



Exploring the digital readiness of first-year rural students studying at a South African further education institution

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DECLARATION

I, Cascious Makgobalo Mofokeng, declare that **Exploring the digital readiness of rural first-year students at a South African further education institution** is my original work and that all sources have been cited following the NWU Harvard referencing style. Furthermore, this has been submitted for partial fulfilment of the requirements for the Master of Business Administration in the Faculty of Economic Management Sciences at the North-West University and has not been submitted for any degree or examination at this or any other institution.

DEDICATION

I dedicate this dissertation to the memory of my late grandmother, Malefu Betha Maboea. Your teachings laid the foundation for my upbringing and shaped the person I am today. May you continue to rest in eternal peace. *"Lekgolokoe le hlaba Kgoho ka lemao."*

This study is also dedicated to my late cousin, Nyefolo Seleso Decious, for encouraging me to dream bigger and for helping me apply to the university for my first bachelor's degree.

Lastly, I dedicate this piece of work to all students who are coming from rural areas, whose adversity outweighs any positivity. I urge them to dream big and soldier on; refuse to relent even when odds are against you.

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ABSTRACT

This study examines the digital readiness of rural first-year students of a South African Further Education Institution, namely Vuselela TVET College, located in North-West Province. Based on the Technology Acceptance Model (TAM) and the Appropriation Theory of the Digital Divide (ATDD), this research explored ways in which rural high school learners are making the transition to digitally based learning environments and the obstacles faced along with its impact on academic achievement. A total of 9 first-year students from rural high schools were purposively selected and virtually interviewed via Zoom using semi-structured interviews with open-ended questions, where they shared their lived experiences regarding the phenomenon. The study employed a qualitative, phenomenological methodology and the interpretivist paradigm. The results indicated that most of the participants entered further education with insufficient knowledge about digital technologies, low levels of computer literacy, and lack of confidence in operating online platforms. The major obstacles to digital readiness were low ICT infrastructure in schools in the rural areas, low Internet connectivity, load shedding, and lack of institutional support. These issues were compounded by cultural attitudes and other digital pedagogy among teachers. However, the students showed resilience by developing self-learning behaviours, peer learning, and mobile-based learning as learning coping strategies. The study concludes that digital readiness goes beyond technology availability; it includes expertise, motivation and institutionalisation to facilitate meaningful digital interaction. It suggests that ICT skills should be included in basic education syllabus, that connectivity in rural and areas should be enhanced and that specific digital literacy programmes should be introduced to the first-year TVET students. The findings can contribute to the discussion on digital equity, the National Development Plan (NDP) 2030, and Sustainable Development Goal 4 of South Africa, which advocates for inclusive and quality education in a digitally transforming world.

Key terms: *Digital readiness, rural students, further education institutions, Technology Acceptance Model, Appropriation Theory of the Digital Divide, South Africa*

LIST OF ABBREVIATIONS

NWU	North -West University
4IR	Fourth Industrial Revolution
ADDT	Appropriation Digital Divide Theory
AI	Artificial Intelligence
CET	Continuing Education and Training Act
COVID-19	Corona Virus Disease 2019
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
DICOMPORG	Digital Competence Frameworks for organisations
EMS-REC	Economic Management Science Research Ethics Committee
FEI	Further Education Institution
FET	Further Education Training
HEI	Higher Education Institution
ICT	Information Communication Technology
IOT	Internet of Things
ITU	International Telecommunication Union
LGSETA	Local Government Sector Education and Training Authority
MOE	Ministry of Education
MOOCs	Massive Open Online Courses
NCV	National Vocational Certificate

NATED	National Accredited Technical Education Diploma
NDP	National Development Plan
NPHE	National Plan for Higher Education
OECD	Organisation for Economic Co-operation and Development
OERs	Open Educational Resources
PLP	Pre-Vocational Learning Programme
POPIA	Protection of Personal Information Act
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
PPP	Private – Public Partnership
SDG	Sustainable Development Goals
SEAMEO VOCTECH	Southeast Asian Ministers of Education Organisation Regional Centre for Vocational and Technical Education and Training
STATS SA	Statistics South Africa
TAM	Technology Acceptance Model
TCCP	TVET Campus Connection Programme
TENET	Tertiary Education and Research Network of South Africa
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WBF	World Bank Foundation
WPSET	White Paper for Post-School Education and Training

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CHAPTER 1 INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Chapter Introduction

This chapter provides an extensive overview of the study by outlining the background of the research undertaken. Background comprises of the legislative development shaping the Technical Vocational Education and Training in South Africa. Furthermore, it outlines the problem statement, highlighting the scant research about the digital readiness of first-year students attending TVET in South Africa. The purpose of the study, objectives, and research questions are also presented; these elements lay a significant foundation for this study. Additionally, the significance of the study, the scope and definition of key concepts are outlined. The significance of the study highlights the importance of the study, whereas the scope indicates the demarcation of the study. Therefore, this chapter sets out the scenery for the subsequent chapters of this study.

1.2 Background to the study

The promulgation of Section 97 of the Constitution of the Republic of South Africa (1996) on 18 December 1996 transformed the higher education sector, resulting in the establishment of two separate departments, namely: the Department of Basic Education (DBE) and the Department of Higher Education and Training (DHET) (Badenhorst and Randile, 2018:93).

Owing to the latter, former Further Education and Training (FET) colleges were consolidated and integrated to form Technical and Vocational Education and Training (TVET) colleges. Furthermore, promoting educational equity and racial justice within the industry was the driving force behind this consolidation. The transfer of the recently established TVET colleges to DHET led to significant changes in administrative procedures and governance frameworks (Sithole *et al.*, 2022:91).

According to the Department of Higher Education and Training (2018), there are currently 50 public TVET colleges in South Africa with approximately 264 campuses. The Continuing Education and Training Act (CET) (Act no. 16 of 2006), formerly known as the Further Education and Training Colleges Act (Republic of South Africa, 2006), provides for the establishment of the latter. Evidently, TVET colleges offer a wide range of

qualifications ranging from the National Accredited Technical Diplomas (NATED), National Certificate Vocational Programmes (NCV), and other occupational certifications (DHET, 2021).

Accordingly, the objective for TVET colleges is to support the objective of the National Development Plan (National Planning Commission, 2012) which aims at increasing student enrolment from 700,000 to 1.2 million by 2030. Accordingly, the set target is critical for addressing national skills deficits, ineptitudes and, consequently, requires significant investment in infrastructure to accommodate the projected increase in student intake (Duma *et al.*, 2021:4).

The inclusion of technology in the education sector necessitated drastic changes in how institutions promote teaching and learning. As observed by Faloye and Ajayi (2022:1735), technology is highly embedded in learning approaches and processes. Accordingly, teaching and learning in higher education institutions are facilitated through e-learning and learning management systems that are used to execute e-learning. Furthermore, Faloye and Ajayi (2022:1735) postulate that information communication technology (ICT) allows students to access learning material and submit material online. Studies show that the effective use of information and communication technology results in great academic results (Faloye & Ajayi, 2022; Jantjies, 2020; Mensah *et al.*, 2023). Despite the benefits associated with ICT, there is an unequal level of accessibility and skills (Bornman, 2016:268). The inequality pertaining to access to ICT is referred to as the digital divide. Jantjies (2020), cited by Faloye and Ajayi (2021:1735), states that the latter underscores the gap between individuals with technological competency and skills. Furthermore, Ndou (2021:44) points out that, in the context of South Africa, the digital divide in the educational system dates back to the apartheid era. Evidently, this can be attributed to unequal distribution of educational and technological or digital infrastructure, where only white schools were allocated ICT resources and black schools were not allocated computers and computer-related educational infrastructure (Knoetze & Jantjies 2019:17).

Jantjies (2020) reveals that the legacy of the apartheid regime significantly contributed to the digital divide in South African higher education sector. The introduction of technology in South African institutions of higher learning brought tremendous challenges emanating from skills and competency (Nyahodza & Higgs, 2017:39). Further education institutions

have been confronted with a myriad significant challenges caused by the lack of basic computational skills. Consequently, these difficulties hinder a smooth transition from secondary to tertiary education. Evidently, the latter can be attributed to the rapid pace of technology in further education institutions (Nyahodza & Higgs, 2017:40).

In addition, Oyedemi and Mogano (2018:177) point out that recent technological developments have introduced new patterns and learning dynamics, exposing the digital divide between students. Naidoo and Raju (2012:35) observe that first-year students from rural high schools find it challenging to navigate academic digital tools.

The digital era, which prompts further education institutions to actively transition their academic operations to digital platforms. Civilcharran (2020:3) notes that information and communication technology (ICT) has become increasingly embedded in the educational framework in recent years. Consequently, contemporary learning requires various digital competencies to effectively manage digital information. Although digital technologies significantly contribute to the acquisition of these skills, the essential competencies required in the 21st century require students to engage in advanced activities, such as data manipulation and the application of critical thinking through digital tools (Denhere & Moloi, 2021:195; De Wee *et al.*, 2024:10). Considering the rapid advancements in digital technology, there is an urgent need to develop a new set of digital skills. A significant challenge in the South African context is the disparity in digital competency between rural high schools and further education institutions (Du Preez & La Grange, 2020:92). The latter presents a considerable challenge to South Africa's educational landscape. According to Times Higher Education (2024) first-year students in rural high schools are digitally disadvantaged and do not share the same opportunities as former Model C and urban high school peers. Civilcharran (2020:3) posits that the Department of Basic Education must integrate digital advances into the curriculum to adequately prepare students for further education. Therefore, the Department of Basic Education must immediately address this issue and promote digital equity.

The South African educational system is significantly affected by a digital divide. The latter is primarily rooted in the historical context of apartheid, which adversely influences the prospects of rural high school graduates (Pillay, 2021:3). STATS data (2019) confirms that nearly 98% of students in rural high schools lack essential digital and ICT skills.

Consequently, most of the students are marginalised from the digital academic economy. Furthermore, the World Bank Foundation (WBF, 2018) revealed that South Africa ranks 116th out of 140 countries in digital skills. This a clear indication that there is still a lot to be done in terms of digital acquisition.

Rural high schools in South Africa are widely recognised to often lack the necessary digital skills, resulting in graduates who are inadequately equipped to navigate the digital economy effectively (Oliver, 2015:59). Consequently, first-year students emerging from this rural educational background face significant challenges in adapting to the rapid digital demands of further education, particularly in technology-driven fields such as information technology and computer science (De Wee, 2024:5). This issue is particularly relevant at the Vuselela TVET College, which predominantly attracts students from rural regions due to its unique geographical position as one of the few further education institutions in the North-West Province (Vuselela TVET College, 2022). However, it is essential to note that there is a scarcity of research focused on evaluating the digital competencies of students from rural high schools attending TVETs, as existing studies tend to focus on students attending traditional universities or universities. Furthermore, there is a lack of comprehensive research on how digital tools impact student success in the TVET sector. Available research is more towards other ICT-related aspects of digital education but not necessarily focusing on the digital readiness of students.

1.3 Problem statement

Despite the national drive toward digital transformation in the post-school education sector, significant disparities continue to affect students entering FEIs from rural high schools in South Africa. Research shows that most rural schools lack essential ICT infrastructure, stable Internet connectivity, digitally competent teachers, and access to computer-based learning, resulting in limited exposure to digital tools before enrolment in TVET colleges (Nthutang, 2024; Mwapwele *et al.*, 2019). Consequently, rural first-year students often arrive at FEIs with minimal digital literacy, low confidence in using technology, and limited awareness of digitally mediated learning environments.

Although existing studies have examined digital inequalities in universities, the digital divide in TVET colleges remains substantially under-researched. Most available research focuses on infrastructure challenges, general digital access issues, or broader digital

policy questions, with little empirical attention given to the digital readiness of rural first-year students, specifically within the TVET context. Furthermore, current literature seldom integrates individual-level psychological factors such as perceived usefulness, perceived ease of use, or technology acceptance with structural, socio-economic, and cultural barriers that influence technology adoption among rural students.

This lack of focused inquiry presents a critical gap, as inadequate digital readiness compromises the academic transition, learning effectiveness, and long-term employability of rural students who enter digitally intensive TVET programmes (Chounta *et al.*, 2024:7; Ntshangase & Nkosi, 2022). Without understanding their lived experiences and the factors shaping their digital readiness, FEIs risk implementing digital learning strategies that unintentionally reinforce educational inequalities. Therefore, the problem this study addresses is the absence of empirical, theoretically informed research on how rural first-year students experience and navigate digital learning environments in a TVET college, and the ways in which structural, cultural, and psychological factors shape their digital readiness.

1.4 Purpose of the study

1.4.1 Primary objective

The study aims to explore the digital readiness of first-year rural students studying at a further education institution.

1.4.2 Secondary objectives

- To examine the adaptation strategies used by first-year rural students in navigating digital learning environments in further education institution.
- To identify the key challenges faced by first-year rural students in accessing and using digital resources for academic purposes.
- To analyse the importance of digital readiness in supporting the academic success of first-year rural students.

1.4.3 Research questions

- How do first-year rural students adapt to digital learning environments in further education institution?
- What challenges do first-year rural students face in accessing and using digital resources?
- Why is digital readiness important for the academic success of first-year rural students?

1.5 Significance of the study

This qualitative study plays an essential role in assessing the digital competency of rural high school students attending TVET. Furthermore, the study aligns with the adopted White Paper on National Information Integrated Policy (ICT). The primary objective of the policy was to disseminate information effectively as part of NDP Vision 2030. Additionally, this study aims to advance Sustainable Development Goal 4, quality education, and 17 partnerships to achieve the goals (Global Sustainable Development Report, 2023). This study will also help policy makers and curriculum developers in basic education (DBE) to develop a curriculum that integrates ICT applications to enable a seamless transition from high school to further education.

1.6 Scope of the study (Setting/Context of the study)

The main concentration of study is on digital education and information communication technologies in further education institutions, using Vuselela TVET College as its study basis. The college is in the North-West Province, comprising five campuses: Matlosana, Klerksdorp, Potchefstroom, Jouberton, and Taung. It offers national vocational certificate (NCV) courses from levels 2 to 4 (Vuselela TVET, 2022). The college also offers Nated courses from N4 to N6. Although the focal point of the study will be the Potchefstroom Campus, the researcher examined the literature holistically on the subject matter.

1.7 Defining key concepts

1.7.1 Digital readiness

Digital readiness refers to the ability and capability of using digital resources to execute tasks (Gfrerer *et al.*, 2021:24; Chounta *et al.*, 2024:6). Supporting this, Nasution *et al.* (2018: 97), state that digital readiness involves the process of learning more about the utilisation of digital technology for discharging innovative duties and is viewed as the development process of assisting organisations to achieve their objectives. In the South African education context, a significant number of students, particularly from rural and township schools, are exposed to computers and the Internet for the first time when they enter further education institutions (Oyedemi & Mogano, 2018:176).

