study: There is a lack of literature on how leadership affects aspects such as work engagement in developing countries. Most research output on what constitutes effective leadership or engaged employees stems largely from the United States and is not useful in the African context (Van Zyl et al., 2016:i).

Research Design and Method: A quantitative, cross-sectional, survey approach was used. The study sampled a departmental unit in a public institution consisting of n=211 employees, of which n=111 became respondents in the study through a self-administered questionnaire. The study utilised measuring instruments which are the Utrecht Work Engagement (UWES-17) Scale for Employee Engagement and the Circumplex Leadership Scale (CLS) for Leadership styles.

Main Findings: The study found that the presence of a withdrawn leadership style in a public institution triggers employee disengagement. The study also found that Leaders who exhibit inspirational and/or coaching leadership styles in the public institution significantly positively influence employee engagement.

Practical/Managerial Implications: The practical findings of this study will enable leaders in the public sector to have an understating of how their conduct (leadership style) influences employees' engagement to their work.

Contribution/value-add: Several recommendations are offered to enhance scholarly contribution in the area of leadership and employee engagement in the public sector.

Keywords: Leadership Styles, Employee Engagement, Public Sector

Introduction and rationale

Leadership as a construct in the business context is becoming significantly crucial for organisational survival, competitive advantage, and employee retention unlike before (Carasco-Saul, Kim and Kim, 2015; Ali and Yamin, 2020). The existence of the construct dates back to the origin of human beings and some scholars opine that through history and in modern society, leaders emerge as results of acts of wars, heredity, political process, through

career progression, and like Mother Theresa, some people with a mission to better society can become noble leaders (Martins and Eustace, 2014:1; Van Zyl and Dalglish., 2016:3). A quest for an overwhelming study of leadership as an influencing factor determining engagement of employees and their enthusiasm at work received much attention in 21 century due to organisational growth and competitiveness being linked closely to the leaders' outstanding traits of character and personality (Esowe, Ilori, Kabir, Edem and Udo, 2017:3-4).

One of the popular phrases in leadership and management practice theories posits that in most companies, employees leave their managers, not their employers (Lighthouse, 2020). A survey conducted with over a million US middle-class workers proved this phrase by revealing that the number one reason people leave their jobs is bad bosses and/or immediate supervisors (Brigette, 2017). The US middle-class workers survey further stated that 75% of workers who resign from their employers in the United States do so because of an unhealthy reporting line. Similarly, a South African survey released by Career Junction confirmed the phrase by stating that most employees from various sectors in the country have left their workplaces because of their immediate reporting line once or twice in their career life (CareerJunction, 2019). This Career Junction survey was conducted using over 3 000 responses to test correlation between workers, immediate line managers and impact on personal life. Some of the found conclusions of this survey stated that most employees confirm to have unhealthy relationships with their bosses, which turn to impact their work moral, productivity as well as their personal lives (CareerJunction, 2019).

In the context of public sector, some scholars posit that, “studying employee engagement is of particular importance in the public sector because maintaining it at a high level is a tough challenge” (Jin and McDonald, 2016:2). It is becoming challenging to main high employee engagement in the public sector due to budget cuts, pay freezes, high absenteeism, and low staff morale, and the recent global pandemic which fundamentally reduced morale of employees in the public sector (Jin and McDonald, 2016). A survey done by federal employee viewpoint, in the United State revealed that employee engagement amongst the biggest employer of the country, which is public sector has tremendously deteriorated (Nowack, 2015).

An article in Harvard Business Review mentioned that “a year and a half into the pandemic, employees mental surge capacity” is likely to diminish” (Stein., Hobson..Jachimowicz., and Whillans., 2021). The article stated that as the world staggers around the pandemic (COVID-19), experts have warned of another pandemic called “Great Resignation” which will result in high employee voluntary departures and resignations. A BBC study investigated why workers may look for another job during COVID-19 lockdowns and projected that about 55% of people in the working class planned to look for new jobs in the next 12 months, as of August 2020 (Morgan, 2021). This is mainly because many employees have lost the connection with their jobs and feel disengaged. Hence, Stein et al., (2021) emphasised that due to a high wave of employee turnover estimated to occur due to lockdowns, organisational leaders will need to focus on how they can cultivate and stimulate employee engagement, now, more than before.

Crews, Brouwers, and Visagie, (2019:421) opines that the way leaders in organisations conduct themselves and their way of carrying out roles and responsibilities somehow influence on employees. Their behavioural conduct carries weight and potential to impact employees performance in a positive or negative way, especially now during uncertainty caused by COVID-19 in the world (Antonakis, 2006). Most organisations aspire to have engaged employees and spend a substantial number of budgets in attempting to constantly evaluate and improve aspects such as staff morale, motivation, and engagement. Academically, leadership in business serves as a fundamental key component towards ensuring high staff morale, motivation and engagement, however, the construct is under researched, more especially when correlating it with items mentioned above, engagement, staff moral and motivation (Xu and Thomas, 2011:399).

Leadership as a construct is known to not have a conventional definition and/or have been defined in many forms and contexts. However, this study has adopted the Northouse definition of leadership, which define leadership as “influence an individual has over a group of people to reach a common goal set” (Northouse, 2016:6). The influence of a leader in an organisational setting can either stimulate or hinder the emotional commitment and work enthusiasm of an employee.

Literature review

This section reviews literature to gain an understanding and debate around the constructs being studied. Employee engagement was explored together with its theoretical underpinning. Leadership construct was explored together with its theoretical concepts, such as inspirational leadership, coaching leadership, and withdrawn leadership.

Employee engagement

The concept of employee engagement (EE) generally integrates all types of engagements (Saks and Gruman, 2014:172). Schaufeli, Shimazu, Hakanen, Salanova and De Witte (2019:577) specified that employee engagement and work engagement are used interchangeably in most theoretical endeavours. Similarly, in the current study, work engagement is sometimes used as *employee engagement*. As such, both constructs are used interchangeably. Kahn (1990) as cited by Rich, Lepine and Crawford (2010:617) who is mostly referred to as one of the founders of EE, originally posited that employee engagement (EE) is a very essential and unique concept that means “the harnessing of an employee’s full self in terms of physical, cognitive and emotional energies to work role performances” (Rich, Lepine and Crawford, 2010:617).

Khan’s theory of the concept was later enhanced by Jeve, Oppenheimer, and Konje (2015:85) by describing EE to mean an emotional commitment to the organisation and its goals by an employee. Shuck and Reio (2011:428) explain EE to describe an employee’s behavioural and cognitive state, and emotional commitment directed to desired organisational outcomes. Therefore, from these scholars’ interpretation of the concept, EE describes employees’ commitment to the organisational goals and its prospects, shown through work role performance. In a study conducted by Bargagliotti (2012:1414), which aimed at examining the theory of work engagement, it discovered that work engagement is a satisfying state of mind, a positive outlook about the work which exhibits commitment, energy, and unity. This study also found out that work engagement’s origins are related to

organisational trust, self-governance, trust among colleagues, and management trust (Bargagliotti, 2012:1414). The above definitions are consistent with what was studied almost two decades ago by Schaufeli, Salanova, Gonzalez-Roma, and Bakker (2002:74) which regarded EE as a positive, rewarding job-related frame of mind that is usually characterised by vigour, dedication and absorption at one's work in an organisational setting.

There has been a great need recently in South Africa for an exploration of the construct of employee engagement. This has been so, because the construct is constantly associated with efficiency of the bottom-line personnel of most organisations in the country (Christopher, 2015:4). To affirm this, a study conducted in 2014 pertaining to the state of employee engagement in the country found that South Africa is one the countries that has encountered serious blunders on issues such as organisational managers' competency in leading and communicating with personnel, idea-sharing encouragement and involving staff in strategic issues (Kay, 2015). The study was conducted by Public Display Technologies (PDT), with over 1100 participants from mining, banking, retail and governmental sectors. The study also found a great disconnection between staff structures and organisational management, at a 46% response rate (Christopher, 2015:par2; Kay, 2015).

Most studies that are conducted on the concept of employee engagement in South Africa are mostly of the private sector. This is because service quality and engaged personnel remain a cornerstone of business performance and survival. There are relatively fewer studies that focus on employee engagement in the public sector (Martins and Ledimo, 2016:19). The reason for this, as these two scholars (Martins and Ledimo) opine, is that government institutions view survey conduction as a costly exercise. Martins and Ledimo (2016:20) also alluded to the fact that there seems to be little or no applicable instruments for the study of EE in the public sector and leadership structures have not regarded the value of engaged employees as significant in bringing about high organisational performance. Yet, "The South African public sector has been characterised by inefficiency and ineffectiveness in terms of meeting its mandate of providing quality service delivery" (Mafini and Dlodlo, 2014:1).

Vigoda-Gadot, Eldor, and Schohat (2013:10-11) elaboratively posited the reason employee engagement is so important in the public sector and found that, "More than ever before, public service managers would agree that employees have a critical impact on organizational effectiveness". Engaged employees are an asset to the government fraternity in a developing country such as South Africa. In the era of the global pandemic (Covid-19), budget scarcity and constant global pressures that affect the standard of living, government structures must learn how to harness employee engagement elements such as absorption, dedication, and vigour. The recognition and stimulation of the construct of EE in the public sector will ensure high-quality service delivery (Vigoda-Gadot et al. 2013:11).

Defining employee engagement

The term employee engagement (EE) describes an organisation's results and the relationship between an employee and their organisation, the function, and the tasks of the organisation as it pertains to the effort of the employee (Marais, 2017). Kaliannan and Adjovu (2015:162) cited by Blau, who defined employee engagement as a term associated with human-resource principles, such as employee conduct, job involvement, job satisfaction and burnout. Ababneh (2015:1) postulated that the concept of EE bears a different meaning as described

by various scholars and its theoretical underpinning is vague. According to Ababneh, various descriptions of EE contribute to casualties experienced in the scholarly fraternity in terms of the usage of the concept and its dimension when it comes to administrating and accessing methods intended to improve employee engagement. Saks and Gruman (2014:156) agreed with Ababneh by stating that EE meaning has been complex from the start.

There seems to be an unclear understanding of the term *employee engagement* among practitioners and ambiguity in how it is used. The above-cited scholars further argued that the meaning and significance of employee engagement has been kept being besieged by multiple definitions from various disciplines, with no universal consensus on what the concept means. Based on the review and argument made above, it is evident that the concept of employee engagement holds different meanings and there is no consensus among various scholars as to what it represents and describes. This conundrum raises a concern regarding the validity and/or reliability of measures and methods being used by senior management and HR professionals when accessing or referring to employee engagement. However, this section of the study will attempt to unpack the meaning of the construct as its theoretical contribution, according to the theoretical objective below.

Some scholarly literature opines that there are various meanings of the concept ‘engagement’ (Macey and Schneider, 2008; Aktar and Pangil, 2017; Omar, Mohamed, Yadi, Sofian Abdul, Madzi and Tan Chi, 2017). The first scholar to define what ‘personal engagement’ was Khan (1990:694). He defined the concept as the connection of employees’ character and their personality into their work, which means an employee engages themselves emotionally, intellectually, physically, and mentally to their roles. Macey and Schneider (2008), as cited in (Omar et al. (2017:2), in their research, which investigated whether engagement as a construct served as a mediator between job resources and job performance, defined personal engagement as “positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption”. One of the fascinating findings of their study was that, as job resources increase, it leads to greater work engagement. A closely related study found that work engagement stimulates high job performance (Zeynep, Yalabik, Popaiton, Julie, Chowne, and Rayton, 2013). They Zeynep et al. (2013:3) defined personal engagement as a work-inclined, affective, mental, and positive psychological state of an employee who is independent, pervasive, persistent, and fulfilling.

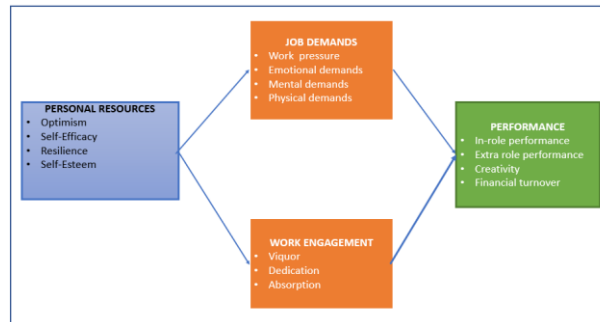
Models of Work Engagement

Various scholars (Parker and Griffin, 2011; Bindl and Prket, 2011) have written about various models of work engagement. These models are Job Demands-Resource Model (JD-R) by Bakker and Demerouti, (2007), Comprehensive Burnout and Engagement by Schaufeli and Bakker (2001) and Affective Shift Model by Bledow, Schmitt, Frese and Kühnel (2011). This subsection below will discuss these three models in detail.

Job Demands-Resource Model

Bakker and Demerouti (2007) developed the Job Demands-Resource Model to suggest that stress in the workplace comes because of job demands – which are normally those demands that are above the employee’s coping and adaptive capability resources. Job demands can bare two outcomes for an employee, Firstly, it could result in a positive outcome where which

an employee see job demand as a positive challenge for career growth. Secondly, it can result in a negative outcome for an employee in that he/she will have a drained ego or burnout. The model is presented pictorially in Figure 1 below to illustrate the interaction of job resources, personal resources, job demands and resultant work engagement and performance outcomes.

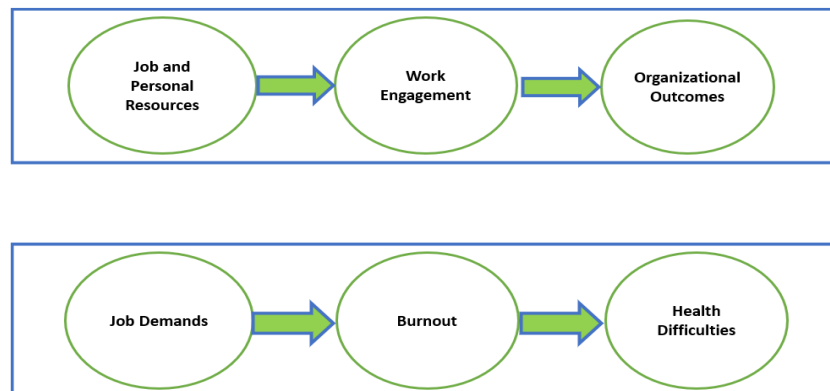


*Figure 1: Job Demands-Resource Model
Adapted from: Bakker and Demerouti, (2007)*

According to the pioneers of the model (Bakker and Demerouti, 2007), the model is based on two main components, job demands and job resources. If the “Job demands are more than job resources for an employee, disengagement and other organisational outcomes will be the result” (Bakker and Demerouti, 2007). Job demands refers to aspects of the job that essential to main physical and mental effort required by the job. These can include physical strength, long working hours, ability to concentrate and high level of attention to detail. Job resources on the other hand, refers to those qualities of the job that are required to counteract the impact of job demands. These can include managerial support, tools of trade, performance management and feedback and development of an employee.

Comprehensive burnout and engagement

Comprehensive Burnout and Engagement is a work engagement model developed by Schaufeli and Bakker, (2004). The model as illustrated in Figure 4 was developed as an extension of the above (JD-R Model). Joubert and Rothmann, (2007) The model consists of two interrelated processes that explain how the worker’s psychological state work.

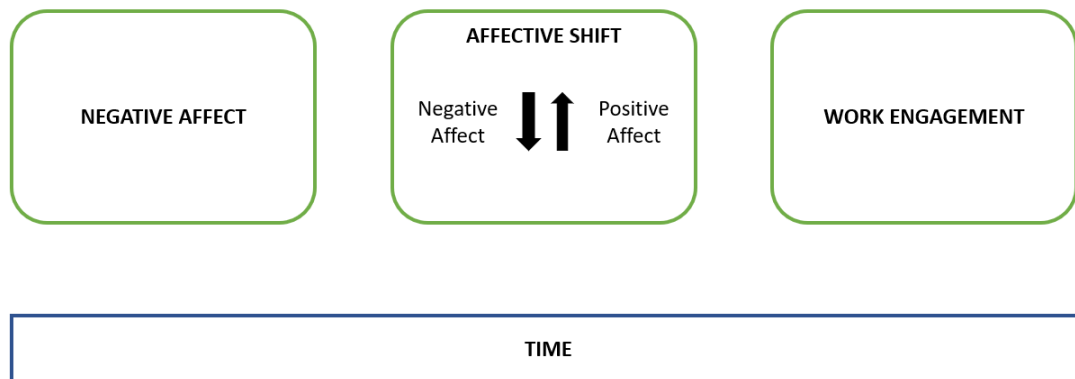


*Figure 2: Comprehensive Burnout and Engagement
Adapted from: Schaufeli and Bakker, (2004)*

The top part of the model, which consists of - *Job and Personal Resources, Work Engagement and Organisational Outcomes* – suggests that for organisational outcomes to be reached, there should be enough job resources for the worker to be encouraged before being engaged. Therefore, the top part focuses on the motivation of the worker. The bottom part of the model, consisting of – *Job demands, Burnout and Health difficulties* – suggests that if the worker's health deteriorate, job demands become too much therefore leading to burnout (Joubert and Rothmann,2007). Therefore, the bottom part focuses on the worker's energy. Shimmin, (2010) stated that the model was initially developed to help organisations to understand what leads to high absenteeism. The model proposed a holistic approach to diagnosing and treating absenteeism in the workplace, rather than just looking at it from a reporting point of view. Du Plooy and Roodt, (2010) opined that the model indicates that the availability of job resources prompts work engagement while lack of resources and job demands triggers health difficulties and burnout.

