EPiC Series in Education Science

Volume 6, 2024, Pages 66–77

Proceedings of the NEMISA Digital Skills Summit and Colloquium 2024

Exploring Policy Intervention Strategies for Digital Skills Employment Opportunities In The Limpopo Province

Hope Makuwa[1], Ntjeketji Charlotte Phooko[1] and James Lentsoane[1]

1 EasyChair

[1]university of Limpopo, Limpopo, South Africa

201810604@keyaka.ul.ac.za, ntjeketji.phooko@ul.ac.za, james.lentsoane@ul.ac.za

Abstract

In today's rapidly changing job market, there is a growing demand for digital skills. However, within Limpopo Province, many people face challenges due to a lack of necessary digital skills for the modern workforce. This digital skills gap is a big concern as it is affecting people's ability to find jobs. One reason for this problem is that policies aimed at improving digital skills are not being implemented quickly. For example, the South Africa Connect initiative, launched by the government in 2013, aimed to provide internet access to all schools by 2020, with even faster speeds by 2030. Nevertheless, these goals have not been met on time and this raises questions about how effective these policies are in addressing the digital skills gap and helping people find jobs in Limpopo. The study's main goal was to assess how well these policies, especially the South Africa Connect initiative, are working to improve digital skills and job opportunities in the study area. Moreover, the study employed content analysis as its methodology. The content analysis focused on selected policy documents, aiming to systematically scrutinise these documents for criteria. These criteria included policy objectives, timelines, allocated resources and strategies designed to tackle the digital skills gap comprehensively. The study found that many students in the study area do not have access to the necessary digital tools, creating a significant digital skills gap. While the policies aimed to improve digital skills and job prospects, they need adjustments to work better in rural areas. In light of this, there is a need to accelerate the implementation of the South Africa Connect policy in rural schools, with a focus on achieving the connectivity targets set for 2020 promptly and it is essential to establish customised digital skills training programs tailored specifically to the distinct requirements of rural communities. To sum the study, addressing the digital skills gap in Limpopo Province requires swift policy implementation, tailored training, and ongoing stakeholder engagement for improved employability.

Keywords: Digital skills gap, policy intervention, employment opportunities, strategies, South Africa connect initiative

H. Twinomurinzi, N.T. Msweli, S. Gumbo, T. Mawela, E. Mtsweni, P. Mkhize and E. Mnkandla (eds.), NEMISA DigitalSkills 2024 (EPiC Series in Education Science, vol. 6), pp. 66–77

1 Introduction

The contemporary job market increasingly demands individuals to possess advanced digital skills to secure sustainable employment (Jagannathan & Maclean, 2019). However, regions like Limpopo Province in South Africa are facing challenges in adapting to these demands due to their economic and social complexities (Lebopa, 2023). According to Bano & Vasantha (2019), the digital skills gap is a significant concern as it directly impacts employability and restricts access to job opportunities. These challenges are further elucidated by Selane (2021), who asserts that the sluggish implementation of policies aimed at enhancing digital skills is a primary contributing factor to this issue. For instance, the South Africa Connect (SA Connect) initiative, launched in 2013, aimed at expanding broadband access throughout the country, specifically in Limpopo Province. The initiative's primary goal was to ensure the availability of broadband internet at every primary and secondary school in the province by 2030, anticipating a digital transformation in education. However, the initiative has not been fully implemented, posing a significant obstacle to achieving its objectives (Deganis, 2021).To investigate the impact of the slow implementation of policies designed to enhance digital skills on individual employability and access to job opportunities in Limpopo Province, this study delves into the implications of the digital skills gap, which extend beyond individual employability and job opportunities. As highlighted by the World Bank (2020), the consequences encompass the overall development of the region.

2 Problem Statement

In our increasingly digital world, the ability to navigate evolving technologies and leverage digital skills is pivotal for accessing job opportunities (Radovanović, 2020). This study focuses on a critical issue: the substantial digital skills gap and its direct impact on regional employment, particularly in Limpopo province. Recent data from the Statistics South Africa Quarterly Labour Force Survey (Q4 2022) illuminates challenges in Limpopo. While the region gained 169,000 jobs from Q3 to Q4 2022, the total number of unemployed individuals increased by 28,000, reaching 7.8 million in Q4 2022. Youth aged 15-34 face a staggering 45.3% unemployment rate, emphasising the urgency of addressing the digital skills gap's impact on employment. Madzunye (2021) stated that the development of digital skills in Limpopo is hindered by a critical lack of resources, especially in primary and secondary schools; even when schools have computer labs, these facilities are often under-resourced, featuring outdated or insufficient technology. Moreover, limited internet access further hampers effective digital skills training. This shortage in digital education restricts individuals from accessing digital employment