1.7.2 Technical and vocational education and training

TVETs, as they are commonly known, refer to the higher education institutions primarily established to equip students with practical and technical skills compatible with industry-based competencies; these institutions increase the employability of students upon completion of their qualifications (2024:2; Kana & Letaba, 2024:158).

1.7.3 Rural high schools

A rural high school in South Africa refers to a school situated in an isolated location far from social and economic activities (Department of Basic Education, 2015). These schools are characterised by a lack of adequate infrastructure, insufficient access to running water, poor sanitation, and a lack of Internet access (Ntshangase & Nkosi, 2022).

1.7.4 Department of Basic Education

Department of Basic Education (2018) refers to the department responsible for schooling from grades R to 12. The strategic objective of basic education is equipping learners to navigate 21st century and its complexities.

1.7.5 Digital divide

Digital divide is the unequal access to the digital resources and connectivity causing people to not be on equal footing in terms of digital competencies (Dyantyi & Mkabile-Masebe, 2025:414).

1.8 Chapter layout

This study comprises five chapters as follows:

Chapter 1: This chapter laid the foundation for the entire study. The chapter comprises of introduction, background, problem statement, purpose of the study and research questions. It also provides significance, scope of the study, definition of key concepts. Additionally, the chapter presents the study chapter layout and summary of the chapter.

Chapter 2: Review of the literature — This chapter extensively interrogates the existing literature on the digital readiness of rural high schools, and it identified the gaps within the body of existing literature. The literature examined from South Africa, the African continent, and globally. This approach enables the study in reviewing the literature holistically. The following themes were covered under the literature review: digital inequalities and policy interventions, digital divide and ICT infrastructure challenges, barriers to digital readiness, acceleration of digital learning, digital transformation, reforms and emerging technologies and international perspectives on digital readiness

Chapter 3: Research methodology — The focal point of this chapter was to outline the methods and processes that were used to execute this study. The processes comprised the research paradigm, research approach, research design, limitations of study methods, and data collection methods.

Chapter 4: This chapter systematically and meticulously presented, analysed, and discussed the findings of the study. The study adopted thematic analysis for analysing data with the assistance of ATLAS.ti

Chapter 5: This will be the last chapter of the study, summarising and concluding the entire study. Furthermore, the recommendations for similar future studies will be

presented in this chapter. Additionally, the managerial implications will be accurately captured in this chapter.

1.9 Chapter summary

This chapter presented an extensive and comprehensive research undertaken introducing the background of the TVET sector in South Africa. It commenced by introducing the study. The problem statement highlighted the limited research about the digital readiness of rural first-year students attending TVET, most of the studies largely cover the mainstream traditional universities and universities of technology. Furthermore, the research objectives and research questions are outlined, signalling the rationale for the study. The significance of the study and the scope of the study are also outlined in this context. Lastly, the definition of concepts is provided briefly.

CHAPTER 2 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Chapter Introduction

This chapter presents a thematic literature review of the existing literature on various complementary and contrasting topics related to digital readiness. The following topics will be covered: digital inequalities and policy interventions, digital divide and ICT infrastructure challenges, barriers to digital readiness, acceleration of digital learning, digital transformation, reforms and emerging technologies and international perspectives on digital readiness. These topics are particularly relevant to the digital readiness of first-year students from rural high schools who are attending Further Education Institutions (FEIs). Furthermore, this chapter was significant in terms of addressing the first research question, paying attention to various factors of digital readiness. Additionally, the theories and models, such as the Technology Acceptance Model (TAM) and Appropriation Theory of the Digital Divide, are critically discussed, and rationale is provided as to why these models are adopted in this study. These theoretical frameworks are important in terms of underpinning the study.

2.2 Literature review

2.2.1 Digital inequalities and policy interventions

These challenges are clearly illustrated in the National Plan for Higher Education 2001 (NPHE, 2001). Due to the legacy of apartheid, NPHE was the strategic vehicle intended to close the digital gap for students in rural and urban areas, as it is noted that students in rural areas are digitally disadvantaged. The National Plan for Higher Education (2001) stated that ICT has the tremendous potential to propel radical changes in higher education institutions, allowing students to be part of the global village in the 21st century. This notion is supported by the White Paper for Post-School Education and Training (Department of Higher Education and Training, 2013), which recognised ICT as an incredible innovation that can bring about a more inclusive educational setting (White Paper for Post-School Education and Training, 2013). The first six months of the first year are digitally difficult for students coming from rural areas, because most of them use a computer for the first time; in some cases, there are no basic computer skills, because

there is the general assumption that basic computer skills are part of prior learning from high schools (Department of Higher Education and Training, 2013; National Plan for Higher Education 2001).

A considerable percentage of students from rural areas come to university with inadequate access to ICTs and basic computer literacy abilities, even though students access to digital devices is becoming more diverse (Bubou & Job, 2022:4; Mntuyedwa & Letseka, 2022:4132). In South Africa, insufficient access to ICTs is a general challenge rooted in the fact that only very few homes have computers and adequate Internet access. Most students from these digital environments encounter a computer for the first time when they reach a Further Education Institution (Naidoo & Raju, 2012:36). However, most students entering higher education are competent users of mobile phones (Toperesu, 2020:10) and have excellent social networking skills acquired through experiential learning (Njuguna *et al.*, 2020:164). Pedagogical creativity is paramount, requiring educators to acknowledge and leverage the prior digital knowledge that students bring to the learning space (Mabidi, 2024:100; Mntuyedwa & Letseka, 2022:3). Addressing digital inequality remains a crucial imperative, given the persistent digital divide prevalent in the South African landscape (Dyantyi & Mkabile-Masebe, 2025:414; Woldegiorgis, 2022:200). A significant consideration must therefore be given to student's digital literacies, encompassing their existing knowledge, access to Open Educational Resources (OERs), and their ability to utilise situated knowledge practices. These elements collectively hold considerable potential for fostering transformative learning experiences (Moleko, 2023; Mntuyedwa & Letseka, 2022; Mabidi, 2024:100:105).

2.2.2 Digital divide and ICT infrastructure challenges

Du Plessis and Mestry (2019:2) assert that the South African digital economy presents two unequal classes, namely, the tech-savvy class from urban areas, and the less tech-savvy class from rural areas. According to Sepadi *et al.* (2025:3), this is largely due to the limited availability of digital technologies in homes and schools; the most popular digital gadgets in rural areas are mobile phones, which play a minimal role in teaching and learning. Ahiaku (2025:4) state that the South African Government, in collaboration with private and non-profit organisations, attempted to close the digital divide by building ICT infrastructure in schools. The author further alludes that these advancements were to

stimulate interest and usage of digital devices for teaching and learning. One of the significant hindrances to access adequate ICT learning components is that the Internet speed of rural schools is relatively slow to perform high-level educational functions (Arreerard, 2022:748; Maja, 2023:98; Martin, 2021:5).

According to Lembani *et al.* (2020:70), in South Africa, there is a small segment of the population that has access to good ICT infrastructure, such as stable Internet access. In 2017, only 22% of the South African population had access to ICT infrastructure, compared to their developed counterparts, such as the United Kingdom, with 92% of the general population, and the United States, with 89% (International Telecommunications Union, 2016). There is a significant difference in Internet connectivity between South African provinces, according to Statistics South Africa's 2022 Census statistics (STATS SA, 2019). In particular, 31.9% of people of the Eastern Cape and Limpopo Provinces reported not having Internet connection (STATS SA, 2019). This is a significant contrast to Gauteng, where just 13.6% of people did not have access to the Internet. One of the major factors in the failure of effectively implementing ICT in rural areas is the lack of a coordinated digital strategy (OECD, 2022). This notion is supported by Kormos and Wisdom (2021:30), stating that there is less investment in ICT in the educational sector because in rural schools, ICT-related subjects are not part of the mainstream curriculum; furthermore, most of the educators in rural schools are not digitally trained to deliver content using ICT tools.

2.2.3 Barriers to digital readiness

The education sector faces a major challenge as a result of the lack of Internet access in some provinces. Many learners from rural high schools enter further education institutions without ICT skills (Pillay, 2021:3). This reveals a severe shortage of digital literacy that could undermine students' academic performance and future employment in a society that is becoming increasingly reliant on technology. However, Coldwell-Neilson (2020:19) argues that technologies do not warrant automatic understanding and application of digital skills. This argument is supported by Abbas *et al.*, (2019:16) their study concluded that there is no correlation between a student's success and digital skills or competencies, and there is insufficient evidence that supports students' success based on digital skills.

Despite the ICT infrastructure ineptitude, another drawback is educators' and learners' attitudes and acceptance towards the integration of digital tools in teaching and learning (Chisango & Marongwe, 2021). Soomro *et al.*, (2020:3598) corroborated this statement by citing that cultural orientation and belief systems play a key role in the adoption of technology, e.g., urban educational communities find it easy to accept technological tools in learning, whereas the rural educational community finds it difficult to accept technology in teaching and learning.

Load shedding also plays a major role in terms of interrupting the integration of technology in teaching and learning, which disrupts the execution of lessons, including the functioning of technological tools (Flowers and Tanner, 2024:328).

2.2.4 Acceleration of Digital learning

According to Czerniewicz (2022:247), South African further education institutions show significant differences in their levels of digital integration. Former white institutions, generally possessing more substantial resources, demonstrate higher levels of digital development compared to historically disadvantaged institutions, predominantly located in former homelands and rural areas (Czerniewicz *et al.*, 2020:947).

The COVID-19 pandemic revived calls for the adoption of digital tools, exposing digital inequalities in further education. Accelerated the adoption of digital learning tools, revealing gaps in digital readiness. Spaull and Van der Berg (2020:67), and Czerniewicz *et al.*, (2020:947), contend that while a subgroup of students successfully adapted to online learning tools, a significant proportion encountered substantial obstacles, primarily attributed to unreliable Internet connectivity and the exorbitant cost of data. The COVID-19 pandemic served as a stark reminder of the imperative for students and institutions to significantly improve their digital readiness to ensure uninterrupted continuity of the educational process (Therborn, 2020). The COVID-19 pandemic had a profound impact on rural high schools because during the height of the pandemic, the schools were closed abruptly as a preventive measure to curb the spread of the virus (Maphalala *et al.*, 2021).

The global review of the impact of COVID-19 on the FEIs revealed that 87% of institutions in Africa lacked the digital communication infrastructure necessary for mass communication between staff and students (Baloyi, 2025:91; Mpungose, 2023:263). As

a result, Africa was the only region that had to suspend or cancel teaching and learning activities in the majority of its countries (Chitungo *et al*, 2021:4). This was primarily because most institutions were not adequately prepared to transition teaching and learning online. However, some of the institutions managed to implement an interim intervention to save the academic year. On the other hand, some institutions viewed this as an excellent opportunity to explore online self-learning. This resulted in a more flexible teaching and learning arrangement, such as blended and hybrid

Digital readiness requires not only access to technology but also the confidence to use it effectively. Wu and Yang (2024:24) reveal that many first-year students from rural high schools struggle to adapt to the digital learning environment in further education. The rapid shift to online learning and digital teaching tools often overwhelms these students. To help them succeed, building their confidence through training and support programmes is crucial. Digital readiness in further education goes beyond having access to technology. It also requires the development of digital skills and competencies, as well as strong institutional support (Du Plessis, 2020). According to Mokofe (2024:12) to effectively address these challenges in the South African context, a collaborative effort between universities, the government, and the private sector is crucial. Investing in an improved digital infrastructure, providing targeted training programmes, and ensuring equitable access to resources will allow all students to thrive in a digitally driven academic environment (Zeng, 2024:75).

2.2.5 Digital transformation, reforms and emerging technologies

In propelling an effective digital ecosystem in the TVET sector, the policy is instrumental in advocating for foundational learning programmes, commonly known as the Pre-Vocational Learning Programme (PLP). These initiatives provide adequate preparation for students with limited literacy and numeracy skills, enabling equitable access to vocational education and digital resources (Department of Higher Education and Training, 2019). The scope of the framework is extended to include students with disabilities and foreign nationals, ensuring that no students are digitally excluded and that inclusive access is embedded in the admissions and support systems (Department of Higher Education and Training, 2018; Republic of South Africa, 1996). The policy is also essential in advancing other progressive national imperatives, such as the National

Development Plan (NDP) and the White Paper for Post-School Education and Training (2013:5), which aim to reinforce the notion that education must respond to societal challenges and support a modern, inclusive, and digitally enabled economy.

The South African Broadband Education Network (SABEN) subsidiary Tertiary Education and Research Network of South Africa (TENET), a non-profit organisation, is actively working to close the digital divide in the country's Technical and Vocational Education and Training (TVET) institutions (Tertiary Education and Research Network of South Africa, 2020). Under the TVET Campus Connection Programme (TCCP), the Department of Higher Education and Training (DHET) has given South African Broadband Education Networks (SABEN) a special mandate to supply these institutions with the necessary connections that have been designated to connect TVET (Department of Higher Education and Training, 2021).

Zeng (2024:80) posits that AI is utilised to create intelligent systems that can perform similar roles to human beings. In the TVET environment, this can be used to provide real-time feedback to students, enabling them to achieve higher learning outcomes. According to Niwamanya *et al.* (2025:4), the Internet of Things IoT refers to the interconnectedness of devices to the network to enable functionality. The IoT can be utilised to create real-world simulations while allowing the students to gain practical experience.

Onyekaba (2021:146) defines virtual reality (VR) (Insights, 2024) as an advanced technology that plays an important role in enhancing learning outcomes through the interaction of virtual objects. These technologies in the TVET sector are beneficial because they help students to solve complex processes and improve experiential learning. The personalised AI and big data analytics allow the customisation of the learning experiences, introducing students to data analysis methods and techniques, thereby preparing students for the data mining-driven industries, like banking and insurance.

2.2.6 International perspectives on digital readiness

Mitigating digital disparities is essential for attaining adequate digital preparedness. The OECD's Going Digital report underscores the necessity of cultivating inclusion, advancing digital competencies, and guaranteeing equitable access to technology (OECD, 2017).

As Europe advances towards a more digital future, addressing the digital divide will be essential. This necessitates strategic investments and policies to guarantee that all individuals may reap the benefits of digital transformation.

Redep (2021:10) points out that digital preparedness in Europe essentially means how well societies, especially education systems, are ready to use and benefit from digital technologies. The Organisation for Economic Cooperation and Development (2017) define it as aligning infrastructure, skills, and education policies to drive innovation and competitiveness in a digital world. This involves equipping schools and teachers with the necessary tools to use technology in teaching, developing digital literacy skills among students, and addressing the digital divide to ensure equal opportunities for all (Kupe, 2022).

The European Commission (2019) states that to assess digital preparedness within educational contexts, frameworks such as the Digital Competence Framework for Citizens (DigCompOrg) and initiatives such as the Second Survey of Schools: ICT in education have been used as valuable tools. These instruments highlight the critical importance of effective governance, strategic technological investment, and comprehensive professional development programmes for educators. For example, the DigCompOrg framework explicitly emphasises the importance of robust infrastructure, developing digital content creation capabilities, and fostering collaborative learning environments as crucial elements for the successful integration of systemic technology and technology within educational settings (European Commission 2019).