The affective shift model

The affective shift model was developed by Bledow, Schmitt, Fress and Kuhnel, (2011) although originally based on Khan's (1990) theory, which postulated that the more worker is filled with positive effects such as motivation, happiness, and enthusiasm the high the levels of engagement. The model is illustrated in figure 5 below.



*Figure 3: The Affective Shift Model
Adapted from: Bledow, Schmitt, Frese and Kühnel (2011)*

The affective shift model focusses on the shifting from less negative affect to positive affect to remain productive and engaged (Garland, Farb, Goldin & Fredrickson, 2015). It should be noted that the process of experiencing negative affect is somewhat necessary for positive affect to be experienced. This is a crucial part of the process as concluded by scholars (Bledow et al., 2011; Kazen, Kaschel, & Kuhn, 2008; Carver & Scheier, 1990).

Leadership

Leadership as one of the most important constructs featured in this study has been in existence for centuries and has been a topical term for many scholars from various fraternities for decades. It has been said that all societies have some form of leaders who emerged through various aspects, such as inheritance (kingship like Shaka Zulu for the Zulu kingdom), acts of war, political process (Nelson Mandela as the first black president in South Africa),

career progression like being a CEO of the organisation, and through identifying humanitarian work like Mother Theresa's dedication in helping the poor (Van Zyl et al. 2016:4). However, the concept of leadership has become more prominent in the 20th century because of the advent of democracy and people's rights to choose who may lead them. "Leadership is important in all fields of human endeavour" (Ismail and Fathi, 2018:24). It was Day (2000) who postulated that the practice of leadership has existed for centuries and the interest in the field is continuously growing. This also necessitated a great enquiry on what makes a leader effective in academic scholarship.

According to most trait theories used in leadership, it seems to be suggested that effective leaders are born with character traits that makes them unique and different from followers, therefore eligible to lead (Haddad, Badran and Daood, 2018). This view can be argued and debated, as other scholars, such as Dalgish (2016), hold a view that leaders are moulded and groomed through various models and schools of thought, and therefore, even those who are not born with that character trait can be groomed to become effective leaders. Hannah, Sumanth, Leaster, and Cavarretta (2014) postulated that there are two distinctive schools of thought, namely, traditional theories and the New Genre theories, through which effective leadership can be understood. The traditional theory concerns itself with a leader's characteristics and how this is practised in a leader's tasks and functions. It consists of four types of leadership, *Great Man theory, the Big Five model, Contingency Theories, and Charisma*. Second, the New Genre concerns itself with the leader's interpersonal abilities to stimulate followers' inspirational aptitude and performance. This includes the *Transformational framework, servant leadership, organic capital, and authentic leadership*.

Leadership vs Management

Kenneth Hartley Blanchard, the co-author of the most popular book titled 'One Minute Manager', once said,

"It is important to unleash the power of people and organisations by means of effective leadership and management for the greater good (Blanchard, 2018).

It is imperative to understand the difference between leadership and management for the above-mentioned statement to be fully realised in an organisational context. Most managers make an mistake of thinking having a supervisory and managerial position makes one a leader (Advani and Abbas, 2015). This has been a long-standing enquiry in the body literature of whether a difference between a leader and a manager exists. The answer is *yes*. Wajdi (2017) puts it well: leadership is about laying out a vision and strategy for the organisation and inspiring followers to aspire to achieve the same vision. While on the other hand, management focus on executing the set strategy by setting measurable goals and objectives that realise the leader's vision. The author supports the view of the difference between the two. Leadership's role is to help followers to find their place in the vision, while management concerns itself with policies and processes of execution,

Public Sector Leadership

A review of the current debates on leadership in the public sector is necessary as the study is based on a public-sector institution. Public institutions such as municipalities form an integral part of advancing quality service delivery to communities. Although there is not a universally agreed-upon public leadership definition, OECD, 2020, endeavoured to explain what the

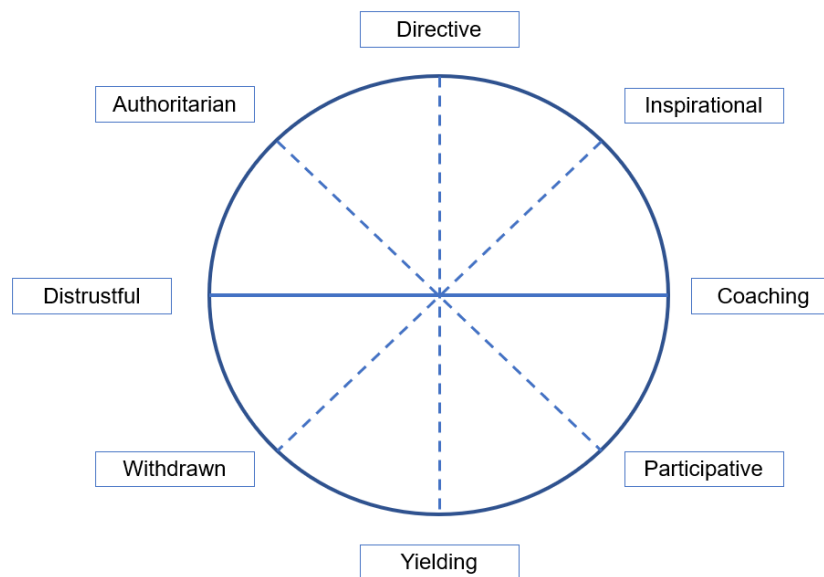
concept means. Leadership in the public sector explains the way public servants collaborate with others to bring about good governance for quality service delivery (OECD, 2021). This definition has two connotations. Firstly, leadership in the public sector deals with the achievement of objectives and these are attained through intentionally working with others. Second, public sector leadership is about relationship-building to advance effectiveness and efficiency. Fernandes and O’neill (2020:12) delineated that the current Covid-19 pandemic has created a worldwide surge that has seen government and societal sectors adopting rapid measures of lockdowns and other ways to curb the spread of the virus. The scholar outlined that this was a clear demonstration of how public-sector leadership works. Governments worked with others to form objectives around the pandemic and emergency measures that will be taken while also constantly engaging with society. In the case of South Africa, a Covid-19 central command team was formed by the president and constant engagement with the public through various mediums took place weekly, biweekly, and sometimes monthly, depending on the severity situation.

Govender and Mostert (as cited by Ggali, Proches & Green, 2016:394) stated that challenges such as inefficiency of service delivery by the government are one of the aspects that have created many debates and attention to public-sector institutions. These scholars posited that there seems to be a strong element of ineffective leadership, which tends to create more issues, such as corruption, disengagement, and incompetence in the public sector. It is with this reason the current study, seeks to explore the perceived leadership conduct (inspirational, coaching and withdrawn) relates with employee engagement.

The leadership circumplex

The study of leadership is filled with thousands of instruments and models which attempt to outline various leadership styles that are essential for organisational success. The recent debate, however, seems to reason that the challenge with these models and instruments is that they tend to concentrate on one or two styles of leadership, with a considerable neglect of other aspects within the construct (Scott DeRue et al. 2011). Leadership Circumplex, on the other hand, was coined as an overarching framework based on an interpersonal circumplex (Redeker et al. 2014:437), shown in Figure 4.

Redeker et al. (2014) further stated that leadership is interpersonal and can be integrated into an interpersonal circumplex. In arguing the bases of the interpersonal setting, Gurtman and Debbiesiu (2009:2) say that generally human beings belong to a society that understand and interprets behaviours and connections using terms such as introverted, harsh, dependent, or friendly. Gurtman and Debbiesiu further stated that, throughout our entire history, the interpersonal circumplex plays a critical part in assisting with the understanding of the interpersonal personality domain. As shown in Figure 4, the circumplex divides interpersonal styles according to eight elements in a circular structure, namely, directive, inspirational, coaching, withdrawn, participative, yielding, authoritarian, and distrustful.



*Figure 4: Eight Leadership Styles in a Circular Structure
Adapted from: Redeker et al. (2014:442)*

The study explored and studied on three leadership styles from above, which are inspirational, coaching and withdrawn. The three will be discussed briefly below.

Inspirational leadership

Leaders who demonstrate inspiration possess the ability to inspire, stimulate and persuade followers by clearly communicating the vision, by being calm and decisive in times of crisis, and they tend to have a great motivational acumen that enhances the performance of those they lead (Redeker et al. 2014:441). The ability to act firmly and have a clear vision communicated to followers is inspired by their zeal to have a future that pictures the shared concerns of the collective masses. They usually derive a vision from a problem or challenge faced by a group of people or an organisation. Molenberghs, Prochilo, Steffens, Zacker and Haslam (2017:1) supports this stance by stating that former President Barack Obama’s campaign slogan, ‘Change we can believe in’ or ‘Yes we can’, was coined to create an inspiring collective vision that American voters can relate to. This shared inspiring vision came at the time when America needed the revitalisation of the economy, health care, climate change, and the ceasing of the war in Iraq.

Molenberghs et al. (2017:1) examined the neurological science of inspirational leadership and found that “Effective leaders are believed to inspire followers by providing inclusive visions of the future that followers can identify with” (p1). According to their study, statements such as ‘Yes we can’ as discussed above, trigger brain aspects such as pars opercularis, bilateral rostral inferior parietal lobule, and midcingulate cortex in the mind-brain of the followers, which enable him or her to identify with the vision and submit willingly to the leadership that exhibits inspiration style. The study of traits and behavioural theories of leadership, that investigated integration and meta-analytic tests, perceived inspirational leadership style as one of the leader’s behaviours under the change-oriented

model (Scott DeRue, Nahrgang, Wellman and Humphery 2011:10). According to the model, the inspirational style creates an effective leader by persuading subordinates to perform optimally, while also seeing the connection between their work and the overall success of the organisation. The study of factors driving business-model innovation using various case studies in South Africa states an inspirational leadership style as one of the keys to a successful business model (Motjoloane and Ruhode, 2021). Inspirational leaders can create an environment that enables creativity and innovation while also fostering the empowerment of subordinates (Motjoloane & Ruhode, 2021:12). They are also good at showing their human side and listening (Lockwood, 2021).

Coaching Leadership

Coaching as a leadership style describes a leader who shows a vested interest in people's development and success at work. It is usually characterised by a leader's support, collaboration and guidance shown to subordinates towards the achievement of a common goal (Dello Russo, Miraglia and Borgogni, 2017). The style is a opposite to autocratic leadership which is also found in the Circumplex Leadership Scan. Autocratic leadership focuses on top-down, while coaching is focused on ground-up. The above comparison corresponds with the study by Redeker et al. (2014:441), where coaching leadership formed part of the octants of their CLS. These scholars define coaching leadership as a style exhibited by an individual who demonstrates great care for their subordinates and constantly affirms their importance in the organisation (Redeker et al. 2014:441). Coaching conscious leaders understands how vital it is to communicate positively and listen to the views of those they lead.

A leader that espouses a coaching leadership style tends to challenge subordinates with an aim of assisting in bringing the best out of them for the achievement of goals (Berg and Karlsen, 2016:3). The two scholars examined how project managers practice a coaching leadership style to stimulate performance in project-based organisations. They further found that coaching leadership as a style is much more useful when direct line managers seek to build the lasting personal growth of subordinates. This view also corresponds with what Meyers (2012) argued, that an individual with coaching acumen in the workplace assists subordinates to develop personally in the long run. However, subordinates need to be willing to learn and be open-minded to receive feedback for this style to be effective (Benincasa, 2012). A study that analysed a group-coaching methodology and its implementation, conducted by Türk and Saue (2019), looked at how the use of group coaching impacts employee characteristics, development, and performance. It was found that a coaching leadership style often provides a shared leadership in an organisation, which enables the reduction of the negative impact posed by a static organisational hierarchy. Most leaders who have coaching acumen do not follow structures but encourage positive communication and collaborative decision-making. Russo et al. (2017:1) also echoed that, when a supervisor's style is coaching, it tends to minimise politics during performance appraisal, as session between the subordinate and supervisor are more development-focused than scoring.

Withdrawn Leadership

When one thinks of the word *withdrawn* as a leadership style, words such as *passive*, *aversive*, *silent*, *toxic*, *alienated*, *delaying*, *emotionless*, and *rigid* come to mind. A withdrawn leader is professionally and personally unavailable for subordinates and sometimes even his

or her work (Redeker et al. 2014:441). They are more averse to responsibilities and confrontations in the workplace and delay solving challenges or tackling problems. A chief psychologist, Jo Maddocks of JCA Global, examined the role of leadership climate on employee well-being during a period of change in an organisation (Maddocks, 2019). JCA Global is a consulting firm that investigates how business leaders and managers develop their employees to increase engagement levels.

Jo Maddocks argued that withdrawn fall under the negative clusters of leadership behaviour that impact the climate, along with controlling or autocratic (Maddocks, 2019). He added that withdrawn leaders are detached from people and issues and tend to rely on others for information and duties. They usually exhibit low energy levels, a lack creativity, agility, and innovation. A withdrawn leader enjoys a comfort zone, and their behaviour has a detrimental effect on the performance of subordinates and therefore that of the overall organisation. In a Covid-19 era, a withdrawn leader would like to enjoy lockdowns, working from home and be non-engaging with his subordinates and/or the work. A study that was conducted by Mureau (2016) closely examined height-leadership association through high dissatisfaction gender was conducted. The scholar found a positive correlation between withdrawn leadership and self-perceived height dissatisfaction and found that both yielding and withdrawn leadership are negatively related to effective leadership (Mureau, 2016:39).

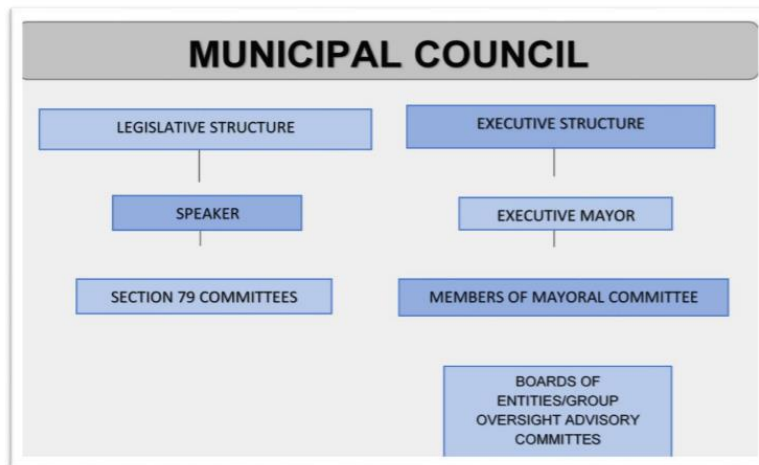
Quantitative research methodology

A quantitative, cross-sectional survey approach was used to increase accuracy through statistical analysis. This study preferred the positivist paradigm as it intends to test several a priori hypotheses to determine relationships between the independent and dependent variables.

Study population and sampling

Saunders et al. (2019:212) argue that population involves a complete set through which a sample can be obtained.

The population in this study comprised the workforce from a category A municipality in South Africa, as described in the Municipal Structures Act (Local Government: Municipal Structures Act, 1998). This public institution governance model mirrors national and provincial government and is made up of the executive and legislative functions (Category A Annual Report, 2019/2020). Figure 4 depicts the governance model adopted by the public institution where the population was taken from.



*Figure 5: Legislative and Executive Composition of the Municipality
Adapted from Category A Institutional Annual Report (2019/2020)*

The study population consisted of diverse employees working for various political units under the legislative structure. This includes the office of the speaker, office of the chief whip, chair of chairs, office of the secretary to council, finance, human resource, legal, councillors support and legislative and oversight unit. At the time when the study was conducted, the legislative structure had a total of $n = 211$ head-counted employees/people. The researcher obtained an Excel sheet from the Human Resource department.

