



**USAGE OF MOBILE DATA FOR ACCESSING ONLINE JOB PORTALS: A CASE STUDY
OF UNEMPLOYED YOUTH IN THE CAPE METROPOLE TOWNSHIPS OF SOUTH AFRICA**

by

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ABSTRACT

One of the biggest challenges in most third world countries such as South Africa is the issue of unemployment amongst youth. South Africa is one of the most developed countries in Africa. Regardless, the country records one of the highest unemployment rates in Africa. Civilisation brings significant advantages that benefit most businesses and HR departments opting to employ people through internet means. Just like interviews, job applicants may achieve personality assessments through online platforms. For countries to use these technologies to advance their economies, there is a need to address the issues around usage of internet-based services and applications for better use for everyone. Ample evidence today suggests technology has advanced from basic voice services to broadband which creates a huge demand for mobile networks. These mobile networks have a beneficial impact on economic growth and individual wellbeing. Particularly, the rise of smartphones as the primary method of Internet connectivity is changing the telecommunications sector. These technologies are now the primary platforms for innovation in emerging countries, and they both directly and indirectly support economic growth and employment creation.

This research study focuses on how unemployed youth between ages 18 and 35, use mobile data to search online job portals for employment. Preferred websites facilitate these portals where an amount of data is required to source and access online job opportunities. This study applies a mixed-method approach where a social phenomenon is observed from data collection and subsequent analysis. To analyse and interpret the data, the researcher compares respondents' answers to determine usage patterns and relationships among the data.

The findings highlight the importance of network coverage, affordability, and user experiences in influencing mobile network operators' choice and data consumption management. Additionally, the need for the identification of specific activities contributing to data consumption, such as browsing, job applications, and multimedia content, emphasise the requirement for optimised platforms and strategies to support efficient data usage. These insights have implications for job seekers and mobile network operators.

The qualitative findings show reasons behind preferences, while the quantitative data show the trend on popularity. The study emphasises the significance of network coverage, affordability, user experiences, and efficient data management in facilitating access to job portals.

Recommendations include conducting comparative analyses of mobile data consumption patterns across different regions, longitudinal studies to track evolving trends, user experience research to enhance platform usability, and exploring the impact of interventions and strategies. By addressing these areas, stakeholders can improve the accessibility, efficiency, and effectiveness of online job portals, thereby enhancing employment opportunities for unemployed youth and fostering digital inclusion. Future studies can build upon these findings to deepen the understanding of mobile data consumption patterns applicable to the exploration of job opportunities. This study additionally suggests broader socio-economic implications of digital access via mobile devices to employment possibilities.

Keywords:

ICT; Job seeking behaviour; Mobile data; Mobile phone technology; Online job portal; Unemployed youth.

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DEDICATION

I'm dedicating this thesis to my beloved Mom, Ruth Gasetlolwe. Thank you for your continuous prayers and support.

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CHAPTER 1: INTRODUCTION AND BACKGROUND

This chapter introduces the study, providing an initial background/ It sets out the research problem, aim, research objectives and questions. Thereafter, the chapter broadly introduces the research design and methodology adopted to address the research objectives and questions. Ethical issues are considered followed by a brief discussion of limitations of the study. Finally, the chapter summarises the structure of the thesis and its chapters..

1.1 INTRODUCTION AND BACKGROUND

Technology has completely changed the tradition of human resource (HR) functions, which include creating job advertisements, interviews, and hiring and managing employees. Perhaps, the method of employee recruitment is one of the most affected areas. Online recruitment has been widely accepted among both large and small businesses. A survey conducted by Mansourvar (2014) reports that 70% of the workforce uses websites or online job portals to search for jobs. Stemming from the above, it is evident that online job portals can be a powerful tool that jobseekers can use in their search for employment and financial independence. As a result, it becomes increasingly important to determine the mobile data usage of unemployed youth in South Africa in seeking employment opportunities.

Information and Communication Technology (ICT) is undoubtedly the technology that offers access to information through telecommunications, which feeds society with an immense range of new communication capabilities. Communication technology such as mobile phones and the internet allows people to converse through various platforms (i.e., phone calls, e-mail, short messages, instant messaging, and social media), do online banking, search the internet, download and use various applications, and search for jobs, to name just a few. In the last few decades, new technology available with wireless devices and the establishment of handheld devices has been an essential part of people's lives. Most people rely on their mobile devices to carry out their everyday schedules, tasks, and obligations. Mobiles have become a medium of contact for individuals and a distraction in recent years (Blöte et al., 2015).

Despite the ongoing government promise of improving the South African skills base and growing the economy to create more jobs, job creation alone will not solve the unemployment crisis, especially among the youth. Abrupt short-term interventions could significantly improve the prospects of the youth by addressing structural impediments (Grishina, 2019), such as barriers to

internet connectivity and the limited availability of mobile data. These restricting factors may lead to an inability to source employment opportunities.

Even though South Africa is still struggling to overcome the history of social inequality and has an enormous 8.2 million unemployed youth (Statistics South Africa, 2020), opportunities seem to not be shared equally. Mobile data costs in South Africa are the most expensive in Africa. This remains a contentious issue (Bottomley, 2020) as small data bundles cost more per megabyte than larger bundles that wealthier individuals can afford (Abel, Burger and Piraino, 2021). This implies that most unemployed youth in South Africa are ill-equipped to find employment opportunities. Most South African youth lack social capital. In their article entitled “Activating Social Capital among young people in South Africa”, Keswell and Burns (2022) conclude regarding the findings of their study:

... given the daunting challenges South Africa faces with young people, these findings offer hope that change can be affected through social capital interventions that focus not on incentivising young people to leave their communities in search of a better life, but rather to invest in their communities by serving as change ambassadors capable of activating higher levels of trust and other prosocial norms that are key drivers of social cohesion and community efficacy. The results ... [demonstrating] that social capital is malleable and offers an alternative vision ...

They thus do not have the social network intact to source employment. This phenomenon serves as a substantial drawback in an age where online job portals and social networks are the most effective ways to find a job (Southern Africa Labour and Development Research Unit, 2016).

1.2 RESEARCH PROBLEM

In their study of youth, mobility, and cell phones in Sub-Saharan Africa, Porter (2012) found that the mobile phone is a critical contact medium for young people, providing virtual mobility in situations where cultural and other influences limit physical mobility.

More than a decade ago, Kreutzer (2009) stated that while the easy availability of mobile phones should not be regarded as a social and economic growth target in and of itself, better and careful use of their technological resources can open new opportunities for the youth to learn new skills and gain new knowledge, which may eventually assist them in realising their goals.

Statistics South Africa (2020) announced in their Quarterly Labour Force Survey that South Africa has an unemployment problem, particularly amongst its youth. Approximately 8.2 million South African youth are unemployed. Despite government efforts to improve the unemployment crisis, the situation remains dire. RIA (2016) stated that public Wi-Fi networks might provide internet access, bridging the gap at a household level. However, several obstacles hamper the optimal rollout of public Wi-Fi and usage services. In addition, Wi-Fi only works within a specific range of the router, implying that youth cannot access the internet if they are outside the Wi-Fi zone.

Stemming from the above, it is evident that youth face various obstacles in searching for job opportunities and combating unemployment. It could be argued that a possible contributory factor towards the youth unemployment problem might be their inability to use mobile data to access employment opportunities. Besides a lack of technical mobile technology acumen, there are various vexing reasons associated with an inability to access employment opportunities via online employment portals. Firstly, and possibly most obviously is the cost and availability of data. Local youth are seen on pavements outside local grocery stores – not because they are waiting for family members to emerge with packages of groceries. No! They are job seekers tapping into so-called free access to the Internet in the hope they successfully find ways to apply for vacancies. Conversations with these young people indicate the fear they experience that local wily bandits steal their mobile devices, knowing that this where plenty of devices are found. In summary, the problem of accessing employment opportunities digitally using mobile devices rest on four pillars of difficulty, namely: technological skill, devices, data and money to fund the process of relieving unemployment levels. There is the possibility too that the employment market which uses online job portals as a means of communication does not cater for this age group when advertising online

These issues negatively impact earning capabilities of the youth of the Cape Metropole as just one example of the complexity of the issue. Thus, this study focuses on feedback from unemployed Cape Metropole youth. Therefore, this research study explored mobile data usage in accessing employment opportunities on online job portals by unemployed youth within the Cape Metropole townships. Furthermore, it investigated whether mobile data availability could help address the unemployment problem.

1.3 AIM, OBJECTIVES, RESEARCH QUESTIONS

Section 1.3 addresses the aim, the three research questions and associated objectives of the study.

1.3.1 Aim

This study aims to investigate mobile data usage in sourcing employment opportunities using online job portals by unemployed youth in the Cape Metropole townships.

1.3.2 Research objectives

The aim of the study leads to the three research objectives (O1 – O3), namely:

O1: To explore the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships.

O2: To investigate the factors influencing data consumption in sourcing employment opportunities using online job portals.

O3: To consider the pattern of mobile data consumption in sourcing employment opportunities using online job portals.

1.3.3 Research questions

The study respectively associates the research objectives set out in Section 1.3.2 with the following three research questions (RQ1 – RQ3):

RQ1: What are the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships?

RQ2: What factors influence data consumption in sourcing employment opportunities using online job portals?

RQ3: What is the pattern of mobile data consumption in sourcing employment opportunities using online job portals?

1.4 DESIGN AND METHODOLOGY

Figure 1-1 sets out a conceptual diagram representing a research framework which underpins the study. It illustrates the relationship between research objectives, emergent factors and patterns associated with the measurement of mobile data usage among unemployed youth in a quest to source unemployment opportunities using online job portals.

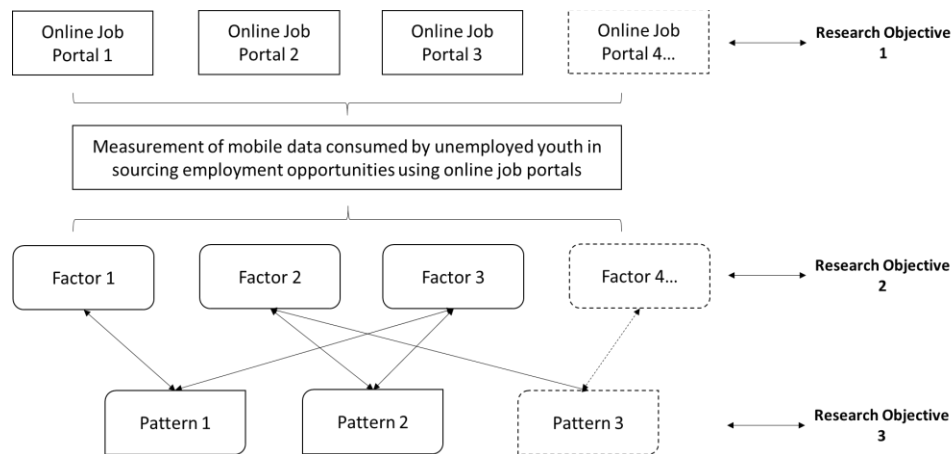


Figure 1.1 Conceptual Diagram of Research Framework (Researcher's diagram)

Mouton (1996) suggests analysis design offers guidance from basic conceptual principles to research study design and the data collection. Ishtiaq (2019) added that a research design is a series of instructions that can be used to solve a research issue. A plan that outlines or explains how research is to be performed can be utilised as a research design. It can act as a guideline providing instructions on how the study will be carried out.

Ishtiaq (2019) states that a multiple-method study uses qualitative and quantitative data design. To accomplish that, the research responds accordingly to the study's questions. This study applied a multiple-method approach where a social phenomenon was observed from the data collection and subsequent analysis. Data was collected and analysed, and patterns were explained.

In the qualitative part of the study, the goal was to ascertain user preferences for online job portals via questionnaires. This qualitative phase of the study then addressed the first objective, which was to explore the preferred online job portals for sourcing employment by unemployed youth in the townships of the Cape Metropole.

To address the second objective, a questionnaire is used to investigate the factors influencing data consumption in sourcing employment opportunities using online job portals. Their feedback was compared to the literature review to determine if any specific factors could influence data consumption amongst these unemployed youth.

As part of the quantitative component and to address the third objective, mobile data consumed by the respondents during the job searching process and the job application process via an application known as *My Data Manager* (data.ai, 2022) was measured. The study acknowledges that there are other steps involved in the job-seeking process, like preparing for job interviews and preparation of documentation leading up to ultimately accepting job offers. However, only the processes mentioned above were measured owing to time restrictions. This then assisted in developing patterns of mobile data consumption in sourcing employment opportunities using online job portals by unemployed youth in the Cape Metropole.

The study used multiple data collection methods, collecting objective data (by measuring data consumption) and subjective data (by obtaining user preferences). This allowed the researcher to achieve a higher level of understanding associated with the research objectives.

1.5 ETHICAL CONSIDERATIONS

As ethical issues were the biggest concern, in this study. As such, the researcher took steps to ensure the following ethical issues were complied with:

- **Informed consent:** All respondents were provided full disclosure of the nature of the study before becoming involved with the research study. The respondents will be given informed consent forms, which they sign (ANNEXURE B), to show their willingness to participate in the research. No parent will have to sign for any individual as the target market for this research is people between 18-35 (youth).
- **Protection from harm:** All respondents were safeguarded from physical harm.
- **Right to refuse:** Participation in the study was voluntary and confidential. An assurance was added for the respondents to attest that they fully understand the purpose of this study.
- **Voluntary participation:** All respondents were permitted to withdraw from the study at any stage if they so wished without being discriminated against.
- **Right to privacy:** Information collected from respondents was always kept confidential, and their anonymity was guaranteed. The information obtained from primary sources during the research will be provided with a complete reference to the source.

In addition, there was no plagiarism or false report on the data obtained during the research.

1.6 SIGNIFICANCE OF THE STUDY

This study aimed to explore mobile data usage in sourcing employment opportunities using online job portals by unemployed youth in the Cape Metropole townships. From a theoretical aspect, mobile phones have technical features, such as Internet capabilities, that provide users with opportunities. Methodologically, the findings from data sourced from the literature show a significant need to understand the impact of mobile data on the acquisition of better employment opportunities. The literature indicates that the issue of using mobile data to access job portals has been a problem that the companies and government are not helping society with. It reveals that people depend on mobile data to complete their everyday lives by interacting with their close ones. The literature also shows that the young generation believes in ICT's influence. The study's results back up Alvarez and Nuthall (2008)'s assertion that specific causes have an indirect and direct interaction and may affect ICT use positively or negatively. Practically, the questionnaires

which include [many open-ended items](#) are designed to find out the central issues of this research: exploring the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships and factors that can influence data consumption in sourcing employment opportunities using online job portals. The mobile data interception tool is used to find out the volume of mobile data that gets consumed when accessing online job portals. The research finally considers the patterns of mobile data consumption in sourcing employment opportunities using online job portals.

1.7 STRUCTURE OF THE THESIS

CHAPTER 1: This introductory chapter presents a broad introduction, the study's background, and the study's overall scope. It identifies the research problem leading to the aim, objectives and research questions associated with the study. It provides an overview of the research design and methodology of the study and offers ethical considerations. Finally, addresses the significance of the study.

CHAPTER 2: The literature review explores pertinent literature associated with mobile data usage worldwide, in Africa and in South Africa. Reviewed topics include unemployment, online job portals, mobile data and mobile data usage to source employment opportunities. The chapter presents the adopted theoretical framework which guides the research study.

CHAPTER 3: This chapter sets out research design and methodological considerations applied to achieve the objectives of the study. Additional topics include research paradigm, validity and reliability and ethical considerations.

CHAPTER 4: This chapter provides an initial recap of research objectives and questions. Thereafter separate sections address the data analysis of qualitative and quantitative findings. The integration of qualitative and quantitative outcomes facilitates a succinct and summarised discussion of the findings.

CHAPTER 5: The closure of the study undertakes a discussion of key findings and recommendations. Finally, the section provides an emergent synopsis model of the study whilst addressing its limitations and recommendations for future research.

1.8 CONCLUSION

This first chapter introduced the research study by stating the problem and the study aim and its objectives. In addition, the research design and methodology were outlined including the sampling strategies, ethical considerations, the data analysis, and strategies to ensure the quality of findings. The next chapter, chapter 2, provides a clear understanding of mobile data usage worldwide, in Africa and South Africa. The chapter presents the theoretical framework guiding the study.

CHAPTER 2: LITERATURE REVIEW

This chapter provides a theoretical platform for the study. It addresses pertinent literature linked to unemployment, online job portals, mobile data, and mobile data usage applied to source employment. It concludes by presenting a theoretical framework underpinning the study.

2.1 INTRODUCTION

The first chapter introduced the research study by presenting the study's background, context, and scope. In addition, the first chapter provided the study's aim, questions, and objectives, including its significance to academia and industry. Finally, this chapter provides a full integrative literature review, examines, and synthesises prior research related to the study and establishes its foundation by outlining its theoretical framework. The study's main aim was to investigate mobile data usage in sourcing employment opportunities using online job portals by unemployed youth in the Cape Metropole townships. Its secondary objectives were to examine the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships and determine the factors influencing data consumption in sourcing employment opportunities using online job portals. In addition, the study sought to determine the pattern of mobile data consumption in sourcing employment opportunities using online job portals.

This literature review chapter aims to familiarise the reader with the framework of the research study. This consideration of previous work serves three essential functions. First, it guides the development of data-gathering tools. Secondly, incorporating results from existing literature into a formal review assists in maintaining direction throughout the entire investigation. Finally, when the data analysis phases of the research were reached, the literature review increased the chances of enhancing the critical interpretation of the actual "meaning" of the data acquired.

The review begins with literature related to unemployment before examining the literature on mobile data and job portals. A theoretical framework for the study will follow this.

2.2 UNEMPLOYMENT

STATSSA (2023) defines an unemployed person as someone who is between the ages of 15 and 64, capable and willing to work, but is actively seeking employment. ILO (2023) indicates young people face high rates of unemployment around the world suggesting that around 497 million young people, or nearly 41% of the worldwide youth population, are employed. Of this figure (497

million), 429 million are employed, with almost 68 million searching for and available for employment. This figure is regarded as unemployed. Thus, the problem of unemployment is not a unique phenomenon, localised in South Africa alone.

In South Africa, the official unemployment rate in the second quarter of 2022 was 33.9% (STATSSA, 2022). This indicates that the country has one of the highest unemployment rates on the continent (Habiyaemye, Habanabakize, & Nwosu, 2022).