Digital preparedness also involves a student-centred approach, using innovative tools such as Massive Open Online Courses (MOOCs), hybrid learning models, and adaptive technologies (Al-Abdulaziz & Al Darwesh,2023). According to Draganac (2022:140), a digitally prepared educational institution ensures the digital competence of both students and educators, efficient governance, and alignment with the needs of the job market. The second survey of schools by the European Commission revealed significant disparities in digital infrastructure, with less than 20% of European schools having high-speed Internet access (European Commission 2019). This highlights the urgent need for systemic reforms to address these inequalities and ensure equitable access to digital resources for all students.

According to Seleke and Teis (2025:447), globally, there are strategic partnerships between the TVET and workplaces, private individuals, and non-governmental organisations. This is primarily inspired by the fact that there are competitive changes due to the 4IR, hence there is a need for TVETs to equip students with skills compatible with the skills required (Zixuan *et al.*, 2025:1). Asia's primary strategic goals include developing technical and vocational skills as a means of enhancing the employability of TVET graduates. The Southeast Asian Ministers of Education Organisation Regional Centre for Vocational and Technical Education and Training (SEAMEO VOTTECH, 2024:9) asserts that the majority of East Asian nations face tremendous pressure to expand and enhance their TVET systems. Holler *et al* (2023:68) state that businesses in these nations vary significantly in the manner in which they consider their employees' educational attainment to be a major barrier. But with the push to increase technical and vocational education, more attention is being paid to developing TVET systems that are more fair, accessible, efficient, responsive, demand-driven, and pertinent (Ohei and Matzaris, 2023:230).

This is supported by the African Development Bank (DBA, 2020), after discovering that there is a dire need to robustly expand the training programs offered by TVETs in Africa. This will assist the graduates to develop the skills compatible with 4IR. The policy positions suggested aim to bring about a total overhaul that seeks to have the best talent available, as far as the job and labour markets require. Sey and Mudongo (2021:4) stress that the skilled workforce developed through Technical and Vocational Skills Development (TVSD) will play a vital role in terms of improving the continental economy and ultimately achieve the economic structural transformation.

In Africa, a significant percentage (57%) of the workforce is employed in low-skilled jobs. Alexander (2021) notes that 43% of the African population is far from digitalisation and other related technologies supporting 4IR (Ahmad *et al.*, 2023:22). South Africa is regarded as the most digitally prepared country in Africa, yet it is rated lowest globally, 41 out of 100 in terms of the Automation Readiness Index (ARI). This index assesses innovation policies relating to education and the labour market (Mabunda & Frick, 2020:93).

The study conducted by AU (2020) assesses the application of the technology in schools in the country. The study revealed that there is a necessity for the establishment of partnership between the ministry and industrial partners. Subsequently, the Quality Assurance Agency was established primarily to integrate the work-based learning, particularly for further education institutions.

There is insufficient literature pertaining to the availability of the ICT infrastructure in the TVET sector globally because there are fragmented digital policies or no digital infrastructure at all (Kayange, 2019:595; Odooyo, 2020:611). In support of this, a Malawian study discovers that there are insufficient resources and ICT infrastructure. The direct impact of this situation was poor digital learning and teaching outcomes. The majority of further education institutions, particularly TVETs in Malawi, use outdated technology that is not compatible with the rapid changes influenced by the 4IR. Kalua (2020:32) affirms that there were calls for the establishment of Quality Management Systems since 1999, primarily to create an agency to assess and evaluate the digital readiness of the FEIs.

In the practical sense, the implementation of such initiatives appears to be impossible owing to the limited financial resources allocated to the TVET sector. This situation affects the quality of education, with primary victims being students from rural high schools, as the entire digital ecosystem is foreign to them. The study conducted by Onyekaba (2021:148), highlights the significance of the public-private partnerships (PPPs) in strengthening the ICT infrastructure of the TVET sector:

- Poor ICT infrastructure, such as computer labs, audio, and visuals
- Inadequate training resulting in a mismatch between skills and the labour market
- Lack of teaching and instructional personnel
- Lack of digital policies supporting the ICT teaching and learning

The global review of the impact of COVID-19 on the FEIs revealed that 87% of institutions in Africa lacked the digital communication infrastructure necessary for mass communication between staff and students (Baloyi, 2025:91; Mpungose, 2023:263). As a result, Africa was the only region that had to suspend or cancel teaching and learning activities in the majority of its countries. This was primarily because most institutions were

not adequately prepared to transition teaching and learning online. However, some of the institutions managed to implement an interim intervention to save the academic year.

2.2.7 Gaps in the literature

Our knowledge of South Africa's digital divide is tremendously limited, especially concerning students in rural areas. Although the scarcity of infrastructure and technological access in these locations is well captured and documented by current research, it often ignores how these disparities interact with learner's psychological views and cultural backgrounds. Most of the literature that is now available significantly concentrates on technical problems, such as slow Internet and inadequate infrastructure, or general training for digital skills. Nevertheless, these studies often fail to link these barriers to the several phases of digital access, namely the desire to use technology, the availability of devices, the ability to use them and the actual use. They also fail to consider the impact of students' cultural views and demographic identities.

In addition, reputable scholarly frameworks, such as the TAM, are essential to understanding how people perceive technology, such as how easy or valuable it is. Still, they do not address the structural and historical barriers that are common in rural South Africa. Similarly, local research underutilises the Appropriation Theory of the Digital Divide (ATDD), although it may assist in explaining why rural students don't always use digital resources constructively and meaningfully. The combination of various theoretical frameworks is, therefore, imperative. Beyond simply having access to devices, this would provide a more in-depth understanding of how structural disparities, digital skill gaps, cultural attitudes, and personal views all work together to influence digital preparedness among rural high school learners. This approach will provide a better understanding of digital inclusion in the South African education system if this gap is addressed.

2.3 Theoretical framework

The theoretical foundations of this study are based on the Technology Acceptance Model (TAM) by Davis (1989) in conjunction with the Appropriation Theory of the Digital Divide by Dijk (2005).

2.3.1 Technology acceptance model

The architect of the TAM provides valuable insights into how rural students interact with digital technologies in FEIs (Davis, 1989). TAM provides a critical analysis of the perceived usefulness and perceived ease of use of technology, as the results of how these perceptions shape the overall technological acceptance and attitude towards technology. This model plays a tremendous role in terms of highlighting the psychological and integral factors that influence the digital readiness of students from rural high schools.

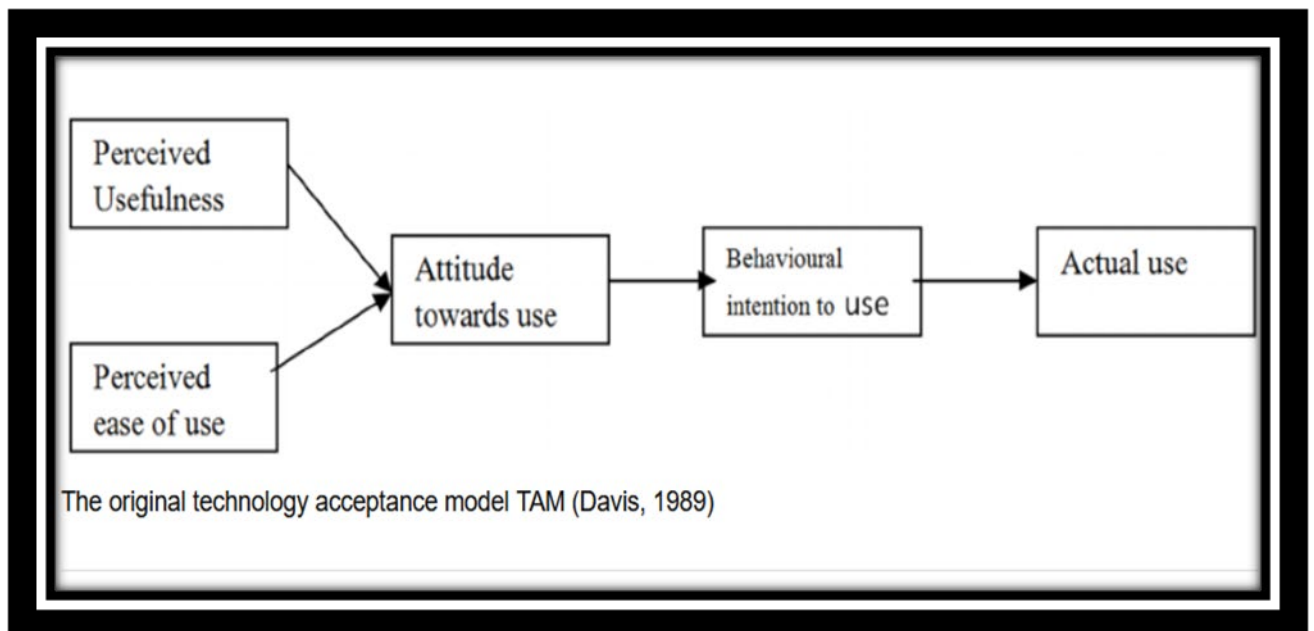


Figure 2.1: Technology Acceptance Model

Source: Davis (1989:320)

For the majority of rural first-year students, the perceived usefulness of the digital technologies is not highly apparent due to the minimal access and exposure before commencing their studies at FEIs (Oyedemi & Mogano, 2018). This is a similar case when it comes to perceived ease of use, which is largely influenced by lack of access to digital technologies and literacy (Pillay, 2021). A greater percentage of rural students are introduced to the technologies, especially the use of computers for the first time upon enrolment at the FEIs. As a result, students experience different psychological emotions, such as anxiety and low confidence (Pillay, 2021; Sutherland, 2020).

The cultural outlook and environmental factors play a major role in technological adoption. In most cases, the rural educational community prefers the traditional pedagogical methods (Ahiaku *et al.*, 2025:12560; Nguyen *et al.*, 2024:3660). These attitudes are significant barriers to the adoption of the technology by students from rural areas (Chisango *et al.*, 2020:7; Soomro *et al.*, 2020:3598). On the other hand, a positive technological outlook does not always lead to positive results due to structural challenges such as unreliable Internet connectivity and frequent power outages.

The TAM provides a comprehensive framework for understanding digital readiness, viewing it as an interplay between user perceptions, attitudes, and environmental constraints, rather than just a problem of infrastructure or policy (Mutambara & Bayaga, 2021:95). For rural first-year students to be digitally ready, educational institutions need to take proactive measures to address external enablers like consistent technical support, targeted training, and dependable access as well as internal motivators like student's confidence in using technology and its perceived value. In the increasingly digitalised world of higher education, this integrated strategy is crucial for fostering meaningful digital engagement and academic success (Akramuzzaman, 2024:560; Flowers & Tanner, 2024:331).

South African further education institutions are confronted with challenges emanating from the previous political dispensation, the apartheid regime (Bozalek *et al.*, 2013:422). Kilfoil (2015:2) stated that the dawn of democracy has brought limited possibilities that enable the utilisation of the emerging technologies. However, these possibilities expose the imminent technological inequalities between rural and urban students. Bozalek *et al.* (2013:423) further note that digital disparities are not unique in the South African context.

2.3.2 Appropriation Theory of the Digital Divide

In support of the TAM, the study has adopted the ADDT. This theory adds an extensive and insightful contextual overview by highlighting how infrastructural disparities, connectivity, and socio-cultural circumstances shape and influence the student's digital experiences (Seleke *et al.*, 2025:445; Safdar *et al.*, 2022:3; Viljoen & Cilliers, 2022:3). According to Dyantyi and Mkabile-Masebe (2025:413), this relationship reinforces the critical aspects of the TAM, emphasising the students' situational backgrounds such as lack of Internet access, inadequate of ICT infrastructure, and cultural attitudes towards

technology, which are influenced by the foreignness of digital tools in the educational setup. The combination of both theories provides a comprehensive and nuanced approach to understanding the digital readiness of students from rural high schools.

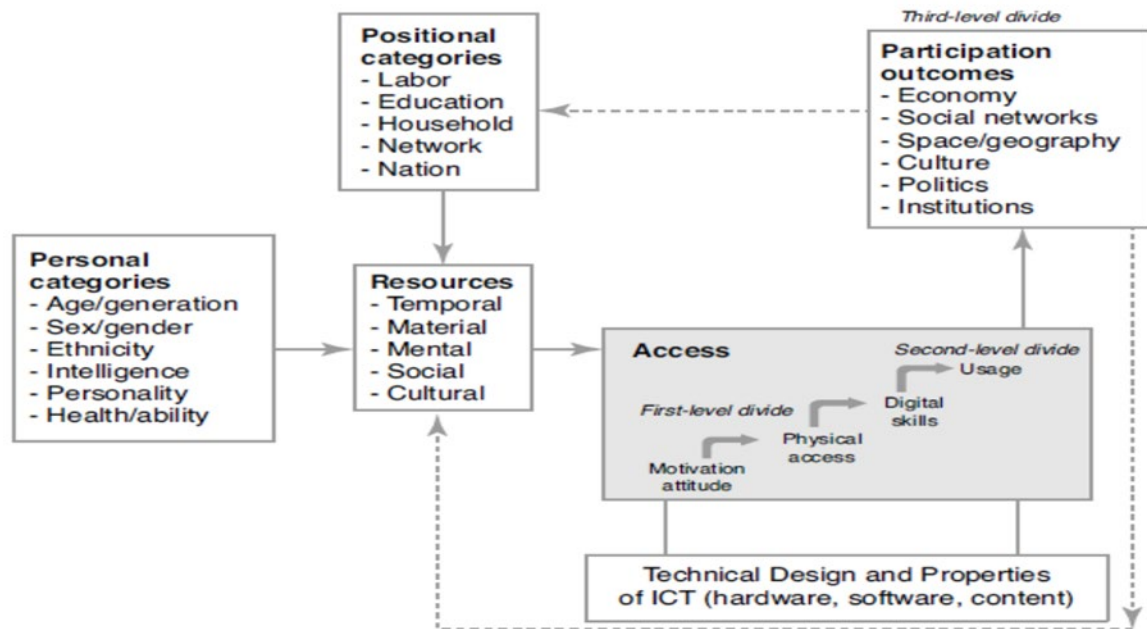


Figure 2.2: Causal model of resources and appropriation theory of the digital divide

Source: Van Dijk (2005:15).

The causal model of resources plays an instrumental role in terms of providing extensive insight into the historical and socio-economic inequalities in South Africa and how apartheid contributed enormously to this legacy (Mbanga & Mtembu, 2020:158). This legacy caused the digital divide in education to be enormously evident in the systemic disparities and unequal distribution of digital infrastructure between rural and urban areas. As Mishra *et al.* (2024:7) highlight, this creates a significant barrier to equitable learning opportunities. Kara (2021:15) further supports this, clearly stating that rural schools are far from possessing an effective digital ecosystem. The critical lack of ICT infrastructure, unreliable Internet connectivity, and inconsistent electrical supply characterise this deficit (Luo *et al.*, 2022:1128)

Beyond the technological shortcomings, rural schools also face challenges related to human capital. Chomunorwa and Mugobo (2023:81) acknowledge that these institutions

struggle to attract digitally competent educators. These combined factors, infrastructure, connectivity, power, and skilled personnel, consolidate the instances of unequal access to digital resources, as highlighted in the ATDD model and theories. Antee (2021:193) concedes that these prevalent inequalities confirm that rural learners have severely limited access to digital educational resources. This demonstrates that digital exclusion is not merely an individualistic issue but is profoundly rooted in broader systemic and historical circumstances.