A probability sampling approach was used. According to Saunders et al. (2019:223), with probability sampling, a total population's elements are known, and all have equal chances of participating in the study. As such, this study used probability sampling with a simple random technique. The study comprised employees holding various positions, from managers, directors, specialists, administrators, and other employees with general positions as potential respondents and with the intention of results representing the entire population. Out of the $N = 139$ targeted sample, a total of $n = 111$ (79% of the targeted rate) employees formed part of the study. This was perceived as acceptable for this exploratory study, as Saunders et al. (2019:219) postulated that the targeted sample should be bigger to draw certainty from it. These writers also stated that it is most unlikely for the researcher to receive a 100% response rate.

Data collection and management

Creswell and Creswell (2018) explain that data collection in research involves steps that set "the boundaries for the study through sampling and recruitment; collecting information through unstructured or semi-structured observations and interviews, documents, and visual materials; as well as establishing the protocol for recording information". It is a form of identifying what is emerging in each case in the study to make a coherent generalisation of the findings for the problem being examined. In this study case, the researcher set out a practicable plan to collect data, and once data was collected, it was studied to determine possible patterns that assert or disaffirm causal relationships that exist with variables being studied (coaching, inspirational, withdrawn and employee engagement) (Gray, 2017:17).

Data were collected via a self-administered questionnaire (measuring instrument), which were hand-delivered to each participant and collected again after some prior stipulated time. Each participant was given two weeks to complete the questionnaire, as the researcher did not want to pressure participants, mainly because of the highly intensive workplace they are in. Participants' line managers and directorate were prior engaged and permission to conduct the study with a set sample was granted.

The measuring instrument will be discussed next.

Measuring instruments and questionnaire development

The researcher used the UWES-17 by Schaufeli et al. (2002); Schaufeli and Bakker, (2004); Gorgievski, Bakker and Schaufeli, (2010) and the Circumplex Leadership Scan (CLS) by Redeker *et al.* (2014) as measuring instruments to gather primary data using a self-administered questionnaire. The self-administered questionnaire went to respondents with an information letter together with a consent form. The introduction, background and context of the study were provided in the information letter, while the consent form aimed at obtaining the consent of participation in the study from respondents. Both information letter and consent form were read and signed prior to the completion of the self-administered questionnaire. All three completed annexures were returned to the researcher, hand-delivered, some via scanned email.

The self-administered questionnaire consisted of three sections as briefly described below:

I. Section A – Biographical Data

The biographical section of the questionnaire included age range, gender, race, educational level, employment status, and years of service with the employers. This section of the questionnaire was used to obtain a background profile of the respondents and to ascertain their relevance and competency to participate in the study. The legislative unit of the council was targeted, the researcher opted not to include employees' occupational categories. However, all levels of the total population $n = 211$ were targeted, from Executive Director to administrative support staff of a unit of an organisation under study.

II. Section B – The Utrecht work engagement (UWES-17 Scale)

Although there are numerous assessment instruments for measuring work and/or employee engagement, the original 17-item UWES-17 as developed by Schaufeli, and Bakker (2003) was utilised to measure employee work engagement for this study. As this study context is in South Africa, the English version of the UWES-17 was utilised. Scholars affirm that UWES has been proven to be the most used and successful measurement tool for work engagement (Field and Buitendach, 2011; de Bruin et al. 2013). This model by Schaufeli et al. (2002) has been clearly expanded by de Bruin, Hill, Henn and Muller (2013:3) as a "17-item self-reporting questionnaire that includes three subscales:

- **vigour** (six items, e.g. 'I am bursting with energy in my work'),
- **dedication** (five items, e.g. 'My job inspires me'), and
- **Absorption** (six items, e.g. 'I feel happy when I'm engrossed in my work')" (de Bruin et al. 2013:3-4).

All above-mentioned items were scored on seven-point Likert scale rating scale which ranged from 0 being ‘never’ to 6 being ‘always’.

III. Section C - CLS Scale

The study also used the Circumplex Leadership Scan is designed by Redeker et al. (2014). These scholars supposed that leadership can be integrated into the interpersonal circumplex. The word *circumplex* means a circular depiction of the similarities between and within multiple variables (APA Dictionary, 2020). Redeker et al. (2014) concluded that there is a possibility of conceptualising leadership using interpersonal circumplex. They supported this conclusion by stating that the construct of leadership is interpersonal. So, with their circumplex model, there are eight octants representing leadership styles to emulate the eight observable interpersonal styles of the circumplex. The following figure depicts the eight leadership styles, which are also a weighted mixture of communion and agency (Redeker et al. 2014:436).

All above-mentioned items were scored on a five-point Likert scale rating scale, which ranged from 1 being ‘never’ to 5 being ‘always’.

Ethical considerations and researcher’s involvement

The permission and access to conduct the research were received favourably by the Senior Secretary to Council as the head of the legislative arm of the organisation. A request was made in writing to the Senior Secretary after consulting with middle management, and a signed permission letter on the organisation’s letterhead was granted. The letter provided access and permission for study conduction and allowed respondents to take part in the study. An awareness of the study was created to potential participants during meetings and when the researcher encounters them.

A brief presentation around the purpose of the study was made at a departmental strategic breakaway and to group of staff members at various units of the legislative arm. The researcher was articulate about the role of respondents, purpose of the study, rights and how their data was going to be stored, the confidentiality and anonymity of respondents was articulated, more so because the nature of the study involved a request to participants to also comment about their immediate manager’s conduct. No one was forced to take part in the study. Participation voluntary.

The researcher’s involvement was always objective and ethically sound. The bulk of self-administered questionnaires was received electronically via email, which made physical conduct with participants very limited. Only on a few occasions did respondents hand-deliver questionnaires to the researcher; sometimes they were put under the researcher’s office door.

Data analysis and results

For this study, self-administered physical questionnaires were collected from the organisation department and handed over to the University of Johannesburg (UJ) STATKON unit for capturing. UJ STATKON is a university’s statistical consultation service that provides research design and analysis support (UJ Website, 2021). A significant number of questionnaires were submitted directly to the researcher; others were emailed. All manual submissions of questionnaires were handed to the researcher in a sealed envelope. The researcher stored all of them in a lockable safe, where no one else had access until they were

delivered safely to the UJ STATKON by the researcher. Data analysis concerns itself with the process of using logical and analytical reasoning to identify and make sense of variables' similarities and differences. The scholarly literature on data analysis for research seems to have a common unanimous agreement that data analysis is the evaluation of research data (Creswell and Creswell, 2018). Data was analysed using SPSS Version 22 (Allen, Bennett and Heritage, 2014).

Steps followed in data analysis processes

The steps followed in this study for data analysis consists of four stages. First, to test the originality of the measurements (UWES-17 and CLS), a Structural Equation Modelling (SEM) was used. Second, descriptive statistics, where standard deviations, means, kurtosis, skewness, and Cronbach's alpha coefficient were calculated. Thirdly and lastly, the Pearson correlations coefficient were calculated to determine the relationship between the constructs which are employee engagement (dependent variable) and CLS three leadership styles, inspirational, coaching and withdrawn (Independent variable).

Reliability of instruments

Cronbach's alpha was used to test the internal consistency of the questions. Generally, reliabilities less than 0.60 are considered poor, those in the 0.70 range acceptable, and those over 0.80 good (Sekaran and Bougie, 2016). The Cronbach Alpha score for the questionnaire was 0.805. Hence the questions are considered highly reliable.

Correlation coefficient results

In Table 1 below, descriptive statistics for the three scale scores of the UWES-17, the summated employee engagement score, and the three leadership style scale scores (withdrawn, inspirational, and coaching) of the CLS are reported. These descriptive statistics are the mean, median, standard deviation, skewness, kurtosis, and standard error of the mean. The Cronbach's alpha coefficients as well as the McDonald's omega total coefficient for each scale are also reported. Inspection of the mean scores shows that most participants scored low on engagement ($\bar{X} = 3.35$) because the mean score for the scale was below the midpoint of 3.5. Furthermore, most respondents demonstrated a high mean score for coaching leadership conduct ($\bar{X} = 3.17$) and a high mean score for inspirational leadership conduct ($\bar{X} = 3.15$).

Table 4: Descriptive Statistics and Reliability Coefficients: UWES-17 and LCS Scores

	workeng2 Work engagemen t	vigour2 Vigour	dedication 2 Dedication	absorption 2 Absorption	inspiration2 Inspiration al leadership	coaching2 Coaching leadershi p	withdrawn 2 Withdraw n leadership
N							
Valid	110	110	109	110	111	111	111
Missing	1	1	2	1	0	0	0
Mean	3.3477	3.3858	3.5220	3.1686	3.1492	3.1723	2.3196
Median	3.4706	3.5000	3.6000	3.3333	2.9333	3.0667	2.2857
Mode	3.53	3.50	2.60	3.33	2.73	5.00	2.00
Std. Deviation	1.10456	1.02972	1.45109	1.21607	0.97220	1.03697	0.71245
Skewness	-0.077	-0.013	-0.201	-0.065	0.292	0.215	0.487
Kurtosis	-0.838	-0.258	-0.536	-0.576	-0.786	-0.927	0.416
Minimum	0.88	1.00	0.00	0.50	1.27	1.00	1.00
Maximum	5.47	6.00	6.00	5.50	5.00	5.00	4.53

The mean scores for the scales were above the midpoint of 2.5, indicating that the respondents perceived their leaders as predominantly using inspirational and coaching leadership styles. Withdrawn leadership conduct demonstrated a lower mean score ($\bar{X} = 2.31$), which is below the midpoint of 2.

1.1. Correlation Analysis

Table 1: Correlation Between Constructs

		workeng2 Work engagement	vigour2 Vigour	dedication2 Dedication	absorption2 Absorption	inspiration2 Inspirational leadership	coaching2 Coaching leadership	withdrawn2 Withdrawn leadership
workeng2 Work engagement	Pearson Correlation	1	0.895	0.908	0.917	0.545	0.541	-0.197
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.039
	N	110	110	109	110	110	110	110
vigour2 Vigour	Pearson Correlation		1	0.720	0.744	0.509	0.530	-0.195
	Sig. (2-tailed)			0.000	0.000	0.000	0.000	0.042
	N		110	109	110	110	110	110
dedication2 Dedication	Pearson Correlation			1	0.739	0.568	0.536	-0.206
	Sig. (2-tailed)				0.000	0.000	0.000	0.032
	N			109	109	109	109	109
absorption2 Absorption	Pearson Correlation				1	0.409	0.412	-0.139
	Sig. (2-tailed)					0.000	0.000	0.148
	N				110	110	110	110
inspiration2 Inspirational leadership	Pearson Correlation					1	0.898	-0.657
	Sig. (2-tailed)						0.000	0.000
	N					111	111	111
coaching2 Coaching leadership	Pearson Correlation						1	-0.644
	Sig. (2-tailed)							0.000
	N						111	111
withdrawn2 Withdrawn leadership	Pearson Correlation							1
	Sig. (2-tailed)							
	N							111

Pearson correlation matrix was calculated. The purpose was to reveal variables' strength, direction and significance of the bivariate relationships measured at a ratio level. According to how the correlation matrix works, variables correlate if they change systematically with each other. This means, if one variable increase and there is a corresponding increase by another variable, there is a positive correlation. In the same manner, if one variable increase and there is a corresponding decrease by another variable, there is a negative correlation.

Hypotheses results

The study made the following hypotheses in Chapter 2. This section will test such hypotheses.

- **Ha1:** There is a significant positive correlation between inspirational leadership style and employee engagement.
- **Ha2:** There is a significant positive correlation between coaching leadership style and employee engagement.
- **Ha3:** There is no correlation between withdrawn leadership (independent variable) and employee engagement (dependent variable).

Table 2 above and the discussion to follow presents the results of correlations between constructs as hypothesised.

H₁ *There is no correlation between a withdrawn leadership style and employee engagement.*

Pearson product-moment correlation coefficient was computed between withdrawn leader style and employee engagement. The results are depicted in Table 2.

The relationship between withdrawn leadership style and employee engagement was investigated using Pearson's product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. There was a small negative correlation between the two variables. The relationship between withdrawn leadership style and employee engagement was computed using the Pearson correlation coefficient. There was a small negative correlation between the two variables [$r = -0.197$, $p < 0.04$]. This signifies that these variables are not closely associated, as indicated by the small negative correlation, which means a withdrawn leadership style leads to low levels of employee disengagement. Therefore, H₁ is rejected.

H₂ *There is a significant positive correlation between inspirational leadership style and employee engagement.*

The relationship between inspirational leadership style and employee engagement was computed using the Pearson correlation coefficient. There was a significant positive correlation between the two variables [$r = 0.545$, $p < 0.00$]. This signifies that these variables are closely associated, as indicated by a strong positive correlation, which means the presence of an inspirational leadership style significantly influences employee engagement. Therefore, H₂ is accepted.

H₃ *There is a significant positive correlation between coaching leadership style and employee engagement.*

The relationship between coaching leadership style and employee engagement was computed using the Pearson correlation coefficient, there was a significant positive correlation between the two variables [$r = 0.541$, $p < 0.00$]. This signifies that these variables are closely associated, as indicated by a strong positive correlation, which means the presence of coaching leadership style significantly influences employee engagement. Therefore, the H₃ is accepted.

Study findings

The following main research questions and sub-questions were formulated based on the background and context outlined.

RQ 1: To what extent do the three leadership styles as depicted in the conceptual framework relate to employee engagement?

Research Sub-Questions

The following sub-research-questions are formulated based on the main research question above:

RSQ 1.1: What is the relationship between inspirational leadership and employee engagement?

Study findings show a significant positive correlation between inspirational leadership style and employee engagement [$r = 0.545$, $p < 0.00$]. This signifies that these variables are closely associated, as indicated by a strong positive correlation, which means the presence of an inspirational leadership style in the public-sector organisation significantly influences employee engagement. These findings confirm the study by Motjoloane and Ruhode, (2021:12), which stated that inspirational leaders can create an environment that enables creativity and innovation while also fostering the empowerment of subordinates. The significant positive correlation reveals that the environment they work in creates an inspirational drive which tends to increase their vigour, dedication, and absorption in their work.

RSQ 1.2: What is the relationship between coaching leadership and employee engagement?

The study findings show a significant positive correlation between coaching leadership style and employee engagement [$r=0.541$, $p < 0.00$]. This signifies that these variables are closely associated, as indicated by a strong positive correlation, which means the presence of coaching leadership style in the public section significantly influences employee engagement. These findings are consistent with what Türk and Saue, (2019) found when looking at how the use of group coaching impacts employee characteristics, development, and performance. They found that coaching leadership style often provides a shared leadership in an organisation which enables the reduction of the negative impact posed by a static organisational hierarchy. As such, a significant positive correlation found in the study, confirms that most employees in the public section believe if their leader and/manager truly build lasting personal growth with them rather than looking at the static hierarchy, they will excel at their work.

RSQ 1.3: What is the relationship between withdrawn leadership and employee engagement?

The findings of the study show a small negative correlation between withdrawn leadership and employee engagement [$r=-0.197$, $p < 0.04$]. This signifies that these variables are not closely associated, as indicated by the small negative correlation, which means a withdrawn leadership style leads to low levels of employee disengagement in the public sector. The findings are consistent with Mareau's (2016) findings. The scholar found a positive correlation between withdrawn leadership and self-perceived height dissatisfaction and found that both yielding and withdrawn leadership are negatively related to effective leadership (Mureau, 2016:19).

Study contributions and limitations

Theoretical contribution

The study thoroughly confirmed the previous studies' findings as it pertains to the exploration of a correlation between a leader's conduct (leadership style) and employee engagement. The study also confirmed theoretical studies done which confirm little or no correlation between withdrawn leadership and employee engagement. Another theoretical contribution made by the study is that all variables being studied exhibited significant relationships from a statistics point of view.

Methodological contribution

The study used a quantitative cross-sectional survey, which affirmed the previous studies' methodical approach. The success of the methods used added new knowledge in the field. The study also relied purely on primary data collected while also making use of structural validity, descriptive statistics, and correlation-coefficient computation to find answers to the main research question as well sub-questions. Another methodological contribution was the use of UWES-17 and CLS instruments in the public-sector organisation, where the usage of these instruments is minimal to none, more especially in an emerging country such as South Africa.

Empirical contribution

Leaders in organisations remain the main cornerstone to influence performance, staff morale and engagement. The practical findings of this study will enable leaders in the public sector to have an understating of how their conduct (leadership style) influences employees' engagement with their work. The researcher will present the finding to the management team to encourage the organisation to implement some of the learned lessons and findings to stimulate employee engagement. Furthermore, the finding will be published in a journal and be made available to the public to further the scholarly agenda of improving the knowledge of how the organisation in developing countries can improve employee engagement using leadership styles.