Unemployment among young people has significant socio-economic, political, and developmental implications (Twinomurizi & Magundini, 2019). Youth unemployment is detrimental to a country's economic well-being, impacts production, damages human capital, and amplifies social isolation and criminal activity, leading to social instability. In some countries, persistent youth unemployment is linked to economic insecurity and political upheaval. Therefore, high levels of youth unemployment can negatively affect national economic growth and development. Research conducted in Europe by Shaw and Wheeler (2022) suggests that, without early policy interventions, even short periods of high youth unemployment negatively impact a country's economy.

Because the study sought to investigate mobile data usage in sourcing employment opportunities using online job portals by unemployed youth in the Cape Metropole townships, it is important to define youths in the context of South Africa and draw a nexus between this definition and unemployment. The South African National Youth Policy considers anyone aged between 15 and 35 to be part of the youth demographic (National Youth Policy, 1998). In this context, youth unemployment in South Africa refers to individuals within this age group actively seeking employment but cannot find it.

South Africa is plagued by high levels of unemployment (Shaw & Wheeler, 2022), particularly among its youth demographic, who often lack the necessary experience to secure employment (Mseleku, 2022). Many of these young people, particularly young males, have given up looking for work entirely, most likely owing to discouragement due to persistently high unemployment.

Shaw and Wheeler (2022) mention South Africa's high aggregate unemployment is caused by a number of factors, including spatial segregation between workers and firms, labour regulations, a weak education system, racial discrimination due to apartheid's legacy, and restrictions on informal enterprises. Habiyaemye, Habanabakize and Nwosu (2022) add that a chronic vertical

skills mismatch causes unemployment. This is related to the changing structure of labour markets and the misalignment between the developed labour market and the country's education system (Wood, Graham, & Lehdonvirta, 2016). Dorn and Naz (2007) point to the unequal distribution or lack of knowledge about work opportunities, which prevents people from learning about potential job openings. Furthermore, the effects of the 2008/2009 global recession, the role of trade union federations in government, and a general lack of interest in entrepreneurship are some causes of unemployment in South Africa.

While young people in South Africa have contended with high unemployment rates, they have relatively high levels of digital competence (Pew Research Center, 2018), implying that technology has a role to play in employment creation. Consequently, many businesses have realised that they must adapt their jobs or recruitment processes to keep up with rapidly evolving technologies and the high number of job seekers by resorting to job portals. A job portal thus increases the accessibility and versatility of job searching by catering to various user groups. People with a broader range of technical skills can often access varied job opportunities owing to the increasing proliferation of job portals. This highlights the usability element in online job searches as a key factor that plays a role in an employment search.

2.3 ONLINE JOB PORTALS

Kelley, Ksoll and Magruder (2021:1) define an online job portal as “a technology that continuously advertises new job opportunities and has the potential to provide job seekers with a better understanding of the labour market and the jobs they can feasibly get”. Online portals allow job applicants to match their qualifications and skills to the requirements of an employer. They are an effective way to promote employment opportunities via the Internet. Examples of online job portals in South Africa include PNet, Indeed, Career Junction, Careers24, etc. Job portals are a relatively new phenomenon in the job-hunting world. Classified advertisements in local papers used to be part of the job application process. However, the Internet has created several career pages, making it easier for anyone to apply for jobs in a different state or region. Most online job portals will ask users to create an account, fill out some details, and upload a resumé.

Grobler et al. (2014) assert that online job portals began with simply uploading vacancy information on a website and instructions on application procedures. This information could include phone numbers, postal addresses, or fax numbers that candidates could use to apply for a job. Since its inception, online job portals have expanded and multiplied into several sorts, such

as hybrid recruiting service providers and e-recruiting consortiums, as well as Internet communities such as “Facebook, MySpace, LinkedIn and Twitter” (Lee, 2011:231). This technique ranges from simple bulletin boards that provide basic job descriptions with little or no possibility for the candidate to extremely sophisticated sources that allow applicants to complete job applications and even conduct job interviews.

A study conducted by Grobler et al. (2014) to evaluate job seekers’ perceptions of the online job portal PNet website as an e-recruitment tool in South Africa found a statistically significant relationship between job seekers’ impressions of the PNet website as an e-recruitment platform and their degree of educational credentials. From that study, job searchers with a greater level of education were shown to have fewer positive perceptions, with male respondents more optimistic than female ones. Using a randomised control trial to evaluate whether job portals improve employment outcomes among vocational training graduates in India, Kelley, et al. (2021) found that job offers fail to materialise online job portals, some job seekers lower their expectations of obtaining employment. From the findings of this study, job seekers’ assumptions about usage of online job portals when seeking online opportunities for employment impacts the efficacy of matching initiatives.

The South African population is youthful, with more individuals entering the working age than jobs becoming accessible in the labour market. Given these challenges, job portals have become a helpful tool deployed by most unemployed youth to access employment opportunities (Kelley et al., 2021). However, access to these portals requires mobile data connectivity. Thus, a crucial component of the study is that mobile employment search can be difficult without access to mobile data.

2.4 MOBILE DATA

A mobile phone is a “portable telephone that makes and receives calls over a radio frequency link while the user is moving within a telephone service area.” In addition to telephone services, mobile phones support text messaging, multimedia messaging, e-mail, Internet access (via LTE, 5G NR, or Wi-Fi), short-range wireless communications (infrared, Bluetooth), satellite access (navigation, messaging connectivity), business applications, video games, and digital photography (Chipps et al., 2017).

Basic phones first made it possible to communicate with family and society. As networks have extended, it is no longer just about family and society. Today's Internet-enabled mobile phones provide access to a much more extensive network of connections and new opportunities (Internet world stats, 2017) such as sharing information like images, promote events, and learn about the newest trends, activities, and news. They now allow users to obtain access to social media platforms and various websites offering web services such as job opportunities. Thus, from this expansive range of possibilities, employment search has widened and significantly improved.

In the current fourth industrial revolution (4IR), mobile data connectivity has significantly altered daily life worldwide, creating creative platforms for new services that empower individuals and societies. This is through exponentially extending economic possibilities and services in ways never seen before (Moll, 2021; Olaitan, Issah, & Wayi, 2021; Ślusarczyk, 2018; Xing & Marwala, 2017). Mobile data connectivity plays a vital role in socio-economic development in many developing nations, empowering people and bridging the digital gap through phone services and internet access (Boakye, 2015). With the rising popularity of smartphones, mobile data services have grown in popularity over the previous decade. As a result, mobile data infrastructure has overtaken voice services as the telecommunications industry's growth driver.

In South Africa, mobile data provides a significant avenue for closing the gap between the rich and the poor. Ownership of a mobile phone facilitates greater access to information at lower costs, resulting in increased welfare (Miyajima, 2022). Connectivity is an industrial enhancer and a facilitator of economic development. With access to the Internet through mobile data, access to knowledge and technology is becoming increasingly important (Ocholla & Ocholla, 2020). Access to mobile data is essential to low-income earners and unemployed youths. A regular citizen can access the Internet using simple mobile handsets. There are cheaper mobile handsets on the market that are affordable to low-income users. Since low-income consumers may not afford personal home computers, laptops, or tablets, they rely solely on their mobile phones to fulfil their digital needs and gain access to the Internet.

However, there are notable statistics on mobile data consumption prepared by various statistical and research agencies with critical estimates of data consumption. For example, Statista (2023) reports that the average data consumed per smartphone per month worldwide amounted to 11.4 gigabytes (GB) in 2021. The website predicts that this monthly usage rate will increase fourfold to 41 GB per smartphone per month globally by 2027. Fernández, Vicente, Carrillo, Guilabert and Mira (2020) indicate that since the advent of mobile technologies, the number of mobile devices

with access to data usage has grown gradually and at various rates in developed and developing nations. Consequently, more than 5 billion individuals worldwide have enrolled for mobile services by the end of 2018, accounting for 67% of the global population. This ratio is predicted to rise to 71% by 2025. Boakye (2015) concurs with this view adding that mobile data connectivity has evolved to become a critical component of the global economy, contributing more than US\$ 2.4 trillion (directly and indirectly) to global GDP in 2013 (Boakye, 2015).

Despite this growth in projected mobile data usage, impediments in Sub-Saharan Africa remain. The greatest reported impediments to mobile data use in Sub-Saharan Africa, like in other places, are the cost of phones and data and a lack of literacy and digital skills (GSMA, 2023). Unsurprisingly, mobile data usage is a crucial developmental issue in the country. At a policy level, the South African government has expressed efforts to increase and widen mobile data usage. Through the South African National Broadband Policy, the government intends to widen discussions on broadband availability, connectivity, and affordability, creating a digital society and promoting broadband adoption and use (Parliamentary Monitoring Group, 2016). In addition, the Electronic Communications Act, 2005 (Act No. 36 of 2005), the national broadband agenda, namely “South Africa Connect,” has been implemented by the South African government as the government’s strategy and roadmap for building jobs and ensuring inclusion.

Donner and Marsden (2011) assert that South Africa is an attractive location for observing mobile Internet usage among resource-constrained groups. This is due to low levels of personal computer use and near-universal mobile ownership. Some believe that mobile Internet users outnumber traditional Internet users in South Africa (Joubert, 2008). Research has demonstrated the relatively quick uptake of mobile Internet use. In a study covering grade 11 pupils in Cape Town for example, Kreutzer (2009) discovers extensive usage in low-income schools. Out of 77% of respondents that had a data-ready cellphone, an astounding 68% had used a mobile phone to access the Internet the previous day.

Boakye (2015) conducted a study to investigate the elements influencing consumers’ decisions to continue using mobile data services. The study drew on the Theory of planned behaviour combined with a system of service quality construct. Their study discovered that system service quality, service mobility, and customer experience were significant predictors of mobile data service continuation intention. Furthermore, results from the same investigation imply that the link between system service quality, service mobility, and desire to continue using mobile data services was mediated by customer experience. A similar study was conducted by Padayachee

and Moodley (2022) to examine the amount of usage. Al-Debei, Dwivedi and Hujran's (2022) study was conducted to understand telecom consumers' continual usage of mobile value-added services (MVAS), which include information, communication, entertainment, and transaction services. Findings of the study suggest that while both customer satisfaction and perceived value had a direct positive impact on continuous usage intention, the customer satisfaction effect was found to be more substantial. Furthermore, the study established that customer service quality, service content quality, and mobile network quality are all direct predictors of perceived value which translate to mobile usage. Mathur et al. (2015) investigated the data consumption habits of mobile phone users in South Africa. They discovered that, unlike in more developed nations, South African consumers tend to be more cost-conscious about how much data and airtime they consume when data is capped or pricey.

2.5 MOBILE DATA USAGE TO SOURCE EMPLOYMENT OPPORTUNITIES

Mobile data is critical in employment search despite challenges such as high smartphone prices, inadequate power and network coverage, and a lack of digital literacy (GSMA, 2023). In South Africa, the costs of mobile data networks and all other communications services remain high compared to both African and global levels (RIA, 2013). The RIA Pricing Transparency Index report shows that "the cheapest mobile prepaid phone in South Africa is still approximately 7.5 times costlier than the cheapest comparable product in African countries."

To examine extensively the aspect of mobile data usage, several studies have been tabulated (Table 2-1). This tabulation will be followed by a discussion of key issues that arise out of that.

Table 2-1 Previous research conducted on mobile data usage

	Title	Author (s)	Country	Theoretical framework	Methodology	Findings
1	An integrated framework for the adoption and continuance intention to use mobile payment apps	(Humbani & Wiese, 2018)	South Africa	The modified technology readiness index (TRI) with the extended expectation-confirmation model, in the context of information technology (E-ECM-IT)	Survey	The study findings revealed that the model accounted for 81% of the variance in adoption and 78.5% of the variance in the intention to persist in using mobile payment services. The predictors categorised as “drivers” exhibited a more substantial impact on adoption than the “inhibitors.” Furthermore, the level of satisfaction emerged as the most reliable indicator of future intentions.
2	Exploring Mobile-only Internet Use: Results of a Training Study in Urban South Africa	(Donner & Marsden, 2011)	South Africa	N/A	Ethnographic action research approach	After receiving computer training for six months, most female respondents persisted in utilising mobile Internet for utility, enjoyment, and connection, despite facing challenges such as pricing and ease of use.
3	A First Look at Mobile Internet Use in Township Communities in South Africa	Phokeer et al.	South Africa	UTAUT	Surveys and Data interception tool	Communities with lower incomes use cellular data networks more frequently than WIFI, as opposed to those with higher incomes. Qualitative survey findings indicate the lack of public Wi-Fi access may explain this trend. Additionally, in communities where streaming video usage is lower on cellular data networks, WIFI is the preferred mode of connection.
4	A mixed method study of mobile users’ data usage practices in South Africa	Mathur et al.	South Africa	TRA	Surveys	The use of shared data plans among multiple individuals and devices is rising. Among respondents, mobile data was highly valued, especially by those with low incomes. However, managing mobile data proved to be a challenge. Additionally, while mobile users generally understand what uses mobile data, they often lack a deeper understanding of background processes that consume data.

	Title	Author (s)	Country	Theoretical framework	Methodology	Findings
5	The uses and gratifications of mobile Internet among the South African students	Chigona et al.	South Africa	U&G	Semi-structured interviews	The study did not identify any variations in mobile internet usage based on gender, age, or program of study. Respondents displayed similar patterns in frequency and usage, and the study revealed that the motivations for using mobile Internet were related to both process, content, and social factors. All factors, except for time management and parental contact, were significant contributors to mobile internet usage.
6	Behaviour factors affecting internet abuse in the workplace – an empirical investigation	Pee at al.	Singapore	TIB	Survey	The utilisation of the Internet for personal use was influenced by habit, intention, and facilitating conditions. Affect, social factors, and perceived consequences were identified as factors that increased the influence of these three factors.
7	Optimising Data Plans: Usage Dynamics in Mobile Data Networks	(Zheng, Joe-Wong, Andrews, & Chiang, 2018)	USA		Survey	The researchers in this study utilised a dynamic programming model to evaluate how users make consumption decisions throughout a month while accounting for uncertainty. This model allowed them to recognise the kinds of users that would profit from various data plans and to estimate the best data plans that ISPs should propose. In addition, the researchers enhanced their theoretical conclusions through numerical simulations based on a dataset of user usage from a large US ISP. As a result, the outcomes aided mobile users in picking data plans that optimise their benefits and assisted ISPs in earning profits by comprehending their users' behaviour when presenting data plans.
8	Digital Networking and the Case of Youth Unemployment in South Africa	(Shaw & Wheeler, 2022)	South Africa	Original Theory of change	Case study /Survey	This case study explores how current technology can be utilised to alleviate obstacles young job seekers face in South Africa to access formal employment opportunities with government-registered companies.

	Title	Author (s)	Country	Theoretical framework	Methodology	Findings
9	Digital transformation for youth employment and Agenda 2063 in West Africa	(Commission , 2021)	Africa			
10	Preparing African youths for the future of work: The case of Rwanda	(Dinika, 2022)	Rwanda		Qualitative	This research investigates the broad impacts of the digital economy on the labour market amidst increasing income inequality, worries of job displacement, and high unemployment rates, notably in Sub-Saharan Africa. The findings indicate that digitalisation has the potential to address employment challenges in the region through freelance work, labour outsourcing, and entrepreneurship. Nevertheless, intentional policies and programs are necessary to equip the youth for the changing nature of work.
11	Addressing the Unemployment Challenge through Mobile Digital Microwork	(Roomaney, Van Belle, & Tsibolane, 2018)	South Africa		Survey	In this research, the authors conducted an empirical study focusing on mobile micro workers in South Africa. The purpose was to investigate their attitudes, expectations, and critical barriers towards participation in mobile digital microwork. The study analysed the various issues identified and proposed several policy implications that could be acted upon by South African governmental and non-governmental job creation agencies, as well as similar organisations in other developing countries with similar contexts.
12	Youth Employment Creation as an Inclusive Solution for Sustainable Development: Lessons from the 'Double You Digital	(Tunji-Olayeni, Osabuohien, Yabkwa, & Ademola, 2021)	Nigeria		Quantitative	The Double You Initiative conducted a pilot digital skills training programme in July 2019 and found that individuals aged 19 to 24 were more likely to enrol in the program compared to other age groups. The study revealed that undergraduate students showed a greater interest in digital skills training.

	Title	Author (s)	Country	Theoretical framework	Methodology	Findings
	Skills Initiative' in Nigeria					Furthermore, the most in-demand digital skill among youths was digital marketing.
13	Leveraging digital technologies to boost productivity in the informal sector in Sub-Saharan Africa	(Nguimkeu & Okou, 2021)	Sub-Saharan Africa		Conceptual Paper	This paper provides an overview of the impact of digital technologies in Sub-Saharan Africa and how they can boost productivity, promote entrepreneurship, facilitate access to credit, and foster financial inclusion in the informal sector. The study identifies significant challenges governments face in leveraging digitisation for the benefit of the informal sector and offers recommendations to policymakers in Sub-Saharan Africa to address these challenges.
14	Innovation, Digital Platform Technologies and Employment: An Overview of Key Issues and Emerging Trends in South Africa	(Naidoo, 2020)	South Africa		Review Article	This paper presents an analysis of the South African labour market and a descriptive summary of digital platform labour's nature and scope in the country. The study explores the conceptual connections between various types of innovation and employment. It examines how new forms of digital labour relations may impact labour organisation and regulation.
15	The gig economy, digital labour platforms, and independent employment in the Eastern Cape	(Kavesa & Mbali, 2022)	South Africa		Review Article	To investigate the potential employment impacts of the gig economy in the Eastern Cape Province, this study utilises data from Statistics South Africa's Quarterly Labour Force Survey (QLFS), General Household Survey (GHS), and Income Dynamic Survey (IDS). The research aims to enhance policymakers' comprehension of freelance work and digital labour platforms and support job creation through improved regulation and regional policies.
16	Digital inequality and youth unemployment	(Oyedemi & Choung, 2020)	South Africa		Qualitative	The article describes a study that examined the impact of limited access to digital communication technologies (DCTs) on youth employment-seeking behaviours, viewing DCTs as cultural capital. The study focused on unemployed graduates and found

	Title	Author (s)	Country	Theoretical framework	Methodology	Findings
						that limited internet access for job-seeking purposes creates frustration and discouragement among job-seeking youth.
17	Youth and the digital economy in Africa	(Karuitha, 2020)	Africa		Article	This article is part of a series on youth innovation during COVID-19, which the African Centre created for the Study of the US at Wits University, the Youth Bridge Trust, and the Africa Portal. The article examines the role of the digital economy in generating employment opportunities for young people in Africa, considering the impact of the COVID-19 pandemic and the prevalence of informal economic activity, as well as the significant digital infrastructure and skills gaps in the continent, where only 5% to 50% of the population has consistent access to the Internet, in contrast to 80% or more in Europe and North America.
18	Youth Unemployment in South Africa and the Socio-economic Capabilities from Mobile Phones	(Twinomurizi & Magundini, 2019)	South Africa		Review Article	In this exploratory paper, the mobile usage patterns of 104 respondents were analysed to provide context for mobile and ICT strategies to address youth unemployment. The study found that contrary to the focus of much ICT for development literature on targeting youth in rural areas, targeting youth in urban areas may be more effective for ICT strategies to address youth unemployment.
19	Strengthening youth livelihoods and enterprise innovation in Africa's digital era	(Ngene, Pinet, & Maclay, 2021)	Africa		Qualitative	This working paper presents an analysis of insights gathered from an online global consultation held on Platform4Dialogue on 14 July 2020. The consultation's findings reveal that the increasing variety of African digital platforms is providing new income-generating prospects for the region's young labour force. These gig-matching and job-matching platforms offer young people an alternative to informal employment by providing them with flexible

	Title	Author (s)	Country	Theoretical framework	Methodology	Findings
						work opportunities and low barriers to entry. However, job quantity often supersedes job quality.
20	Next steps for the digital revolution in Africa Inclusive growth and job creation lessons from Kenya	(Ndung'u, 2018)	Kenya		Review Article	Because of the limited data, this paper can only offer tentative conclusions regarding the future steps for the digital revolution to facilitate robust opportunities for growth and job creation in Kenya and other African countries that embrace and advance the digitalisation frontier.