opportunities, contributing to sustained high youth unemployment rates and socio-economic disparities. Compounding the issue is the inadequacy of policy interventions. While the South Africa Connect initiative falls short of equipping Limpopo residents with the essential digital skills for the 21st century job market, other policies such as the National Integrated ICT Policy White Paper (2016), the Broadband for All Strategy (2013), and the National e-Skills Institute (NeSI) Strategy (2017) also play a role in addressing digital skills and connectivity. However, these policies face challenges in effectively bridging the digital divide in Limpopo, requiring a comprehensive and strategic policy intervention that addresses the development of digital skills and employment opportunities in the region.

3 Aim and Objectives

3.1 The aim of the study

The study aims to explore the role of policy intervention strategies for digital skills development and employment opportunities within the Limpopo province.

3.2 Research Questions

- What is the current level of digital skills proficiency in the Limpopo workforce?
- How effective are existing policy interventions related to digital skills in Limpopo?
- What is the alignment of current digital skills with contemporary job market demand in Limpopo?

3.3 The objectives of this study are to:

- Assess the current state of digital skills proficiency in the Limpopo Province,
- Evaluate the implementation of existing policy interventions related to digital skills,
- Investigate the alignment of current digital skills with contemporary job market demands in the Limpopo province

4 Definition of concepts

4.1 Policies: are established guidelines, rules and legislative measures crafted by organisations. They serve as the framework directing actions and decisions associated with the development and deployment of digital skills (Andrychowicz et al., 2020).

4.2 Strategies: refer to systematically organised approaches and strategies designed to facilitate the development and proficient application of digital skills. Their primary aim is to stimulate employment growth by strategically leveraging digital competencies (Chonsalasin & Khampirat, 2022).

4.3 Digital Skills Development: encompasses the process of acquiring, enhancing competencies and knowledge essential for the effective utilisation of digital technologies and tools (Freiman, 2017).

4.4 Deployment of Digital Skills: refers to the practical application and utilisation of digital skills within the workforce or professional settings. This involves the seamless integration of digital skills into job duties and operational processes (Parry, 2018).

4.5 Employment growth: signifies the measurable increase in job opportunities and the overall expansion of the workforce within an economy (Downing, 2019). This concept serves as a pivotal metric for evaluating the effectiveness of policy interventions and strategies on digital skills employment in the specified.

5 Literature review

5.1 General introduction

Digital skills have become crucial in the contemporary job market, especially during COVID-19 pandemic, which led to a significant loss of jobs worldwide (Sibiya, 2023). According to Freiman et al. (2017), these skills serve as the foundation for fostering innovation, entrepreneurship and competitiveness. Enhancing career prospects, maintaining a competitive edge and adapting to the demands play a role in modern workforce (Rakowska & de Juana-Espinosa, 2021).In the current job market, digital skills are exceptionally in high demand, particularly in companies leading in software development and technology infrastructure (Jin, 2021). Employees equipped with these skills are better positioned to increase their earning potential, explore new job opportunities and stand out in the competitive employment landscape (Jin, 2021). Digital skills empower employees to enhance

productivity, streamline workflows and creatively tackle workplace challenges (Padmanabhan, 2023). In a rapidly evolving technological world, adaptability is invaluable. The ability to navigate digital tools and platforms enables employees to swiftly adapt to new job roles, collaborate effectively, and stay updated with industry trends (Dittes at al., 2019). Digital skills offer immense advantages, developing them can be challenging, especially for individuals who may not have grown up with technology (Van Deursen & Van Dijk 2014). The rapid pace of technological advancements poses a considerable hurdle, requiring individuals to commit to ongoing learning and professional development. Fear feeling overwhelmed by the volume of information to be learned can deter individuals from acquiring digital skills. Therefore, breaking down learning goals into smaller, achievable tasks and requires effective policy interventions (Brunetti et al., 2020).