Study limitations

The population was limited to the legislative arm of employees who work directly with the council of the category A municipality where the study was conducted. The sample selection of the study was limited as only $n = 211$ potential respondents were targeted. The total sample targeted constituted all employees (permanent, temporal, and fixed-term contracts). The sample was obtained through a request made to the secretary to the council as the head of the legislature, with a specific condition of limiting the study to the legislature arm.

Practical recommendations

Based on the above thoroughly presented findings and limitations, the following practical recommendations are presented:

- It is recommended that practitioners consider an executive course that mainly focuses on the impact of leadership on employee engagement for leaders in the public institutions.
- An intervention workshop raising awareness of what employee engagement constitutes and how it be cultivated among employees should be considered.
- The study findings also suggested that most studies done on employee engagement stems from private sector. Therefore, a full study using the complete

scale of UWES-17 should be considered by practitioners in public institutions of South Africa.

- The use of Circumplex Leadership Scan also stems largely from private sector. It is recommended that the full scale be used with all leadership styles in public sector organisations.
- Industrial Psychologists and Human Resource practitioners can also focus on why employees would have lower levels on work engagement by focusing on how they relate to their line managers and vice versa.
- Practitioners can also focus on developing coaching and mentoring programmes for public institutions, as the study revealed that they do trigger employee engagement in positive way.

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Assessing the feasibility of backward design technique in Mauritian public universities

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Abstract

Backward design technique is a new course development technique being implemented in Mauritius through a joint initiative of the Commonwealth of Learning, the Higher Education Commission and public Mauritian universities. The main objective is to ensure effective blended learning by offering courses to Mauritian students based on Moodle learning platform. Far from being a repository, blended learning should be immersive and engaging for the prospective student. Backward learning enables the setting of course aims aligned with students' needs and then working back to developing learning outcomes created from Open Educational Resources. Training was provided to forty staff from the four public Mauritian universities. For the research evaluation, the qualitative method was used. The key feedback obtained from responses posted on discussion forums was that lecturers found the technique beneficial to them and challenging in helping them develop courses differently. They stated the appropriateness of such technique to blended learning and its practicality for use. The main concern was the adoption of such a technique in the current tertiary level curriculum.

Keywords: Backward design, Open Educational Resources, Moodle learning platform, benefits, concerns

Introduction

Backward design is a process that educators use to design learning experiences and instructional techniques to achieve specific learning goals. Backward design begins with the objectives of a unit or course by identifying what students are expected to learn and be able to do. It then proceeds "backwards" to create lessons that achieve the desired objectives. The seminal work of Wiggins and Mc Tighe (2005) opens up the debate of creating courses by design and this model is now being sought in blended learning in the current Mauritian higher education context.

The figure below illustrates the concept of backward design.

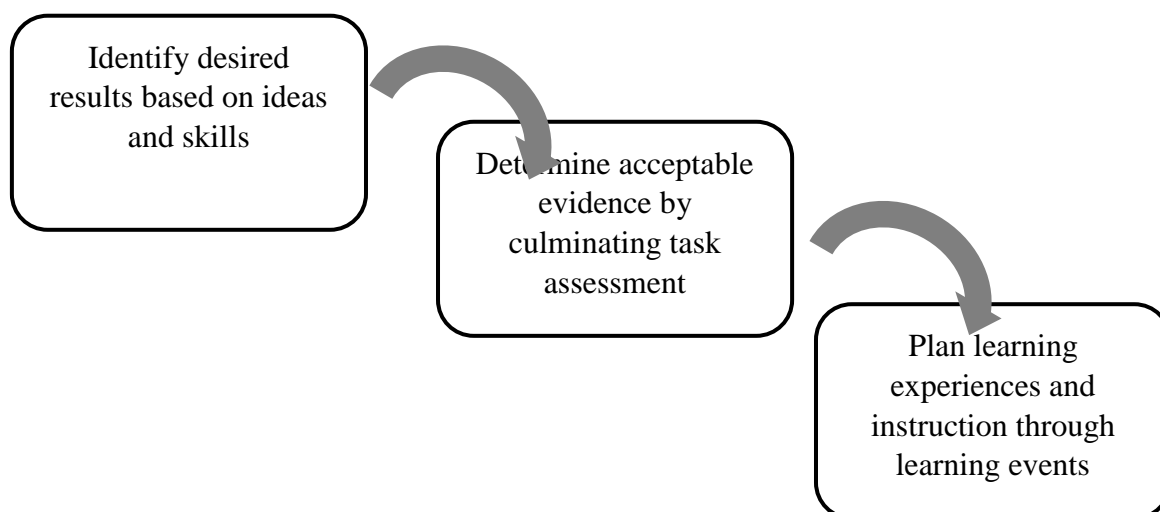


Figure 1: The concept of backward design based on Wiggins, G. and Mc Tighe, J. (2005) Understanding by design, Association for supervision and curriculum development.

In a general way, the instructional objectives for a course or unit will be the learning standards for a given course, in that, there are concisely written descriptions of what students are expected to know and will be able to do at a specific stage of their education. The basic logic motivating backward design is that starting with the end goal, rather than starting with the first lesson given chronologically during a unit or lesson. This helps teachers design a sequence of lessons, developing problems, projects, presentations, assignments and assessments. Students must achieve the academic objectives of a course or unit, i.e., actually learning what they were supposed to learn (Wiggins and Mc Tighe, 2011).

Backward design helps teachers create lessons and units that are goal-oriented (learning) rather than process-oriented (teaching). Since “starting from the end” is often a counter-intuitive process, backward design gives educators a structure they can follow when creating a programme and planning their instructional process. Proponents of the backward design might argue that the pedagogical process should serve the purposes; goals and outcomes for students rather than being determined by process. According to Bowen (2017), backward design is considered a much more intentional approach to course design than traditional methods of design.

Davila (2017) with reference to Wiggins and Mc Tighe’s (2005) philosophy supports that teachers who in charge of developing the curriculum, focus their planning in assuring that they cover all of the topics suggested either by governmental policies. These relate to standards, or concentrate more on the type of activity to be carried out by students paying little attention to the real purpose, usefulness, and impact on students understanding of the topic.

Backward design remains new to the Mauritian context where, in most situations, a top-down classical approach has been always favoured. There might be a possibility that the technique might have been applied to short or tailor-made courses provided to potential learners. This is true in that trainers can first decide what learners would like

and adapt a course to meet their needs. Backward design prioritises expected learning outcomes rather than topics to be covered. (Wiggins and McTighe, 2005) by opting for “upside down” from the traditional conception because instead of starting with the content to cover, it begins with the objectives.

Literature review

Perceptions on the benefits of backward design are available from selected literature. According to Wiggins and McTighe (2011), transfer of learning in backward design refers to students’ ability to apply acquired knowledge and skills to a new situation or other contexts. Students are said to have fully understood the concept if they can apply it to other contexts. Jozvik et al. (2017) state that backward design focuses on teaching and assessing students to encourage understanding of main ideas and transfer of knowledge through authentic performance.

Linder et al (2014) consider backward design as a lesson creation method that encourages teachers to identify their goals for student understanding and implement measurable goals for learning from the outset. Their research focused on a group writing programme that encouraged group goal setting and learning the skills needed to achieve those goals. As a consequence, planning a lesson using backward design indisputably requires careful thought, time and effort (Davidovitch, 2013). In backward design, there is no room for spontaneity, hence teachers must learn and be patient to effectively plan each lesson. This situation explains that backward design planning demands sufficient elaboration.

With regards to the benefits of backward design, lesson planning using backward design is found to be important in improving students' academic performance in tests and exams. According to Kelting-Gibson (2003), instruction delivered through backward design helps students achieve higher levels of academic performance.

Criticisms of backward design do exist however. Despite the benefits of reverse design in planning and delivering instruction, the concept is still not a popular approach to lesson planning. Ornstein and Hunkins (2018) state that backward design is a more popular approach in curriculum development. Teachers spend more time developing assessment strategies before the development of instructional activities (Song, 2008).

In a similar context, Jozvik et al. (2017) state that teachers do not have proficient knowledge and skills to plan lessons using backward design. They require more training on how to align, collaborate, and improve the components of the reverse design framework (Herro, 2018).

Recent criticisms of the use of learning objectives in backward design can also range from questions about who is qualified to determine objectives to the challenges of taking into account longer-term educational objectives that cannot be assessed in within a single course. According to Mc Creary (2022), there is firstly the concern that listing objectives artificially delineates what can be gained from a course. By channelling attention towards a few predefined targets, room for improvisation and spontaneity in the classroom are restricted. Additionally, there is the fear that stating goals in advance may undermine the value of the students' own goals for taking the course (Mc Creary, 2022).

There is a couple of empirical examination to support the benefits of backward design which allows teachers to be creative on using skills and methodologies according to students' needs and also being very reflective in the way of designing courses. In their study, Ontaneda and Sanchez (2019) applied the paired t-test to compare the scores of students at the same level. In their research, the experimental group (G2), to which backward design was applied, performed better than the control group (G1), which did not apply it. The results revealed that the backward design was very meaningful not only for the students, but also for the teachers. According to Ontaneda and Sanchez (2019), it was true that the establishment of appropriate action plans, the selection of the best resources and the implementation of a final evaluation through a summative task, offered the opportunity students to gain confidence in the language and apply it in a real context. From other illustrations, an earlier study by Kulla-Abbott (2007) reported that student achievement scores were significantly higher in courses delivered using a backwards design approach. Another one from Hosseini et al. (2019) found that backward design had a positive effect on student academic achievement.

The next section will contextualise the backward design approach to a Mauritian context. It will explain how it is applied to Mauritius, the process undertaken to adopt such an approach, the implementation of backward design in Mauritian tertiary institutions and course development initiatives under backward design.

Contextualising backward design in a Mauritian university context

All universities have basically adopted the 'forward design' which considers setting the course aims and objectives, devising the programme in the context of what should be learnt and acquired by students and this entails the development of a course that is systematic. The course planning and design depend on learning outcomes. In general, the programme remains progressive but ascertains that all the learning requirements are achieved. It is a sequential approach since it is based on gaining basic competencies first followed by further or advanced learning competencies.

The traditional mode of course design has not changed over the years but has been partly reviewed to accommodate blended learning. Today programmes use both face-to-face and online teaching. Since online teaching is new, course preparation and provision have to be readapted to the needs of students learning in this mode. Certainly, the same teaching practice as done in traditional learning does not apply.

Implementing backward design to Mauritian tertiary institutions

To partly address the issue of providing effective learning, the backward design might be proposed in universities. In this context, public universities in Mauritius recently approved the design of courses using the backward design technique. This was an initiative between the Commonwealth of Learning (COL), the Higher Education Commission (HEC) and the four public universities in Mauritius namely the University of Mauritius (UOM), the University of Technology Mauritius (UTM), the Open University of Mauritius (OUM) and the Université des Mascareignes (UdM).

A cohort of some 40 academic staff followed the training programme in backward design based on Open Education Resources (OER). A five-day training course on Moodle with specialised training on using tools like Forum, Chat, creation of educational videos using H5P, rubric-based assessment using Merlot, etc. were being taught to the staff.

The next three weeks comprised learning how to develop the programmes including communicating effectively with students using the hybrid mode. It was hereby stressed that the backward design technique would remain the backbone of the course developed within this collaboration.

From May to July 2023, all four universities created their courses. It could be generally assessed that some 40 courses were created or are being finalised to address the first cohort of learners. The Moodle-based courses would be provided both to university students including independent learners. On completing the course, a student would earn credits under the Credit Learning Transfer System (CLTS) and might be waived some electives or modules in case he/she would enrol for a university programme.

Course development initiatives under backward design

The key imperative in developing the Open Education Resources was to firstly think onto the concept of backward design. This was a novel approach not too much known or even applied to teaching in Mauritius. Still today, to ensure quality education, all universities need to developed student module information sheets (MIS) to inform them of the sequence of learning during the programme.

The new perspective created some enthusiasm among the trainees whereby they all needed to start from behind. To put it clearly, they needed to firstly assess what students might need for a certain course, consider what might be the formative assessments that would be needed before searching the learning requirements. In this way, the learning outcomes would be based on students' needs and not on the university programme needs (Wiggins and McTighe, 2011). This was practical as lecturers or trainees would first have in mind what they should teach and where they could locate such learning requirements.

Backward design and Open Education Resources

These were based on Open Education Resources (OERs) available online and provided by universities, academics and training organisations. Using the CC-BY4.0 notation (Creative Commons.org, 2023), learning resources could be directly taken from the sources, remixed, reused and adapted to the needs of learners in Mauritius. There is currently no authoritative definition for the term OER, with the OECD preferring "digitised materials offered freely and openly to educators, students and self-learners for their use". and reuse them for teaching, learning and research" (OECD, 2007).

This concept was quite challenging at the beginning because academics have been better used to developing their courses generally from standard textbooks available from top publishers like Prentice Hall, Longman or Pearson, just to name a few. The question of creating courses from OER was daunting and looked more like creating basic courses by copying information from blogs or related websites.

The reality was that the effort was worthwhile in that OERs existed for a variety of subjects and need not only be copied. By giving credit to the creators of such resources, academics would contextualise them and adapt them to the Mauritian reality. The other interesting issue was that such courses could not be copied entirely as OERs come from a variety of sources that could enrich the programmes. The onus of academics was to find out ways to source out a range of OERs that could connect them to their existing programme. The issue of sourcing licenses under CC-BY-4.0 and similar ones encouraged

trainees to ensure that all courses using backward design would be essentially based on such creative Commons attribute (Creative Commons, 2023).

Research questions

Four key questions were identified for this research.

Q1: What is backward design and how does it operate?

Q2: How might the backward design be applied in practice to a Mauritian context?

Q3: How might trainees react to the backward design prior to its implementation?

Q4: What concerns might exist in backward design as a course development approach to hybrid learning?

Methodology

The methodology comprised addressing some research questions developed in the above section with regards to the relevance of the backward design technique in tertiary education. An invitation was addressed to university managers to come forward and apply for training in backward design. Initially, 40 participants took part in the training programme developed jointly by the COL and the HEC. The arguments during the three-week training activity were preceded by some formal Moodle-based trainees the opportunity to post questions.

In the training course, all trainees were subject to completing prescribed reading and learning including tests and exercises. In parallel, forums were included in each learning unit that enabled training to mandatorily post their replies and grade them by their peers. These were moderated by the course facilitator, an expert from COL, India.

Since the collection of data was based on forums posted on Moodle platform during the COL-HEC training, a qualitative approach was used. The justification would relate to the fact that findings were based on data input by trainees in the forum platform. The topics that related closely to the research questions were chosen through an analysis of the main or prominent responses provided by the participants. To avoid duplication or information redundancy, answers were transcribed in outline form while respecting as closely as possible the message integrity. No distortion was officially entertained as a means of respecting the ethical guidelines of a research. Data was collected over two months between May and July 2023 in both training and post-training periods. They were linked mainly with the use of backward design and, trainee reactions in a peer-review system moderated by the course monitor.

Research findings

This section explains the research findings based on the forums posted by the participants in the COL-HEC training. The findings are labelled R1 to R4 as responses to the questions and address backward design, its application, the reaction of trainees and any shortcoming of the concept.

R1 Backward design and mode of operation

Q1 addressed the concept of backward design and the way in which it operates. All participants were briefly introduced the concept during the five-day intensive induction training. This was a fairly new theme for all learners.

Backward design is a course planning concept that:

- a) identifies the desired results of learning--What lecturers want students to learn and understand,
- b) determines assessment audience--How to check what students have learnt and
- c) plans learning experience and instruction--Which learning activities will lead students to get the desired results?

This concept was compared with forward or traditional learning where learning outcomes were first developed followed by learning activities and examinations that should be developed.

R2 Course development model using backward design in a Mauritian context

Q2 assessed how backward design might apply to the Mauritian context. The table below provides an illustration of backward design approach to course development. It is based on one course proposed within the COL and HEC initiative to create OERs based on such a technique. All participants were asked to adapt the backward model to their respective course. From the COL-HEC course notes and presentation, a template was provided to enable addressing key areas like learning standards, instructional strategies, summative and formative assessments, etc. Each participant had to post his model on the course forum. These were peer-reviewed and rated. Constructive comments were provided.

A brief is provided in the table below concerning the ‘Principles of Management’ course created by the Université des Mascareignes (UdM). It is noted that the same principle should apply to all courses developed within this collaboration. This course is developed by the author.