Previous research conducted on mobile data usage affirm Phokeer, Johnson, and Densmore's (2016) observation that unemployed youth increasingly use mobile devices as enablers or drivers of social and economic growth. The studies demonstrate that the use of mobile phones is rapidly changing the face of African countries. Porter (2015) mentioned that an increasing body of literature demonstrates how these innovations reshape people's businesses, how social networks are developed and sustained, and how romantic courtship is conducted. This is particularly so against the backdrop of the global economy driven by the digital space. Information technology can accelerate the production process from one stage to the next if used correctly, added Tucano (2013). However, Gollakota et al. (2012) once indicated considerable hope that ICT can boost people's livelihoods in marginalised communities in South Africa under some conditions. Finally, devices like mobile phones offer access to information and a way of sending applications that can serve unemployed youth's individual needs and academic purposes.

Many of the studies (largely quantitative in nature) set out in Table 2-1 above dwell on general internet usage, an area which is fully exploited in literature. Table 2-1 sets out several studies conducted to investigate internet use in differing contexts. Most of the studies presented are located in South Africa.. A study by Kunene (2019) explored manner in which township youth in Cape Town use mobile data to search online portals for employment opportunities. However, studies that focus on mobile data usage to access employment portals in township zones of the Cape Metropole context are scant in the literature. This noted gap in the body of knowledge opened methodological and conceptual gaps which this present study sought to fill.

By focusing on unemployed youth, this study makes a key contribution to the literature and serves as an important reference point for future studies that expand on usage of mobile data for accessing online job portals.

In the next section, the theoretical framework of the study is presented. This culminates in the selection the adopted theoretical framework of the study.

2.6 THEORETICAL FRAMEWORK

In ICT research, numerous theories are used to understand users' adoption of new technologies (Alwahaishi & Snášel, 2013). Several theoretical frameworks were considered for the study. These include the Theory of Reasoned Action framework, the Theory of Planned Behaviour

framework for analysing mobile service usage, the Technology acceptance model framework and the framework for analysing the usage of mobile services (Smura, Kivi, & To, 2009).

These frameworks are explained in greater detail next, starting with the TRA.

2.6.1 The Theory of Reasoned Action Framework (Fishbein and Ajzen, 1975)

The Theory of Reasoned Action (TRA) (Figure 2-1), first developed in the late 1960s by Martin Fishbein and revised and expanded by Fishbein and Icek Ajzen (1980) in the decades that followed, is a theory that focuses on a person's intention to behave in a certain way. An intention is a plan or a likelihood that someone will behave in a way in specific situations. The TRA is rooted in the social psychology discipline. It suggests three broad constructs: "behavioural intention (BI), attitude (A), and subjective norm (SN)" (Fishbein & Ajzen, 1975). This theory indicates a person's behavioural intention is determined by their attitude and subjective norms. For example, a person who is thinking about quitting smoking intends or plans to quit but may or may not follow through on that intent. Mathematically, the behavioural intention may be regarded as the sum of attitude and subjective standards. Furthermore, suppose a person's purpose of behaving in each way is strong enough. In that case, that intention will likely be converted to action.

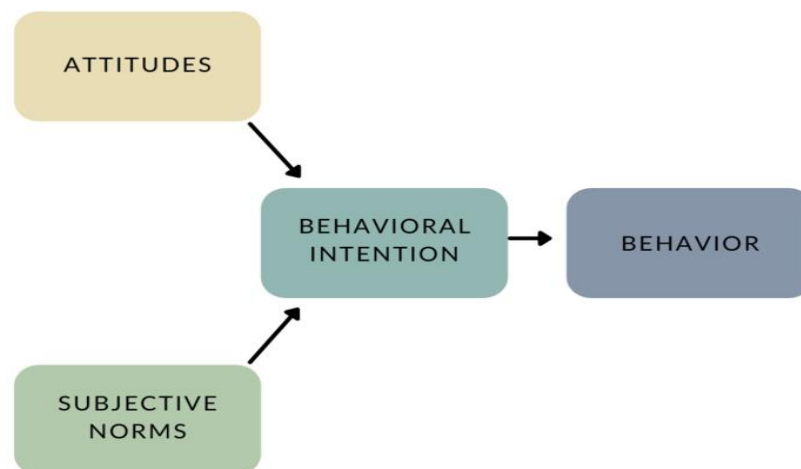


Figure 2.1 The Theory of Reasonable Action (Fishbein and Ajzen, 1975)

2.6.2 Theory of Planned Behaviour Framework (Ajzen, 1991)

The Theory of planned behaviour is an extension of the Theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) made necessary by the original model limitations in

dealing with behaviours over which people have incomplete volitional control. As in the original Theory of reasoned action, a central factor in the Theory of planned behaviour is the individual intention to behave in a certain way. Intentions are assumed to capture the motivational factors that influence behaviour; they indicate how hard people are willing to try and how much effort they are planning to exert to perform in a particular manner (behaviour).

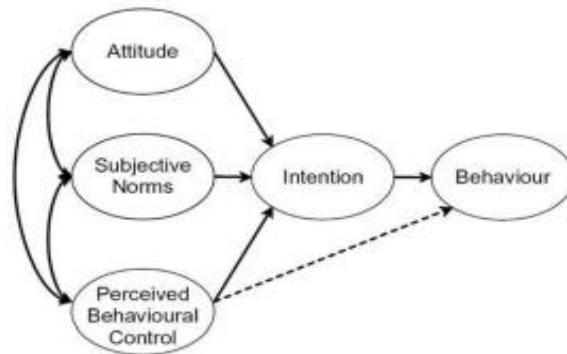


Figure 2.2 The Theory of Planned Behaviour (Ajzen, 1991)

As shown in Figure 2-2, the TPB further develops the TRA by adding the Perceived Behavioural Control (PBC) concept. PBC denotes people's perception of how easy or difficult it is to perform the behaviour of interest (Fishbein & Ajzen, 1975). In contrast to Rotter's (1966) concept of perceived locus of control, this idea differs from Rotter's in that it is not constant and changes depending on the circumstances in which the individual finds. A person's locus of control is a more generalised expectation that stays stable over time. In this way, TPB has addressed the criticism that TRA is based on relatively static constructs of attitude and, therefore, cannot predict behavioural outcomes.

2.6.3 Technology Acceptance Model Framework (Davis, 1989)

It was from the work of Ajzen and Fishbein's (1980) Theory of Reasoned Action (TRA) that Davis developed the Technology Adoption Model (TAM) (Figure 2-3) in 1989 to provide a general explanation of the determinants of computer acceptance that can explain the behaviour of users across a variety of computing technologies and populations, while simultaneously being both pragmatic and theoretically sound (Davis et al. 1989, p. 985). Since then, the TAM has been widely deployed to explain technology adoption in various fields and contexts in the last few decades. It has been scrutinised and examined throughout the years as TAM studies have been conducted by various researchers with varying study aims, populations, information systems, and

tasks using various research methodologies in various situations (Lee et al., 2003). The model's strength comes from its simplicity since it only contains two constructs, "perceived utility" and "perceived ease of use," for forecasting the adoption of new technologies at the individual level.

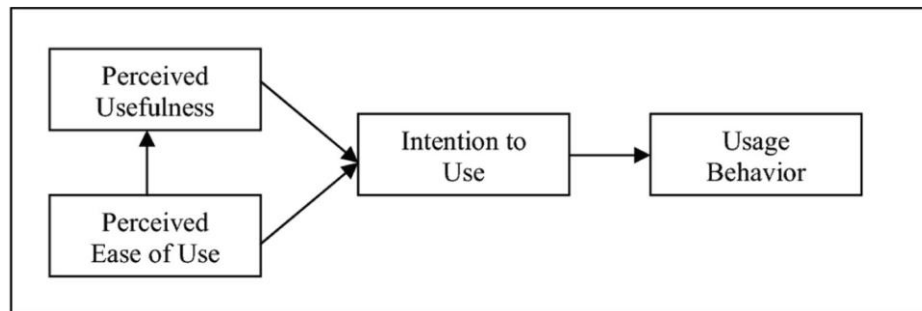


Figure 2.3 Technology Acceptance Model (Davis, 1989)

The TAM gives a valuable picture of how system functionalities and interface features impact system adoption and usage (Grobler et al., 2014). This way, the TAM demonstrates how design decisions (functions and interface features) contribute to actual system utilisation (Grobler et al., 2014). For example, an older adult who perceives digital games as too challenging or a waste of time will unlikely want to adopt this technology. In comparison, an older adult who perceives digital games as providing needed mental stimulation and as easy to learn will be more likely to want to learn how to use digital games. While TAM has been criticised on several grounds, it serves as a general practical framework.

2.6.4 A Framework for Analysing the Usage of Mobile Services (Smura et al., 2009).

The adopted theoretical methodology for this study is the framework for analysing the usage of mobile services (Smura et al., 2009) (Figure 2-4). This framework consists of measurement points and technical components of mobile service systems. The technical components comprise devices, applications, networks, and content. In addition, the framework presents classifications for each component and the relationships between the components and available measurement points. As such, the framework helps interpret and compare the results of various service usage studies and deterring too broad generalisations based on data that does not provide enough basis for it.

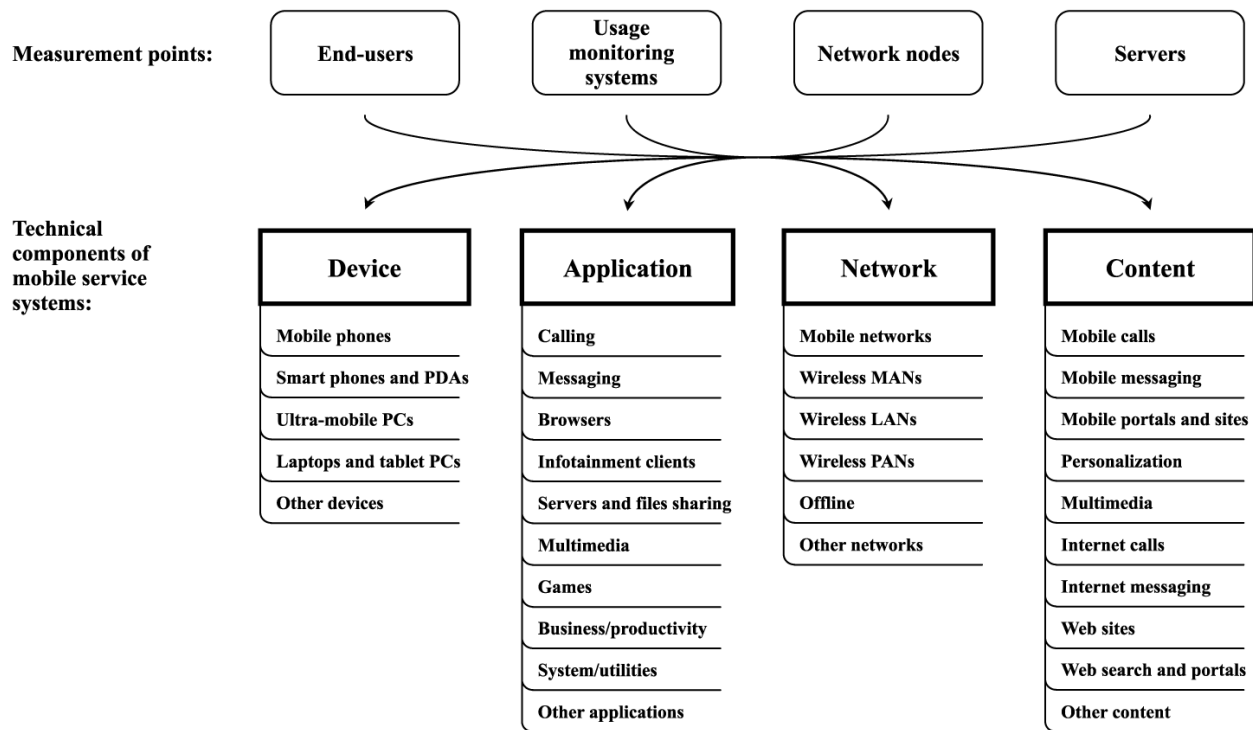


Figure 2.4 A framework for analysing the usage of mobile services (Smura, Kivi and To, 2009)

By mapping research settings and results to the framework, it is possible to recognise those areas where further data collection and analysis might be required. This framework was valuable in this study because it helped select the most appropriate methods and measurement points for the research problem and design and communicate the present study's scope and its measurement settings.

In general, mobile service usage data can be collected from four main sources, as illustrated in Figure 2-4. First, the measurement points of the model are briefly discussed next.

The first measurement point is **end-users**. This framework suggests surveys are a popular approach for collecting data on mobile user behaviour and usage. These surveys can be conducted from a sample of real end users in a variety of ways. Continuous panel studies, in which respondents actively record usage events in an online or paper diary, frequently yield data with more precision and granularity.

The second measurement point is usage monitoring systems. Usage monitoring systems encompass both user monitoring and device monitoring solutions. Device monitoring is commonly employed in the research of PC and Internet usage, as well as in TV audience statistics. Because

of the growth of mobile phones into computer-like devices, it is now possible to undertake device monitoring at mobile handsets. Panel studies are commonly used for device monitoring, in which the human tracking of usage events is replaced by the logging capabilities of monitoring software or hardware installed in the device. A software agent in a monitored device records what the user does with the device and provides that information to a third party.

The third measurement point is Network nodes. Network nodes are accounting systems that record individual users' use of chargeable services. They are natural sources of information for every service provider. This function is known as charging and billing in GSM/UMTS networks, whereas the accounting function is part of the AAA (Authentication, Authorisation, and Accounting) system in an IP network access provider.

The final measurement point of the framework is servers. A server is a computer that distributes data to other computers. In addition to the above-mentioned TCP/IP traffic and use accounting system-based approaches, service usage and behavioural patterns may be investigated at the server level by collecting log files. Portals and individual Web/WAP sites/servers, search engines, and proxy servers are examples of servers where numerous end-users' use converges.

Having briefly described the measurement points above, Table 2-2 presents a brief explanation of the technical components of mobile service systems. These are devices, applications, networks, and content.

Table 2-2 Technical Components of Mobile Service Systems

Components	Description
Devices	The first technical component of mobile service systems is devices. Devices are end users, both consumers and businesses, that employ a variety of digital, network-connected devices, for distinct and or same activities. Different devices are complimentary from the standpoint of the end user since each one is favoured in different circumstances and for different applications.
End-users	End-users, both consumers and corporate, have several digital, network connected devices in use, partly for different and partly for the same tasks. From the end-user point-of-view, different devices are complementary as each one is preferred in different contexts and for different applications. The devices are, however, competing to be the preferred ones in as many situations as possible
Applications	Mobile phones are essentially miniature computers that can run a variety of software programmes, each of which is necessary to give certain services such as voice conversations, SMS messaging, or e-mail. Voice calling and SMS messaging programmes are often extensively integrated into mobile phone software platforms. Newer, more powerful mobile devices enable a variety of different functions, and mobile phone apps are becoming increasingly like PC software. The introduction of more open mobile operating systems, such as Symbian, Windows Mobile, and Google Android, enables the devices to execute software applications produced by third parties, much like the PC sector. Applications can operate alone in a single device or spread across numerous machines interacting over a network. Applications include calling; messaging; browsers; infotainment clients; servers and file sharing; multimedia; games; and business/productivity;
Networks	Mobile networks based on radio technologies such as GSM/GPRS, EDGE, and WCDMA/HSPA are critical in delivering wireless network access to mobile devices. Furthermore, WLAN technologies offer a low-cost option primarily in interior environments such as homes, workplaces, and specific hotspot sites such as hotels, airports, or cafés. WiMAX and other wireless access network technologies may become available in the future. Based on their geographical range, wireless networks are classified as WWAN (Wireless Wide Area Network), WMAN (Wireless Metropolitan Area Network), WLAN (Wireless Local Area Network), and WPAN (Wireless Personal Area Network) (Wireless Personal Area Network).
Content	Content is sent over wireless networks and/or consumed via mobile devices and applications. Traditionally, and even today, most mobile operator revenues are generated by voice calls and short messaging services (SMS). However, the rapid advancement of handset and network technology enables the delivery of new forms of Internet and multimedia content to consumers. Content classification might be done on a strictly technical basis, distinguishing voice/audio, video, pictures, and text/data. In this situation, file format information, i.e., filename extensions (e.g., html,.mp3,.jpg,.wmv), might be utilised to differentiate across content classes. Another alternative is to employ content-hosting servers as a proxy for the material and categorise the servers. IP addresses can be used to identify servers.

2.7 ADOPTED THEORETICAL FRAMEWORK

The adopted theoretical methodology for this study is the framework for analysing mobile service use by Smura et al. (2009). The analysis usage framework is preferred, as it examines mobile data usage to those who see it as a tool of enhancement because it incorporates various key constructs of technology usage. The authors devised this framework while trying to suggest a framework that helps in designing mobile services usage research. The architecture is divided into two layers: measuring points and mobile service device technological elements. These elements are device, application, network, and content. The system contains categories for each aspect and interactions between components and measuring points. The study is intended to benefit the users from a technology point of view. This then makes the framework of analysing the usage of mobile services the most precise model of interest in acquiring relevant data for this research study.