There is an overwhelming consensus that adequate access to digital resources is essential. The appropriation theory of the digital divide ATDD argues that digital inclusion in the curriculum is not merely about availability but is highly dependent on the learner's capacity and confidence to apply themselves to digital inclusion in teaching and learning (learning (Dube *et al.*, 2023:5; Hasan & Bao, 2020:2; Moloi *et al.*, 2023:4). The literature reveals that the often-rural students suffer psychological challenges such as anxiety, low self-confidence, and cultural resistance when they encounter a complete and comprehensive learning environment that is highly embedded with digital technologies, which is caused by a lack of prior knowledge and exposure (Pillay, 2021:3). According to Kayange (2019:597) the theory of appropriation emphasises the significance of culturally sensitive teaching methods, supportive settings, and focused instruction in digital literacy to guarantee that students not only have access to technology but also acquire the abilities and drive to use it efficiently.

2.3.3 Combined approach

The combination of the TAM and ATDD as the frameworks grounding or underpinning the study provides a comprehensive and insightful understanding and knowledge about the digital readiness of students from rural high schools. TAM focuses primarily on the individual psychological factors (Venkatesh & Davis, 2000:187; Bothma & Mostert, 2023:3). On the other hand, the ATDD broadens the scope to include structural, historical, and socio-cultural contexts. This integrated theoretical framework affords the researcher an opportunity to investigate how perceptions, attitudes and the systematic barriers and historical legacies of digital readiness lead to more holistic and comprehensive research that will result in the findings that will address the central research question.

Integrating TAM and ATDD: A Four-Stage User Access Model for Technology Adoption

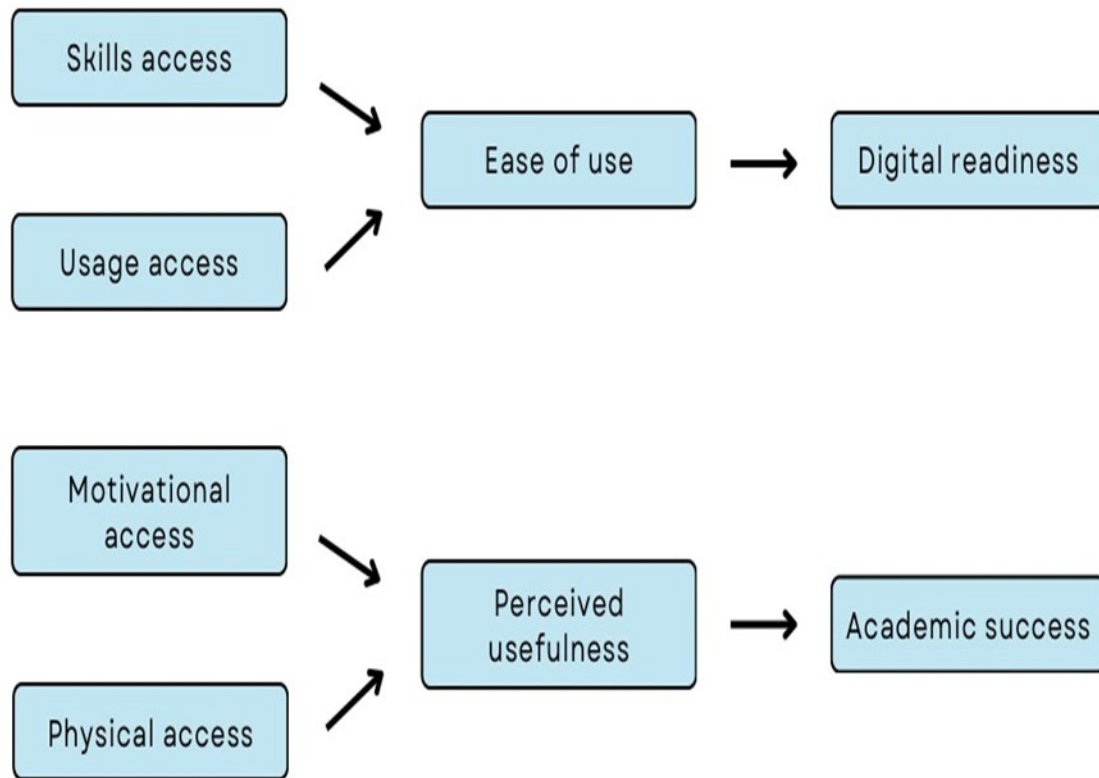


Figure 2.3: Integrating TAM and ATDD: A four-stage user access model for technology adoption

Source: Author's own compilation but relies on theoretical frameworks from Davis (1989) and Van Dijk (2005).

Table 2.1 below explains the proposed four-stage user access model for technology adoption, as well as providing challenges at each stage of the model.

Table 2.1: A four-stage user access model for technology adoption

Stages of access	Description in the South African context	Challenges in rural areas
Motivational access	Refers to the individualistic willingness to use technologies with the most incredible realisation of benefits and value (Motala & Menon, 2020:88; Oke & Fernandes 2020:3; Sithole & Mbukanma 2024:180).	Hampered by traditional teaching methods.
Physical access	Limited by a lack of ICT infrastructure, a lack of Internet access, and unreliable electricity (Maphalala & Adigun, 2021:3; Dube, 2020:139).	Schools lack adequate ICT resources and reliable connectivity.
Skills access	Influenced by the lack of pedagogical approaches that support the use of the ICT infrastructure (Mapisa & Makena, 2024)	The infrastructure is not even available.
Usage access	Usage is highly constrained by the inaccessibility of the ICT infrastructure and the lack of or minimal support of the DBE (Mpungose, 2023:270).	Learners and teachers face significant restrictions in actual technology use.

Source: Author's own compilation but relies on theoretical frameworks from Davis (1989) & Van Dijk (2005).

A four-stage user access model that captures the distinct dynamics of technology adoption in the rural South African context, is highlighted by the combination of the technology acceptance model TAM and the Access, Technology, Digital Divide (ATDD) framework. The phases, physical, skills, motivational, and usage access are interconnected and highlight the pedagogical and structural obstacles to adoption. According to Mustafa *et al.* (2024:3), the persistence of traditional teaching methods undermines motivational access, which highlights teachers' and students' willingness to adopt technologies based on perceived benefits. In rural schools, where resources are still insufficient, physical access, which necessitates electricity, Internet connectivity, and basic ICT infrastructure, is severely restricted.

2.4 Chapter Summary

This chapter presented a review of the existing literature on the digital readiness of students from rural high schools attending further education institutions. Succinctly provided an overview of the digital inequalities in ICT infrastructure and educators' digital capacity. The chapter further explored the educational digital divide between rural and urban schools. Additionally, the cultural and historical background legacies were examined to understand their influence on digital motivation and confidence. The TAM and ADDT were used as the theoretical foundation for a comprehensive synthesis. The significant gap revealed that there are limited studies focused on cultural and psychological outlook about the usage of technologies in learning and teaching among pupils coming from rural areas.

CHAPTER 3 RESEARCH METHODOLOGY AND RESEARCH DESIGN

3.1 Chapter Introduction

This chapter provides a critical discussion of the research methodology employed in this study. The research paradigm and meta-theoretical assumptions utilised in the study are outlined. Additionally, the following methodological aspects will be covered: research design and approach, time horizon, study population, sampling, and participant recruitment. Moreover, a clear framework of data collection and tools is articulated. All these methodological components are contextualised within the research onion framework. Figure 3.1 is a research onion containing some of the methodological aspects and approaches adopted by this study.

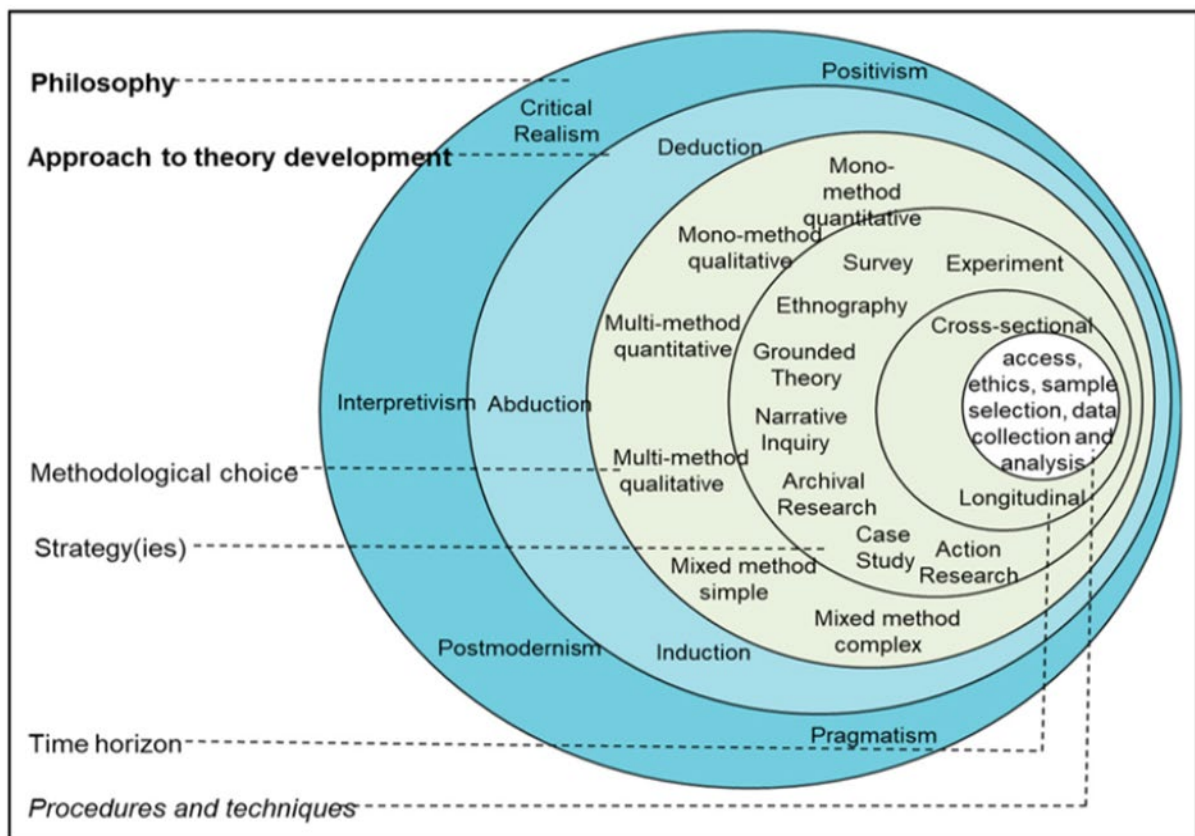


Figure 3.1: Research onion

Source: Saunders *et al.* (2023)

3.2 Research paradigm

Kuhn (1970:8) explains that a research paradigm is the set of common assertions affirmed by scholars on how problems should be understood and addressed. Moreover, Kuhn argues that the paradigms must consist of universally recognised and accepted axioms that present models and solutions to the researchers. In essence, this means that the problem identified might later be addressed, but the same solution might not be applicable at a later stage. In a nutshell, paradigms utilised are appropriate if they address the model problems and solutions; however, this notion does not relegate the scientific rigour that supports the research process.

According to Cohen *et al.* (2007:21), paradigms are pivotal in moulding the research methodology. The chosen paradigm serves as the foundation for the intended research outputs. Interpretivism is employed in this study as we used a qualitative research methodology. Alharahsheh and Pius (2020:41) assert that interpretivism seeks to interrogate the phenomenon's more profound meaning and foundational basis instead of a simplistic view of looking at things at face value. Furthermore, Creswell and Creswell (2023:56) affirm this statement by alluding to the fact that people make meaning by observing the world in which they live.

According to Rosida *et al.* (2023:14), epistemology, ontology and axiology are significant foundational bases of science. The interpretivist is employed primarily because the study strives to build the comprehension of how students understand construct of digital readiness within their immediate environment. Furthermore, ontologically, the research inferred that digital readiness carries multiple meaning based on the lived experiences and realities of participants. Epistemologically reinforces the fact that the knowledge was co-created through open-ended interviews with the participants. Moreover, the researcher values the information provided as key basis for understanding the phenomenon, and this is achieved through reflectivity (Creswell & Porth, 2018:306). This allows the researchers to make subjective deductions based on the information provided.

3.3 Research approach

The study uses a qualitative research approach, and the research is conducted within the framework of the interpretive paradigm, which is directed to exploring and providing a

more in-depth understanding of how people see social problems as people and not numbers (Creswell & Poth, 2018:360). The qualitative inquiry is interested in knowing a phenomenon subjectively, which is consistent with an interpretative approach that highlights the visibility of social realities and the manner in which people make sense of those realities (Denzin & Lincoln, 2011:3; Denzin & Lincoln, 2017:197). The given approach is adopted because first-year TVET students from rural high schools shared their own lived experiences and impressions regarding digital readiness. This emphasis on in-depth exploration is the opposite of quantitative research, the goal of which is to verify, validate, and extrapolate the results (Creswell & Creswell, 2023:61).

3.4 Research design

The research design is the definite plan of how the research will be conducted to address the research objectives and questions (Creswell & Poth, 2018:352). The study adopted the phenomenological research design. Tavakol and Sandars (2025:1441) describe phenomenological research design as a “qualitative research approach that seeks to understand the individual meanings of lived experience”. This is appropriate primarily because the study investigated the lived experiences of the participants. Phenomenology concerns investigating a general phenomenon without deliberately taking notice of pre-conceived assumptions (Gallagher, 2022:5). This design is important as it helps the researcher discover the general shared experiences and other varying aspects of students. Utilising the phenomenological approach, the research will ensure the inclusion of both subtle and profound insights into the topic at hand. This methodology will encourage first-year students to fully articulate and share their diverse digital experiences.

3.5 Study population and sampling

3.5.1 Population

According to Saunders *et al.* (2023:292), population refers to the whole category of interest that fits the particular criteria of the researcher and to which the findings of the study will ultimately be either applied or generalised. Ahmad *et al.*, (2023:20) accentuates that population is a significant point of reference by which the representativeness of the sample is gauged, and this has a direct influence on the study credibility. A researcher is unable to make any inferences outside the immediate data set without a clearly defined

population, and this methodologically weakens the conclusions of the study (Willie, 2022: 522). This study targeted only first-year students, either from NCV or Nated, because they are recently transitioning from Basic Education to Further Education. Furthermore, only students from rural high schools were considered for this study. Additionally, the study prioritises gender representation. However, we acknowledge that we may not get enough participants from different genders, resulting in gender imbalance. The population of this study consisted of registered students from the Potchefstroom campus of Vuselela TVET College. The TVET college sector in South Africa consists of NVC students who completed Grade 9 and furthered their studies at the college, instead of at a traditional high school. It also has the second leg, which is Nated courses, for students who completed matric under the National Senior Certificate (NSC). The sample comprised both sections, namely NCV and Nated. The targeted samples size was 20 participants; however, the saturation was reached by eight participants, and one additional participant was interviewed to validate the credibility of the data. The identical responses from different participants proved the adequacy and sufficiency of the data.