Table 1: Backward design for Principles of Management

Learning Standards	Students are expected to have the following competences at the end of the Principles of Management course: Underrated the importance of management in an organisation. Learn the key functions of management. Apply selected management models to a real life situation. Develop basic competences in planning and leadership.
Essential knowledge, skills, and concepts per unit.	Unit 1: Managers and Management Essential knowledge: Definitions of management Skills: The main skills or roles of managers according to Mintzberg. Concepts: managers, management, functions and roles, key definitions.
Instructional Strategies	Reading the OER per lesson provided by instructor. Studying the PowerPoint presentations provided. Answering questions based on interactive video demonstration using H5P. Posting on the forum for each topic with reference to a discussion question being asked. Summative assessment as per progress achieved in the unit.
Summative Assessment	These will be short answer questions as well as forums where students need to post their contribution as well as grading colleagues who post their rubric on the platform.
Test or assessment. Formative assessment.	A final assessment will be based on the ten different topics covered in the programme. This will be a formative assessment comprising Multiple Choice questions, Short Answer Questions and a few essay-type questions that will be answered on the Moodle learning platform.
Review and reflection on the prospective unit plan	How the unit was covered by the lecturer? A feedback per unit is provided at the end of each unit followed by a general feedback at the end of the course.

R 3 Trainees' reaction with reference to backward design

An important aspect of the research was to find out the reaction of trainees with reference to backward design technique for course design. There were a few aspects to analyse namely setting objectives, identifying learning ability of students, ease of locating open educational resources, course design, development of summative and formative assessments as well as overall perception of the technique.

A qualitative approach was used and this comprised response from trainees who participated in the forums both by posting information and grading the discussion of their peers. In each of the aspects identified, a few salient discussions were considered. To ensure confidentiality, the names of the participants are not mentioned but initials are used. The names of universities where they worked was not also mentioned within the same perspective.

Setting course objectives

Selected respondents' views on devising course objectives are as follows:

Respondents viewed course objectives as an important aspect of the programme. Objectives guided them to think of what students are expected to achieve in this programme. The setting of objectives was essential in backward design as they ensured what needed to be taught to students at first hand. Respondents claimed that they needed to know what they expected to offer to learners and decide what they would like to learn from them.

The respondents' views aligned with that of Linder et al (2014) considering backward design as a lesson creation task where teachers to identify their goals for student understanding and implement measurable goals for learning from the outset.

Identifying learning ability of students

With regards to the identification of students' learning ability, respondents stated that the current context was a basic course that they were intending to get accustomed to the technique. A beginner's course was developed for university students which concerned the environment in which they will work for three years. The learning ability was linked with a beginner level university programme.

In this perspective, Leboff (2022) comments that backwards design sets goals for what the student should be able to do. The teacher then considers how the student might demonstrate this new ability.

Ease of locating open educational resources

Regarding the ease to access Open Educational Resources (OER), respondents claimed that these might come from blogs and related websites. These resources could be used, reused and remixed. Getting known to OERs was a stimulating experience as it enables me to stop referring to course books. That effort was a bit challenging for Information technology courses, blogs are available but OERs are difficult to locate.

With regards or initial difficulties of sourcing OERs, Hassall and Lewis (2017) state that educators may have a lack of awareness of these tools and technologies or lack the infrastructure or support to implement blended learning techniques into their programme.

Course design

Views regarding course designed are summarised as follows:

Course design depended upon the programme that each participant had chosen thought and that was approved by the COL. Most lecturers chose basic or foundation principles of the course that they were teaching. A business lecturer who taught several management modules stated that basic courses could imply what might be needed for students who either learn vocationally or formally.

In this area, attention must be devoted to quality design where Davidovitch (2013) posits that planning a lesson using backward design indisputably requires careful thought, time and effort.

Development of summative and formative assessments

Concerning the development of formative and summative assessments, the views were synthesised as follows:

As such assessments were essential in a backward design technique, participants clearly understood what was needed for students. The formative assessment will be straightforward and simple with a variety of examinable techniques. Assessments might not necessarily be a two to three-hour examination paper. They could be simple, direct and immersive as well. In the case of IT courses, summative assessments were provided throughout each unit in my course and these blend equally with formative assessments.

In line with the responses, Campbell (2022) states that summative evaluations must be strongly aligned with operationalised outcomes and must be able to adequately capture them. Second, they must be authentic and relevant to real-world contexts. Additionally, formative assessments help instructors and students to monitor and address student learning outcomes on an ongoing basis so that student learning needs can be gleaned and gaps can be filled.

Overall perception of the approach

With regards to the overall perception of backward design, key findings purported that backward design was an entirely new and stimulating approach for them. Such an approach fitted in a hybrid learning concept and offers immersive learning opportunities. A participant claimed that the technique was modern and might be a complementary technique to assist students who work remotely. Another useful response reported that backward design gives a trainer a new opportunity to address his teaching approach to students who might be less academically versed more who are technologically savvy.

A positive contribution might emanate from Hosseini et al. (2019) who supported that that backward design had a positive effect on student academic achievement. In the same line, Campbell (2022) points out that teachers must be coaches of understanding not mere purveyors of content, knowledge, skill or activity.

R4 Concerns about the backward design

The last research question related to any issue that trainees faced or would like to discuss concerning backward design. The answers related to: the applicability of backward design, the reliance on OERs as a source of documentation, the dependence of teaching on a learning management system like Moodle and the level of teaching and learning expected from such a technique. A few selected responses are outlined below.

Applicability of backward design

With regards to the applicability of backward design, the feedback that was provided was as follows:

Respondents stated that the backward approach might help identifying students' end learning objectives prior to designing a course. The approach looked a bit daunting as the traditional university course has been working well for most universities. In the new approach, courses are tailor-made. Further, the backward design might not be adapted to formal tertiary education but rather to the needs of students who are dependent on technical abilities to learn.

In this conjecture, Farr and Turnbull (1997) suggest that one cannot expect significant learning outcomes in the classroom without taking into account the increasing complexity of classroom learning environments and student characteristics and experiences. Cho and Trent (2005) add that discussion of teachers' value-laden pedagogical activities is absent from this 'retrograde' curricular discourse, including on what knowledge matters most and whose knowledge.

The reliance on OERs as a source of documentation

Concerning tutors' reliance on OER as a source of documentation, the following points are summarised.

Respondents suggested that OERs for backward design were useful based on already created material where personal input might be missing. OERs fitted in the depth of learning expected from students. The contextualisation of OERs was important as they are mainly developed in advanced nations and top universities. However, there was a dearth of OERs from an African or Mauritian perspective.

Since many OER repositories allow any user to create an account and post material, some resources may not be relevant and/or accurate. With regards to contextualisation not all resources are culturally appropriate for all audiences (University of the Pacific, 2023).

The dependence of teaching on a learning management system like Moodle

The question linked with Moodle as a chosen learning platform for backward designed garnered some feedback that are synthesised as follows:

Moodle is perceived as a useful system which needs face-to-face without relying too much on an LMS. Moodle as an LMS closely related to backward design. There was the fear that learning might be too technical with lesser effort given to face-to-face interaction. Additionally, there were concerns regarding an over dependence on an LMS rather than the annoying but highly relevant traditional classroom teaching.

A key limitation of using a platform like Moodle is that it requires a lot of time and effort from both the teacher and the students. Since this approach involves starting with the end goal and working backwards to create lesson plans, it can be taxing on everyone involved (Ablison, 2023).

The standard of teaching and learning expected from such an approach

In line with the standard of teaching and learning expected from backward design, the following responses are aggregated below:

In the current context, teaching and learning in backward design would be limited to first year or certificate level courses. There was an understanding that university courses are comprehensive needing enough time allocated to lectures, research and discussion. In such a context, designing a course for a university might look hazardous. Some concern addressed finding out the right balance between less able and abler learners where the current model might not suit both types of learners.

Jozvik et al. (2017) recall that teachers might not have proficient knowledge and skills to plan lessons using backward design while hero (2018) has supported the view stating that teachers might require additional training on how to align, collaborate, and improve the components of the reverse design framework.

Discussion

In relation to the feedback earned from trainees, there is evidence that the backward design technique might prompt more immersive experience on the part of students who will use a blended learning approach. There is also a favourable impression onto using the technique whereby the students' needs are prioritised prior to developing a course and from where courses will be developed. Wagner and Liu (2021) propose a pedagogy through which a teacher can infuse immersive technologies in the course of teaching to stimulate students' learning experiences, thereby improving their enjoyment and learning outcomes.

Presently, backward design technique is simply new and it is, for this particular reason, that COL and HEC have come forward to promote such courses in Mauritius. In some way, backward design technique allows universities and higher educational institutions in the Commonwealth and in the developing world to have their own courses created while they were relying extensively on material produced from the western world. In some way, there is the eventuality of effective course creation from the developing world. Combined with OER, backward design aligns with the Research on Open Educational Resources for Development (ROER4D) project seeks to build on and contribute to the body of research on how OER can help to improve access, enhance quality and reduce the cost of education in the Global South (Hodgkinson–Williams et al, 2017).

Additionally, there is the main issue of democratising education by creating courses meant for a wider range of students including those who might not attend a university. Such courses are offered at a minimal cost and might also be free for these targeted students.

From the backward design technique, it is seen that this will be more appropriate for beginner level courses at present because trainees have just followed such a programme and are actually furthering their competence on using Moodle platform. Since Moodle itself requires enough time to master the tools and techniques, it might be true to say that courses that are theoretical and targeted to year 2 or 3 might not be appropriate within the technique albeit they might so be developed through Moodle. According to University College London (2020), students rely on Moodle for up-to-date course information and easy-to-find, accessible learning resources.

An important concern in the Mauritian context remains the successful implementation of courses using the backward design technique. The key question to be asked is whether there will be an instant success of such courses or is there a learning curve to ensure its acceptance and implementation in the learning curriculum at the tertiary level.

There is also the need for support and follow-up. COL partners with higher education institutions to develop and offer courses and programmes through open distance learning. Such interventions and support include relevant policy development for dual-mode operations, developing quality assurance policies and guidelines, capacity building for dual-mode and online/blended operations, including instructional design and the use of OER and learner support (Commonwealth of Learning, 2023). At present, COL facilitates with some staff are supporting the development of the programmes but what about its follow-up? Although the currently trained academics are supposed to become champions of the backward learning technique as they are expected to offer training to upcoming groups of trainees, nothing can be said on the viability of such a project?

The financial aspect of implementing a new learning technique has not yet been evaluated. Actually, the training and development costs of this technique are borne by the HEC but can it be said that this will be sustainable? If already trained academics will be future trainers, won't there be the need to remunerate such staff as this is an effort undertaken beyond the actual teaching hours?

Conclusion

This paper discussed the issue of implementing the backward design technique in the development of OERs in Mauritius as part of the new blended learning strategy between the COL, the HEC and the four public universities of Mauritius. The main objective is that local universities should be able to develop programmes aligned with blended learning by harnessing the benefits of OERs which stand as very useful and freely available learning resources that students and academics might use. The challenge comes from adopting the backward design technique which is actually limited to some forty academics trained under this programme. From the initial feedback gained through forums and discussions posted by the trainees, it is seen that there is a favourable response with regards to the course development concept which opposes traditional course design. This can prove to be an opportunity where lecturers will themselves need to know what students want to learn and where they can locate learning material and devise learning outcomes with summative and formative assessments. The fact of relying on OERs is a challenge as lecturers might eschew material from the net and prefer a mix of teaching material based on textbooks and published research. It is necessary here to see how the current trial stage of backward design technique works and what lessons might be learnt from it after its initial implementation.

Limitations of the research

This paper is limited to a Mauritian context where the backward design technique is just being introduced. There is further limitation due to the fact that such technique has been demonstrated and put into practice with a cohort of just forty trainees. There might be the need to see its impact on a much larger audience in a full-fledged way. This is not the case yet in Mauritius. Nevertheless, the insights from the research do provide some useful feedback on the viability of such a technique.

Further research objectives

In line with the current research, some further research possibilities might be:

- The relevance and applicability of OER in tertiary education in Mauritius.
- The extension of the backward design technique to the second or final years of university training.
- The evaluation of backward design technique with regards to the success of students.
- The complementary use of backward design technique and traditional learning design in Mauritian higher education.

Acknowledgments

The author acknowledges the Commonwealth of Learning with reference to lecturers' feedback provided on the discussion and forum platforms that have been used during the four-week training programme spread between May and July 2023 in Mauritius.

Special acknowledgments to Dr Indira Koneru, COL India trainer for instilling the backward design approach and the Higher Education Commission, Mauritius for implementing the course in Mauritius.

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How students view the role of Information and Communication Technology (ICTs) in enhancing their academic performance

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Abstract

Educational stakeholders have recognized the potential of Information and Communication Technology (ICTs) to enhance students' academic performance, leading to substantial investments in technology for teaching and learning purposes. While previous studies have explored the benefits and drawbacks of using ICTs in education, little research has been conducted on the actual influences of ICTs on students' academic performance. The COVID-19 pandemic has emphasised the importance of remote learning and the critical role of ICTs in facilitating this transition. To address this gap, this study utilised a structured questionnaire with a quantitative approach to gather data from students enrolled in tertiary institutions during the 2020-2021 academic year. The study was guided by the Technology Acceptance Model (TAM) framework, which focuses on students' acceptance of ICTs for teaching and learning in South African tertiary institutions, and their subsequent influence on academic performance. The data was analysed using Google Forms, and the findings indicate that ICTs do improve students' academic performance.

Keywords: Information Communication Technologies; ICTs; Technology Acceptance Model; TAM, Academic Performance; Tertiary Institutions

Introduction

The acronym ICT stands for Information and Communication Technology, and it is used differently in education when one considers the different treatment of the term in its widespread application in other contexts (Zuppo, 2012). However, in all instances, its primary definition revolves around technological devices and network infrastructure that facilitate all kinds of information transfer or transmission across various digital platforms and digital competencies. While there are many benefits and disadvantages to using technology in the context of education, research conducted in this study shows that technology can be used to enhance the teaching and learning process (Lee et al., 2018). However, not much research has been conducted on the influence of ICTs on academic performance. This is precisely what this study aimed to investigate.

Rationale

ICTs in teaching and learning are aimed to assist and improve the lives of students and academic instructors or lecturers as they are creators of pedagogical environments. The researcher sought to contribute and eliminate gaps in the present literature regarding the influence of ICTs on academic performance. The literature investigating the impacts and influences of ICTs on teaching and learning is fairly extensive and, in general, appears to be supportive of the claims that most students find ICTs very helpful in assisting them

with their academic tasks such as assignments and research (Parrish, 2016; Dintoe, 2018; Mir and Shakeel, 2019; Ishaq et al., 2020). However, one of the objectives of this study was to ascertain whether these published studies provide supporting evidence for claims or counterclaims that ICTs improve or hinder students' academic performance. The study also attempted to determine which devices could potentially assist students in improving their academic performance.

Objectives

The objectives of this study were to investigate how ICTs improve or hinder student academic performance; the data collected can help evaluate the influences of ICTs in institutions; how this study can assist students through examining existing literature and identifying best global practices to that can apply to South Africa; examine how students access and the use of ICTs at home and in school.

Literature review

ICTs in the past two decades have impacted every industry and the way things are done. With the enormous changes in industries such as medicine, banking, education, tourism, and information technology, the field of ICTs has vastly changed the traditional ways of doing things, especially the modernisation of the teaching and learning sector. However, the extent of improvements or changes in the education field due to the implementation of ICTs has not achieved the same level compared to other industries (Dintoe, 2018). Due to that lack of improvement, the education industry has faced certain factors that hinder its progress. A study conducted in Bangladesh and Indonesia found that students of tertiary institutions and colleges in developing countries utilised ICTs in all their learning activities (Ullah et al., 2019). However, the study found that over-accessing or over-dependency on these ICTs hindered their academic performance. Furthermore, in the same study, 80% of the respondents disagreed that ICTs helped to improve student academic performance (Ullah et al., 2019).

Tertiary institutions should implement ICTs by upgrading their existing technology infrastructure to enable students to prepare for remote learning, online certification, and courses (Humbhi and Tareen, 2021). In 2019, the global pandemic (COVID-19) forced countries to implement a lockdown on all non-essential services, and schools were forced to close to minimise the spread of the virus (WHO, 2020). To avoid losing the academic year, many institutions (both schools and tertiary) implemented online remote learning. Online learning meant that students had to study from home using technological devices such as laptops, desktops, tablets, or smartphones to continue their studies. In a traditional face-to-face environment, ICTs may not have been used to the extent that it was used during the pandemic. Therefore, bearing in mind the extensive use of technology under these circumstances, such a study was timely as it generated rich data on the influence of ICTs on students' academic performance.