5.2 The South Africa Connect policy

The South Africa Connect initiative, launched in 2013 by the South African Government under the Department of Telecommunications and Postal Services (DTPS), aims to address digital disparities and enhance employment opportunities, particularly in underserved areas such as the Limpopo province (Mwapwele at al., 2019). This policy intervention sets ambitious goals, including the provision of high-speed internet access to communities across Limpopo. By increasing broadband accessibility, reducing data communication costs and fostering employment. The initiative seeks to stimulate economic growth and improve the overall quality of life for South Africans. Its scope extends to encompassing the entire South African population, comprising individuals, businesses and government entities. Through these efforts, the South Africa Connect policy strives to bridge the digital divide and promote inclusive development nationwide.

5.3 Empowering learners through enhanced access and resources

The SA Connect initiative plays a pivotal role in providing learners in Limpopo with essential digital tools and resources needed to develop digital skills (Nkadimeng, 2022). By ensuring that schools get high-speed internet access, the initiative expands educational opportunities, granting learners access to a profusion of online educational materials, courses and resources. This not only enhances their digital literacy but also broadens their knowledge base and potential career prospects. Moreover, the initiative contributes to improving digital literacy across the population by facilitating internet access and providing digital devices (Beaunoyer et al., 2020). By addressing digital skills gaps, the initiative support the local workforce's relevance and competitiveness in the job market, especially during the rising demand for digital skills. This is particularly significant in Limpopo province, where various

challenges hinder access to digital resources. The initiative's focus on rural areas is crucial for narrowing the digital divide and ensuring equitable distribution of the benefits of the digital economy across regions (Aruleba & Jere, 2022). This regional emphasis is vital for tackling disparities in digital access and fostering skills development.

5.4 Expanding Opportunities and Inclusive Growth through Broadband Connectivity

The policy outlines the government's strategic objectives and plans for improving broadband connectivity across the country to drive socio-economic development. It is linked to employment through its focus on expanding broadband infrastructure. Improved connectivity can stimulate economic growth, enhance education, and create job opportunities by fostering a more connected and digitally inclusive society. The availability of high-speed internet can contribute to skills development, entrepreneurship, and increased access to online job opportunities. Moreover, the policy aims to increase broadband penetration while bringing down data communication cost and increasing employment and contributing to economic growth. It expands the availability and accessibility of broadband services, ensuring that a greater proportion of the population has access to high-speed internet. The SA Connect policy seeks to lower the costs associated with data communication, making internet services more affordable for individuals and businesses. This affordability is crucial for widespread adoption and usage. By promoting widespread internet access and usage, the policy intends to stimulate economic activity and contribute to job creation.

The digital economy, driven by improved connectivity, is expected to generate employment opportunities across various sectors. The policy recognises the pivotal role that robust broadband infrastructure plays in fostering economic growth. Improved connectivity facilitates innovation, efficiency, and competitiveness, thereby contributing to the overall economic development of the nation. The SA Connect policy sets a specific and ambitious target of providing users with access to broadband at a speed of 100Mbps by the year 2030. This emphasis on high-speed connectivity reflects a commitment to meeting the evolving needs of a digital society

6 Methodology

6.1 Study area and research design

The study was conducted in the Limpopo province, South Africa and empirical analysis research design was employed. Secondary data sources, including existing theses, dissertations, policy documents and other relevant materials, were utilised to address the research objectives. The existing secondary data such as action research type, keywords, theoretical frameworks, academic disciplines, tests, analyses, data collection tools, participants, variables and research interests were reviewed.

6.2 Theoretical Framework

The study employs the Task-Technology Fit (TTF) Model, developed by Doll, Torkzadeh, Goodhue & Thompson in the 1980s. The Model provides a structured approach, focusing on the alignment between task characteristics and digital skills. By concentrating on the alignment between policy interventions and tasks performed by employees, the TTF Model facilitates a comprehensive evaluation of the impact of these interventions. This analysis helps gauge how well implemented policies align with the necessary digital skills for task execution, offering insights into the success or challenges associated with policy implementation.