3.5.2 Sampling

A sample refers to the subset of the population defined in the study (Luciani *et al.* 2019:154). The sampling method that is used is non-probability purposive sampling, where a specific target group is targeted (Maree & Pietersen, 2016:198). This sample method allows researchers to identify a small segment of a population sample and analyse the results based only on that. The study target students of different courses and levels on the Potchefstroom Campus of Vuselela TVET College. This approach allowed representatives to lead to comprehensive data.

3.6 Research participants

In qualitative research, participants mean central figures which are voluntarily expressing their lived experience regarding the phenomenon under study. According to Duma *et al.* (2021:3), a rural high school in South Africa is a secondary school situated in a sparsely inhabited, non-urban, and geographically remote area, frequently distant from major cities and towns. Therefore, in collaboration with the college enrolment office, the researcher employed this criterion to select participants.

The researcher worked in conjunction with the ICT lecturers from Vuselela TVET College to recruit participants for this study. Announcements were made using internal communication channels in both NCV and Nated classes for interested prospective participants to enrol their names and contact details for this voluntary study. After receiving the names, the researcher, in consultation with the study leader, chooses the participants who meet the inclusion criteria. Some students were excluded from participating in this study, such as those from urban areas who also attended model C schools. Consent was sought before interviewing participants. The recruitment of participants sets the basis for the successful implementation of the research project (Negrin *et al.*, 2022:1). An effective recruitment plan ensures the trustworthiness of the research output. According to Giorgi (2021), in recent times, the recruitment of participants has received special attention due to the evolving landscape of research. Negrin *et al.* (2022:8) state that the researcher is responsible for building a relationship with prospective participants; this will result in voluntary participation in the research project. The researcher adopted a direct recruitment approach, selecting students from different courses and different levels, and the researcher was also mindful of the gender representation.

The most typical type of non-probability sampling is purpose samples (Guest *et al.*, 2020:5). Their size is usually based on the notion of saturation or where no additional information or themes can be seen in the data. Charmaz and Bryant (2010:130) remark on the idea of saturation, according to which the researcher must cease data collection when the categories (or themes) are saturated, and when additional collection of data does not result in new insights or the revelation of new properties. This is where a researcher possesses a sufficient sample (Creswell & Creswell, 2018:301). The purposive sampling was deemed suitable in this research because it implies that knowledge would be used to select the model among the population based on characteristics of interest. The ultimate objective was to get a sample of participants that would bring the best understanding of the phenomenon being studied in this research and, consequently, would respond to the research objectives and questions most appropriately. The intended population sample of the study was 20 participants; however, the saturation was reached by eight participants, and one additional interview was conducted to validate the results. In essence, the study comprised of nine participants.

When no new emergent themes are achieved with the addition of more data, the saturation is achieved (Case & Given, 2016). Repetition of the same remarks was the indication that the scope of topical problems has already been completely exhausted.

3.7 Data collection method

The study adopted semi-structured interviews using Zoom virtual meeting to collect primary data as a substitute for face-to-face interviews with the chosen participants. The primary purpose of the interview was to awaken the perception and opinions of respondents, past experiences and the sense that individuals attach to certain experiences (Dewi, 2021:30). Interviews were the appropriate data collection technique because the study required the accuracy and immediate effect of data. In this respect, the researcher did exploratory interviews with nine (9) Vuselela TVET students from different courses and levels. Audio-recordings were made in all interviews. The Informed Consent Form was signed by the participants prior to the interviews according to the request of the researcher (Clark *et al.*, 2021:191-192) (see Appendix C). Only participants who agreed to take part in the study were interviewed. The interviews were carried out at various times and in various locations on the sampled students. Sub-questions were asked when the answers provided by the participants to the first questions could not cover some areas of interest (Guest *et al.*, 2020:6). All the respondents were asked the same questions in the same sequence, but the interviewer asked questions inductively on some crucial responses. An interview guide was made up out of the questions dealt with different components of research questions and objectives (see Appendix D) (Foster *et al.*, 2021:225).

3.8 Sampling size

Qualitative research does not have a fixed numeric sample size that the researcher intends to be statistically representative but the number of participants, cases, or units of data necessary to gain a profound, in-depth knowledge of a phenomenon. This is unlikely in quantitative studies, where calculation is fixed; the size is calculated by the data collection and analysis cycle, and the basic methodological assumption is data saturation (Hennink *et al.*, 2017:1). The saturation is the stage when the researcher believes that no new themes, codes, or other valuable insights can be obtained through the data which means that enough information is collected to answer the research question (Fusch &

Ness, 2015:1409). In turn, the ultimate sample size is a question of well-informed choice of the researcher, considering the scope of the study, the homogeneity of the target population, the quality of the collected data, and the complexity of the research design (Malterud *et al.*, 2016:1760; Vasileiou *et al.*, 2018:2).

3.9 Data analysis

According to Cresswell and Poth (2018:186), data analysis refers to the overall procedure of checking, cleaning, modelling, and interpreting data using the aim of finding valuable information, informing decision-making, and supporting conclusions. Thereafter, the iterative process of thematic analysis follows. Braun and Clarke (2006:79) define thematic analysis as a method of identifying, analysing, and reporting patterns (themes) within data. This definition implies that the data are organised according to codes. The more frequently a code appears, the more likely the researcher might use it as a central theme.

The significant importance of the data analysis is related to the recognition of the specific patterns in the data and is a valuable instrument to advance knowledge. The linguistic analysis of data, what participants say, and non-verbal communication were the components of the qualitative data analysis that contribute to the further meaning of the understanding. The researcher, together with the supervisor, transcribed data, which was later developed by the researcher into themes and categories using the data produced by qualitative data. To have precision and consistency, the transcription was checked with the voice recording.

3.9.1 Coding procedure

The coding process begins with arranging data manually using Microsoft Excel. Then, subsequently, the data was transferred in ATLAS-ti to strengthen accuracy and eliminate human error. Williams and Moser (2019:45) state that “coding in qualitative research is comprised of processes that enable collected data to be assembled, categorised, and thematically sorted”. This process is crucial in terms of assigning meaning to data. After a rigorous data analysis process, the four main themes emerged and are as follows: technology access and infrastructure, personal adaptation and learning strategies, institutional and social support, and the digital literacy and skills gap.

The Braun and Clarke's (2022:158) steps of thematic data analysis were employed to analyse data succinctly and meticulously. The research followed the six phases of thematic data analysis.

3.9.2 The six phases of thematic data analysis

Phase 1: Assigning initial codes: An initial code may be a word, a phrase or the words of the respondent.

Phase 2: Revisiting initial coding: It is at this stage that there is a significant process of developing many codes; developing an initial list of categories: Categories are revisited, and modified codes are further organised into themes.

Phase 3: Modifying the initial list based on further re-reading. A decision has been made about which categories are unimportant, compared to others, or can be amalgamated further.

Phase 4: Categorical to conceptual: Codes were sorted into concepts in the most informative or sensible way of sorting. The research process was completed with the envisioning of the research product.

Phase 5: The researcher contacted an experienced researcher who introduced her to the extra skills that he required in the process of accurately interpreting and coding data, and reporting the research findings to her accordingly.

Phase 6: The write-up: The researcher systematically compiled an extensive research report and outlined excerpts as evidence to support the data.

3.10 Trustworthiness

Lincoln and Guba (1985:331) indicate that trustworthiness is the main criterion of determining the rigour and quality of the qualitative research study. It is the methodological means of increasing the credibility and integrity of the results and is deemed to be equivalent to concepts of validity and reliability and objectivity that are used in quantitative research.

Credibility: The level of trust that can be laid on the truth of the research findings (Chowdhury, 2015:1146: The research proposal was critically evaluated by the subject's experts in the field to verify whether the study is worth pursuing. The study leader, as the experts played an active role in guaranteeing that the ethical process is followed during the completion of this study.

Dependability: According to Creswell and Creswell (2023:318) dependability refers to the stability of findings over time. Dependability involves participants' evaluation of the findings, interpretation and recommendations of the study in such a way that all are supported by the data as received from participants of the study. The researcher analysed data meticulously in consultation with the study leader and subsequently reached consensus about the themes. The study tested consistency and determined whether or not the results of the research were repeatable.

Transferability: refers to the ability of the research to apply to context and be compared to other similar studies. The researcher provided the detailed steps and method applied in this research (Creswell & Poth, 2018:314).

Conformability: The study conformed to the qualitative research processes, furthermore, the researcher consulted the study leader in relation to verifying the transcriptions of the voice recordings. The extent to which the results of the research study would be validated by other researchers. The issue of confirmability deals with the establishment that the data and conclusions about findings are not creations of the imagination of the inquirer, but clearly derived from the data (Chowdhury, 2015:146,150; Creswell & Poth, 2018:314).

3.10.1 Ethical considerations

The study was conducted in accordance with the NWU's ethical process, commonly known as EMS-REC. Furthermore, the researcher adhered to the EMS-REC code of conduct. The researcher sought informed consent before collecting the data. The participants were provided with the consent form prior the commencement of the data collection. The researcher had also made sure that participants participated voluntarily and gave them the right to withdraw during the entire course of the research. The researcher also made sure that participants were not exposed to any form of risk or harm, nor was their confidentiality violated. All data collected from this study was kept

confidential and protected by Microsoft data encryption. The handling of the personal information of the participants was in line with the Protection of Personal Information Act (POPIA). According to Pietilä *et al.* (2019:49), in qualitative research, ethics comprises two main branches. The first category is responsible for protecting participants, whereas the second category outlines the ethical standards of research entirely. The latter statements will be discussed below.

3.10.2 Voluntary participation and informed consent

Informed consent refers to the process by which a prospective participant is provided with full information on the study, including its purpose, procedures, timeframe, the possible risks, and benefits and then they are left to make a free-will decision on whether to take part (Holtz, 2025:156). The researcher informed the participants, before interviewing them verbally and in writing, that they have the right to withdraw from the study at any time, even if they consented to participate in the study previously.

3.10.3 Anonymity and confidentiality

According to Krause (2019:1015), these values are associated with safeguarding the identity of the participant and the information he or she supplies. Anonymity implies that the data cannot be traced to an individual participant even with a coding system (e.g. pseudonyms). Confidentiality refers to the researcher's knowledge of the participants' identities, which he or she should not reveal.

The researcher protected the identity of the participants by assigning them a code instead of using their real name or any element/aspect that is associated with their identity. Additionally, the researcher ensured that no one had access to the interview recordings and transcripts except the study leader.

3.10.4 Interview sessions and data storage

The interviews were scheduled according to the participants' availability; furthermore, the participants were requested to choose a quiet space for online interviews. Interviews were conducted using Zoom. The interviews were recorded with consent by the participants. Additional interview recordings were stored on the encrypted Microsoft SharePoint

platform and NWU Nextcloud; it is only the researcher and study leader that have access to these recorded interviews.

3.10.5 Time horizon

The cross-sectional time horizon means a type of research in which the data about one or several variables are observed in a sample of cases at a certain moment (Clark *et al.*, 2021:53). It is a type of methodology that gives a picture of a social phenomenon or the characteristics of a population during the short term of data gathering (Saunders *et al.*, 2019). Its main aim is usually to determine the frequency of a condition, attitude, or behaviour and to test relationships or association of variables at the same time (Clark *et al.*, 2021:55). Even though cross-sectional studies have been highly appreciated because of their speed, low cost, and time efficiency when it comes to preliminarily exploring variables, their greatest weakness is that it is hard to determine how variables relate in time since only a single time-point measure is taken (Saunders *et al.*, 2019). This means that they will be able to tell a correlation but, in most cases, they cannot be sure of the cause-and-effect relationships (Bryman *et al.*, 2021:54).

3.11 Summary

This chapter had a critical analysis of the methodology and research design that was used in this research study. Moreover, the chapter has started with the research paradigm, which forms the basis of the study, and this is interpretative paradigm. This was succeeded by the research approach as well as the explanation of why the qualitative research approach and phenomenology are adopted. Moreover, the research onion model was represented, including the various elements of the research process, elaborated on targeted population, sampling technique and size. The chapter went on to elaborate on the procedures of data collection and methods of data analysis and culminated by elaborating on the problems of trustworthiness that could be applied in the study. The qualitative data collated was analysed and presented in the next chapter.

CHAPTER 4 FINDINGS AND DISCUSSION

4.1 Chapter Introduction

This chapter elaborates on and discusses the research findings regarding the digital competencies and capabilities of first-year students from rural areas. The chapter aims to present the collected information and the significant trends that emerged during the data analysis, as well as how the gathered findings relate to the existing body of knowledge. The chapter begins with an overview of the demographic information of the study participants providing contextual background. This is followed by a descriptive analysis of the research outcomes, including a word cloud and a model of the elements that influence digital readiness as tools to contextualise the research data. The chapter is divided into four dominant themes identified during data analysis and focuses on Technology Access and Infrastructure, Personal Adaptation and Learning Strategies, Institutional and Social Support and Digital Literacy and Skills Gap. Each theme is examined using participants' narratives, complemented by insights from relevant scholarly sources to strengthen interpretation. The chapter concludes with an integrated discussion of the results, establishing connections between the findings, the research questions, and broader theoretical perspectives. A summary of the chapter is then provided, synthesising the major insights and preparing the foundation for the subsequent chapter.

4.2 Demographic information of participants

20 participants were approached and profiled to partake in this study; however, 9 participants reached saturation, which leave nine as the total number of participants. The information collected was adequate to answer the research question and fulfil the objectives of the study adequately. It should also be noted that interviews were virtually conducted through Zoom. The participants' demographic profiles and pseudonyms are presented in Table 4.1.

Table 4.1: Participants demographic information

Participants pseudo names	Name of qualification	Level of study	Location of the participants
Participant 001	Civil Engineering	N4	Bothaville
Participant 002	Human Resource Management	N4	Mareetsane
Participant 003	Education and development studies	2	Amalia Schweizer-Reneke
Participant 004	Electrical Infrastructure Construction	2	Bloemhof
Participant 005	Educational Development	2	Mmabatho- Mahikeng
Participant 006	management Assistant	N4	Morokweng
Participant 007	Electrical Infrastructure Construction	2	Fochville
Participant 008	Human Resource Management	N4	Huhudi
Participant 009	Educational Development	2	Taung-Modimong

Source: Author's own compilation

Table 4.1 presents biographical information comprised of the participants pseudonyms to ensure anonymity; furthermore, the courses that participants are pursuing are also included in the biographical profile. In addition, the academic levels of the participants and their locations are also featured in the profile. The biographical profile is systematically organised to reflect the eligibility of the participants. This information is not referenced because it is raw primary data from participants.