2.8 CHAPTER SUMMARY

This chapter provided an empirical overview and integrative examination of mobile data usage in South Africa and Africa as a whole. The literature review presented in this chapter exposed several gaps in the literature. A critical gap that emerges from this review is that studies that examine mobile data usage for accessing online job portals by unemployed youth in South African townships are unavailable in the literature. In addition, the chapter concludes that along with unemployment, which is the focus of the study, South Africa is bedevilled by numerous other challenges that militate against unemployed youth, which require further investigation. Having laid out a platform for what currently exists in the literature, the next chapter deals with the design and methodological choices made to conduct the study, paying attention to the suitability and appropriateness of these decisions in achieving the aim and objectives of the study.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

The chapter reviews several features of research design and methodology. These aspects include: the research paradigm, design and approach, data collection strategy, population and sampling, and data analysis. It additionally incorporates commentary of validity and reliability considerations. It concludes by sharing ethical considerations.

3.1 INTRODUCTION

Chapter Two provided an extensive literature review focusing on mobile data usage in South Africa and Africa. The chapter revealed critical gaps in the existing literature. The absence of studies examining mobile data usage for accessing online job portals by unemployed youth, especially from a developing country perspective, stood out. Consequently, this research investigates mobile data usage amongst unemployed youth in South African townships while accessing online job portals to find employment.

Building on the literature review, this chapter unveils the research design, methodology and methods employed to achieve the study's aim (see Chapter One). A research design is one of the most crucial things a researcher should outline (Moser & Korstjens, 2017) since the data gathering instruments, the number of respondents needed, and the data analysis approach emanate from research design decisions (Bloomfield & Fisher, 2019). This chapter motivates how these choices address the gaps identified in the literature by arguing for the appropriateness and suitability of these choices in achieving the study's aim and objectives.

3.2 RESEARCH PARADIGM

Kaushik and Walsh (2019) define the term "paradigm" as a word in social research that describes the fundamental beliefs and assumptions that shape researchers' worldviews and influence their actions. Alharahsheh and Pius (2020) further explain that a paradigm includes several components, such as ontology, epistemology, methodology, and methods. Ontology refers to the nature of reality and its existence. Its goal is to identify existing knowledge that can help answer research questions about the phenomenon (Taherdoost, 2022). In contrast, epistemology concerns how researchers come to know reality, as Aspers and Corte (2019) explain. It focuses on the researcher's internal distinguishing between right and wrong and how they perceive the world. In other words, epistemology is the method used to uncover knowledge and achieve a deeper understanding of reality.

This study adopted an interpretive research paradigm to provide the necessary guidance to research strategy and decisions. Interpretivism is often associated with mixed-methods research, emphasising the research questions and outcomes rather than the methods themselves (Creswell & Clark, 2018). An interpretive paradigm is a more "people-centred" approach that recognises the research's incorporation within the study environment, that is, how each influences the perspectives and interpretations of the other. Interpretive researchers engage in the subject environment to "examine the "meanings" of events and occurrences from the respondents' perspectives." Interpretivist evidence in this study will be qualitative, providing a rich and detailed description of the research setting as a distinct context. Using interpretivism, the researcher was actively involved and understood the respondents' setting.

Whilst the study adopted pragmatic decisions regarding the collecting of both quantitative and qualitative data leading respectively to statistical and thematic outcomes, the study did not demonstrate pragmatism as its paradigm in the purest sense. In fact the quantitative aspect played a smaller, supportive and informative role for the more important qualitative approach which concerned mainly interpretation of opinions and attitudes.

3.3 RESEARCH DESIGN

Creswell and Clark (2018) concur with Memon, Syed, and Qureshi (2017) that research design entails collecting, analysing, interpreting, and reporting data in research studies. Examples of research designs include exploratory, descriptive, correlational, and causal designs. An exploratory research design was selected for this study. This design was deemed most suitable as it addresses a phenomenon with high uncertainty about the subject and where the problem is poorly understood (Creswell & Poth, 2018). The exploratory design was selected in order to "gain an in-depth understanding of human behaviour, experience, attitudes, intentions, and motivations, based on observation and interpretation, to find out the way people think and feel" (Mbaka & Isiramen, 2021:32)

3.4 RESEARCH APPROACH

Research approaches can be categorised in a variety of ways. Methodologists suggest three research approaches: qualitative, quantitative and mixed methods (Palumbo, Cavallone, Ciasullo, & Douglas, 2018). Qualitative research aims to comprehensively understand a particular issue or problem or draw broad conclusions from first-hand experience. Qualitative data are focused on

depth rather than the number of findings. Quantitative studies use numerical values obtained from observations to understand and describe phenomena (Taherdoost, 2022). This approach relies on empirical and descriptive statements that explain the meaning of real-world cases rather than statements about what ought to be the case (Rahman, 2016). Quantitative research uses empirical evaluations to assess the extent to which a specific policy or program meets a norm or standard. This numerical data is collected and analysed using mathematical methods. Mixed-methods research (MMR) incorporates multiple methods to address research questions appropriately and principally (Creswell & Clark, 2018). MMR involves collecting, analysing, interpreting, and reporting qualitative and quantitative data. In contrast to solely quantitative studies that typically start with a hypothesis and use statistical analysis to test it, MMR may not always have a hypothesis. Table 3-1 summarises three differing research approaches (Gatumu, 2015: 48).

Table 3-1 Qualitative and Quantitative Research Methodologies (Gatumu, 2015: 48)

	Qualitative approaches	Quantitative approaches	Mixed methods approaches
Purpose	Provides understandings and descriptions of participants' experiences	Tests and validates already developed theories	Provides greater insight, enables triangulation and complementarity
Philosophical assumptions	Constructivism	Positivism or post-positivism	Pragmatic
Strategies employed	Phenomenology, grounded theory, ethnography, case study and narrative	Surveys and experiments	Uses both qualitative and quantitative strategies
Methods employed	Open ended questions, observations	Closed ended questions, numeric data	Pluralistic methods from both approaches
Analysis	Themes and patterns are identified. Emphasis is placed on credibility, authenticity and trustworthiness.	Statistical procedures are utilised. Emphasis is placed on generalisability of findings, validity and reliability.	Practices from both qualitative and quantitative approaches can be used.

Table 3-1 tabulates a comparative description of qualitative, quantitative and mixed methods approaches addressing five categories of criteria, namely purpose, philosophical assumptions, strategies employed, methods employed and analysis.

To achieve the research objectives, a mixed method research (MMR) approach was adopted for the study. MMR combines both qualitative and quantitative approaches. Combining the two methods is preferable within the context of this study as it is more likely to yield insightful information about the research phenomenon that cannot be fully understood using only qualitative

or quantitative methods. Furthermore, this indicates approach enables the researcher to broaden his investigation with adequate depth and breadth. Creswell and Clark (2018) indicate this type of research methodology leverages the strengths of both quantitative and qualitative research and provides a more comprehensive understanding of a research problem than either method alone. It enables researchers to answer questions that cannot be addressed by either approach in isolation and can yield unique insights beyond those produced by quantitative or qualitative methods alone. In addition, mixed methods research facilitates collaboration between traditionally separate quantitative and qualitative research communities, encourages the use of multiple paradigms, and allows researchers to employ all available methods to address a given research problem.

In the qualitative part of the study, the goal was to ascertain user preferences for online job portals via interviews via customised interview protocol (ANNEXURE D). This qualitative phase of the study then addressed the first objective: to determine the preferred online job portals for sourcing employment by unemployed youth in the townships of the Cape Metropole. To address the second objective, a questionnaire is used to investigate the factors influencing data consumption in sourcing employment opportunities using online job portals. Their feedback was compared to the literature review to determine if any specific factors could influence data consumption amongst these unemployed youth.

The quantitative research approach measured mobile data consumption based on how users (unemployed youth) interact with online job portals to source employment opportunities. Quantitative data was collected using a questionnaire (ANNEXURE E) where a large sample size focused on the number of replies rather than a more focused or subjective insight that qualitative research seeks. Respondents were asked the same questions, ensuring the complete data sample would be analysable. Data from the quantitative part of the mixed methods study was provided in numerical form and analysed quantitatively using various statistical methods (see Chapter 4).

3.5 DATA COLLECTION

The procedure through which a researcher extracts and integrates data from various sources is data collection (Ajayi, 2017). This technique sets up the data architecture that will be utilised to manage everyday workflows and achieve various business goals. The researcher used preliminary exploratory interviews (n=5) via interview protocol (ANNEXURE D) followed by

questionnaire surveys (n=50) (ANNEXURE E) to collect primary data (Ajayi, 2017). As previously mentioned, the research used a quantitative and qualitative method to administer face-to-face questionnaires and an online job portal data interception tool. Clear instructions were provided to respondents before data collection. A data interception tool (My Data Manager) was used to record mobile data consumption while individuals were sourcing online job opportunities. All data were stored and backed up online for future reference during the project. This data will be destroyed in accordance with university policy.

The significant advantage of using this questionnaire instrument was that it allowed the researcher to collect data from many respondents in a relatively short period.. Furthermore, this tool was captured manually and then analysed electronically, reducing data entry, analysis time, and cost. An advantage of interviews is that they allow the researcher to collect in-depth and detailed information about respondents' perspectives, experiences, and attitudes, which quantitative data collection methods could not capture. Additionally, questionnaire items were customisable to the individual respondent, allowing the researcher to probe deeper into specific topics of interest.

3.6 POPULATION AND SAMPLING

The population comprised unemployed youth aged between 18 and 35 living within the township context of the Western Cape Metropole, South Africa. A sample was selected from within this context.

Sampling refers to selecting a representative group of individuals to participate in a study. Saunders, Lewis and Thornhill (2019) state that there are two types of sampling techniques in social research: probability and non-probability sampling. An examination is carried on all sample approaches to obtain information for the researcher about the instances, and the best techniques were selected.

As such, probability sampling was not employed to collect data for the quantitative part of the study. Rather, purposive non-probability sampling of convenience was employed as part of the qualitative part of the study. This approach served the purpose of exploration of the views and opinions of unemployed youth in one particular context. The non-probabilistic sample of convenience comprised unemployed youths (n=50) identified after consultation with a local non-governmental organisation (NGO). In this form of sampling, not everyone in the population has an equal probability of being chosen for the sample group. However, this sampling procedure

aimed to reflect the population's characteristics based on the selected Cape Metropole community. Using pertinent control factors, the population was split into subgroups. The subsets were individually exclusive and collectively exhaustive to avoid overlap of components in subgroups. The researcher then selected interviewees from the test group based on quality and/or judgment.

The inclusion criteria included picking unemployed youths in Cape Town-based townships aged 18 to 35. Randomly selected respondents were allocated to groups. A set of five groups of ten respondents were tasked to complete the questionnaires. Each group is given enough time to complete the questionnaire to the best of their ability.

3.7 DATA ANALYSIS

In mixed-method research without a hypothesis, the data analysis procedure followed the following five key steps (Creswell & Clark, 2018) to generate knowledge and insights about the research problem:

1. Data collection: The researcher collected quantitative and qualitative data using multiple sources and methods, such as surveys, interviews, and observation.
2. Data reduction: The researcher went on to organise, code, and summarise the data to identify themes, patterns, and relationships.
3. Data integration: The researcher combined the quantitative and qualitative data to better understand the research problem, using matrices or diagrams to represent the findings visually.
4. Data interpretation: The researcher went on to interpret the findings by synthesising the quantitative and qualitative data, identifying the strengths and limitations of each method, and exploring the implications for theory and practice.
5. Triangulation: The researcher then used triangulation to validate the findings by comparing the quantitative and qualitative data and checking for consistency and convergence.

The data collected for this study was conducted for both quantitative and qualitative data. The Statistical Package for Social Sciences (SPSS) was used to analyse quantitative data. To analyse and interpret the data, 15 respondents' answers were compared to determine the usage patterns and relationships among the data.

The My Data Manager application (My Data Manager, 2022) launched in 2011, is freely available from the App Store or Google Play. It is a powerful and robust tool which aims to support the management of mobile data usage in a simple way. In the process, users are able to control data usage and hence limit overspending on monthly mobile data costs. Key features of the application include:

- Tracking of data usage associated with calls and texting.
- Monitoring of remaining minutes via customised alarms.
- Checking of apps that consume most of available data.
- Applying data management techniques across multiple devices.
- Reviewing of historical consumption assuring selected data plans remain optimal.
- Informing users of data consumption habits.

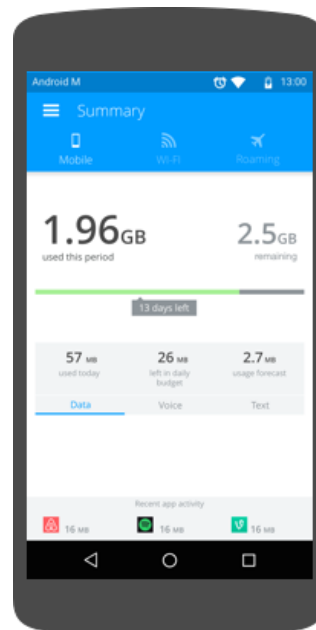


Figure 3.1 Illustrative view of a mobile device showing data usage patterns

Figure 3.1 above illustrates a mobile device interface showing the periodic use of 1.96GB of data leaving a remainder of 2.5GB after 13 days of usage. Consumption is displayed in three ways: data, voice and text.

This quantitative data was collected from a data collection tool called *My Data Manager* (data.ai, 2022). This application monitored data use across single and multiple devices, set up warnings, examined data use across a network, and measured utilisation. It had network speed, memory, and storage space monitoring capabilities.

Using SPSS, the researcher then employed descriptive statistics to summarise the quantitative data and provide an overview of the main quantitative findings (Bell, Bryman, & Harley, 2022). This includes measures of central tendency (mean, median, mode) and variability (standard deviation, range). In addition, data visualisation techniques such as charts, graphs, and tables were used to present the data clearly and meaningfully. This helped to identify trends, patterns, and relationships in the data. These data analysis tools above assisted in interpreting the results and reporting the findings, including discussing the results' implications, highlighting the study's strengths and limitations, and making recommendations for future research.

Qualitative data collected from interviews and field notes were subjected to rigorous analysis using qualitative content analysis (QCA) (Mayring, 2019). Shava et al. (2021:554) define qualitative content analysis as, “a research method for the subjective interpretation of the content of data through the systematic classification process of coding and identifying themes or patterns”.

The following QCA procedure, suggested by the authors, was employed to analyse the qualitative data:

- Formulating research questions to be answered.
- Selecting the sample to be analysed.
- Defining the categories to be applied.
- Outlining the coding process and the coder training.
- Implementing the coding process.
- Determining the trustworthiness.
- Analysing the results of the coding process (McEwen, 2004).

As can be seen in the QCA procedure offered by above, the coding process plays a crucial role in content analysis. Mayring (2019) comments that the primary objective of coding in QCA is to condense extensive amounts of textual data into a smaller number of content categories. These categories then represent identifiable patterns or themes that are either explicitly stated in the text or inferred from it during the data analysis phase.

During the data analysis stage, the researcher was cautious about using appropriate statistical techniques and software to ensure the data's validity and reliability. As such, the validity and reliability of the study findings is discussed next.

3.8 VALIDITY AND RELIABILITY

The study results need to be acknowledged and trusted by various groups, such as scholars, policymakers, practitioners, and the public. To ensure this, numerous quality markers are proposed for qualitative research. However, this study will employ the widely accepted dimensions of trustworthiness put forward by Lincoln and Guba (1985), which are validity and reliability. Validity is the question of whether the data accurately represents the topic under investigation. The term "reliability" refers to how reliable the results are. It can only be trusted if another researcher conducted the research again and got the same outcomes. The "test-retest method," "split-halves method," and "internal consistency method" are three prominent techniques for determining the dependability of answers to questions in questionnaires or interviews.

Several procedures to ensure the reliability of the obtained data and reduce subjectivity were used within the ambit of this research. Firstly, interviews were recorded, and questionnaire forms were completed for sufficient evidence. Secondly, the interview questions were structured in a way that benefits the purpose of this research. Thirdly, instructions were clear to every respondent before searching for online employment opportunities. And lastly, all data collected from the sources was analysed accordingly and addressed within the data analysis chapter. As suggested by Creswell and Creswell (2018), additional measures were deployed to ensure the validity and reliability of findings. These measures included triangulation, member checking, reflexivity, peer review, prolonged engagement, external audit and thick descriptions.

Triangulation is the process of combining information from several sources to obtain a thorough grasp of a study problem or evaluate its validity (Carter et al., 2014). Triangulation was to be achieved through (1) collecting data from multiple sources, such as surveys, interviews, and observations, (2) using multiple methods of analysis, such as statistical analysis and qualitative content analysis, (3) comparing the findings from different methods and sources, and (4) using member checking, which involves verifying the findings with respondents to ensure accuracy. This then makes the mixed methods design the best chance of responding to the research questions by combining multiple methods. The validation strategies used in the study include content validity and construct validity, which are explained in Chapter 4. In addition, a descriptive analysis was performed to confirm the validity of the information obtained.

Member checking involved reviewing the findings with respondents to verify that the interpretation of data is accurate. This allowed respondents to confirm or dispute the interpretation of their experiences and perspectives, which strengthened the validity of the research. *Reflexivity* concerned acknowledging and examining the role of the researcher in the research process. By acknowledging and addressing these biases, the researcher was able to improve the reliability and validity of the research. *Peer review* included having other experts in the field review the research to evaluate the accuracy and validity of the findings. In this study, the research supervisors reviewed the study process and procedures. This allowed for an objective evaluation of the research and helped identify any potential biases or errors the researcher may have missed.

Prolonged engagement incorporated the researcher spending a significant amount of time in the field, which allowed him for a more comprehensive understanding of the research context and respondents. *External audit* meant a neutral third-party reviewed the research process and findings to verify their accuracy. To achieve *thick descriptions* the researcher undertook a detailed descriptive analysis of the research context, methods, and findings to allow for transparency and replicability.

3.9 ETHICAL CONSIDERATIONS

Ethical issues were the biggest concern in this study. As such, the researcher took steps to ensure the following ethical requirement met institutional research requirements:

- **Informed consent:** All respondents were provided full disclosure of the nature of the study before becoming involved with the research study. The respondents will be given informed consent forms, which they sign, to show their willingness to participate in the research. No parent will have to sign for any individual as the target market for this research is people between 18-35 (youth).
- **Protection from harm:** All respondents were safeguarded from physical harm.
- **Right to refuse:** Participation in the study was voluntary and confidential. An assurance was added for the respondents to attest that they fully understood the purpose of this study.
- **Voluntary participation:** All respondents were allowed to withdraw from the study at any stage if they so wished without being discriminated against.