Methodology

This was a quantitative study based on the deductive approach. The sample comprised students who were registered in the period 2020-2021 at a tertiary institution. This study undertook purposeful sampling because it was used to select respondents as they had to be students registered for a qualification at a tertiary institution. Purposeful sampling is when a researcher has clearly defined the study's needs from particular respondents (Benoot, Hannes and Bilsen, 2016). Purposeful sampling was applied considering the student's ages and educational levels. The sample size of this study was 168 students that

responded to the distributed survey. Also, the population group was tertiary institution students enrolled in their studies in the year the survey was distributed. A questionnaire designed using Google Forms was disseminated to possible respondents using social media platforms such as WhatsApp, LinkedIn and Facebook. The collected data were analysed using descriptive statistics. The study examined the theory using logic, numbers, and statistical instruments such as tables, figures and bar graphs as was presented as the findings.

Research design

The exploratory, descriptive research design was used for the study, and students who met the requirements or criteria to be part of this study were identified in tertiary institutions as the respondents. A study should explore the research aspect in-depth to achieve exploratory research (Fleming and Zegwaard, 2018). The utilisation of an exploratory, descriptive research design has two categories (exploratory and descriptive research design). Firstly, the exploratory research design has been characterised by Burns and Santally (2019) as research conducted to increase new insights, find groundbreaking ideas, and expand the knowledge base of the phenomenon. Secondly, the purpose of a descriptive research design is to give a description of a situation, individual, or occasion or display how things are identified with one another and as it normally occurs. This is precisely what this study sought to achieve. Both exploratory and descriptive research design depend on one key element and that is data collection.

Sampling Techniques

The purposive sampling technique was utilised to identify specific respondents who had to meet certain criteria to participate in the study. The criteria were: the student had to be a registered student in a tertiary institution and had to be 18 years of age or older. In purposive sampling, implicit decisions are made with regard to defining or categorising the membership of the "representative" sample according to identifiable characteristics, which in turn facilitates the selective targeting of respondents, thereby enabling the polling or canvassing of their responses to a constructed questionnaire in a data collecting exercise (Gentles et al., 2015). A respondent is specifically chosen using the purposive sampling technique, also known as judgment sampling, based on the attributes they possess (Richmond, 2016). It is a non-random method that does not require it (Todd, 2017).

Data collection and procedures

The survey was distributed through the medium of a structured questionnaire designed using Google Forms. A link to the survey was distributed to possible respondents through various social media or multi-platforms such as LinkedIn, WhatsApp, and Facebook. An electronic survey has wide coverage via various Internet-linked platforms and therefore can reach a large number of respondents. Additionally, an electronic survey is not restricted by geography which for this study was extremely valuable because of the COVID-19 lockdown restrictions. However, due to lockdown measures, the researcher could not distribute paper-based questionnaires to those respondents who did not have internet connectivity or technological devices. As a result, such respondents were excluded from the study. The questionnaire clearly outlined who should participate in the study. It covered all details regarding ethics, non-disclosures, anonymity, and confidentiality. A total of 184 people responded to the survey, which was distributed. It was discovered that 16 students did not complete the survey, as a result, their incomplete

surveys were not included in this study, therefore a total of 168 students did complete the survey.

There were 168 valid respondents that were utilised for data analysis and there were 91 female and 77 male students. The consent form did not explicitly indicate that only South African students can participate as it was not required in this study and no question indicated that they should enter their tertiary institution name for the researcher to determine their country of origin. The questionnaire was distributed using social media platforms to students who were enrolled in South African tertiary institutions. The population was gathered by asking students to share the questionnaire link with their respective tertiary institution's academic groups. Without any evidence to the contrary, it was assumed that only South African tertiary institution students participated in the survey in terms of demographics.

Data analysis

The approaches selected for data analysis are dependent on the research goals and the purpose for which the data is required, such as hypothesis testing (Oberhuber and Maurer, 2019). Data analysis involves looking for statistical significance regarding trends, patterns, correlations, statistical hypothesis testing and relationships using the raw data as a resource for a study (Mwapwele et al., 2019). Statistical analysis confirms significance with respect to trends, patterns, correlation, and relations, and these must be interpreted and explained in the discussion of the findings (Kaur, Stoltzfus and Yellapu, 2018). In addition, the study can also be analysed in terms of the mean, average, median and mode, and the spread of the values of variables can be described in terms of range, frequency and variance (Tobias and Trindade, 2020). Ullah et al., (2019) suggested that descriptive statistics can render a difficult concept understandable by visualising data sets. The primary goal of descriptive statistics in a study is to summarize numerical data into a visual representation that can be easily conveyed (Todd, 2017). In addition, descriptive statistics can only indicate reports about the data set: basically, no claims can be made, or conclusions drawn beyond what the data allow or support (Loeb et al., 2017). Therefore, descriptive analysis techniques were applied to the collected data, and the findings of the analysis were presented using graphs/charts and tables. The data collected was exported to MS Excel for further analysis and to provide a graphical and tabular representation of the findings.

Results

Descriptive analysis techniques were applied to the collected data, and the findings of this analysis are presented in tabular form. Drawing from their personal experiences, the respondents in this study developed their own ideas about the academic benefits and drawbacks of teaching and learning, especially in relation to their academic performance. This is about being dependent on remote ICT-based online and contact teaching-learning, representing a rich and valuable information resource. In exploring the student's experience that uncovers the unknown, the researcher discovered that a TAM theoretical framework would suit this study, which is a component of grasping the effects of ICTs on student academic performance. The TAM theoretical framework does attempt to validate any hypothesised relationship between ICT dependency, proficiency and ease of adoption in remote or online teaching. However, it did help in this study to identify the external variables that played a role in the adoption and proficiency of the application of ICTs in teaching and learning. This justified the utilisation of the TAM theoretical framework with regard to the behavioural responses involved in the adoption of ICTs in

tertiary institutions. The data generated from the survey validated the TAM theoretical framework for the adoption and proficiency of the utilisation of ICTs in hybrid teaching and learning.

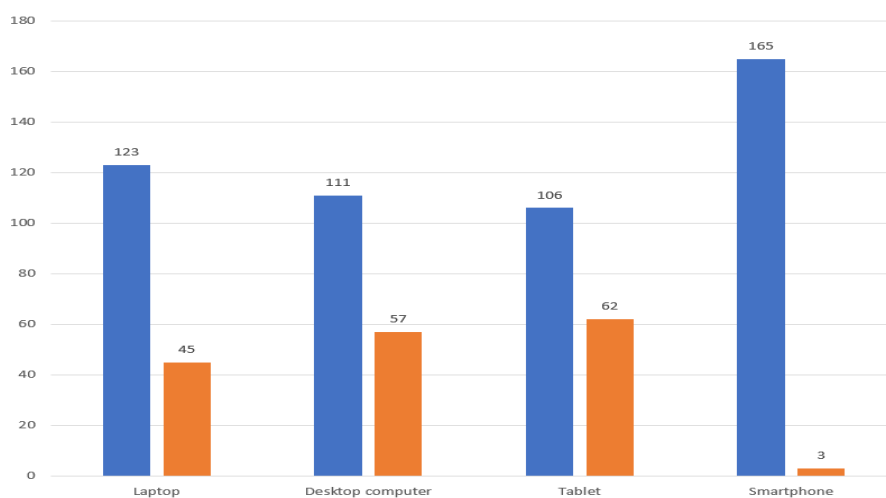


Figure 1: Technological devices used by students to access the Internet

Figure 1, shows a majority of the students that participated in this study have a "Smartphone," with 165 students indicating "Yes" and only 3 indicated "No". There were 57 students who did not have access to "Desktop Computers" and 62 students who did not have access to "Tablets" for academic purposes. Laptops are the second most utilised device for academic purposes, with 123 students responding "Yes" to laptops to access the Internet to do their academic work. As a result, Internet access should be regarded as a critical success factor (CSF) that enables students to perform their academic work. Once students manage to utilise the Internet and ICTs optimally and effectively for academic purposes they can develop and acquire critical skills and knowledge to solve complex problems and create innovative ways and opportunities that can be utilised to improve student academic performance. Internet connectivity and technological devices that connect to the Internet should be considered CSF.

Table 1: The extent to which ICTs influence students' academic performance

	To no extent	Small extent	Moderate extent	Large extent	Very large extent
Technological devices improve my grades or marks.	1	8	12	25	122
I can effectively do my online assessments.	4	6	8	79	71
Technological devices help me understand and do more research through YouTube, Google Scholar, etc.	4	7	4	72	81
I can keep my academic life and social media platforms separate at home.	4	24	15	70	55
Technological devices help with my studies.	0	7	10	71	80
Wi-Fi connectivity can hinder my studies.	11	16	8	64	69
Total	24	68	57	381	478

In these findings, the researcher opted to discover the percentages of the findings by adding the responses for “Very Large extent” with “Large extent” and then dividing by the total respondents (168), then multiplied by 100 to get the percentage of the final findings. 122 Students indicated that they agreed to a “Very large extent”, and 25 students agreed to a “Large extent” that “Technological devices improve their grades”. Overall, 88% of the student believe that technological devices can influence their academic performance. 90% of the students agreed that they can effectively complete their online assessments, an indication that students could utilise ICTs effectively to complete online assessments and that these ICTs are easy to use which contributed to improved attitudes toward use. According to Venkatesh and Davis (2000), a positive intention to use specific technological devices will be important as it confirms that the technology is perceived as useful.

Table 2: The influence of ICTs on student academic performance

	Positive attitude (Large/very large extent)	Negative attitude (small/ to no extent)	Moderate respondents
Student responses	478+381	24+68	57
Total	859	92	57

Table 2 summarises the totals from Table 1 to provide a clear picture of students’ attitudes toward the influence of ICTs on their academic performance. Most students have a positive attitude toward the influence of ICTs on student academic performance. Contrary to the relatively low negative attitude findings which summed up to a total of 92 and 57 moderate responses. The negative findings must not also be evaluated as they also add value to resolving tertiary institution’s ICTs grey areas that need to be improved on. From the findings, it can be deduced that the attitude towards yielded positive findings and indicates that ICTs can influence student’s academic performance. The study also identified other variables that have not been discussed within the TAM theoretical framework. These variables will impact the study’s main variables which are students’ perceptions of the usefulness of ICTs and their perceived ease of use. External variables have been identified to impact the TAM, which applies to the influences of ICTs on students’ academic performance which will be discussed below (cf. Section 4.1). The responses to the questions in the survey have highlighted the importance of Internet connectivity, individual factors, IT skills and technological devices as variables that impact students’ acceptance of ICTs to complete their academic work.

Positive attitudes toward utilising ICTs have been shown to increase social interaction and provide opportunities for students in tertiary institutions (McNicholl et al., 2021). Tertiary institutions also support learning and encourage active peer involvement in course-related discussions that promote group collaboration or involvement by utilising assistive technology (AT) in social groups. However, for students that depend on AT for communication purposes, the interaction depends on the size of the group and the personal assistant that gave students a personal space (McNicholl et al., 2021).

Table 3: Influences that can negatively impact student academic performance.

	To no extent disagree	Small extent	Moderate extent	Large extent	Very large extent
High data prices.	0	4	11	25	128
Load shedding or power outages.	0	7	6	57	98
Internet coverage or speed.	1	6	9	69	83
Social media distractions, e.g. Facebook, Instagram, WhatsApp, and Twitter.	4	20	22	60	62
Home distractions e.g. home chores, family responsibility	12	21	16	56	63

Adding the (very large extent + large extent) and (small extent + to no extent disagree) then dividing by the total respondents (168) then multiplying by 100 will give the percentage of positive findings and vice versa for negative findings. Table 3 shows that 128 students were affected by “high data prices”, representing 72% of the sample population. This is of concern because those students who could not afford to buy data due to high data prices would not have been able to attend lectures, engage with the online resources and possibly not complete assessments. Also, “Load shedding” (power outages) contributed negatively to 92% of the respondents and 90% of respondents indicated that another challenge that hindered their studies was inadequate “Internet coverage”. Inadequate Internet coverage can negatively impact students as they may not be able to write or complete online assessments, consequently, resulting in poor academic performance.

Table 5: Student’s technological devices that enable learning for academic purposes.

	Strongly disagree	Disagree	Agree	Strongly agree
I often use technological devices such as laptops, tablets, smartphones, etc.	3	5	33	127
The institution prepared me for the technologies I would need for my course.	9	19	79	42
Wi-Fi connectivity in class helps me use my device effectively for academic purposes.	5	9	83	71
The institutional website has enough materials to help me with my studies.	1	13	61	92

According to Table 5 above, the students have shown positive responses to technological devices that enable their learning for academic purposes. A minority of 19 percent students “Disagreed” that “The institution prepared me for the technologies I would need for my course”. These responses might not be that high, but such findings cannot be ignored, especially by tertiary institutions, as it is their responsibility to ensure that every student has soft technological skills. In this instance, their preparation for the technological devices they will need for the cause should be given priority. Also, the institutional website must be easy to utilise for students to do their academic tasks. There were 19 students who said, “The institution prepared me for the technologies I would need for my course”, and 13 students and 61 students that indicated that “The institutional

website has enough materials to help me with my studies”. Those findings prompted a need for institutions to make their institutional technologies and websites more user-friendly so that they are perceived as useful and easy to use.

In terms of the TAM theoretical framework, the majority of the students perceived that ICTs either improve or influence their academic performance as they found ICTs easy to use and useful in their studies. The student's intention in utilising these technological devices was to improve their academic performance. Individuals will utilise and work on technologies that are easy to use (Austermarn, 1998). The findings indicated that the institutional resources were sufficient to assist the student. ICTs that the tertiary institution recommended did align with what the students needed to complete their academic work, as 83 students strongly agreed that the “Institutional website” did assist students. The next section presents possible factors that might hinder student academic performance. The research sought to improve the TAM framework for investigating the adoption and adaptation of ICTs for remote teaching and learning, thereby making its application more amenable to this new era where students rely on online learning material and ICTs to improve their academic performance. In the context of the current COVID-19 pandemic, the study sought to provide the necessary findings and add value to literature and the body of knowledge to institutions.

The Extended Technology Acceptance Model (ETAM) was adopted. The TAM theoretical framework sought to understand the user acceptance process, which provided the theoretical basis for the study which tested the methodology. Figure 3 illustrates the proposed Extended Technological Acceptance Model (ETAM). The study took key variables that influence the ICTs on student academic performance, leading to positive or negative effects arising from the use of ICTs for teaching and learning. In Figure 3, the findings discussed in Results Section 4, which indicated that the influences of ICTs improved student academic performance, were used to derive the new TAM framework.

The new framework identified various variables, which were outlined using the information of the findings, and which were of interest and relevance in answering the research questions.

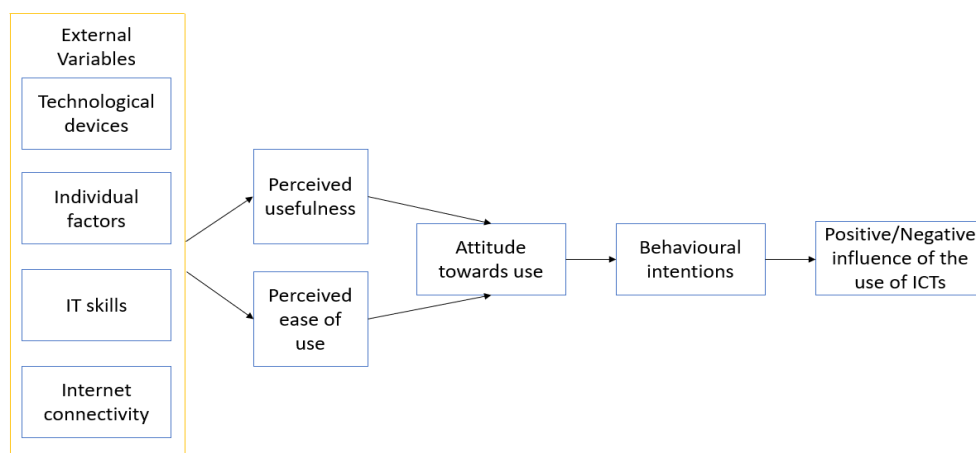


Figure 5: *Expended Technology Acceptance Model*

As shown in Figure 5, the external variables are “Internet connectivity, individual factors, IT skills, and technological devices”. External variables can be an individual's predisposition to a certain type of technology like smartphones, laptops, tablets and desktop computers. Perceived ease of use and usefulness are utilised as constructs, which are individual beliefs influenced by external variables (Toan and Thu, 2017). External variables on the expended technological acceptance model (ETAM) can directly impact perceived ease of use and perceived usefulness. The ETAM theoretical framework was derived, and it emanated from the findings that the researcher discovered and illustrated the most significant identifiable variables. In turn, both constructs or variables influence "attitude towards use" and "behavioural intentions".