4.3 Presentation of findings

This section is primarily focused on the analysis of the data that was collected through the semi-structured interviews and analysed by ATLAS.ti. This information was converted into themes. The data provides insight into the digital readiness of a rural first-year student attending a further education institution. The findings seek to answer the research questions below:

- How do first-year rural students adapt to digital learning environments in further education institution?

- What challenges do first-year rural students face in accessing and using digital resources?
- Why is digital readiness important for the academic success of first-year rural students?

4.3.1 Word cloud

Word clouds are a visual representation of textual data that is often used to highlight key terms or keyword metadata. Figure 4.1 presents the visual presentation of the word cloud generated from ATLAS.ti during the analysis of the data.



Figure 4.1: Word cloud of the study from ATLAS.ti version 25

Figure 4.1 demonstrates the word cloud of the study, depicting the digital readiness as the central focus of the study. Furthermore, the cloud also reflects the key challenges and adaptation strategies that students use to attain digital readiness. These themes were influenced by the feedback of the participants.

4.3.2 Model of factors influencing digital readiness

Figure 4.2 highlights the factors influencing the digital readiness of rural first-year students attending the TVET. These factors are contextualised in the findings of the study.

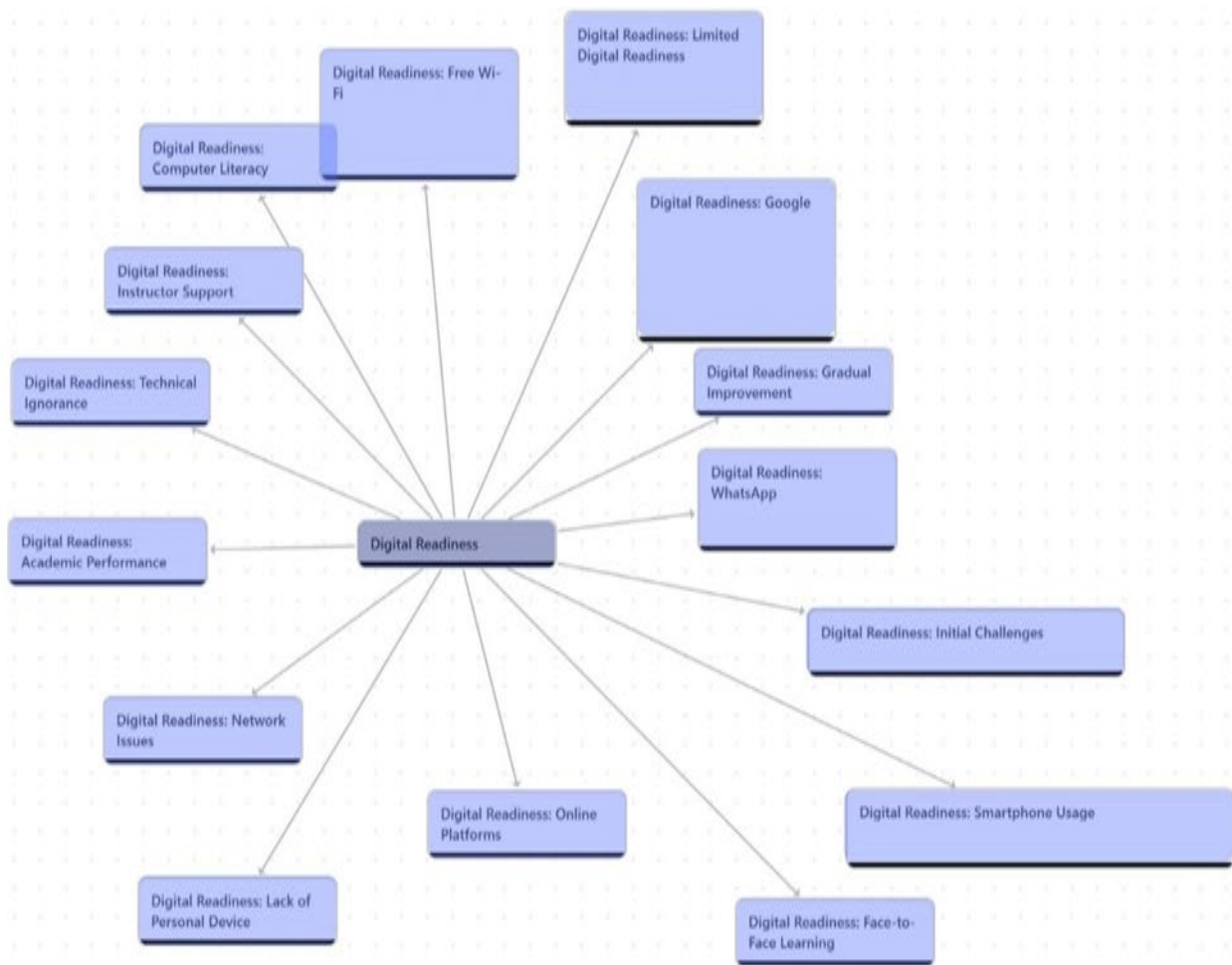


Figure 4.2: Model for illustrating factors affecting digital readiness among rural first-year students

This model provides an illustration of the key themes encapsulating the digital readiness of a student studying at a further education institution. The model provides a relationship between the core themes that play a significant role in digital readiness, such as computer literacy, instructor support and digital devices. The impediments of digital readiness, such as network issues, a lack of devices, and technical ignorance, are also highlighted. Therefore, this model provides a balanced visual representation of the elements that determine the digital readiness of rural first-year students.

4.4 Findings

The sections below provide a critical discussion of the following emergent themes: access to technology and infrastructure, personal adaptation and learning strategies, institutional

and social support, digital literacy, and skills gap. These themes are supported by verbatim sample statements and excerpts from the participants.

4.4.1 Theme 1: Technology access and infrastructure

Technology access and infrastructure is an aspect that covers the range, quality, and reliability of technical resources that rural first-year students need to be able to learn effectively through digital means (Mhlanga, 2024:32). This theme looks at how far the students can access the key devices like smartphones, laptops, or tablets, and if these devices are good enough for performing academic work via online methods. Also, the analysis covers the Internet connections stability and speed issues of data price being too high, rural areas having insufficient network coverage, and shortage of Wi-Fi on campuses are included in this theme. Through this theme in the research, one can get a picture of how infrastructural disparities like the unavailability of broadband, outages of electric power, or too many students in the computer lab affect the online learning platform engagement, assignment submission, and virtual class attendance of the students. The participants noted that access to digital tools and infrastructure was still a major hindrance to optimal academic performance, and the corresponding codes from the analysis included Wi-Fi and connectivity issues and limited devices. The following remark is feedback from Participant 009:

Challenges that I have faced, it was poor Internet at home. I don't have laptop. And sometimes there's loadshedding.

Participant 009 highlights the poor Internet connectivity at home, lack of a laptop, and frequent loadshedding as significant obstacles. These challenges reflect broader infrastructural challenges commonly experienced in rural South Africa, where digital participation is restricted by unreliable networks and inconsistent power supply. Such shortcomings restrict students' ability to access online platforms or complete digital tasks, revealing the foundational role of stable infrastructure in supporting digital learning. An extract from Participant 006 elaborates this even further:

"And to be very honest, it is a, how can I put it? It's something that is good to experience. It's something that is good to learn, but I'm looking at a better way to say it. Yeah, can I say connectivity problems also? It's also difficult to find

reliable sources. It's also difficult to know which digital tool to use to get a certain information because I always see for certain modules or subjects you have to know or to be able to use different digital tools. To be very honest with you, there isn't much that we are being offered at school, at the TVET. There is only a computer lab that we are being offered. There is nothing like a resource centre, nothing like any other institutions, if I may say. We only have a computer lab”.

Participant 006 expands on these structural barriers by emphasising connectivity problems, difficulties in accessing reliable online information, and the struggle to navigate multiple digital tools required for different modules. Their narrative highlights how technological access is not only about devices and the Internet, but also about exposure to a supportive digital environment. The participant further notes the lack of institutional infrastructure, explaining that the TVET college offers only a computer lab with no additional resource centres. This severely limits opportunities for independent digital practice, research, and skill development, intensifying the gap between rural students and those in better-resourced institutions. Participant 002 added remarks by stating that:

I mostly use my smartphone and, um, there's a laptop back home, so maybe that if I get, um, to, I get a chance to use it, but most of the time it's my smartphone, um, the group chats at, um, on WhatsApp and, yeah, emails too.

Participant 002's reflections show how students often depend primarily on smartphones as their main device for academic work. While smartphones offer basic digital access, they limit students' ability to engage with demanding tasks such as typing assignments, accessing learning management systems, or conducting extensive online research. Inconsistent access to a shared laptop is insufficient to meet the academic expectations of a digitally oriented curriculum.

The sample excerpts generally illustrate significant disparities in students' access to technological resources, highlighting how inadequate infrastructure undermines the digital readiness of rural first-year students. These excerpts from participants reveal that technology access for rural first-year students is inconsistent, limited, and heavily dependent on personal circumstances rather than institutional provision. These

infrastructural constraints directly influence students' digital readiness, shaping how confidently and effectively they can navigate digital learning environments.

4.4.2 Theme 2: Personal adaptation and learning strategies

Personal adaptation and learning strategies utilise how rural first-year students adjust, improvise, and develop different methods to cope with the pressures of the digital world despite the obstacles they face (Moonasamy & Naidoo, 2022:79). This subject area reveals the extent to which students have dealt with the new tech, with the help of new digital practices and also developing strategies that give them the right to participate in a meaningful way on-line and in technological SPACES where learning is enhanced (Hampton *et al.*, 2020). In the case of this research, the theme takes in students' self-determined actions that are, for instance, trying out different digital gadgets, depending on friends for support, learning basic digital skills on their own, or when the computer or Internet access is limited, using other ways. It also tells how students organise their time, find information online, and get better at a slow pace as they get more familiar with the digital platforms that are mandatory for their academic work. Participants stated that self-practice outside of mandated tasks or assignments helped them adjust to the digital environment of the institution. Self-directed learning is instrumental in terms of unlocking the potential of the student as evidenced by the students. The excerpts below from the participants affirm this:

I practiced more of using a computer and gained my typing skills because of, in the subject I do, we have a computer subject, in the course I do, we have a computer subject. So, we're usually getting trained on how to type a bit faster in the computer, managing time when using computer and everything, yeah (Participant 005).

I seeked help from lecturers and use online resources just like Meta. Yeah. And practice regularly go to classes (Participant 008).

I use Google, I use YouTube, I use campus computers, my WhatsApp and the Ais (Participant 003).

Participant 005 highlights intentional practice as a key adaptation strategy. By repeatedly using a computer and engaging with a computer-related subject in their course, the participant gradually improved their typing speed, time management, and confidence with digital tools. This reflects an important dimension of digital readiness, the willingness to learn through continuous practice and hands-on engagement. Meanwhile, Participant 008 further demonstrates adaptive behaviour by seeking support from lecturers and consulting online platforms such as Meta (Facebook) for guidance. Participant 003 reinforced this notion by also highlighting that he used YouTube videos for extra tutorials. This approach shows a combination of help-seeking behaviour, self-directed learning, and regular attendance, indicating that students construct personalised pathways to develop digital competence. This aligns with the idea that digital readiness is not solely about access, but also about the strategies students employ to overcome skill gaps (Moonasamy & Naidoo, 2022:80). The extract from Participant 004 further supplements this argument:

I would say, me personally I found digital learning is super, like I found it super helpful for flexibility and accessing resources. While some students, some students I met, they prefer, they also prefer a traditional method. They prefer to struggle with a tech limitation. So, I prefer digital learning because I found it super helpful because, in South Africa, I've realised that digital learning can be a mix of positives and challenges.

Participant 004 presents a more reflective perspective, noting that digital learning offers flexibility and access to resources, which they find beneficial. The participant contrasts their own positive adaptation with the experiences of peers who prefer traditional learning methods due to technological limitations or discomfort with digital tools. This suggests that adaptability varies among rural students, with some embracing digital learning as an opportunity while others struggle to adjust. The participant's awareness of the benefits and challenges of digital learning shows a critical engagement with digital environments and an emerging ability to navigate them effectively.

The sample statement reveals how students actively develop personal strategies to cope with and adapt to the digital demands of their studies, despite varying levels of prior exposure. These excerpts from Participant 005, Participant 008 and Participant 004 show

that rural first-year students respond to digital learning demands in diverse, proactive ways through practice, help-seeking, self-directed exploration, and reflective engagement. These personal adaptation strategies play a crucial role in shaping their digital readiness, enabling them to navigate challenges and meaningfully make use of technology for academic success.

4.4.3 Theme 3: Institutional and social support

Institutional and social support mainly represent the official and unofficial systems that help first-year students from rural areas to get accustomed to digital learning environments (Sharpe & Benfield, 2012:7). This theme looks at the institution's overall offer of technical support, digital training, learning materials, and also the faculty to assist the students in gaining the necessary digital skills. Furthermore, social networks like friends, relatives, and people from the community are looked at as contributing to students' ability to deal with the digital environment. The study brings out the theme that support can take many forms by providing people with the opportunity to use a computer lab, getting help from technicians, talking to the teachers, and being able to access campus digital services such as Wi-Fi or IT support. These formal support measures considerably play a part in helping the students, who are not very confident in using the digital tools, to gradually become digitally literate (Tutu, 2023:8). The participants noted that even though they have a lack of digital exposure, there is minimal support provided by TVET. Based on the participants' feedback, there is no clear digital learning intervention provided by TVET, except for ad hoc assistance provided by the campus technicians and lecturers. Furthermore, the digital resources are scant and cannot accommodate all the students. The samples of the relevant verbatim excerpts are stated below.

We have someone who helps us with computers. So, they showed us how the computer works (Participant 009).

I seek technical support because at school, we have technicians that come here and there. So when there's something that is difficult for me, I then go to them and then I ask them. And also in my free time, I have learned to practice digital literacy skills. By this, I'm saying in my free time, I open my laptop and

then I just try to Google where can I get, which tool or application can help me with the aspects that I need to improve on (Participant 006).

Participant 009 points out that there is institutional support in the form of assistance for students to understand the functioning of computers. Such initial help is very important for students who might start their academic journey with very little exposure to digital technologies, and it shows that even very simple support can make a great deal of difference by creating the basic confidence and competence. However, the value of institutional support is given by Participant 006, who speaks of the technical staff always available to help with any digital problem. Their account shows that access to technicians not only resolves immediate difficulties but also encourages students to take initiative in exploring and practising digital literacy skills independently. The participant's strategy of researching digital tools during free time illustrates how institutional support can spark self-directed learning, reinforcing the interplay between external assistance and personal motivation. Excerpts from other participants elaborate this further by stating that:

So, they can just familiarise themselves. They must ask people maybe if they have family members that they know who are more into IT or technical stuff, they start asking and start also getting their own information (Participant 006).