- **Right to privacy:** Information collected from respondents was always kept confidential, and their anonymity was guaranteed. The information obtained from primary sources during the research will be provided with a complete reference to the source.

In addition, there was no plagiarism or false report on the data obtained during the research.

3.10 CHAPTER SUMMARY

This chapter provided a comprehensive overview of the research design, methodology and methods employed in the study. It outlined the research paradigm and discussed the research design, approach, sampling, and data sourcing. The chapter highlighted the data analysis techniques used, emphasising the importance of ensuring reliability and validity in research, and in conclusion, it outlined ethical considerations of the research.

CHAPTER 4: RESEARCH FINDINGS AND DISCUSSION

This chapter reports the findings of the study by revisiting the research objectives and questions set out in Chapter 1. Qualitative and quantitative are reported and discussed separately. Thereafter both sets of findings are integrated and synthesised per the mixed methods approach adopted for the study.

4.1 INTRODUCTION

This study investigated how unemployed youth in Cape Town townships use mobile devices to find job opportunities on online job portals. This chapter presents the findings of the study, which address the research questions established at the outset. Before discussing these findings, this section restates the research objectives and questions. Because this study adopted a mixed methods approach, quantitative research findings will be presented first, followed by results from the qualitative aspect of the study. The organisation of findings of the study map to its objectives.

4.2 A RECAP OF RESEARCH QUESTIONS AND OBJECTIVES OF THE STUDY

4.2.1 Research objectives

The three research objectives of the study were as follows:

O1: To explore the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships.

O2: To investigate the factors influencing data consumption in sourcing employment opportunities using online job portals.

O3: To consider the pattern of mobile data consumption in sourcing employment opportunities using online job portals.

4.2.2 Research questions

The study sought to answer the following research questions:

RQ1: What are the preferred online job portals for sourcing employment by unemployed youth in Cape Metropole townships?

RQ2: What factors influence data consumption in sourcing employment opportunities using online job portals?

RQ3: What is the pattern of mobile data consumption in sourcing employment opportunities using online job portals?

4.3 QUALITATIVE FINDINGS

In this section, the qualitative portion of the research findings is presented. Designed to deepen understanding of the key perspectives and experiences of young people, these findings are aligned to the study's three key research sub-areas of exploration.

4.3.1 The demographic composition of respondents

A total of fifteen respondents were interviewed as part of the open-ended interviews. This figure consisted of ten male respondents and five female respondents. These individuals were judgmentally selected to share insights into their views and opinions above various areas guided by the research questions. Findings from the interviews are outlined in the next sections.

4.3.2 Preferred online job portals for sourcing employment by unemployed youth in Cape Metropole townships

Under this area of exploration, the most popular online employment portals for accessing job opportunities for unemployed youth were social media, Indeed, and Gumtree. *On the other hand, a lower percentage of youth uses other platforms as their preferred online job portal for sourcing employment because they seek less functionality benefits and other factors from those platforms. Additional mentions of portals that had been explored included CareerJunction, LinkedIn and Western Cape Government portals.* Respondent one indicated Indeed's attractiveness was due to its large job posts and user-friendly user interface (UI). Many respondents selected Gumtree owing to its specific section dedicated to local job prospects, which increases respondents' chances of obtaining employment in their areas.

"Indeed has a wide range of job postings and is user friendly." [R1]

"I like Gumtree because it has a section specifically for local job opportunities. I can easily get something in my area." [R8]

The above findings underscore the importance of job portals that provide a variety of job opportunities to unemployed young people. The interview findings show young unemployed youth indicated that they were more likely to find work using social media platforms such as Twitter and Facebook. This demonstrates social media platforms' growing significance and reach for job hunting among young people.

4.3.3 Factors influencing data consumption in sourcing employment opportunities using online job portals.

The study revealed significant factors influencing youth data consumption when utilising online job portals for sourcing employment opportunities. These factors encompass multiple aspects, such as the loading speed of job portal pages, the amount of data required to access job listings, the frequency of updating job listings, the ease of navigation, and the types of jobs listed on job portals. The subsequent presentation delves into these influential factors, shedding light on their significance and impact on the youth's data usage patterns in their job-searching endeavours.

The loading speed of job portal pages

The first and most popular factor that emerged from the interviews was the job portal pages' loading speed. Respondents underscored the importance of rapid loading speeds when accessing job portal pages. Respondent 7's statement corroborates this finding:

"I tend to become frustrated if the pages take an excessive amount of time to load. My objective is to swiftly peruse job listings, and if the loading speed is sluggish, I may abandon the portal and seek alternatives." [R7]

"As a job seeker, time is of the essence for me. If a job portal takes too long to load, it gives me the impression that the platform is not well-maintained or optimised. I prefer portals that prioritise speed and make the job search process smoother and more efficient." [R11]

The loading speed of job portal pages emerged as a crucial factor influencing data consumption. Respondents emphasised their desire for swift loading times, aligning with their need for efficient and seamless browsing experiences. When job portal pages load slowly, it not only hampers their ability to quickly navigate through listings but evaluates their patience. Respondents 7 and 11 quoted above reflect the frustration that arises from sluggish loading speeds and highlight the potential consequences for job portals that fail to meet the expectations of job seekers in this regard.

Amount of data required to access job listings

Another crucial factor that emerged from the interviews was the amount of data required to access job listings. The respondents expressed a strong preference for job portals that minimise the amount of data required to access job listings. They emphasised the importance of finding crucial information quickly and easily without sifting through unnecessary data layers. The respondents found portals offering concise and pertinent details from the start highly beneficial, as they saved them valuable time and effort in their job search process. The youths indicated that they had limited time to review numerous job listings, and they appreciate portals that streamline the process by presenting key details immediately to save data. This finding underscores the significance of presenting job listings in a streamlined and user-friendly manner to enhance the overall user experience and efficiency of job searching online portals.

"I value job portals that present essential details at the outset, eliminating the need to navigate through multiple pages to obtain the information I require. This saves me data as data is expensive for me." [R4]

"When I visit a job portal, I expect to find the most important information right away. I am very conscious about saving my data." [R10]

This finding highlights the preference among respondents for job portals that prioritise economic data usage and provide relevant information upfront. By avoiding the need to navigate multiple pages, job seekers can quickly evaluate the suitability of a job opportunity and decide whether to pursue it further. These respondent quotes highlight the desire for job portals to present essential information concisely, reducing the need for excessive data consumption and enabling job seekers to make efficient decisions about potential employment opportunities. Job portals can enhance the user experience and streamline the job search process by prioritising the delivery of pertinent details upfront.

Frequency of updating job listings

The third factor pertained to the frequency of updating job listings. Respondents expressed a strong appreciation for portals that consistently refreshed their job listings, recognizing the importance of accessing the most current and relevant opportunities. The respondents emphasised the necessity of staying abreast of the dynamic job market to avoid missing potential job openings. As one respondent aptly stated, they rely on job portals that diligently update their listings, as obsolete postings can waste valuable time.

One respondent articulated their perspective, stating:

"I depend on job portals that routinely update their listings. Obsolete postings squander my time, and I like portals that maintain a current and frequently updated selection of jobs." [R7]

The preference for portals maintaining a current and frequently updated selection of jobs reflects the respondents' desire for timeliness and relevancy in their job search endeavours. These findings underscore the importance for job portals to prioritise regular and timely updates of their job listings to meet the expectations and needs of users. This finding highlights the crucial role of timely updates in job portals. Respondents expressed their frustration with outdated postings, which wasted their time and hindered their progress in finding suitable employment. They recognised the value of job portals that actively curated and refreshed their listings, ensuring a current and relevant selection of opportunities. Staying updated with the job market is vital for job seekers, as it allows them to be initiative-taking and responsive to new openings. By relying on job portals that prioritise regular updates, respondents could invest their time and effort into exploring actively available opportunities. This finding underscores the need for job portals to adopt efficient mechanisms for maintaining an up-to-date database of job listings, enabling job seekers to make informed decisions and progress in their job search journey.

Ease of navigation

The fourth factor that emerged in this area of exploration pertained to ease of navigation. Navigation is the process of users finding information or completing tasks on a website. It is a critical part of website design, as it can significantly impact the user experience. The navigation facility within online job portals affected respondents' data consumption. They expressed appreciation for portals that prioritise clearly labelled links, sufficient content, and straightforward

layouts, enabling them to locate relevant job listings efficiently. They stressed the significance of instinctive interfaces and user-friendly features.

Respondents P13 and P14 below observed:

"I appreciate job portals that prioritize ease of navigation. Clearly labelled links, sufficient content, and user-friendly interfaces make it effortless to find relevant job listings. When the portal is easy to use, it saves me time and frustration, allowing me to focus on finding the right opportunities." [R13]

"I value portals with a lucid layout and straightforward navigation. This enables me to locate important job listings effectively." [R14]

The ease of navigation within online job portals plays a pivotal role in determining young people's data consumption patterns. Respondents highlighted the importance of intuitive interfaces and user-friendly features enabling them to navigate the portal seamlessly. This finding implies that optimising the navigation experience within job portals can enhance user satisfaction, saving time and reducing frustration. By offering instinctive and user-friendly navigation, job portals can empower users to focus on finding the right job opportunities with ease and efficiency. Thus, a clear and well-organised layout and straightforward navigation options are crucial for efficient data consumption.

Types of jobs listed

The fifth factor that emerged under this area of exploration pertained to the types of jobs listed. Under this factor, respondents preferred job portals that offered a wide variety of job listings across different industries and positions. They found value in platforms that catered to a diverse range of career interests. One respondent shared their perspective, stating:

"I favour job portals that encompass a wide variety of job categories. This permits me to investigate diverse opportunities and identify the one that optimally aligns with my skills and ambitions." [R15]

This implies that the types of jobs listed are significant for job portals and their users. This indicates that users value exploring diverse job categories, allowing them to identify career opportunities that align with their skills and ambitions. By offering a comprehensive selection of job listings, job portals can cater to their users' diverse interests and aspirations, enhancing their chances of finding suitable employment. This finding underscores the importance for job portals

to regularly update and expand their listings to accommodate a broad spectrum of career opportunities, meeting the needs and preferences of their user base.

The above findings illuminate the factors that affect data consumption in pursuing employment opportunities via online job portals. By addressing the loading speed of job portal pages, the amount of data necessary to access job listings, the frequency of updating job listings, ease of navigation, and the variety of jobs listed, job portals can augment the user experience and enhance the efficacy of job seekers' search endeavours. The above factors are consistent with the literature. For example, Boakye (2015) studied the elements influencing consumers' decisions to continue using mobile data services. The study drew on the Theory of planned behaviour combined with a system of service quality construct. Their study discovered that system service quality, mobility, and customer experience significantly predict mobile data service continuation intention.

Furthermore, results from the same investigation imply that the link between system service quality, service mobility, and desire to continue using mobile data services was mediated by customer experience. A similar study was conducted by Padayachee and Moodley (2022) to examine the amount of usage and the factors influencing professors' use of Web 2.0 technologies at two South African higher education institutions. Perceived usefulness was a significant predictor of Web 2.0 usage in that study. In another study, Cheung and Vogel (2013) found usability quality features to predict Web 2.0 adoption strongly.

4.3.4 Mobile data consumption patterns in sourcing employment opportunities using online job portals.

The third area of exploration (AoE) pertained to mobile data consumption patterns in sourcing employment opportunities using online job portals. Within this AoE, key questions about network operators, activities influencing data consumption, and mobile data usage management were posed. The AoE is conveniently subdivided into chunks of data called sub-AoE items. The subsequent presentation outlines the findings, commencing with examining the network operators preferred by youths in Cape Metropolitan townships for their data services.

Mobile network operators used by youths to access mobile data services

This sub-AoE revealed that most youths use at least one mobile network operator because they want to take advantage of promotions offered by mobile network operators (MNOs). Although all

MNOs were mentioned, the most popular mobile operators were Cell C and Telkom. Factors such as network coverage and connectivity emerged as important during the interviews.

"I rely on Cell C and Telkom for my mobile data services because they offer excellent network coverage in my area, allowing me to access online job portals without any connectivity issues." [R8]

"Telkom is my preferred mobile data services as they provide competitive data packages and reliable network speeds, giving me a seamless experience while browsing job portals." [R7]

These quotes emphasise the importance of network coverage, reliability, and affordability, as they play a crucial role in facilitating uninterrupted access to online job portals for youths seeking employment opportunities. The findings regarding the MNOs used by youths to access mobile data services have significant implications. The influence of promotional offers on operator choice highlights the need for operators to design attractive offers to capture the attention of the youth demographic. The importance of network coverage and connectivity emphasises operators' need to expand their coverage areas and enhance connectivity to ensure seamless access to online job portals. The popularity of preferred operators like Cell C and Telkom indicates a competitive advantage based on their reputation for affordable services. Lastly, the emphasis on a positive user experience underscores the importance of optimising services to meet the expectations of job seekers, ultimately contributing to improved digital access and a competitive edge for mobile network operators.

Activities influencing data consumption

Under this sub-AoE, several activities emerged as key activities embarked on by youths in search of job opportunities. These ranged from browsing and searching for job listings, uploading or submitting job applications, and watching videos or multimedia content related to job opportunities.

"Engaging in video interviews and watching video content on job portals consumes significant data. I try to limit these activities to Wi-Fi connections to manage my data usage effectively." [R3]

"Browsing through job listings and submitting applications are the main activities contributing to data consumption. I optimise my searches and utilise compressed file formats to minimise data usage while staying active on job portals." [R6]

The findings above imply that youths tend to be economical with their data consumption while engaging in activities such as browsing job listings, submitting applications, and watching multimedia content. This highlights the need for job portals to optimise their platforms by providing efficient search functionalities and options for lower data consumption, such as compressed file formats or offline content access. The respondents' emphasis on utilising Wi-Fi connections for data-intensive activities suggests the value of providing free and accessible Wi-Fi access in relevant locations and developing offline viewing capabilities. Additionally, recognising multimedia content as a valuable resource calls for balancing its benefits and potential data usage, ensuring that users have control over their data while accessing informative and engaging job-related resources.

Mobile data usage management

This sub-AoE revealed several ways of managing data. Respondents highlighted the importance of regularly monitoring their data usage statistics provided by their network operators to ensure they stay within their data plan limits and avoid unexpected usage. Respondents emphasised the significance of utilising Wi-Fi networks whenever possible to conserve their mobile data:

"To manage my mobile data usage, I regularly check my data usage statistics provided by my network operator." [R5]

"I always take advantage of free Wi-Fi network whenever available. Using Home Wi-Fi and from public places, I save my data." [R14]

The comments above demonstrate the need for proactive mobile data management. These findings show that respondents manage their mobile data and take advantage of free Wi-Fi hotspots whenever possible. These findings highlight the need of providing young people with the tools and information they need to monitor and regulate their data consumption. They emphasised the need for more free Wi-Fi hotspots across the Cape Metropole.

4.4 PRESENTATION OF QUANTITATIVE FINDINGS

This section presents the quantitative findings of the study. Together with the qualitative findings presented in Section 4.3, this contributes to a holistic understanding of the study's objectives. The section begins with reliability analysis followed by findings related to the demographic composition of the sample. Preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships follow. This is followed by findings about factors influencing data consumption in sourcing employment opportunities using online job portals before presenting mobile data consumption patterns in sourcing employment opportunities using online job portals.

4.4.1 Reliability analysis

Reliability analysis was performed using Cronbach's alpha to assess the internal consistency and strength of the items included in the questionnaire. Cronbach's alpha is a statistical measure utilised to evaluate a scale or questionnaire's reliability or internal consistency. It examines the extent to which the items within the scale or questionnaire are interrelated, consistently measuring a single construct or concept (Hair, 2009). The range of Cronbach's alpha is from 0 to 1, with higher values indicating stronger internal consistency.

A Cronbach's alpha value of 0.7 or higher is considered reliable for most research purposes (Sürücü & Maslakçı, 2020). In the social and behavioural sciences, Cronbach's alpha is commonly employed to assess the reliability of psychological tests, attitude scales, and other measurement tools used in research studies. Researchers rely on this statistic to demonstrate the appropriateness and reliability of the scales and tests developed for their specific research objectives.

Table 4-1 below demonstrates the Alpha Coefficient range and the strength of association (Hair, 2009).

Table 4-1 Cronbach's Alpha (Hair, 2009:xx)

Alpha Coefficient Range	Strength of Association
< 0.6	Poor
0.7 to < 0.8	Good
0.8 to < 0.9	Very Good
0.9	Excellent

For this study, the results indicated three Cronbach's alpha values for: 1) the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships; 2) the factors influencing data consumption in sourcing employment opportunities using online job portals; and 3) the patterns of mobile data consumption in sourcing employment opportunities using online job portals to be 0.7, 0.83 and 0.74 respectively. These findings suggest that the research instrument had good internal consistency and could be used confidently in future data collection and analysis. The results show that items in each variable were reliable as all variables had excellent strengths of association.

4.4.2 Demographic findings

The respondents' demographic information consisted of gender, age group and highest educational level of respondents. A target sample of 50 respondents was identified in Chapter 3, and 50 survey attempts were made, all recorded (Chapter 3).

Gender

Out of the total 50 respondents, 18 (36%) identified as male, and 32 (64%) identified as female,

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	18	36.0	36.0	36.0
	Female	32	64.0	64.0	100.0
	Total	50	100.0	100.0	

as shown in

Figure 4.1 Gender makeup of the respondents (SPSS)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	18	36.0	36.0	36.0
	Female	32	64.0	64.0	100.0
	Total	50	100.0	100.0	

Figure 4.1 Gender makeup of the respondents (SPSS)

From an unscientific observation selection strategy used in the study, 64% of the respondents identified as female suggests a higher representation of women among the unemployed youth population. This finding highlights the importance of considering gender-specific challenges and opportunities in addressing unemployment issues and designing targeted interventions.

Age Group

Figure 4-2 illustrates that out of the 50 respondents for the study, 66% were between the age group 26-30 years followed by the 18-25 age group, which accounted for 22% of the sample. About 12% of the respondents were aged between 31 and 35.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	11	22.0	22.0	22.0
	26-30	33	66.0	66.0	88.0
	31-35	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

Figure 4.2 Age Group of the respondents (SPSS)

From the figure above, most respondents were between the ages of 26 and 30, indicating that this age group is more prominently represented among the unemployed youth in the Cape Metropole.