Conclusion

ICTs in tertiary institutions have become more important and there is room for expansion as the demand and usage have grown. This study did not investigate the relationship between the usage, or the high utilisation of ICTs and the grades achieved due to ICTs usage. Thus, the study did not directly measure any correspondence between actual grades achieved and ICTs utilisation. It would have been of value to this study to measure any impact on grades due to using technological devices. In this regard, further research is needed to be able to determine which devices effectively contributed to improving students' grades. However, in this study, the findings suggested that ICTs influence their academic performance. These findings can assist tertiary institutions in identifying useful technological devices that can assist students with their academics. Indeed, the findings also indicate that students use technological devices as a medium of communication when doing their assessments and assignments.

As the finding suggests, more institutions should invest in ICTs as more online classes took place when COVID-19 hit the world. ICT use seems to improve students' collaboration and enthusiasm about continuing their academic studies as it potentially improved their academic performance. By equipping students with ICTs, they gain expertise and experience, which should be beneficial for them after completing their studies in the workplace. Also, ICTs enabled students to easily access a wide range of information through various information sources or internet platforms. The study also agreed with the ETAM as more students have a positive outlook on using ICTs. Overall, the findings showed more positive feedback as more students indicated that ICTs are the preferred method to do their studies online and face-to-call lectures.

ICT seems to be on the rise as students are positive about how much they are benefiting from ICT integration (Bagarukayo and Kalema, 2015; Khan and Jan, 2015; Adam and Tatnall, 2017). As a result, the more positive the students felt, the more actively they engaged in learning activities. However, it is important to note that ICTs alone cannot guarantee academic success, and factors that this study did not take into account were, how technological devices are used, along with other factors like the quality of devices utilised, learning environments and student motivation. This study identified some limitations, such as not reaching the targeted respondent's numbers of 200+ and additional procedures for data collection such as paper-based surveys. Therefore, the study identified further recommendations for the study that can be done as discussed above.

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Exploring the impact of business acumen and the macro environment on firm performance

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Abstract

Small and medium-sized enterprises (SMEs) globally have demonstrated their pivotal role in poverty reduction, fostering economic growth, and facilitating sustainable job creation. Recognising the significance of SMEs, the South African government has implemented various strategies to promote their development and enhance their impact on the country's socio-economic landscape. Despite the increased financial and non-financial support directed towards SMEs, their failure rate in South Africa remains notably high. This study's primary aim was to investigate the influence of business external environment on firm performance. Employing a quantitative, exploratory, cross-sectional survey research approach, primary data was collected through a structured self-administered questionnaire, resulting in a total of 397 complete surveys for analysis. Factor analysis conducted on the external environment identified two key factors: business acumen and the macro environment. Notably, the business acumen score exhibited a significant, robust positive correlation with firm performance, while the macro environment score demonstrated a weaker positive correlation with firm performance. Business acumen encompasses a profound understanding of diverse business aspects, including finance, strategy, marketing, operations, and management, embodying a range of critical skills and abilities. The authors contend that it encompasses the capacity to make well-founded decisions promptly in the business realm, an attribute deemed essential for inclusion in training programs designed for SMEs.

Keywords: external environment, firm performance, SME

Introduction

The external environment of a company encompasses all external forces and circumstances that have the potential to impact its performance and operations. The macroenvironment and the industry or competitive environment are the two basic groups into which these elements can be broadly classified. Technological, political, legal, social and cultural, environmental, demographic, and economic aspects are examples of macro-environmental elements. Supplier and buyer power, rivalry among competitors, the danger of new entrants and replacements, industry rules, and other elements make up the industrial environment. The relationship between a company's performance and its external environment is a key topic in today's globalized and dynamic business climate, as companies are constantly faced with new challenges and external influences. A firm's ability to comprehend and navigate these external pressures successfully is critical to its success and survival.

SMEs operate in both the internal and the rapidly changing external environment, which if not properly managed, like COVID-19 clearly illustrated, can affect their sustainability. The term SMEs includes small, medium-sized but also micro enterprises. The failure rate of SMEs is attributed to both external and internal factors to the business. Reymen et al. (2015), mention that SMEs operate in very hostile aggressive environment, that the operational environment changes rapidly and is hostile in nature and therefore requires SMEs to understand their operational environment and be resilient and create innovative ideas to build sustainable businesses.

The South African Government has established different entities to ensure effective and efficient support of SMEs. These include entities like the Small Enterprise Development Agency (SEDA) and the Small Enterprise Finance Agency (SEFA) (Jassiem et al., 2012). Despite the efforts that are being made by government to encourage the initiation and growth of SME's, coupled to the fact that they have a significant impact on employment creation and poverty alleviation, SME failure in South Africa is regarded as one of the highest in the world.

The importance of the external environment for firm performance cannot be overstated. It is, in many ways, the crucible in which a company's strategies, decisions, and actions are tested. Firms that fail to grasp the significance of their external surroundings risk being blindsided by unforeseen challenges or missing out on lucrative opportunities. Conversely, those that keenly observe, adapt to, and harness the dynamics of their external environment are better positioned to thrive, grow, and maintain a competitive edge.

The performance of a firm is strongly influenced by how well it responds and adapts to these external environmental factors. Firms that can identify and strategically respond to opportunities and threats in their external environment are more likely to perform well and sustain a competitive advantage.

Literature review

For SMEs to prosper, it is important that the external environment is studied, and measures be put in place to address the impact that it might have on the organisation (Indris & Primiana, 2015: 193). The external environment is made up of the customers, suppliers, distributors, competitors, legislation, political, social, cultural, technological, innovations amongst other factors (Adeola, 2016: 159). Fereidouni, Masron, Nikbin and Amiri (2010: 192) mention that the external environment, if not managed and controlled properly can have a tendency of affecting the motivation of entrepreneurs in starting a business therefore the government needs to ensure the creation of an enabling environment.

Adeola (2016: 164-5) highlight that opportunities and threats faced by an organisation can be managed by effectively understanding the external environment and creating strategies that will address the challenges. The firm's external environment should be managed, studied and observed carefully because of its complex, dynamic and constantly changing nature has the ability to impact on the competitiveness of the firm (Venter, 2014: 139). Hough et al. (2011: 57) further added that the firms' "macro environment" comprises of all factors that are outside the control of the firm and affects its operations. Venter (2014: 140-141); Pearce and Robinson (2013: 84); Hough et al. (2011: 57) also stressed the complexity and dynamic nature of the external environment as being made

up of socio cultural, technological, legal, regulations, global, political, ecological and economic factors. Also, that not all firms have that ability to control them but only to develop strategies to counteract them.

The growth and sustainability of any firm can be determined by its success which can be attributed to its performance (Al-Matari et al., 2014: 25). Firm performance is important for both big and small organisations in that it ensures creation of sustainable jobs, eradication of poverty and economic growth for countries therefore it is important that factors that influence growth of businesses is studied (Okeyo et al., 2014: 14). Both Al-Matari et al. (2014: 38); De Loecker and Goldberg (2014: 34 – 35) agree that both financial and non-financial measurements of a firm's performance are important and further that firms should focus on short term and long-term performance of the firm.

Previous research has shown the connection of the external environment and firm performance. Yayla and Hu (2012); Li & Liu (2014), showed the moderating effect of the external environment on organizational performance. Empirical evidence suggests that the external environment is, directly and indirectly, related to organizational performance. Nyaberi (2021) states that firm performance is dependent on how major decisions are made in anticipation of or in response to external environmental conditions. The process of making decision within environment is never ending and therefore a continual reassessment of the status of the strategic factors in this environment must take place. Gosnik et al. (2023) based on the results, confirm that changes in a firm's external environment affect its strategy towards customers, which influences firm performance. Firms that use the differentiation strategy have better performance (based on ROA, EVA, and CR) than those that use one of the other strategies (low-cost strategy, focus strategy, or an overtaking strategy). Liao et al. (2020) showed that a firm's technological capability strengthens the influence of innovations and firm performance. Al Issa (2021) suggested that a firm's performance is shown in its achieved financial results (profit). Sahu et al. (2023) and Kapoor (2023) identified changes in the external business environment on the field of suppliers as a key external factor influencing firm performance.

The South African (SA) government identified SME development as critical in ensuring economic growth, job creation and alleviation of poverty by creating a Department of Small Business Development (DSBD) in 2014 (National Treasury, 2016). In addition, The South African Government has established different entities to ensure effective and efficient support of SMEs. These include entities like the Small Enterprise Development Agency (SEDA) and the Small Enterprise Finance Agency (SEFA) (Jassiem, et al., 2012). Olawale and Garwe (2010: 730) found that unlike in other countries, the life cycle of SMEs in South Africa does not progress past the entry or first stage of SME life cycle, which is the first three years of their existence. The failure rate of SMEs is attributed to different factors both external and internal to the business (Abor & Quartey, 2010: 224) attributes the failures of SMEs to lack of marketing skills, whilst Neneh (2012: 3370-71) attributes failure to lack of an entrepreneurial mindset. Neneh and Vanzyl (2014: 179-80) further states that good business practices, entrepreneurial intention and government legislation plays a vital role in SME growth and sustainability.

Research design and method

A quantitative, cross – sectional survey research approach was adopted. The population for the study were all SMEs within the Gauteng Province, South Africa. For this study, the sample frame was the SMEs owners that are registered on the database of the Gauteng Enterprise Propeller (GEP) and have been in business for three or more years, operating within the five GEP Regional Offices around Gauteng Province. These SME owners, approximately 250, would attend monthly a scheduled training session provided by the GEP.

More than N=2000 structured self-administered questionnaires were distributed in hard copy format and n=650 were completed and collected; n= 253 were non-compliant because their business age was less than three years and incomplete and were therefore disregarded. A total of n=397 were retained. Table 1 displays the SMEs Respondents Group.

Table 5 – SME Respondents' Age Group

		Frequency	Percent	Cumulative Percent
Valid	Less than 20 years	5	1,3	1,3
	20-25	48	12,1	13,4
	26-35	143	36,0	49,4
	36-45	110	27,7	77,1
	46-55	57	14,4	91,4
	56-65	31	7,8	99,2
	66 and above	3	0,8	100,0
	Total	397	100,0	

As depicted in table 1, 49.4% of the respondents were between the less than 20 to 35 years of age; 42% were between the ages of 36 and 55 years old; and lastly, 8.6% were from the age of 56 and above. Majority of the respondents at n=143 (36%) of SME owners were between the ages of 26 to 35 years.

Table 6 – SME Respondents' Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	152	38,3	38,3	38,3
	Male	245	61,7	61,7	100,0
	Total	397	100,0	100,0	

Regarding the gender, as shown in table 2, out of the n= 397 respondents, 38.3% (152) were females whilst 61.7% (245) were males.

The self-administered questionnaire used a Likert scale (1-7) which SME respondents had to choose as the most appropriate scale applicable to their business. In addition, hard copy questionnaires were distributed to all five GEP Regional Offices for walk-in's completion. Questionnaires were collected from the regional offices. In instances where the questionnaire was distributed during events, one had to follow up with SME respondents to ensure that the completed questionnaires are submitted back.

The data was captured by and analysed using the Statistical Program for Social Sciences Software package (SPSS v22) which was checked for missing data. Descriptive statistics are reported, and the following statistical techniques were employed, exploratory factor analysis (EFA) and Pearson’s correlation.

The respondents’ confidentiality, anonymity and privacy were also ensured by not requesting either their names nor the names of their businesses, only their business location (regionally), number of employees, gender and age of business.

Results of the study

Based on the research questions, the following hypothesis was formulated:

- H1: There is a relationship between EE (independent variable) and FP (dependent variable).

Data below presents descriptive statistics on the external environment.

Table 7 – Descriptive Statistics – External Environment

		C1	C2	C3	C4	C5	C6	C7
N	Valid	392	386	394	391	394	394	394
	Missing	5	11	3	6	3	3	3
Mean		4,16	5,27	4,25	4,27	5,10	4,34	4,56
Std. Deviation		1,892	1,628	2,007	1,978	1,885	2,068	2,095

The above table depicts that out of the seven questions asked in the self-administered questionnaire, most of the respondents at n=394 out n=397 acknowledged the scarcity of resources (skilled labour/ materials/ machinery), the impact of technology, political environment and cultural shifts within their businesses. In comparison n=386 of respondents are never aware of their competitors. The mean spanned between (M = 4.16 and M = 5.27) and the standard deviation varied from [SD = 1.628 to SD = 2,095] which means the responses to the question “How well do you know your competitors” yielded the highest mean (M = 5.27) and the standard deviation of [SD = 1.628].

Likert scale for all items as per the self-administered questionnaire are as follows:

C1: very seldom – very frequent, C2: never – always, C3: not scarce at all – very scarce, C4: not often at all – very often, C5: not serious at – very serious, C6: not sensitive – very sensitive and C7: not aware at all – very aware. Item statistics for the variable external environment are presented in table 4.

Table 8 – Item Statistics External Environment

	Very seldom	2	3	4	5	6	Very Frequent	Total
C1 How often do companies fail in your industry?	12,8%	6,9%	16,6%	20,9%	16,6%	10,5%	15,8%	100 %
C2 How well do you know your competitors	3,1%	2,6%	9,8%	13,7%	22,5%	15,8%	32,4%	100 %
C3 How scarce are resources in your industry? (skilled labour/materials/machinery)	9,6%	13,7%	15,5%	18,0%	11,9%	8,4%	22,8%	100 %
C4 How often do new business regulations affect your business	10,5%	11,5%	13,8%	21,5%	10,7%	11,0%	21,0%	100 %
C5 How serious does new technology influence your industry?	5,3%	5,8%	10,7%	15,7%	12,9%	12,9%	36,5%	100 %
C6 How sensitive is your organisation to the political climate	11,7%	11,4%	14,5%	15,2%	12,2%	10,9%	24,1%	100 %
C7 How aware are you of culture shifts that might affect your business	11,2%	9,9%	11,7%	15,7%	10,7%	12,2%	28,7%	100 %

Most SME respondents at 62.3% indicated that technology seriously influenced their industry. The lowest percentage of at 15.5 % of respondents specified they never know their competitors. 51.6% of SMEs respondents are very aware of the cultural shifts that might affect their businesses.

Table 9 – Descriptive Statistics – Firm Performance

	E1	E2	E3	E4	E5	E6	E7
N Valid	391	373	385	387	384	391	389
Missing	6	24	12	10	13	6	8
Mean	4.47	3.99	4.73	4.95	5.14	4.77	4.44
Std. Deviation	1.94	1.83	1.84	1.74	1.83	1.82	1.82

Table 5 represents the descriptive statistics for the respondents on Section E (Firm Performance) of the questionnaire. The mean varied between (M = 3.99 and M =5.14) across all the seven variables whilst standard deviation ranged from [SD = 1.737 and 1.936]. The highest (M = 5.14) was realised on the item E5 where SMEs respondent to the question “to what extent does your organisation drive its vision, mission and values?” and item E4 (how often does your organisation track, monitor and measure progress?) generated the lowest standard deviation at [SD= 1.737].

Table 10 – Item Statistics Firm Performance

	Firm Performance							Total
	Very seldom	2	3	4	5	6	Very frequent	
E1 How often does your organisation assess stakeholder`s needs for program planning?	8,7%	9,0%	16,1%	16,9%	13,6%	14,1%	21,7%	100,0%
E2 To what extent did your business manage to achieve its financial target during the past three years (2015 – 2017)	13,4%	6,4%	19,8%	23,1%	15,3%	9,1%	12,9%	100,0%
E3 How often does your organisation review its strategic plan?	3,9%	8,3%	17,4%	17,9%	12,7%	13,0%	26,8%	100,0%
E4 How often does your organisation track, monitor and measure its progress?	2,8%	5,9%	15,0%	16,0%	17,8%	14,5%	27,9%	100,0%
E5 To what extent does your organisation drive its vision, mission and values?	1,3%	7,3%	16,1%	15,9%	10,4%	9,1%	39,8%	100,0%
E6 To what extent does your organisation have systems, processes and procedures that support its efficiency?	4,6%	7,7%	15,1%	16,4%	17,1%	13,3%	25,8%	100,0%
E7 To what extent is your organisation adequately staffed?	6,9%	8,2%	18,3%	17,5%	17,2%	13,4%	18,5%	100,0%

Table 6 highlights that highest percentage of SME respondents (59.8%), indicated that they very often track, monitor and measure their organisational progress (item E4). Invariably the lowest percentage of 1.3% respondents mentioned that they do not drive their organisation`s vision, mission and values. Tables below show reliability for External Environment.

Table 11 – Scale-External Factors

Case Processing Summary			
		N	%
Cases	Valid	369	92.9
	Excluded ^a	28	7.1
	Total	397	100.0

a. Listwise deletion based on all variables in the procedure.

The case processing summary numbers highlights that out of the total sample of n= 397 self-administered questionnaires analysed n=369 were compliant; n=28 which accounts for 7.1% of the sample were excluded which is lower than the norm of between 10% and 15%.