Of digital learning. Okay, the strategy I used was to ask lecturers for help with digital tools, practice digital skills like on my free time, like using data, like using data for online learning, like forming study groups for support and seeking help from our college IT (Participant 004).

Get familiar with digital tools, stay organised, and don't hesitate to ask for help (Participant 007).

Participant 006 further underlines how social support groups are important; the students can always ask for help from their tech-savvy family members. This indicates that rural students are likely to still depend on informal, community-based support when the institutional resources are not adequate or completely missing. Social connections thus serve as supplementary channels for learning and navigating digital environments. Participant 004 further demonstrates the combined use of institutional and peer support. The participant demonstrates how learners actively rely on several layers of support to

get through digital barriers by asking lecturers for help, planning study sessions, and going to the college's IT department for help. The groups assigned to study especially bring a collaborative atmosphere where knowledge is shared, problems are solved, and digital skills are created. Participant 007 supports the idea by stressing the need for help and the use of available support systems. This advice shows that the digital readiness of a person is not only dependent on personal efforts but also on the support of the institution and social resources that one has measures to utilise.

These quotations support the argument that institutional support (technicians, lecturers, IT services) and social networks (family and peers) increase students capacity to cope with digital learning. The availability, accessibility, and quick response of these support systems have a major effect on how skilled and experienced rural students will be in using technology and their ability to meet technological demands.

4.4.4 Theme 4: Digital literacy and skills gap

Digital literacy and skills gap refer to the variances in knowledge, confidence, and digital tools and technologies usage that students are capable of that are required for academic engagement (Zakir *et al.*, 2025:3). The theme investigates to what degree the rural first-year students have the basic digital skills necessary for the tasks that include among others, learning management systems, navigation, typing of assignments, online research, electronic communication, and usage of digital tools designated for a specific subject area. In this research, it brings to light the fact that rural students, in many cases, have to do with very little digital technology exposure before entering higher education. This very limited access to devices, poor Internet connectivity, and no computer skills training in schools, are among the major factors contributing to this situation (Nchabeleng, 2025). Hence, these students experience difficulties in adjusting to electronically mediated learning, and there is a very clear gap between the institutions' digital competencies and the students' possession of those skills. Digital literacy remains a thorny issue in the South African education system, this is largely caused by the digital gap, digital illiteracy and lack of digital devices. These challenges are reflected in the participants' responses below.

Challenges that I have faced, it was poor Internet at home. I don't have laptop. And sometimes there's loadshedding (Participant 009).

No, no, no, no, no, no. There was nothing like that. No subjects, nothing. From where I come from, no. Those things are not easily accessible (Participant 006).

Oh, my first digital challenge that I encountered when I arrived here was the student portal. I didn't know how to cheque on my student portal whether I have been accepted in a certain course or what. I just received a call, and I didn't see it as a matter when I came here. So, they showed me the importance of the student portal, and also, I had a challenge with the NSFAS First portal. I didn't know how to upload my banking details. So, it was very challenging for me. Like, I had no idea how to use those two things (Participant 003).

Participant 009's account mentions the absence of a laptop, poor Internet at home, and the impact of loadshedding to show that digital challenges begin long before the student reaches the classroom. These infrastructural barriers restrict the opportunity to practise or develop basic digital competencies, leading to reduced confidence and preparedness for digital learning. Participant 006 reinforces this gap by describing a complete lack of digital learning opportunities before enrolment. Their statement that such resources were not easily accessible in their community underscores the structural inequality that rural students face. The absence of early exposure means that these students start their higher education journey with minimal digital experience, widening the skills gap when compared to peers from better-resourced backgrounds. The excerpts from other participants further reinforce this point, noting that:

To be very honest with you, there isn't much that we are being offered at school, at the TVET. There is only a computer lab that we are being offered. There is nothing like a resource centre, nothing like any other institutions, if I may say. We only have a computer lab (Participant 002).

The college, well the campus provides us with WI-FI on campus, and a limited computer access means that over 50 percent of students are unable to access those computers. So those are the digital tools that they are providing from the campus (Participant 004).

The more comfortable I am with digital tools, the better I perform academically. It helps me to access resources easily, submit assignments on time, which improves my academic performance (Participant 007).

Oh, I think it's very important, more especially for us people who are coming from rural areas because when you are digitally ready, digital readiness gives you an insight of what to expect going further (Participant 003).

Participants further describe insufficient institutional support to close this gap. The comment that the TVET college “only has a computer lab”, with no additional resource centre, reflects limited opportunities for students to develop digital skills through structured learning or independent practice. In addition, the participant who points out that less than 50% of the students have computer access, underlines how much the lack of resources obstructs the process of acquiring digital skills even after students have entered the institution. On the flip side, some of the participants state that digital literacy is a must for academic success. One of them even goes as far as saying that “being more friendly with the digital tools” will not only lead to better performance but also to easier access to resources and timely submission of assignments. This signifies that there is an understanding that being digitally skilled directly affects the quality of education, and even more in the future, the person's readiness for work. Moreover, another participant emphasises that digital proficiency is critically important for students from rural areas, as it gives them a glimpse of what to expect in the future when learning and working in technology-driven locales, because they already understand the situation.

The quotes reveal a significant gap in the digital literacy among first-year students coming from rural areas, and the limited contact with technology before school has been the most important factor contributing to the pronounced difference in their skills. The quotes lead to the conclusion that rural first-year students' digital literacy and skills gap is the result of a mix of factors: pre-admission drawbacks, poor institutional assistance, and infrastructure troubles. This gap has a major impact on the students' self-esteem, participation in academic activities, and the ability to transform smoothly into the digital learning environments.

4.5 Discussion of results

4.5.1 Access to technology and infrastructure

The study revealed that connectivity, infrastructural challenges, and lack of devices are regarded as huge impediments of digital learning and subsequently affect students' digital readiness. Hampton *et al.*, (2020:6) state that high-speed Internet is not a common feature in rural areas simply because inadequate Internet infrastructure supports broadband Internet. Furthermore, Power *et al.* (2020:1755) point out that critical issues faced by rural students experience a lack of computational devices and professional knowledge of utilisation of such resources; therefore, there is a lack of professional digital development in rural areas, culminating in digital unpreparedness among students (Mwapwele *et al.*, 2019:6).

One of the most prominent challenges in the adoption of 4IR technologies into TVET is the inadequate access to digital infrastructure and connectivity, this is more prevalent in rural, under-resourced institutions (Ojo & Ndzendze, 2024:25; Tondi, 2023:14). Without adequate access to high-speed Internet connectivity, advanced devices, and digital development, students won't be able to develop critical digital competencies. Based on the literature and participants' responses, a deduction can be made that infrastructure and connectivity are still major challenges in rural high schools.

4.5.2 Personal adaptation and learning strategies

The findings discovered that continuous digital practice resulted in positive results as participants alluded. For instance, Participant 005 noted that self-directed and continuous learning have helped fast-track digital skills, such as typing. According to Mendy and Madiope (2020:7), self-paced continuous engagement with digital tools boosts confidence, ultimately resulting in better usage. In support of this is Tang and Wei (2024:992) who posit that self-directed learning (SDL) is crucial for knowledge acquisition and augmentation. This learning approach affords individuals an opportunity to lead their learning journey based on their personal goals (Robinson and Persky, 2020:295).

Despite the connectivity problems and lack of personal devices and prior knowledge of digital resources, the students highlighted their resilience. Clement *et al.*, (2025) state that

self-paced learning provides a personalised experience that enhances engagement and comprehension. This assertion affirms the fact that self-directed digital learning is essential because students are inquisitive. According to Robinson (2020:292), the SDL affords students an opportunity to learn beyond what is presented by their lecturers. This approach gives students the autonomy to learn at their own pace as reflected by the responses of the participants. Based on the excerpts statements, the observation is that personal strategies and applications play a positive supplementary role to classroom learning in enhancing digital readiness.

4.5.3 Institutional and social support

The Department of Higher Education (2020) established a student support service for TVET students. These services comprise of student selection and admission, academic and personal support, and lastly, exit programs, such as entrepreneurship, and employment opportunities, such as internships and learnerships. The formal and informal structures that support rural first-year students' skill of adapting to a digital learning environment are explored through institutional and social support in this wider policy context. The research results show that while there is formal institutional support, it is often in the form of support that is not consistent, informal, or not enough as per the need. These interactions seem to determine the extent to which students would be involved in self-directed learning, e.g., using digital tools by themselves during the free hours (Mbatha *et al.*, 2024:497). It was often mentioned by the participants that TVET colleges do not offer many digital learning interventions.

The majority of the support is informal and done by technical staff or lecturers, instead of through structured programs. The scarcity of digital resources like the space for computer labs, and the lack of devices that are functioning properly, further limit the students' scope to gain the digital skills they need. This supports Tutu's (2023:10) critique, stating that the responsibilities of the institutions are not matched by the requisite financial support, which then leads to the creation of fragmented and reactive support rather than comprehensive and planned interventions. Nevertheless, the participants indicated the presence of support, even at the most basic level, which is of great significance in their digital familiarisation. For instance, Participant 009 asserted that it was critical to be shown how a computer works, stressing that the initial exposure and practice under guidance are

very important for those students who come with little or no digital experience. Such elementary assistance is a confidence booster and a way of reducing the fear of unknown, which is always associated with digital technologies for rural students.

4.5.4 Digital literacy and skills gap

The 4IR era introduced the growing usage of digital tools for teaching and learning. However, digital literacy and skills are still evident among rural students (Danao *et al.*, 2025:146). The current generation of students is regarded as the digital natives; however, this assertion is not clearly reflected in rural students because they can navigate smartphones, however they cannot operate other educational digital tools, such as computers and laptops. Bingimlas (2019:238) asserts that the major challenge of digital readiness in rural schools is access to digital resources and relevant training because there are no practical subjects dealing with digital technology.

Based on the literature and participants' responses, it is clear that digital skills and skills gaps are imminent in the TVET sector. According to Seleke and Teis (2025:442), The TVET sector is at the centre stage of equipping young people with practical skills in the work. Therefore, TVET must adopt their curriculum to include AI and other 4IR resources to support this strategic endeavour (Kana and Letaba, 2024:160). However, this digital shift is uneven due to the scarcity of resources in the sector (Sutherland, 2020:235). Most of the TVET's are geographically positioned close to the rural areas, attracting students from rural areas, therefore, ensuring that TVET' capability is adequately important. However, the literature and responses of the participants' state of affairs reflect a different picture.

4.6 Summary

This chapter contextualise and explains the major discoveries resulting from the research aimed at determining the digital readiness of first-year rural students coming from the further education and training sector in South Africa. It presents the demographic characteristics of the nine participants who were purposively chosen because of the criteria and responses that added significant value in this study. These participants' academic levels, qualifications, and locations have been made clearer through this presentation. The chapter proceeds with the data transformed in some ways, like

graphical representations such as a word cloud and a model showing factors affecting digital readiness, all of which underscore technology access, digital skills, and institutional support as the main components. Four major themes structured the findings: access to technology and infrastructure, personal adaptation and learning strategies, institutional and social support, and digital literacy and skills gap. Through the identified themes, participants' views nevertheless show consistent difficulties that frustrate students, such as poor devices, unstable Internet connections, load shedding, and little digital exposure before entering higher education.

The students reflect the negative but dignified picture of the self-directed learning process, requesting help from lecturers and technicians, the reliance on peers or family, and the use of technological devices or tools that might be available to them as their ways of dealing with the situation. Even though the institution offers support in the form of a computer lab and occasional technical support, it is limited to these facilities, further hindering independent skill development. The chapter additionally points to a significant digital literacy gap, which is rooted in the disadvantages of rural schooling and the lack of institutional resources affecting the students' confidence and academic engagement. The participants do acknowledge that digital readiness is a must for academic success, emphasising its importance in the punctual submission of assignments, the efficient access to learning materials, and the readiness for technology-based environments. The chapter integrates these results with the literature and theoretical frameworks, thus uncovering the interaction of infrastructural inequalities, poor support systems, and personal adaptation behaviours that determine the digital readiness of rural first-year students.

CHAPTER 5 SUMMARY OF THE STUDY AND RECOMMENDATIONS

5.1 Introduction

The chapter provides a conclusion to the overall study. It provides a finalisation of the research findings, discussions, and scholarly journey upon the basis of Chapter 4. Here, the qualitative data were included and discussed in detail, together with the four main themes that were identified on the basis of the lived experience of rural first-year students of the Vuselela TVET College. In this chapter, the limitations of the study are given formally, which puts the scope of the conclusions made, into context. Subsequently, there is a summary of the study in detail, reaffirming the main findings with regard to the research questions we have posed. The key part of this chapter is its conclusion which summarises the key contributions to the research on the digital readiness in the TVET sphere. Lastly, the chapter gives an institutional practice prescription and directions for future studies, as well as practical measures to facilitate equitable digital inclusion and academic achievement of rural students.

5.2 Summary of the study

The qualitative research study adopted an interpretive research design to examine lived experiences and issues of digital preparedness concerning rural first-year students of Vuselela TVET College based on semi-structured interviews with a sample of nine participants. The research was designed with three main research questions concerning the students' digital adaptation: (RQ1), How do rural first-year students adapt to digital learning environments in further education institutions? (RQ2), What challenges do rural first-year students face in accessing and using digital resources? (RQ3), Why is digital readiness important for the academic success of rural first-year students?

5.2.1 Addressing Research Question 1 (Personal adaptation and learning)

The strongest results related to how rural first-year students adapted to the new digital learning environment. The students were finding it difficult to adapt to the new digital teaching and learning portal and NSFAS portals. Subsequently, findings revealed that the students employed peer to peer, self-directed learning and, lastly, utilised institutional support through reaching out to the lecturers and campus technicians if they encountered

problems. Additionally, students indicated that they use the available scarce computer lab time and learn by seeking outside help on their own platforms, like YouTube. Theme 3, Institutional and social support and Theme 4, Digital literacy and skills gap are not directly responding to the research question; however, the elements that are related to the response.

5.2.2 Addressing Research Question 2 (Access to technology and infrastructure)

The rapid shift was characterised by tension, which was recorded in Theme 1: Challenges of technological access and infrastructure. Students were finding it very difficult to use digital resources effectively because of the connectivity problems. Furthermore, empirical data from interviews revealed that the TVET college does not have sufficient computers to accommodate all the students. Additionally, the WI-FI strength is also noted as one of the setbacks because is not consistent. Moreover, the students alluded to the fact that they don't own personal digital devices, especially laptops and computers, making it difficult to quickly be familiar with the devices.