Education Level of Respondents

In terms of educational level, 28% of the respondents said they had completed Matric, 22% had a Certificate, 44% had a Diploma, and 6% had an Advanced Diploma. As shown in Figure 4-3 below.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Matric	14	28.0	28.0	28.0
	Certificate	11	22.0	22.0	50.0
	Diploma	22	44.0	44.0	94.0
	Advanced Diploma	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Figure 4.3 Education Level of respondents

The findings above highlight the key areas needing intervention in designing employment programs and interventions. These findings emphasised the potential for skill-building initiatives to bridge the education gap and enhance employability among individuals with lower educational attainment.

4.4.3 Preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships.

Figure 4-4 indicates that out of the 50 respondents, 44 indicated using social media as a job portal. At the same time, an equal number of respondents (n=44) reported using Indeed. Gumtree was the third most popular choice, selected by 39 respondents. A smaller proportion of

respondents (12) mentioned using other job portals. It is important to note that respondents could select multiple options; hence the total percentage exceeds 100%.

Job Portals ^a		Responses		Percent of Cases
		N	Percent	
Social Media	Indeed	44	31.7%	88.0%
	Gumtree	39	28.1%	78.0%
	Other	12	8.6%	24.0%
	Total	139	100.0%	278.0%

a. Dichotomy group tabulated at value 1.

Figure 4.4 Online job portals for sourcing employment

The high percentages of respondents reporting social media and Indeed use (88%) indicate that the respondents widely utilise these platforms for sourcing employment opportunities. The findings suggest that job seekers in this study heavily rely on popular online social media platforms and Indeed, which may have implications for employers and recruiters targeting this demographic. For employers, it is thus crucial to recognise youths' significant utilisation of social media. This finding emphasises the need for employers to establish a strong presence on these platforms to reach and engage with potential candidates effectively. By leveraging popular job portals such as Indeed and Gumtree, employers can increase their visibility and attract qualified youths actively seeking employment opportunities.

On the other hand, the study highlights the importance of utilising these widely used job portals to access diverse job opportunities for youths. By actively engaging with social media platforms and Indeed, youths can enhance their chances of finding suitable employment and staying updated on the latest job listings. Youths must optimise their profiles and proactively utilise these online resources to maximise their employability in today's competitive job market.

4.4.4 Factors influencing data consumption in sourcing employment opportunities using online job portals

Loading speed

Among the respondents, 66% considered the loading speed of job portal pages to be very important, indicating a high level of significance placed on this factor (Figure 4-5).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	33	66.0	66.0	66.0
	Important	13	26.0	26.0	92.0
	Moderately Important	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

Figure 4.5 Loading speed of job portal pages

Additionally, 26% of respondents deemed it important, while 8% regarded it as moderately important. This suggests that most respondents prioritise fast-loading speeds when using online job portals for sourcing employment opportunities. Ensuring optimal loading speed for job portal pages is crucial for providing a positive user experience and meeting the expectations of job seekers. Employers and job portal providers should take note of this finding and invest in optimising the loading speed of their platforms to enhance user satisfaction and increase the effectiveness of job searches.

Amount of data required to access job listings

Most respondents, 52%, considered the amount of data required to access job listings as "Very Important" to have sufficient data available for accessing job listings (Figure 4-6). Additionally, 40% of respondents indicated that it was "Important" to have an adequate amount of data. A smaller proportion, 6%, found it "Moderately Important." In comparison, only 2% reported that it was "Not Important" to have a significant amount of data for accessing job listings.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	26	52.0	52.0	52.0
	Important	20	40.0	40.0	92.0
	Moderately Important	3	6.0	6.0	98.0
	Not Important	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Figure 4.6 Amount of data required to access job listings

These findings suggest that most respondents prioritise having a substantial amount of data when using online job portals, indicating the importance of data availability and access in their job search process.

Frequency of updating job listings

Regarding the "Frequency of updating job listings," a sizable portion of respondents (56.0%) indicated that it was "Very Important" (Figure 4-7). This finding suggests that job seekers value job portals that consistently refresh their listings with the most current opportunities. Another 38.0% of respondents considered it "Important," highlighting the continued importance of staying up to date with the job market.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	28	56.0	56.0	56.0
	Important	19	38.0	38.0	94.0
	Moderately Important	2	4.0	4.0	98.0
	Slightly Important	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Figure 4.7 Frequency of updating job listings

This finding emphasises the need for job portals to prioritise regular updates to meet the expectations and demands of job seekers who seek to stay informed and competitive in the job market. By prioritising frequent updates, job portals can enhance user satisfaction, increase job seekers' chances of finding suitable employment, and build trust and loyalty among their user bases. Furthermore, this finding underscores the significance of job portals in facilitating effective job matching by ensuring job seekers have access to the most recent and relevant job openings, improving their overall job search experience.

Ease of navigation

The data presented in the table represents respondents' responses regarding the importance of ease of navigation in sourcing employment opportunities using online job portals (Figure 4-8). Out of the 50 respondents, 48% considered ease of navigation as "Very Important," 50% viewed it as "Important," and only 2% found it "Moderately Important."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	24	48.0	48.0	48.0
	Important	25	50.0	50.0	98.0
	Moderately Important	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Figure 4.8 Ease of navigation

This data suggests that a significant majority of respondents place high importance on the ease of navigation when using online job portals. The fact that half of the respondents rated it as "Very Important" indicates that a user-friendly interface and intuitive navigation system are crucial factors for individuals seeking employment opportunities through online job portals. For employers and job portal providers, this finding underscores the importance of prioritising and investing in user experience design and ensuring their platforms are easy to navigate. By optimising the navigation process, employers and job portal providers can enhance the overall user experience, increase user engagement, and attract a larger pool of job seekers. For youths searching for employment opportunities, this finding highlights the need to consider the ease of navigation when selecting online job portals. By choosing platforms that offer user-friendly navigation, job seekers can save time and effort, focus on finding relevant job listings more efficiently, and increase their chances of success in their job search.

Types of jobs listed

The findings indicate that most respondents (58.0%) considered job listings especially important in their job search process (Figure 4-9). Another significant portion (40.0%) regarded job listings as important, while a smaller proportion (2.0%) perceived them as moderately important.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Important	29	58.0	58.0	58.0
	Important	20	40.0	40.0	98.0
	Moderately Important	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Figure 4.9 Types of jobs

This suggests that job listings play a crucial role in the online job search process for the respondents of the study. The high percentage of respondents valuing job listings highlights the need for comprehensive and advanced listings on online job portals to meet job seekers' demands and expectations effectively.

4.4.5 Mobile data consumption patterns in sourcing employment opportunities using online job portals

Mobile network used by respondents

Among the respondents, CellC emerged as the most popular network, with 44% of respondents using it (Figure 4-10). Telkom and Vodacom followed closely, with 40% and 38% of respondents using them. MTN accounted for 34% of respondents, while Rain had a lower % usage rate of 16%.

		Responses		Percent of Cases
		N	Percent	
Network Used ^a	Telkom	20	23.3%	40.0%
	MTN	17	19.8%	34.0%
	Vodacom	19	22.1%	38.0%
	CellC	22	25.6%	44.0%
	Rain	8	9.3%	16.0%
Total		86	100.0%	172.0%

a. Dichotomy group tabulated at value 1.

Figure 4.10 Network used frequency

The above findings are important to users and mobile networks. The data illustrates the popularity of some networks, indicating that such networks may be providing dependable coverage and affordable data bundles. This suggests that young people consider such factors when choosing a mobile network operator. Network providers can consider improving their services and adjusting their offerings to match consumers' unique usage patterns.

Data consumed

Of the 50 respondents, 27 responses (54%), fell into the "6Gig-10Gig" category, making up many respondents (Figure 4-11). The "1Gig-5Gig" was the second most popular category, with 15

responders (30% of the sample) indicating that they use data within this range. It is noteworthy that 16% of responders indicated that they used less than 1 GB of data as shown below.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 Gig	8	16.0	16.0	16.0
	1Gig-5Gig	15	30.0	30.0	46.0
	6Gig-10 Gig	27	54.0	54.0	100.0
	Total	50	100.0	100.0	

Figure 4.11 Data Consumed

These relevant findings guide MNOs in designing their offerings.

Data management by respondents

Regarding data management, a considerable proportion of respondents (18%) reported having an unlimited data plan, guiding them on how to browse without actively managing their usage (Figure 4-12). However, a larger percentage (34%) indicated that they monitor their data usage regularly and adjust their activities accordingly. Additionally, 16% of respondents reported restricting certain data-heavy activities to minimise consumption, showing a conscious effort to optimise their data usage. Moreover, 32% of respondents rely on Wi-Fi connections whenever possible, indicating a preference for utilising Wi-Fi networks to conserve their mobile data.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I have an unlimited data plan, so I don't actively manage my usage.	9	18.0	18.0	18.0
	I monitor my data usage regularly and adjust my activities accordingly.	17	34.0	34.0	52.0
	I restrict certain data-heavy activities to minimize consumption.	8	16.0	16.0	68.0
	I rely on Wi-Fi connections whenever possible.	16	32.0	32.0	100.0
	Total	50	100.0	100.0	

Figure 4.12 Management of mobile data usage while searching for employment

This suggests that many individuals are mindful of their data consumption and take proactive measures to control it. These implications underscore the need for individuals to be aware of their data usage patterns, make informed decisions, and take advantage of available resources to maximise their data efficiency. For MNOs, the findings emphasise the importance of offering flexible data plans that cater to varying needs and promoting the availability of Wi-Fi networks to support users in managing their data consumption. By understanding and addressing the preferences and habits of users concerning data management, MNOs can enhance customer satisfaction and loyalty while promoting efficient data usage practices.

Activities that contribute most to mobile data consumption

Concerning activities that contribute most to mobile data consumption, among the respondents, browsing was the most common activity, accounting for 79.5% of cases (Figure 4-13). This highlights the importance of accessing job listings and relevant information through online portals. Job applications were significant, with 65.9% of respondents indicating their involvement in this activity. Watching videos related to job opportunities accounted for 38.6% of cases, indicating the use of multimedia content during the job search process. Assessments and other activities had lower frequencies, suggesting they play a minor role in data consumption.

Activities ^a		Responses		Percent of Cases
		N	Percent	
D1Browsing		35	38.5%	79.5%
D2JobApplications		29	31.9%	65.9%
D3WatchingVids		17	18.7%	38.6%
D4Assessments		2	2.2%	4.5%
D5Other		8	8.8%	18.2%
Total		91	100.0%	206.8%

a. Dichotomy group tabulated at value 1.

Figure 4.13 Activities frequencies

The implications of these findings are significant for both job seekers and platform providers. Job seekers should be aware of data-intensive activities such as video consumption and consider optimising their data usage by taking advantage of Wi-Fi connections whenever possible. Job platform providers can concentrate on optimising their platforms for efficient browsing and job application processes, while allowing users to manage their data consumption and access multimedia content without consuming excessive amounts of data.

4.4.6 Illustrative outcomes from My Data Manager feedback

Of the 50 sampled participants a selection of participants (n=15) agreed to install the My Data Manager app to monitor data usage. This section shares the feedback recorded by two participants: Participant A and Participant B.

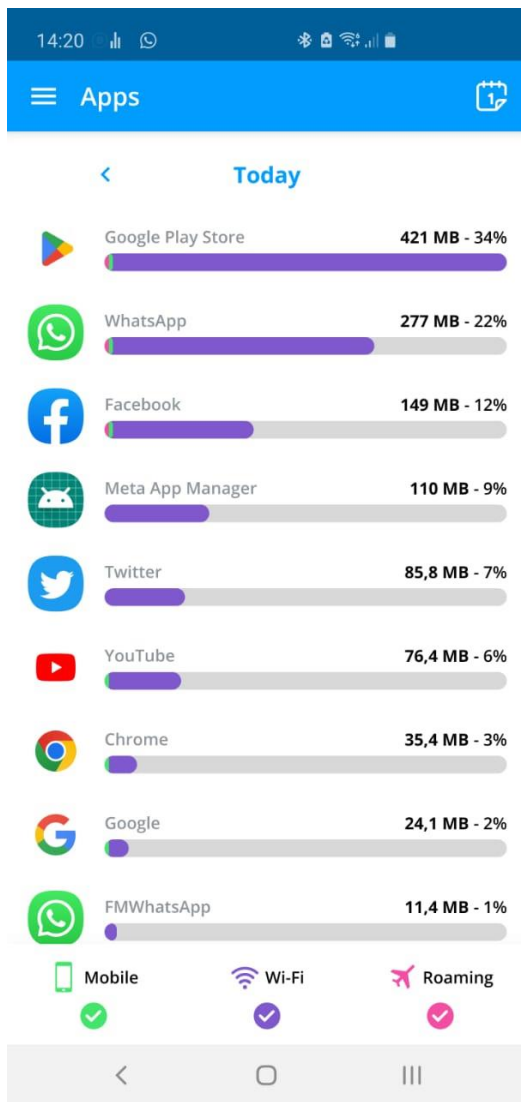


Figure 4.14 Participant A

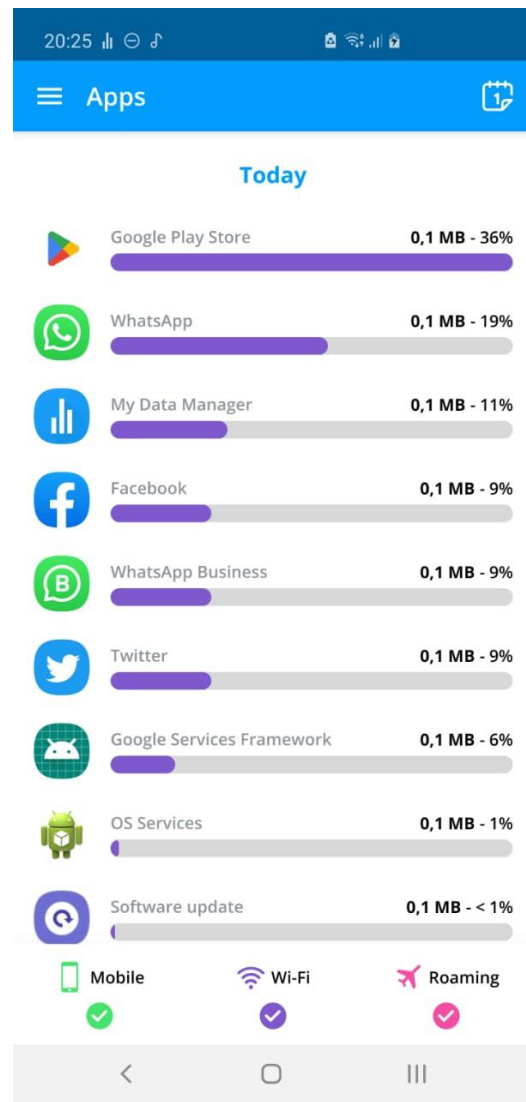


Figure 4.15 Participant B

An exploration of Figures 3.14 and 4.15 indicates a few similar usage patterns, namely accessing Google Play Store, WhatsApp and Twitter – social media. Both participants used Wi-Fi data highlighted in purple. However, although Participant A used visually similar levels of data to access Google Play store (34% of the day's usage) and Participant B spent 36% of the days data,

the total volume of data used by each participant was vastly different: Participant A – 421MB compared with Participant B – 0,1MB. Ironically, neither of the illustrated screen grabs show participants searching job portals for employment opportunities!

4.5 INTEGRATION AND SYNTHESIS OF QUALITATIVE AND QUANTITATIVE FINDINGS

It must be recapped that a mixed-method research approach was used to analyse mobile data usage by unemployed youth in Cape Metropole townships. This method combines qualitative and quantitative data, identifying themes, patterns, and relationships. This comprehensiveness provides valuable insights into the research area under investigation.

4.5.1 Integration of qualitative and quantitative findings relating to Objective 1: Online Job Portals

From the qualitative and quantitative findings, social media and Indeed were the most popular online job portals among unemployed youth. Qualitative findings further highlighted the reasons for this preference, including Indeed's extensive job postings and user-friendly interface. This demonstrates a significant advantage of qualitative research over quantitative research. Quantitative findings supported the popularity of social media and Indeed, with many respondents indicating that they use these platforms for job search.

Overall, the integration of findings suggests that social media and Indeed are the dominant online job portals among unemployed youth in the Cape Metropole townships. These platforms offer extensive job listings, user-friendly interfaces, and local relevance, addressing the needs and preferences of the youth population. Both findings highlight the increasing influence of social media platforms in job searching and recruitment, underscoring the importance for organisations, employers, and job portals to actively engage and effectively utilise these platforms to connect with unemployed youth.

4.5.2 Integration of qualitative and quantitative findings relating to Objective 2: Factors influencing data consumption

Qualitative findings on mobile data consumption patterns in sourcing employment opportunities using online job portals provide rich, in-depth insights into the experiences and perspectives of youths. The findings reveal that youths prefer certain MNOs like Cell C and Telkom due to their network coverage, connectivity, and promotional offers.

Several activities influence data consumption. These included browsing job listings, submit applications, and watch multimedia content. Youths can manage their data usage by tracking their usage statistics and using Wi-Fi networks whenever possible. These findings emphasise the significance of network coverage, dependability, affordability, and data management in enabling access to online job portals.

Quantitative findings, on the other hand, revealed that Cell C was the most popular network among the youth, followed by Telkom and Vodacom. While using online job portals, most respondents use 6 to 10 gigabytes of mobile data. The data shows that many people regularly monitor their data usage, limit certain data-heavy activities, and rely on Wi-Fi connections whenever possible. The most effective method was discovered to be browsing job listings.

Both types of findings provided a comprehensive understanding of mobile data consumption patterns in sourcing employment opportunities using online job portals.

4.5.3 Integration of qualitative and quantitative findings relating to Objective 3: Mobile data consumption patterns

Qualitative and quantitative findings from Objective 3 provide complementary insights into mobile data consumption patterns in sourcing employment opportunities using online job portals. The qualitative findings reveal that CellC and Telkom are the most popular mobile network operators among youths in Cape Metropolitan due to excellent network coverage, reliability, and affordability. Both findings emphasise the significance of network coverage and connectivity in facilitating uninterrupted access to online job portals. Additionally, the qualitative findings highlight the influence of promotional offers on operator choice, underscoring the need for attractive promotions to capture the attention of the youth demographic. Furthermore, the qualitative findings shed light on the activities influencing data consumption, such as browsing job listings, submitting applications, and watching job-related videos. Respondents emphasised the importance of efficient search functionalities, lower data consumption options, and Wi-Fi connections for data-intensive activities. These findings highlight the need for job portals to optimize their platforms to provide efficient browsing and job application processes while providing users with options for effectively managing their data consumption.