Table 12 – Reliability Statistics – External Environment

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.676	0.678	7

The Cronbach's alpha for the external environment construct is a little below the acceptable minimum required standard for internal consistency of $\leq .70$ ($\alpha = .678$).

Table 13 – Summary Item Statistics – External Environment

	Mean	Minimum	Maximum	Range	Maximum/Minimum	Variance	N of Items
Inter-Item Correlations	0.231	0.066	0.480	0.414	7.229	0.009	7

The mean inter-item correlation stipulated in the above table of ($M = .231$), with values ranging from .480 to .414. There is a suggestion of a weak relationship amongst the items.

Table 14 – Item Total Statistics For External Environment – All Items

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
C1 How often do companies fail in your industry?	27.87	49.317	0.359	0.140	0.648
C2 How well do you know your competitors	26.76	50.637	0.397	0.257	0.640
C3 How scarce are resources in your industry? (skilled labour/materials/machinery)	27.78	49.999	0.294	0.146	0.667
C4 How often do new business regulations affect your business	27.73	48.088	0.376	0.212	0.643
C5 How serious does new technology influence your industry?	26.90	47.811	0.428	0.194	0.629
C6 How sensitive is your organisation to the political climate	27.66	45.979	0.434	0.222	0.626
C7 How aware are you of culture shifts that might affect your business	27.41	46.236	0.414	0.323	0.632

All values displayed in table 10 above, item total statistics for the External Environment are positive denoting that they are measuring the same underlying characteristics. Tables below show reliability for Firm Performance.

Table 15 – Scale- Firm Performance

Case Processing Summary		N	%
Cases	Valid	348	87.7
	Excluded ^a	49	12.3
	Total	397	100.0

a. Listwise deletion based on all variables in the procedure.

Case processing summary numbers for Firm Performance highlights that out of the total sample of n=397 self-administered questionnaire (section E) n=348 were completed properly and n=49, which accounts for 12.3% of the population were excluded which is within the norm of between 10% and 15%.

Table 16 – Reliability Statistics – Firm Performance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.860	0.862	7

The Cronbach's alpha for the Firm Performance construct is above the generally acceptable minimum required standard for internal consistency of $\geq .70$ ($\alpha = .862$), which is a preferable consistency.

Table 17 – Summary Item Statistics – Firm Performance

	Mean	Minimum	Maximum	Range	Maximum/Minimum	Variance	N of Items
Inter-Item Correlations	0.471	0.243	0.740	0.497	3.047	0.024	7

The mean inter-item correlation stipulated in the above table of ($M = .471$), with values ranging from .243 to .740. There is a suggestion of a strong relationship amongst the items.

Table 18 – Item-Total Statistics Firm Performance

	Scale Mean if Deleted	Scale Variance if Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Deleted
E1 How often does your organisation assess stakeholder`s needs for program planning?	27.97	67.777	0.527	0.316	0.856
E2 To what extent did your business manage to achieve its financial target during the past three years (2015 – 2017)	28.42	69.921	0.494	0.340	0.859
E3 How often does your organisation review its strategic plan?	27.74	64.550	0.691	0.614	0.832
E4 How often does your organisation track, monitor and measure its progress?	27.50	64.718	0.737	0.650	0.826

E5 To what extent does your organisation drive its vision, mission and values?	27.34	63.385	0.739	0.675	0.825
E6 To what extent does your organisation have systems, processes and procedures that support its efficiency?	27.64	63.584	0.754	0.602	0.823
E7 To what extent is your organisation adequately staffed?	27.97	70.275	0.481	0.383	0.861

All values displayed in table 14, item total statistics for the Firm Performance are positive reflecting that they are measuring the same underlying characteristics.

The External Environment scale was put through the Principle Component Analysis (PCA), the Kaiser-Meyer-Olkin Measure of sampling adequacy and the Bartlett's test of Sphericity to establish the suitability of the collected data to be analysed through the Exploratory Factor Analysis and the following were the results:

Table 19 – KMO and Bartlett's Test for External Environment

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.722
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	360.307
	21
	0.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling Adequacy and the Bartlett's Test of Sphericity were applied to gauge the compatibility of the factors. The KMO value for the External Environment was at .722 and adequate as the value that is .6 and above is regarded as adequate. The Bartlett's Test of Sphericity is significant ($p = 0.000$) which is less than .5 therefore the scale is acceptable for factor analysis.

Table 20 – Total Variance for External Environment Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.404	34.344	34.344	1.795	25.639	25.639	1.563
2	1.214	17.342	51.685	0.674	9.627	35.266	1.344
3	0.876	12.519	64.205				
4	0.750	10.715	74.919				
5	0.670	9.573	84.492				
6	0.612	8.747	93.239				
7	0.473	6.761	100.000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

The study used Kaiser criterion and therefore the interest is only on factors with 1 and above eigenvalue. The table above, shows only two top items with eigenvalue of 1 and above (2.404 & 1.214), the above two factors account for the 51.685% of the variance.

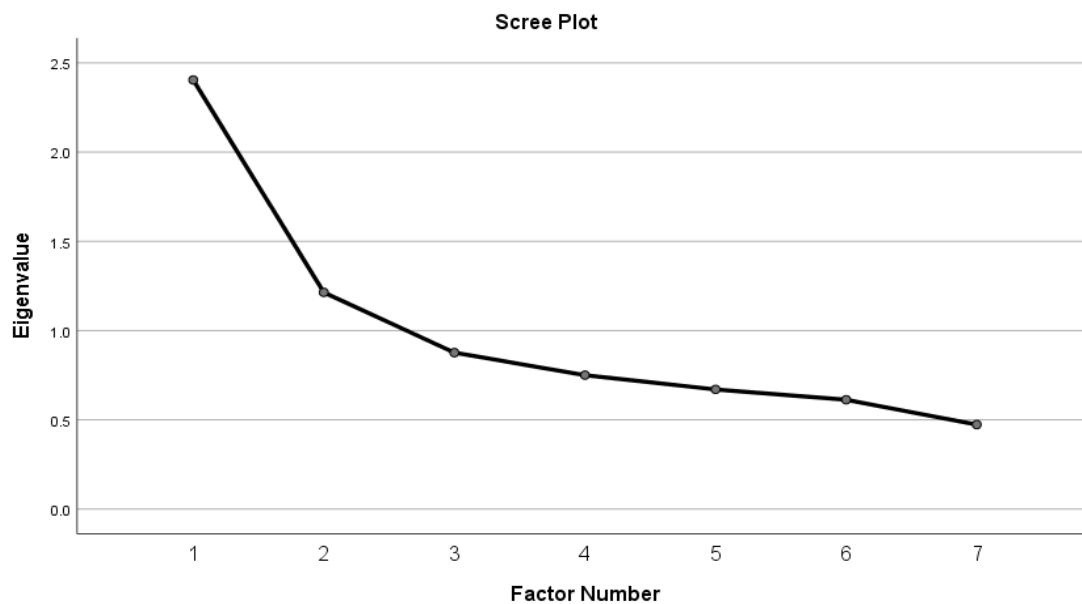


Figure 4 – Scree Plot – External Environment

Each of the factors of the eigenvalues were plotted on the scree plot as displayed in the above Figure 1. Pallant (2007: 182) recommends that only the factors that are plotted from where the shape or direction changes (horizontal) present most of the clarification of the variance in the data.

Table 21 – Factor Matrix^a for External Environment

	Factor	
	1	2
C7 How aware are you of culture shifts that might affect your business	0.699	-0.486
C2 How well do you know your competitors	0.526	-0.239
C6 How sensitive is your organisation to the political climate	0.523	0.057
C5 How serious does new technology influence your industry?	0.504	0.085
C1 How often do companies fail in your industry?	0.409	0.115
C4 How often do new business regulations affect your business	0.469	0.481
C3 How scarce are resources in your industry?(skilled labour/materials/machinery)	0.340	0.354

Extraction Method: Principal Axis Factoring.

a. Attempted to extract 2 factors. More than 25 iterations required. (Convergence=.002).

Extraction was terminated.

The factor matrix analysis of the External Environment extracted two factors. Factor 1 is comprising of items C2 and C7 & whilst factor 2 comprises of items C6, C5, C1, C4 and C3. For the purposes of this research the two extracted factors will be named as follows; Factor 1 = Business Acumen and Factor 2 = Macro Business Environment.

The Firm Performance scale was also put through the Principle Component Analysis (PA), the Kaiser-Meyer-Olkin Measure of sampling adequacy and the Bartlett's test of Sphericity to establish the suitability of the collected data to be analysed through the Exploratory Factor Analysis and the following were the results:

Table 22 – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.850
Bartlett's Test of Sphericity	Approx. Chi-Square	1199.618
	df	21
	Sig.	0.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling Adequacy and the Bartlett's Test of Sphericity were applied to determine the compatibility of the factors. The KMO value for the Firm Performance (FP) was at .850 and adequate, as the value that is .6 and above is regarded as adequate (Pallant, 2007: 190). The Bartlett's Test of Sphericity is significant ($p = 0.000$) which is less than .5 therefore the scale is acceptable for factor analysis.

Table 23 – Total Variance for Firm Performance

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	3.898	55.682	55.682	3.540	50.564	50.564	3.380
2	1.076	15.369	71.051	0.699	9.982	60.547	2.180
3	0.663	9.477	80.527				
4	0.522	7.456	87.983				
5	0.352	5.030	93.012				
6	0.253	3.616	96.628				
7	0.236	3.372	100.000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

The Kaiser-Meyer-Olkin (KMO) criterion and therefore the interest is only on factors with eigenvalue of 1 and above. The above table, depicts two factors with eigenvalue of 1 and above (3.898 and 1.076), the above two factors account for the 71.051% of the variance.

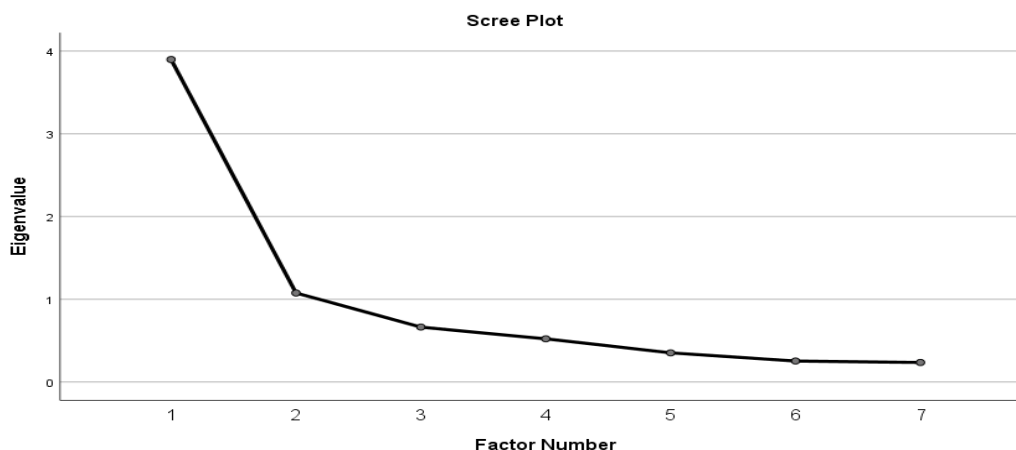


Figure 5 – Screen Plot for Firm Performance

Each of the factors of the eigenvalues were plotted on the scree plot as displayed in the above Figure 5. Pallant (2007: 182) recommends that only the factors that are plotted from where the shape or direction changes (horizontally) presents most of the clarification of the variance in the data. In the case of the Firm Performance factor one factor was accepted.

Table 24 – Factor Matrix^a for Firm Performance

	Factor	
	1	2
E5 To what extent does your organisation drive its vision, mission and values?	0.842	-0.257
E4 How often does your organisation track, monitor and measure its progress?	0.820	-0.172
E6 To what extent does your organisation have systems, processes and procedures that support its efficiency?	0.802	0.092
E3 How often does your organisation review its strategic plan?	0.782	-0.278
E1 How often does your organisation assess stakeholder`s needs for program planning?	0.561	-0.064
E2 To what extent did your business manage to achieve its financial target during the past three years (2015 – 2017)	0.523	0.362
E7 To what extent is your organisation adequately staffed?	0.561	0.618

Extraction Method: Principal Axis Factoring.

a. Attempted to extract 2 factors. More than 25 iterations required. (Convergence=.002). Extraction was terminated.

Pearson Product-momentum Coefficient Correlation Results yield the following results:

The Internal Environment (IE) and Firm Performance relationship:

The Internal Environment (IE) score exhibits a significant, strong positive correlation with Firm Performance (N=394; $r = .572$; $p = .000$). Consequently, an increase in the Internal Environment score leads to an increase in the Firm Performance score.

The Internal Environment (IE) and External Environment (EE) 2 factors extracted relationship:

Considering that Factor Analysis (FA) on External Environment (EE) extracted two factors: Factor 1: Business Acumen shows a significant, moderate positive correlation with the Internal Environment (N=397; $r = .489$; $p = .000$). Factor 2: Macro Environment indicates a weak positive correlation with IE (N=396; $r = .108$; $p = 0.031$). Therefore, an increase in Factor 1: Business Acumen score is associated with a moderate increase in the IE score.

The External Environment (EE), 2 factors extracted and Firm Performance relationship:

EE Factor 1: Business Acumen exhibits a statistically significant and strong positive correlation with Firm Performance (FP) (N=394; $r = .538$; $p = .000$). Conversely, EE Factor 2: Macro Environment, displays a statistically significant but weak positive

correlation with FP (N=396; $r = .138$; $p = 0.006$). Consequently, an increase in the EE Factor 1 (Business Acumen) score is associated with a statistically significant FP score.

The following alternative hypothesis are supported:

H_{a1} : There is a significant, strong positive relationship between the Internal Environment (IE) and Firm Performance relationship.

H_{a2} : There is a significant moderate positive relationship between Internal environment and External environment (Factor 1: Business acumen)

H_{a3} : There is a weak positive relationship between Internal environment and External Environment (Factor 2: Macro environment)

H_{a4} : There is a significant strong positive correlation with (Factor 1: Business acumen) and Firm Performance

H_{a5} : There is a weak positive relationship between External Environment (Factor 2: Macro environment) and Firm Performance

Conclusion

There have been some extensive studies conducted on the impact of external environment on firm performance in the recent years however, Indris and Primiana (2015: 193) along with to Adeola (2016: 165) for example found that for businesses to be sustainable they need to fully learn and understand the nature of the challenges posed by the external environment on their businesses. Comparably, Kraja and Osmani (2015: 128) carried out a study on a sample of 436 SMEs in the Northern Region of Albania and it revealed that the dynamic nature of the external environment requires of managers to make variable resolution on firm continuity.

The most important findings of this study revealed that Factor Analysis on EE extracted two factors and factor 1 (Business Acumen) score shows a significant, strong positive correlation with FP.

Business acumen involves a deep understanding of various aspects of business, including finance, strategy, marketing, operations, and management and encompasses several key skills and abilities and it is argued by the authors that it refers to the ability to make sound judgments and quick decisions in the business world. It is crucial for professionals at all levels of an organisation, from executives and managers to individual contributors. It enables them to navigate the complexities of the business world, drive growth, and contribute to the overall success of the company. Therefor stressing the importance of contextual intelligence required by entrepreneurial leadership (Hewitt & Janse van Rensburg, 2020).

The study's contributions fall into three categories: theoretical, methodological, and practical. In terms of theoretical contributions, the research demonstrated that the influence of external influences on business performance is noteworthy. It also found that, particularly among SMEs, the degree to which various external factors impact a firm's success varies; nevertheless, further research and analysis are still required. According to methodological contributions, a quantitative, cross-sectional survey research design was employed in the study. Primary data was collected using self-administered surveys. Consequently, nothing new in the methodology was included, except for the recommendation to limit the Likert scale to a maximum of five choices based on the intended audience. The study's practical contributions will help SMEs across many industries comprehend how the external environment affects their company's

performance. Furthermore, by making sure that the training provided to SMEs concentrates on creating suitable strategies that will offset the detrimental effects of the external environment on company performance. Developmental Financial Institutions will also gain from this.

Finally, the study's shortcomings and potential research topics are listed below. The study concentrated on how the external environment affected the performance of SMEs to guarantee sustainability as well as a means of generating employment, reducing poverty, and promoting economic growth. The study was restricted to SMEs in the Gauteng Province and only those that received financial and/or non-financial assistance from the GEP. Since the data has already been gathered, it makes sense to analyse how entrepreneurial orientation affects firm performance using the same sample.

Acknowledgement: Questionnaires were distributed by C Mamabola. UJ STATKON run the statistical analysis. Conceptualising, statistical interpretation and preparing paper Hewitt, L,M,M; Turuk M; Kolakovic, M.

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