5.2.3 Addressing Research Question 3 (Digital literacy and skills gap,)

The strongest conclusion of the study was made in Theme 4: Digital literacy and skills gap. All the participants affirmed that digital competence is directly related to positive academic outcomes. They asserted that being familiar with tools in the digital world, makes learning resources more accessible and digital readiness reduces delays of the submission of assignments. In the bigger picture, students confirmed that digital literacy is not only important to their passing the present-day course, but also the future ability to self-direct lifelong learning and necessary future employability in the 4IR digital economy. This common understanding highlights that the digital readiness is viewed as an essential part of student success nowadays. In short, the study affirmed high digital skills and access discrepancy amongst rural first-year TVET students. It offered deep qualitative information about barriers being faced, adaptive response of students, and critical conceptualisation of the value of digital readiness, and offered high-quality evidence to directly intervene at institutional and policy levels.

5.3 Limitations of the study

The research has had a significant contribution to the body of knowledge but does have a few distinct drawbacks that lead to the necessity of future research. The research design and qualitative research methodology were also limited to the study, since they were restricted to 9 research participants who predominantly represented a single province, namely, North-West Province. Moreover, the willingness to take part in the research was low due to the fact that TVET students are not accustomed to taking part in research studies. Also, they were not an incentive to attach to participation, as such practices are prohibited in research. Thus, the general findings of this research were not typical of the whole of South Africa. Additionally, the study only adopted a single qualitative methodology instead of mixed methods in order to validate the findings holistically.

5.4 Recommendations for future study

Following the results and the relevance of the topic of digital readiness in the TVET sector, it is recommended to conduct the following research in the future:

- Longitudinal study on the effect of remedial digital training: The present study discovered that TVET serves as a training ad-hoc platform on basic digital literacy. A follow-up study needs to follow a group of rural learners through enrolment to graduation to assess the effects of a digital literacy module (such as the introductory computer skills subject in Theme 4) on these learners in the long term. The study is supposed to quantify the increase or decrease in their digital competence scores, performance in all the modules, and after graduation, employment rates to determine such institutional intervention.
- Comparative analysis of models of institutional support: The results indicated a discrepancy in institutional support (Theme 4). Subsequent studies need to compare two or more TVET colleges with varying strategies, one with a systemic, compulsory and full-time digital preparedness centre/program and the other with an integrated, ad-hoc module-based strategy. The research ought to examine student satisfaction, digital skills acquisition, and confidence of the faculty in teaching digitally, to establish

the best and fairest institutional model that can be used to close the digital divide among the rural population.

- The success of digital transition is not only dependent on students but also on educators, as the role of the lecturer's digital pedagogical readiness is investigated. Further research must be conducted concerning digital pedagogical content, Knowledge (TPACK) of TVET lecturers, as follows: research into their preparedness, training requirements and self-confidence regarding the practical implementation of digital tools in their teaching process, especially with respect to students who have used (or not used) digital tools so far (Theme 2). This would give a crucial insight into the supply size of online learning.
- Dedicated research on rural infrastructure and affordability, the topic of load shedding, and data costs, was present throughout (Theme 1). Subsequent studies are encouraged to do a specialised economic and infrastructural investigation on the cost of data and electricity reliability (load shedding) impacts on the study period, academic performance, and mental health of rural TVET students, relative to their urban counterparts. This would bring hard facts to policy-making on data subsidies and off-grid solutions.
- Exploring the efficacy of self-directed learning strategy, while Theme 2 revealed the power of peer support and self-directed learning (e.g., using YouTube), future research could delve deeper into formalising and supporting these student-driven networks. This could involve an action-research project to design and implement a formal peer-mentorship program for digital skills, assessing whether institutional recognition and support can enhance the effectiveness and reach of these organic coping mechanisms.
- The qualitative research that examined the digital readiness of rural first-year students at Vuselela TVET College provides conclusive results to the assertion that a wide and multi-dimensional digital divide continues to exist and has both far-reaching effects on academic equity and the student experience. The 4 emergent themes provide a clear picture: rural students experience structural challenges (Theme 1: Access to technology and infrastructure), the students who come from

disadvantaged environments with shortage of infrastructure and inadequate connectivity access (Theme 2: Personal adaptation and learning strategies), find it difficult to pass through the transition, hence resorting to support groups and self-directed learning, such as watching YouTube videos and regular practices (Theme 3: Institutional and social support) and have to resort to ad hoc assistance from technicians, however there is formal institutional support for digital preparedness except in case where support is embedded in the curriculum of the course. (Theme 4: Digital literacy and skills gap) The digital learning environment exposed many students' digital illiteracy, which was largely due to various factors, such as the socio-economic status of parents.

5.5 Concluding remarks

The study directly addresses the three research questions and objectives by providing the empirical evidence gathered from interviews, where rural first-year students shared their lived experiences about digital readiness. Adaptation is challenging but student-led; the problems are multifaceted, based on the infrastructure, previous education, and institutional discrepancy, and digital preparedness is the key point. Finally, the results point at an urgent need and strategic necessity of the TVET sector to go beyond being resource-focused, and to pursue coherent, sustained, and intensive digital literacy initiatives that take positive initiatives to close the inequalities in historical educational practices. A lack of decisive action to address systemic concerns is to leave the TVET sector unintentionally repeating the digital disadvantage it is meant to be addressing, putting into risk the success of a generation of rural students who is part of the country's economic future.

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ANNEXURES

This section contains the following annexures:

- [Ethics approval letter](#)
- [Permission letter](#)
- [Informed consent letter](#)
- [Interview guide](#)
- [Proof of language editing](#)
- [Turtin Report](#)

ANNEXURE A: ETHICS APPROVAL LETTER



Private Bag X1290,
Potchefstroom South
Africa 2520

Tel: 018 299-1111/2222

Fax: 018 299-4910

Web: <http://www.nwu.ac.za>

**Senate Committee for
Research Ethics**

Tel: 018 299-484

Feziwe.Mseleni@nwu.ac.za

4 July 2025

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the **North-West University Economic and Management Sciences**

Research Ethics Committee (EMS-REC) on 4 July 2025, the Economic and Management

Sciences Research Ethics Committee hereby **approves** your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-REC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title:	Exploring the digital readiness of first-year rural students studying at a South African higher education institution		
Study leader/Supervisor (Principal investigator/Researcher:	Prof K. Ndlovu	University no.:	35181680

Student:	M.C. Mofokeng		University no.:	23727160																																														
<table border="1"> <tr> <td>Ethics number:</td> <td>N</td> <td>W</td> <td>U</td> <td>-</td> <td>0</td> <td>0</td> <td>6</td> <td>7</td> <td>2</td> <td>-</td> <td>2</td> <td>5</td> <td>-</td> <td>A</td> <td>4</td> </tr> <tr> <td></td> <td colspan="3">Institution</td> <td colspan="4">Study number</td> <td colspan="3">Year</td> <td colspan="3">Status</td> </tr> <tr> <td colspan="16"> Status: S = Submission; R = Re-submission; P = Provisional authorisation; A = Authorisation </td> </tr> </table>					Ethics number:	N	W	U	-	0	0	6	7	2	-	2	5	-	A	4		Institution			Study number				Year			Status			Status: S = Submission; R = Re-submission; P = Provisional authorisation; A = Authorisation															
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Application type:	Single study - Postgraduate research		Risk level:	Low/minimal risk																																														
Commencement date:	7/4/25																																																	
Expiry date:	7/4/26																																																	
<i>Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.</i>																																																		

Special in process conditions of the research for approval (if applicable):

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The study leader/supervisor (principal investigator)/researcher must report in the prescribed format to the EMS- REC:*
 - *annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and*
 - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
 - *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the EMS-REC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for an external audit.*
 - *The date of approval indicates the first date that the study may be started.*
 - *In the interest of ethical responsibility, the NWU-SCRE and EMS-REC reserves the right to:*
 - *request access to any information or data at any time during the course or after completion of the study;*
 - *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
 - *withdraw or postpone approval if:*
 - *any unethical principles or practices of the study are revealed or suspected;*
 - *it becomes apparent that any relevant information was withheld from the EMS-REC or that information has been false or misrepresented;*

- *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
 - *new institutional rules, national legislation or international conventions deem it necessary.*
- *EMS-REC can be contacted for further information or any report templates through the secretariat. Botlenyana Maluleka (Botlenyana.Maluleka@nwu.ac.za/ +27 18 2852436) or the chair Prof Diana Viljoen-Bezuidenhout (Diana.Viljoen@nwu.ac.za / +27 16 9103403).*

The EMS-REC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the EMS-REC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely,

Prof Diana Viljoen- Bezuidenhout



Digitally signed by Prof

Diana Viljoen-

Bezuidenhout

Date: 2025.07.04

16:18:06 +02'00'

Prof Diana Viljoen-Bezuidenhout

Chairperson: NWU Economic and Management Sciences Research Ethics Committee

ANNEXURE B: PERMISSION LETTER



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA



PO Box 10107
KLERKSDORP 2570

Tel: (018) 406 7800

08 April 2025

NWU-Business School Attention:
Mr Cascious Makgobalo Mofokeng
0738043435
cascious.Mofokeng@nwu.ac.za

Dear Mr Mofokeng

REQUEST FOR PERMISSION CONDUCT RESEARCH

Vuselela TVET College is pleased to grant permission to conduct research as you requested.

You may contact the Potchefstroom Campus Manager, Ms Nthabiseng Mofulatsi on 018 294 4811/ nmofulatsi@vuselelacollege.co.za.

A summary of the findings of your research will be highly appreciated at the end of the research project.

Yours faithfully

MS PD LEHOKO
PRINCIPAL

JOUBERTON
Tel: 018 465 3133

KLERKSDORP
Tel: 018 464 0300

MATLOSANA
Tel: 018 406 9801

POTCHEFSTROOM
Tel: 018 294 4811

TAUNG
Tel: 053 995 1377

ANNEXURE C: INFORMED CONSENT LETTER

DEAR PARTICIPANT

Informed Consent

Names and contact details of project staff

Dear Participant,

INFORMED CONSENT TO PARTICIPATE IN AN INTERVIEW

This Informed Consent Statement confirms the following information related to the academic business science MBA and subsequent research on “***Exploring the digital readiness of first-year rural students studying at a Further Education Institution in South Africa***”. This study forms part of a dissertation to be submitted in partial fulfilment of the Master of Business Administration requirements at the North-West University. It is an internationally accredited degree that requires adherence to strict ethical standards as a prerequisite to conducting this research.

1. The procedure to be followed is a qualitative research design, using semi-structured interview questions by which participants can communicate their views on the topic. Basic background information, such as the name of the course the participant is pursuing and the name of the last high school, will be asked during the interview.
2. The estimated completion time for the interview will be approximately 45 minutes.
3. If, at any point during the interview, the participant should feel uncomfortable, they will have the opportunity to make their discomfort known and immediately end their participation.
4. The interview will be voice recorded for transcriptions and with the participant's consent. The participant's name will not be recorded. The participant can request to see or hear the information collected at any time. The interviewer will take notes. This is done for data analysis purposes. The recording will be transcribed by the interviewer and kept confidential on a password-protected computer. The transcripts and recordings will be destroyed after three years.

5. All individual identification will be removed from the hard copy of the transcript. Participant identity and confidentiality will be concealed using coding procedures. Please note that excerpts from the interview may be included in the final dissertation report or other later publications. However, under no circumstances will your name or identifying characteristics appear in these writings.
6. It should also be emphasised that participation in this study is voluntary and with the participant's consent without any form of coercion.
7. The confidentiality, anonymity, and privacy of participants are guaranteed.
8. A summarised copy of the final report will be made available to the respondent on request. The POPI Act will be adhered to throughout the process of interviews

I hereby declare that I have read and understood the content of the Informed Consent Statement and give my full consent to Mr Cascious Mofokeng to use the information gathered in his MBA dissertation and subsequent research.

Supervisor		Researcher
Title, name & surname		
Full Names		
Function in Project	Principal Investigator	Researcher
Telephone	Prof K.N Ndlovu	M.C Mofokeng

DECLARATION

Declaration by participant

By signing below, I (PARTICIPANT ID) agree to participate in the research study titled Exploring the digital readiness of first-year rural students studying at a higher education institution in South Africa.

I declare that:

I have read this information/it was explained to me by a trusted person in a language with which I am fluent and comfortable in. The research was clearly explained to me. I have had a chance to ask questions to both the person getting the consent from me, as well as the researcher and all my questions have been answered. I understand that taking part in this study is voluntary and I have not been pressured to take part. I may choose to leave the study at any time and will not be handled in a negative way if I do so. I may be asked to leave the study before it has finished if the researcher feels it is in the best interest, or if I do not follow the study plan, as agreed to.

Signed at: _____ on: _____

Signature of participant

Declaration by researcher

I, Mr Cascious Mofokeng, declare that:

- I explained the information in this document to (PARTICIPANT ID)
- I did/did not use an interpreter
- I encouraged them to ask questions and took adequate time to answer them, or I was available should they want to ask any further questions.
- I am satisfied that they adequately understand all aspects of the research, as described above.
- I am satisfied that they had time to discuss it with others if they wished to do so.

Signed at: _____ On: _____

Signature of the researcher

ANNEXURE D: INTERVIEW GUIDE

Title of Study: Exploring the digital readiness of first-year rural students studying at a South African further education institution

Interview Format: Semi-structured (virtual Interviews)

1. Can you tell me a bit about your background and where you come from?
2. What course are you currently enrolled in?
3. What are the digital resources that the college is providing to students?
4. What digital challenges did you encounter in your first year as a student?
5. How would you describe your experience with digital learning since starting at the TVET?
6. What strategies did you use to overcome these challenges?
7. Did the TVET provide any support or training for using digital tools?
8. What digital platforms and devices or tools are you currently using for your academic work?
9. What difficulties have you experienced when using digital resources or platforms for academic purposes?
10. In your opinion, how important is it to be digitally ready before attending higher education?
11. Have you noticed any connection between your comfort with digital tools and your academic performance?
12. What support or resources would help you feel more confident and successful in digital learning environments?
13. What advice would you give to new rural students preparing for digital learning?

ANNEXURE E: PROOF OF LANGUAGE EDITING

OLIVIER LANGUAGE PRACTITIONER

Translation, Proofreading, and Editing Services

Editing and Translation Service Certificate

Date: 3 December 2025

LETTER OF CONFIRMATION OF PROFESSIONAL PROOFREADING

Title:

Exploring the digital readiness of rural first-year students at a South African further education institution

Author: Mr MC Mofokeng

Student Number: 23727160

Editor: Willemien Olivier

This is to confirm that the paper with the provisional title, *Exploring the digital readiness of rural first-year students at a South African further education institution*, to be submitted by M Engelbrecht of North-West University, has been edited for language by **Olivier Language Practitioner, Willemien Olivier.**

The document needed only a few amendments. Neither the research content nor the author's intentions were altered in any way during the editing process.

The editor guarantees the quality of the English language in this paper, provided the editor's changes are accepted and further changes made to the paper are checked by the editor.

Word count: 26,496



Willemien Olivier

Honours Degree Translation Studies (2017) UNISA

Editing and Translation Service - Olivier Language Practitioner (since 2008)

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ANNEXURE F: TURNITIN REPORT

23727160:Cascious_Mofokeng_Mini_Dissertation_Draft_25_1...

ORIGINALITY REPORT

21 %	16 %	18 %	4 %
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