The quantitative findings, on the other hand, provide a broader perspective by quantifying respondents' mobile network usage and data consumption. CellC is the most widely used

network, closely followed by Telkom and Vodacom. This quantitative data sheds light on the potential market share of various networks as well as their competitors. Furthermore, the quantitative findings show that most respondents use 6 to 10 gigabytes of mobile data while engaging with online job portals, indicating significant data usage for job search activities. This highlights the importance of people being aware of their data consumption patterns and making informed decisions about their online activities. It suggests that there may be a demand for customized data plans and packages that address the specific needs of job seekers.

Furthermore, the quantitative findings show that many respondents actively manage their data usage by monitoring and adjusting their activities as needed. To save mobile data, they use Wi-Fi connections whenever possible. These findings emphasize the significance of data monitoring, activity modification, and a preference for Wi-Fi usage as effective strategies for managing mobile data usage.

4.6 CONCLUSION

This chapter presented the study's qualitative and quantitative findings. The mixed method analysis, which included both qualitative and quantitative findings, provided insight into the phenomena under investigation. For a more robust analysis, qualitative and quantitative data were triangulated and compared. Examining convergence and divergence between the two data types has revealed valuable insights into individuals' patterns, preferences, and behaviours in their mobile data usage for job search activities. The findings highlight the importance of network coverage, affordability, and user experiences in influencing mobile network operators' choice and data consumption management.

Additionally, identifying specific activities contributing to data consumption, such as browsing, job applications, and multimedia content, emphasises the need for optimised platforms and strategies to support efficient data usage. These insights have implications for job seekers and mobile network operators, which were discussed. By addressing these considerations, stakeholders can enhance the accessibility, efficiency, and effectiveness of online job portals in facilitating employment opportunities. Further research and interventions in this domain can build upon these findings to better meet the needs of unemployed youths, foster digital inclusion, and contribute to socio-economic development.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

Chapter 5 overviews the study, leading to a proposed synopsis model. Conclusions and recommendations provide an opportunity to separately revisit answers to the three research questions, respectively meeting related objectives set earlier in Chapter 1 and reported in Chapter 4. The chapter concludes by highlighting limitations, with a four-fold focus on recommendations for future studies.

5.1 INTRODUCTION

Chapter Four presented the study's findings, addressing the research questions set out at the beginning of the study. This chapter unveils the study's synopsis model, encompassing the key findings presented in the previous chapter. It draws upon these findings to formulate comprehensive conclusions and meaningful recommendations. The organisation of the findings relates to the study's objectives for ease of reference.

The chapter starts with an overview of the study, which recaps all the previous chapters. Then, it presents conclusions and recommendations related to the first research objective, which focuses on online job portals (Section 5.4). Next, it delves into conclusions and recommendations related to the second research objective, which sought to explore factors influencing data consumption (Section 5.5). After that, conclusions, and recommendations for the third objective, which examines mobile data consumption patterns, are presented (Section 5.6).

Acknowledging the study's limitations, Section 5.7 critically reflects the constraints and challenges encountered during the research process. Section 5.8 contributes to the scholarly discourse by offering future studies recommendations and identifying areas that warrant further investigation. Finally, Section 5.9 provides the concluding remarks, summarising the key takeaways from the chapter.

5.2 OVERVIEW OF THE STUDY

CHAPTER 1: This first chapter introduced the research study by stating the problem and the study's aim, and its objectives. In addition, the research design and methodology are outlined, including the sampling strategies, ethical considerations, data analysis, and strategies to ensure the quality of findings.

CHAPTER 2: This chapter provided an empirical overview and integrative examination of mobile data usage in South Africa and Africa. The literature review highlights significant gaps in the existing literature, particularly the lack of studies focusing on mobile data usage for accessing online job portals by unemployed youth in South African townships. This identified gap called for further investigation to better understand the specific challenges this demographic faces.

CHAPTER 3: This chapter defined a comprehensive overview of the research design, methodology and methods employed in the study. It outlines the research paradigm and discusses the research design, approach, sampling, and data sourcing. The chapter highlights the data analysis techniques used, emphasising the importance of ensuring reliability and validity in research. The vital ethical considerations considered for the study are examined in this chapter.

CHAPTER 4: presented the qualitative and quantitative findings of the study. The chapter went on to triangulate the findings. A comprehensive understanding of the phenomena under investigation was achieved by triangulating qualitative and quantitative data. The comparison between these data types revealed valuable insights into youths' patterns, preferences, and behaviours regarding various areas explored under each study objective.

The findings presented in Chapter 4 emphasise the significance of factors such as network coverage, affordability, and user experiences in influencing mobile network operators' choice and data consumption management. Furthermore, specific activities contributing to data consumption, including browsing, job applications, and multimedia content, highlighted the need for optimised platforms and strategies to support efficient data usage. These insights have implications for job seekers and mobile network operators, which are thoroughly discussed.

5.3 SYNOPSIS MODEL OF THE STUDY

In line with Figure 2.4 A framework for analysing the usage of mobile services (Smura, Kivi and To, 2009), Figure 5-1 **Error! Reference source not found.** below presents a synopsis model of the study. It represents the key findings of the study organised with respect to the research objectives. As suggested in Section 2.7, Figure 2.4 provides a foundation, modelling patterns and relationships presented in Chapter 4 to give an overall insight into the outcomes of the study. The theoretical framework is hierarchical and layered, communicating a practical means of examining mobile data usage enabling the process of employment, sourcing via mobile data, mobile devices and the Internet, connecting where possible to online employment portals. It facilitates the

incorporation of various key constructs of technology usage such as the My Data Manager. The resultant summary framework (Figure 5.1) suggest a set of constructs that helps in designing mobile services usage research. The architecture is divided into two layers: measuring points and mobile service device technological elements. These elements are device, application, network, and content. The system contains categories for each aspect and interactions between components and measuring points. The study is intended to benefit the users from a technology point of view. This then makes the framework of analysing the usage of mobile services the most precise model of interest in acquiring relevant data for this research study.

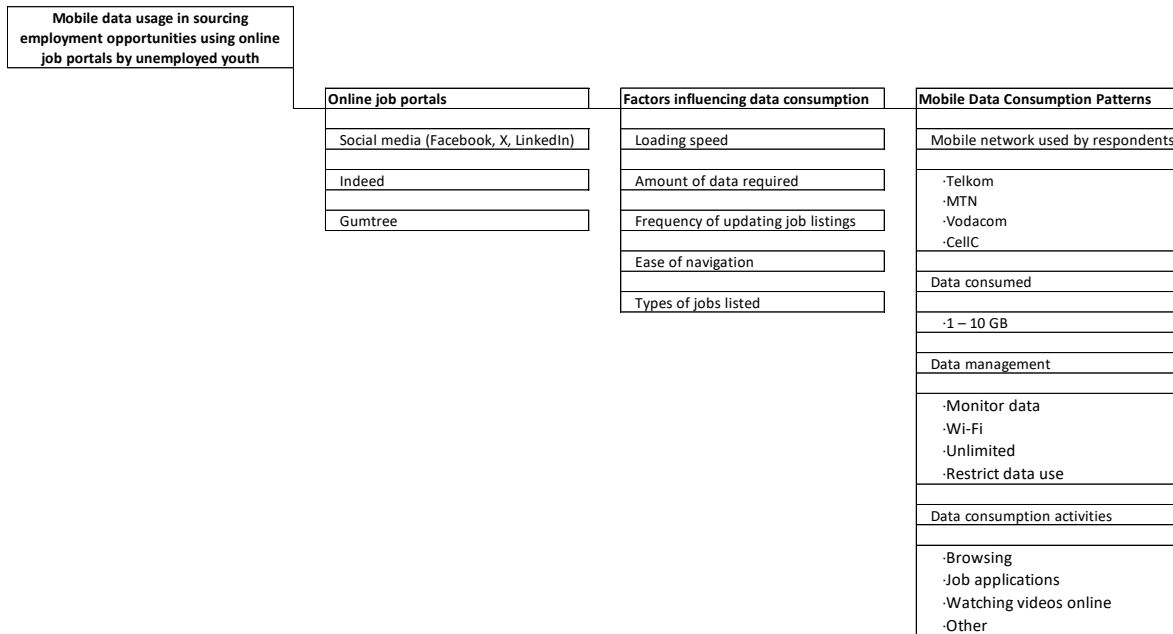


Figure 5.1 Synopsis model of the study

The synopsis model of the study is divided into three main sections, namely: online job portals, factors influencing data consumption, and mobile data consumption patterns. Using the information presented, the following sections will deal with conclusions and recommendations pertaining to this model.

5.4 CONCLUSIONS AND RECOMMENDATIONS RELATED TO THE FIRST RESEARCH OBJECTIVES: ONLINE JOB PORTALS

5.4.1 Conclusions relating to online job portals

Among unemployed youth in the townships, social media, Indeed and Gumtree emerged as highly preferred online job portals. Of the participants who opted to report 'other' means of reaching online placements, a few indicated they used CareerJunction, LinkedIn and Western Cape Government portals. Although social media platforms such as Facebook and X (formerly Twitter) may offer similar benefits, this information was not elicited as part of the study. Further research along these lines is recommended in future studies. The qualitative findings shed light on the reasons behind this preference, citing Indeed's extensive job postings, user-friendly interfaces

and the dedicated section for local job opportunities on Gumtree. This highlights the advantage of qualitative research in providing in-depth understanding.

The quantitative findings further reinforced the popularity of social media and Indeed, with a substantial number of respondents indicating their utilisation of these platforms for job searching. Both qualitative and quantitative data converged on the notion that social media and Indeed are widely utilised by unemployed youth in the townships. Additionally, both data types emphasise the significance of these platforms in offering a diverse range of job opportunities and catering to the unique needs and preferences of the youth. However, some divergence is observed in the findings. While the qualitative data mention Gumtree as another popular choice among respondents, the quantitative data indicated a slightly lower proportion of respondents using it compared to social media and Indeed. The qualitative findings complement the quantitative results by providing insights into why Gumtree is preferred, including its local relevance and the perception of better chances for finding employment in their area.

Overall, the above conclusions emphasise the importance of social media platforms as preferred online job portals among unemployed youth in the townships. The findings highlight the need for these platforms to continue offering a wide range of job opportunities and user-friendly interfaces. Additionally, the unique appeal of Gumtree, driven by its local relevance, suggests the value of considering region-specific platforms in addressing the needs of unemployed youth.

5.4.2 Recommendations relating to findings on online job portals

Based on the conclusions derived from integrating qualitative and quantitative findings related to online job portals, several recommendations can be put forth to optimise the utilisation and effectiveness of these platforms for unemployed youth in the Cape Metropolitan townships. These include:

- **Enhancement of job listings and diversity:** Job portals, including social media platforms and Indeed, should continuously update and expand their job listings to encompass a broader range of industries and positions. This ensures a diverse selection of opportunities that align with the diverse interests and skills of unemployed youth.
- **Improvement of user experience and interface design:** Job portals should prioritise user-friendly interfaces and intuitive design to enhance the ease of navigation and job search experience. Clear and concise job descriptions streamlined application processes,

and personalised recommendations can significantly improve user engagement and satisfaction.

- **Strengthening of local relevance:** Platforms such as Gumtree, recognised by respondents as locally relevant, should emphasise their focus on local job opportunities. Enhancing partnerships with local businesses and actively promoting local job listings can attract more users and contribute to the challenge of unemployment.
- **Leveraging of social media for job searching:** Organisations, employers, and job portals should actively engage with social media platforms to leverage their reach and influence in job searching and recruitment. Regularly sharing job postings, engaging with users, and utilising targeted advertising can connect unemployed youth and increase visibility.

By continuously improving their offerings and leveraging the power of social media, these platforms can play a pivotal role in connecting job seekers with employment opportunities, thereby reducing youth unemployment rates.

5.5 CONCLUSIONS AND RECOMMENDATIONS RELATED TO THE SECOND RESEARCH OBJECTIVE: FACTORS INFLUENCING DATA CONSUMPTION

5.5.1 Conclusions relating to factors influencing data consumption

The qualitative findings shed light on the factors influencing data consumption patterns among youths using online job portals. The research revealed that youths prefer certain mobile network operators (MNOs), particularly Cell C and Telkom. This preference is primarily driven by network coverage, connectivity, and promotional offers. The activities identified as significant contributors to data consumption included browsing job listings, submitting applications, and engaging with multimedia content. Furthermore, the findings indicate that youths actively manage their data usage by monitoring their data consumption statistics and leveraging Wi-Fi networks whenever available. These conclusions emphasise the critical role of network coverage, reliability, affordability, and effective data management in facilitating access to online job portals.

5.5.2 Recommendations relating to factors influencing data consumption

Based on the conclusions drawn from the study's findings, several recommendations can be made to address factors influencing data consumption among youths using online job portals. Firstly, mobile network operators should prioritise improving network coverage and connectivity

to ensure reliable and seamless access to online job portals. Promotional offers and affordable data plans targeting job seekers could attract and retain this user demographic. Additionally, online job portals should optimise their platforms to minimise data usage while maintaining an optimal user experience. Implementing data-saving features, providing compressed or low-bandwidth versions of multimedia content, and enabling offline browsing options could significantly reduce data consumption. Furthermore, educating, and empowering job seekers about effective data management practices, such as regularly monitoring data usage, setting data limits, and utilising Wi-Fi networks, can contribute to more efficient data consumption habits. By implementing these recommendations, stakeholders can enhance the accessibility and affordability of online job portals, thereby improving employment opportunities for youths and promoting digital inclusion.

5.6 CONCLUSIONS AND RECOMMENDATIONS RELATED TO THE THIRD RESEARCH OBJECTIVE: MOBILE DATA CONSUMPTION PATTERNS

5.6.1 Conclusions relating to mobile data consumption.

The findings from the third research objective provide complementary insights into the patterns of mobile data consumption when using online job portals for employment opportunities. The qualitative findings indicated that among youths in Cape Metropolitan, CellC and Telkom are the preferred mobile network operators due to their excellent network coverage, reliability, and affordability. These findings underscore the importance of network coverage and connectivity in ensuring uninterrupted access to online job portals. Additionally, the qualitative data highlights the influence of promotional offers on the choice of the mobile network operator, emphasising the need for attractive promotions to capture the attention of the youth demographic. Furthermore, the qualitative findings shed light on the activities that contribute to data consumption, such as job listing browsing, application submission, and watching job-related videos. Respondents emphasized the importance of efficient search functionality, lower data consumption options, and Wi-Fi connectivity for data-intensive activities. These findings highlight the importance of job portals optimizing their platforms by providing efficient browsing and job application processes, as well as options for users to effectively manage their data consumption. In contrast, the quantitative findings provided a broader perspective by quantifying respondents' mobile network usage and data consumption. The data revealed that CellC is the most popular network, closely followed by Telkom and Vodacom. These quantitative insights provide valuable information on the potential market share of different networks, highlighting their competition. It suggests a

potential demand for tailored data plans and packages that cater to the specific needs of job seekers.

Furthermore, the quantitative findings demonstrate that many respondents actively manage their data usage by monitoring their consumption and adjusting their activities accordingly. They prefer utilising Wi-Fi connections whenever possible to conserve mobile data. These conclusions highlight the significance of data monitoring, activity adjustment, and the preference for Wi-Fi utilisation as effective strategies for managing mobile data usage.

5.6.2 Managerial recommendations relating to mobile data consumption

Based on the conclusions drawn from the findings related to mobile data consumption patterns, several managerial recommendations can be made. These include:

- **Enhancement of network coverage and reliability:** Mobile network operators should prioritise improving their network coverage and ensuring reliable connectivity, which is a significant factor influencing the choice of mobile network operators among job seekers.
- **Offering of attractive promotional offers:** Mobile network operators should develop appealing promotional offers targeted at the youth demographic to capture their attention and encourage them to choose their services.
- **Optimisation of job portal platforms:** Job portals should optimise their platforms to provide efficient browsing and job application processes, ensuring a seamless user experience while minimising data consumption.
- **Provision lower data consumption options:** Job portals should offer options that allow users to manage their data consumption effectively, such as compressed data formats or data-saving features, to accommodate users with limited data plans.
- **Facilitation of Wi-Fi connectivity:** The local authorities should expand on current efforts to provide free Wi-Fi in public spaces.

5.7 STUDY LIMITATIONS

Although this study gives significant insights into mobile data consumption patterns and their implications for job search activities, it is critical to understand the research limitations. These restrictions include sample size and geographic scope as explained below.

5.7.1 Sample size

For the quantitative data, the sample size of the study limits the generalisability of the findings. A larger sample comprising more than 380 participants and a more diverse sample could provide a more complete picture of mobile data consumption patterns among job seekers in the Cape Metropole.

5.7.2 Geographic scope

The study concentrated on the Cape Metropolitan area, which may limit the findings' applicability to other regions. Similar research in different geographical locations would provide a more comprehensive picture of mobile data consumption patterns.

5.8 RECOMMENDATIONS FOR FURTHER STUDIES

Building upon the insights gained from this study, the four recommendations for further research are proposed.

5.8.1 Comparative studies

A comparative analysis of mobile data consumption patterns across different provinces or Metropolises is recommended to identify variations in mobile network operator preferences, data usage patterns, and the impact on job search activities. This analysis would provide valuable insights into variations in mobile network operator preferences, data usage patterns, and the impact on job search activities, allowing for a more comprehensive understanding of the dynamics at work throughout South Africa. Furthermore, such a comparative analysis could guide the development of targeted strategies and interventions tailored to the specific needs and preferences of job seekers in each location.

5.8.2 Longitudinal studies

Longitudinal studies tracking changes in mobile data consumption patterns over time would provide a more in-depth understanding of evolving trends and the impact of technological advancements on job search activities. Longitudinal studies can help monitor changes in mobile data consumption patterns over time and capture the changing nature of job search activities influenced by evolving technological advancements. This comprehensive examination would

improve understanding of how mobile data usage for job searching evolves and adapts to changing technology and employment opportunities.

5.8.3 User experience research

Future studies could conduct user experience (UX) research to investigate user experience aspects related to mobile data consumption, such as user satisfaction, challenges encountered, and usability of job portal platforms. This study could help to develop user-centric design strategies and improvements.

5.8.4 Interventions and strategies

Other studies could investigate the effectiveness of interventions and strategies used to assist young people in finding employment. This could include assessing the efficacy of data-saving features, personalised data plans, or educational campaigns to promote efficient data usage. This allows for a more comprehensive understanding of mobile data consumption patterns and their implications for job search activities by addressing these issues in future research, leading to better strategies and interventions for job seekers and mobile network operators.

5.9 CHAPTER SUMMARY

This chapter revealed the study's synopsis model, which presented the study's findings, conclusions and recommendations. The study's findings emphasize the popularity of social media platforms, particularly Indeed, as highly preferred online job portals in the context of this study. The qualitative findings illuminated the reasons for this preference, while the quantitative data confirmed its popularity. Gumtree emerged as a popular option, with qualitative insights explaining its relevance in the local context. To facilitate access to job portals, the study emphasizes the importance of network coverage, affordability, user experiences, and efficient data management.

From a theoretical aspect, mobile phones offer advantages to users through features like Internet access that provide users with opportunities. Methodologically, the findings from data sourced from the literature show a significant need to understand the impact of mobile data on the acquisition of better employment opportunities. Businesses and the government are failing to address the problem of people accessing job portals using mobile data. It reveals that people depend on mobile data to complete their everyday lives by interacting with their close ones. The literature also shows that the young generation believes in ICT's influence. The study's results

back up Alvarez and Nuthall (2008)'s assertion that specific causes have an indirect and direct interaction and may affect ICT use positively or negatively. Practically, the interviews responses (ANNEXURE B) formed an initial segment of a questionnaire-based data collection strategy. The researcher sat with a select group of five participants designed to find out the central issues of this research: exploring the preferred online job portals for sourcing employment by unemployed youth in the Cape Metropole townships and factors that can influence data consumption in sourcing employment opportunities using online job portals. The mobile data interception tool was used to find out the volume of mobile data that gets consumed when accessing online job portals. The research finally considered the patterns of mobile data consumption in sourcing employment opportunities using online job portals.

The chapter acknowledges the study's limitations, such as sample size and geographic scope, and makes suggestions for future research. Conducting comparative analyses of mobile data consumption patterns across different regions, longitudinal studies to track evolving trends, user experience research to improve platform usability, and investigating the impact of interventions and strategies are among the recommendations. Stakeholders can improve the accessibility, efficiency, and effectiveness of online job portals by addressing these issues, thereby increasing employment opportunities for unemployed youth, and fostering digital inclusion. Future research can build on these findings to learn more about mobile data consumption patterns and their broader socioeconomic implications.

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ANNEXURES

ANNEXURE A: CONSENT FORM

Consent Form for Study: Preferred online job portals for unemployed youth in Cape Metropole Townships

Dear Sir / Madam,

You are invited to participate in a research study on the preferred online job portals and mobile data consumption patterns among unemployed youth in Cape Metropole townships. Your insights will help understand the factors influencing your preferences for online job portals and how you manage your mobile data usage during job searching.

Participation in this study is voluntary, and your identity will remain anonymous. The information collected will be used for research purposes only and will be kept confidential. The interview will last approximately 30 minutes and will be audio-recorded with your consent.

Your contribution to this study will provide valuable insights into the job-seeking experiences of unemployed youth and improve the understanding of online job portal preferences in the Cape Metropole townships.

By agreeing to participate, you acknowledge your understanding of the study's purpose and consent to the interview and audio recording. If you have any questions or concerns, please feel free to contact me at

Thank you for considering participation in this study. Your input is highly appreciated.

Sincerely,

Tumelo Theophilus Gasetlolwe

Researcher

ANNEXURE B: INTERVIEW RESPONSES FROM UNEMPLOYED YOUTH IN THE CAPE METROPOLE TOWNSHIPS

Interview Question	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5
Age:	32	34	24	26	26
Education level successfully completed Matric, undergraduate, postgraduate?	Matric	Undergraduate	Undergraduate	Undergraduate	Matric
How often do you use the internet?	Frequently	Always	Twice a week	Frequently	Everyday
What device do you use to serve internet?	Mobile phone	Mobile phone	Mobile phone	Mobile phone	Mobile phone
How often do you make use of the free WIFI provided by the City of Cape Town municipality?	Never	Sometimes	Sometimes	Sometimes	Sometimes
What is the network operator you <u>using</u> on your mobile phone?	MTN	MTN	Telkom	Telkom	MTN
For home internet access, do you depend on public <u>wifis</u> or make use of personal mobile data services?	Mobile phone	Mobile phone	Mobile phone	Mobile phone	Mobile phone
How do you source employment opportunities?	Sometimes	Once a week	Twice in a month	I <u>cant</u> remember	Sometimes
What is your preferred online job portal for sourcing employment opportunities?	Indeed	Indeed	Gumtree	Indeed	Gumtree
Does sourcing and applying for online job opportunities give one a higher chance of getting	Yes	Yes	IF you lucky	Maybe	Yes

employed as compared to someone still depending on old ways to source for opportunities?					
Which one makes it easier for you to apply for opportunities? Online, Post or drop off	Online	Online	Online	Online	Online
How do you source employment opportunities?	Online	Online	Online	Online	Online
Do you know of any <u>zero rated</u> job portals?	No	No	No	No	no
Do you see the need to be connected when you unemployed?	Yes	Yes	Maybe	Yes	Yes
How much do you spend on mobile data per month?	R150.00	R300.00	R120.00	R200.00	R350.00
To what extend do you need data during the day?	For WhatsApp	For social media	<u>Whatsapp</u> and <u>facebook</u>	<u>Whatsapp</u> and <u>emails</u>	<u>Whatsapp</u> and <u>youtube</u>
What are the positive impacts of having mobile data?	communication	Safety	Social media and communication	<u>Communication</u> as staying work	Social media and entertainment
What are the negative impacts of having mobile data?	Nothing	Not being productive	None	Nothing	Nothing

Do you think there's a need for free Wi-Fi?	Yes	Yes, fully agree	Yes	Yes	Yes, for socialising
Do you think it is possible for the government to provide free data for all?	Yes, government has money	Yes,	Yes, just like they do with WIFI's	Yes	No
Do you ever spend more than expected for data?	Yes	Always	Sometimes	Yes	Yes
How will lowering the price of data have an impact in you?	I won't have to ask people for mobile data money	I'll browse the internet relaxed at my own time	I won't have walk towards wifi routers for access	I'll be able to do online courses for free at my place	I'll have enough time to seek for employment online
What should be done if the telecom companies are not eager to drop the price of data in the country?	Government should give us free data	They should put wifi spots all over our areas	Those companies should be closed	Government should intervene	We should just boycott these companies

Interview Question	Respondent 6	Respondent 7	Respondent 8	Respondent 9	Respondent 10
Age:	23	30	32	29	24
Education level successfully completed Matric, undergraduate, postgraduate?	Matric	Undergraduate	Undergraduate	Postgraduate	Matric
How often do you use the internet?	Frequently	Always	Everyday	Always	Everyday
What device do you use to serve internet?	Mobile phone	Mobile phone	Mobile phone	Moms laptop	Mobile phone
How often do you make use of the free WIFI provided by the City of Cape Town municipality?	Never	Sometimes	Never	Always	Sometimes
What is the network operator you using on your mobile phone?	Telkom	MTN	Telkom	Vodacom	MTN
For home internet access, do you depend on public wifis or make use of personal mobile data services?	Mobile phone	Mobile phone	Mobile phone	Mobile phone	Mobile phone
How do you source employment opportunities?	Always	Once a week	Sometimes	Always does	Sometimes
What is your preferred online job portal for sourcing employment opportunities?	Gumtree	Gumtree	Social media	Social media	Gumtree
Does sourcing and applying for online job opportunities give one a higher chance of getting	Yes	Yes	Yes	Of cause yes	Yes

employed as compared to someone still depending on old ways to source for opportunities?					
Which one makes it easier for you to apply for opportunities? Online, Post or drop off	Online	Online	I try all options	Online	Online
How do you source employment opportunities?	Online	Online	Online, Municipal office	Online	Online
Do you know of any <u>zero rated</u> job portals?	No	No	No	Not sure	no
Do you see the need to be connected when you unemployed?	Yes	Yes	Maybe	Yes	Yes
How much do you spend on mobile data per month?	R300.00	R500.00	R180.00	R250.00	R150.00
To what extend do you need data during the day?	<u>Whatsapp</u> and <u>facebook</u>	For social media	<u>Whatsapp</u> and <u>facebook</u>	For social media	Searching for jobs
What are the positive impacts of having mobile data?	Social media and entertainment	Social media and entertainment	Social media and communication	Communication as staying work	Searching for jobs
What are the negative impacts of having mobile data?	Nothing	Nothing	None	Nothing	Nothing

Do you think there's a need for free Wi-Fi?	Yes	Yes	Yes	Yes	Yes, for socialising
Do you think it is possible for the government top provide free data for all?	Yes	Yes,	Yes,	No, they <u>struggling</u>	No
Do you ever spend more than expected for data?	Always	Always	Sometimes	Yes	Always
How will lowering the price of data have an impact in you?	I will be able to apply for jobs online	I'll have enough internet to keep myself home	I <u>wont</u> have to go to the public library for internet	I'll be able to do online courses free at my place	I'll have enough time to seek for employment online
What should be done if the telecom companies are not eager to drop the price of data in the country?	Provide free <u>wifis</u> everywhere	They should put <u>wifi</u> spots all over our areas.	Provide free <u>wifis</u> everywhere	Government should intervene	We should just boycott these companies

Interview Question	Respondent 11	Respondent 12	Respondent 13	Respondent 14	Respondent 15
Age:	26	31	21	28	22
Education level successfully completed Matric, undergraduate, postgraduate?	Undergraduate	Postgraduate	Undergraduate	Undergraduate	undergraduate
How often do you use the internet?	Frequently	Everyday	Frequently	Frequently	Everyday
What device do you use to serve internet?	Mobile phone	Mobile phone and laptop	Mobile phone	Mobile phone	Mobile phone
How often do you make use of the free WIFI provided by the City of Cape Town municipality?	Never	Never	Never	Sometimes	Sometimes
What is the network operator you using on your mobile phone?	Telkom	Telkom	Telkom	Cell C	MTN
For home internet access, do you depend on public wifis or make use of personal mobile data services?	Mobile phone	Mobile phone and laptop	Mobile phone	Mobile phone	Mobile phone
How do you source employment opportunities?	Sometimes	Sometimes	Always	Frequently	Sometimes
What is your preferred online job portal for sourcing employment opportunities?	Gumtree	Indeed	Social media	Indeed	Gumtree
Does sourcing and applying for online job opportunities give one a higher chance of getting	Yes	Yes	Yes	Maybe	Yes

employed as compared to someone still depending on old ways to source for opportunities?					
Which one makes it easier for you to apply for opportunities? Online, Post or drop off	Online	Online	Online and drop of	Online	Online and post
How do you source employment opportunities?	Online	Online	Online	Online	Online
Do you know of any <u>zero rated</u> job portals?	No	No	No	No	no
Do you see the need to be connected when you unemployed?	Yes	Yes	Maybe	Yes	Yes
How much do you spend on mobile data per month?	R250.00	R500.00	R250.00	R200.00	R300.00
To what extend do you need data during the day?	For social media	For social media	<u>Whatsapp</u> and <u>facebook</u>	<u>Whatsapp</u> and emails	<u>Whatsapp</u> and <u>facebook</u>
What are the positive impacts of having mobile data?	Communication and <u>saftey</u>	Sourcing opportunities	Social media and communication	<u>Comunication</u> as staying work	Communication and <u>saftey</u>
What are the negative impacts of having mobile data?	Nothing	None	None	Nothing	Nothing

Do you think there's a need for free Wi-Fi?	Yes	Yes,	Yes	Yes	Yes, for socialising
Do you think it is possible for the government top provide free data for all?	Yes,	Yes	Yes	Yes	No
Do you ever spend more than expected for data?	Yes	Always	Sometimes	Yes	Yes
How will lowering the price of data have an impact in you?	I <u>wont</u> have to ask people for mobile data money	I'll browse the internet relaxed at my own time	I <u>wont</u> have walk towards <u>wifi</u> routers for access	I'll be able to do online courses free at my place	I'll have enough time to seek for employment online
What should be done if the telecom companies are not eager to drop the price of data in the country?	<u>Wifi</u> should be everywhere around townships	They should put <u>wifi</u> spots all over our areas	Those companies should be closed	Government <u>help</u> us convince these companies to lower the prices	Public <u>wifi</u> access to all

ANNEXURE C: ETHICAL CLEARANCE



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12 April 2022

Mr Tumelo Gasetlolwe
c/o Department of Information Technology
CPUT

Reference no: 212064096/2022/9

Project title: *Usage of mobile data for accessing online job portals: A case study of unemployed youth in the Cape Metropole townships of South Africa.*

Approval period: 12 April 2022 – 31 December 2023

This is to certify that the Faculty of Informatics and Design Research Ethics Committee of the Cape Peninsula University of Technology conditionally approves the methodology and ethics of Mr Tumelo Gasetlolwe (212064096) for Master of technology: Discipline (Information technology).

Any amendments, extension or other modifications to the protocol must be submitted to the Research Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.



Dr Blessing Makwambeni
Acting Chair: Research Ethics Committee
Faculty of Informatics and Design
Cape Peninsula University of Technology

ANNEXURE D: THE INTERVIEW PROTOCOL

Interview Protocol for study: preferred online job portals for unemployed youth in cape metropole townships

Hello, my name is Tumelo, and I'm conducting a study on the preferred online job portals for unemployed youth in Cape Metropole townships. Thank you for agreeing to participate. Your insights are valuable in understanding the factors that influence your preferences for online job portals and your mobile data consumption patterns.

1. Introduction and consent

Before we begin, I'd like to explain the purpose of the study and seek your voluntary participation. Your involvement is entirely optional, and you have the right to withdraw at any time. May I have your consent to proceed with the interview?

2. Demographic information

First, I'd like to know a bit about you. Could you please share some basic demographic information, such as your age, gender, educational background, and any relevant experiences related to job searching?

3. Preferred online job portals

Let's talk about the online job portals you prefer for job searching. Could you tell me which portals you often use and why you prefer them? What specific features or factors make these portals stand out to you?

4. Factors influencing data consumption

Now, I'd like to understand more about the factors that influence your data consumption while using online job portals.

4.1 Loading speed of job portal pages

How important is the loading speed of job portal pages to you? Have you encountered any frustrations or challenges with slow loading times? How does this affect your browsing experience and data usage?

4.2 Amount of data required to access job listings

Do you prefer job portals that provide concise and pertinent details from the start, or do you find yourself navigating through multiple pages to find information? How does the amount of data required to access job listings impact your data consumption?

4.3 Frequency of updating job listings

How important is it for job portals to have frequently updated job listings? Have you experienced any issues with outdated postings? How does this affect your data usage and job search efficiency?

4.4 Ease of navigation

Do you consider the ease of navigation when using job portals? How important is user-friendly features in managing your data consumption?

4.5 Types of jobs listed

Do you prefer job portals that offer a diverse range of job categories and opportunities? How does the variety of jobs listed impact your data usage and job search experience?

5. Mobile data consumption patterns

Now, let's talk about your mobile data consumption patterns while using online job portals.

5.1 Mobile network operators

Which mobile network operators do you use for data services, and why? Are factors such as network coverage, affordability, and connectivity important to you?

5.2 Activities influencing data consumption

What specific activities do you engage in while using job portals? Do activities like video interviews and multimedia content consumption significantly affect your data usage?

5.3 Mobile data usage management

How do you manage your mobile data usage? Do you prioritise using Wi-Fi networks whenever possible? How do you monitor your data usage and avoid exceeding data plan limits?

6. Additional insights

Is there anything else you would like to share regarding your preferences for online job portals and your mobile data consumption habits? Any other factors or experiences that you believe are relevant to the study?

7. Thank you and debrief.

Thank you so much for your participation and valuable insights. Your input will contribute to a better understanding of online job portal preferences and data consumption patterns among unemployed youth. If you have any questions or need further information about the study, please feel free to ask.

ANNEXURE E: QUESTIONNAIRE

MOBILE DATA CONSUMPTION SURVEY

Hello colleagues

I am conducting a Mobile Data Consumption Survey to gather information on mobile data usage patterns when searching for employment. We invite you to participate in this survey and share your experiences regarding mobile data consumption while seeking job opportunities.

Your valuable input will help us understand the factors influencing data consumption and explore the relationship between online job portal usage and mobile data usage. The survey will consist of a series of questions related to your mobile data usage habits, preferred online job portals, and any challenges or considerations you encounter while using mobile data for job searches.

Section A: Preferred Online Job Portals

1. Which online job portals do you frequently use for sourcing employment opportunities? (Select all that apply)

Check all that apply.

- Social Media
- Indeed
- Gumtree
- Other: _____

Section 2: Factors Influencing Data Consumption

How do you prioritize the following factors when considering data consumption while using online job portals? Please rate each factor on a scale of 1 to 5, with 1 being "Not Important" and 5 being "Very Important."

2. Loading speed of job portal pages

Mark only one oval.

Not Important

1

2

3

4

5

Very Important

3. Amount of data required to access job listings

Mark only one oval.

Not Important

1

2

3

4

5

Very Important

4. Frequency of updating job listings

Mark only one oval.

Not Important

1

2

3

4

5

Very Important

5. Ease of Navigation

Mark only one oval.

Not Important

1

2

3

4

5

Very Important

6. Types of jobs listed

Mark only one oval.

Not Important

1

2

3

4

5

Very Important

Section 3: Mobile Data Consumption Patterns

7. On average, how much mobile data do you consume per month while using online job portals for employment searches? Please select the most appropriate option

Mark only one oval.

Less than 1GB

1GB to 5GB

5GB to 10GB

More than 10GB

8. What is the network operator you using on your mobile phone?

Check all that apply.

- Telkom
- MTN
- Vodacom
- CellC
- Rain
- Other

9. Which activities contribute most to your mobile data consumption while using online job portals? (Select all that apply)

Check all that apply.

- Browsing and searching for job listings
- Uploading or submitting job applications
- Watching videos or multimedia content related to job opportunities
- Engaging in online assessments or tests
- Other activities

10. How do you manage your mobile data usage while searching for employment opportunities? Please select the most appropriate option

Mark only one oval.

- I have an unlimited data plan, so I don't actively manage my usage.
- I monitor my data usage regularly and adjust my activities accordingly.
- I restrict certain data-heavy activities to minimize consumption.
- I rely on Wi-Fi connections whenever possible.
- Other

Section 4: Demographic Information

11. Gender

Mark only one oval.

- Male
- Female
- Prefer not to say

12. How old are you?

Mark only one oval.

- 18-25
- 26-30
- 30-35

13. How would you describe your highest educational level?

Mark only one oval.

- Matric
- Certificate
- Diploma
- Advanced Diploma
- Bachelors Degree
- Honours Degree