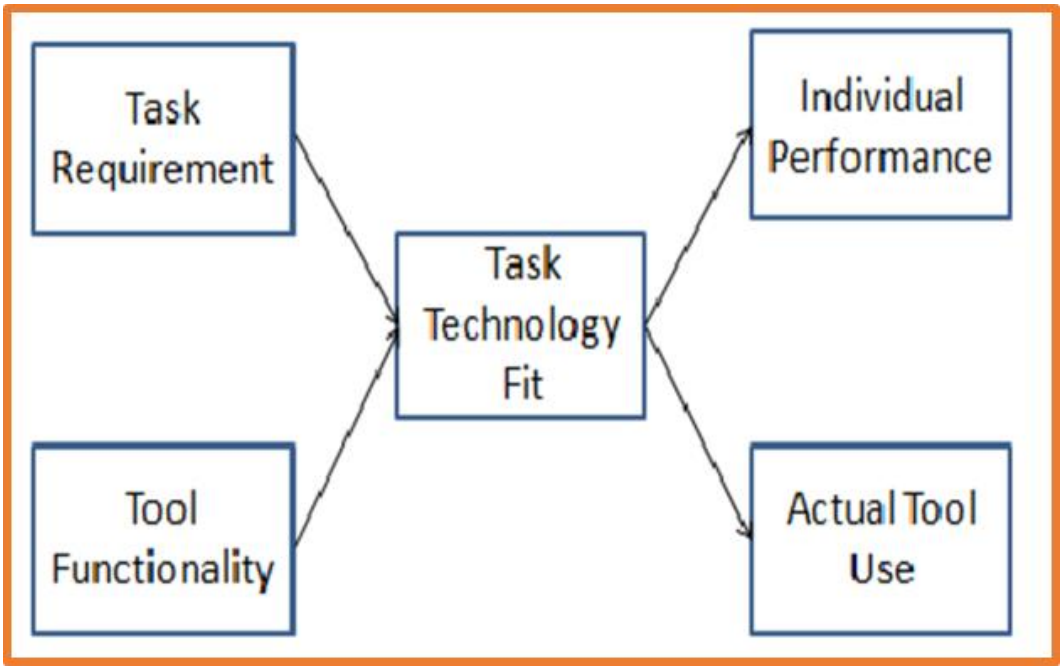

Figure 1: Theoretical model (developed by Doll, Torkzadeh, Goodhue & Thompson in the 1980s)

6.3 Data Collection

The data collection process commenced with the careful selection of policy documents that are directly relevant to the research objectives. These documents were sourced from government agencies, educational institutions or other pertinent authorities. The Data was collected from books, articles, historical documents, interviews and social media content. The previously conducted research and existing research was summarised and collated to enhance the overall effectiveness of the research.

7 Results and discussion

The study finding are outlined as follows:

- Policy intervention strategy towards Economic Growth
- Policy intervention strategy towards the quality of life improvement
- Policy contribution towards digital skills development

7.1 Policy intervention strategy towards Economic Growth

The study finds that as a result of improved connectivity and digital inclusion, the Limpopo province has witnessed a positive impact on its economic growth. As per the literature reviewed, the commercial activities and/or businesses, particularly in rural areas of Limpopo province, have been able to leverage digital technologies for growth and innovation, contributing to the overall economic development of the region. This finding underscores the notion that digital skills and access to technology are not only essential for individuals but also play a crucial role in the economic development of a region (Mojapelo, 2020). The ability of businesses to harness digital tools is a significant driver of economic growth and job creation.

7.2 Policy intervention strategy towards the quality of life improvement

The SA Connect initiative has had a tangible effect on the quality of life for South Africans across provinces (Union, 2020). Akin to the literature findings, with enhanced access to digital resources, residents have gained greater access to education, healthcare and government services. This will lead to an improvement in overall living standards and well-being of the people of Limpopo (Behera, 2021).

7.3 Policy contribution towards digital skills development

The SA Connect Policy initiative has supported digital skills development among the population in SA. It remains evident that increased access to online educational materials and resources in Limpopo Province will contribute to the enhancement of digital competencies, making individuals more competitive in the modern job market. This finding directly addresses the central problem of the digital skills gap as experienced in Limpopo Province as Union (2020) argued.

7.4 Digital Skills Development

This is in parallel with improved connectivity, the initiative has supported digital skills development among the population (Union, 2020). Increased access to online educational materials and resources has contributed to the enhancement of digital competencies, making individuals more competitive in the modern job market a critical finding, as it directly addresses the central problem of the digital skills gap (Union, 2020). The initiative's success in fostering digital skills development is a promising sign for improving employability in Limpopo.

7.5 Job Creation

The SA Connect initiative has indirectly facilitated job creation through the empowerment of businesses and individuals (Zemlyak et al., 2023). The SA Connect initiative has indirectly facilitated job creation through the empowerment of businesses and individuals. The digital skills acquired through improved internet access have led to new employment opportunities, particularly in technology-related fields (Vasilescu et al., 2020). This result directly supports the aim of our research, which was to investigate and analyse the effectiveness of policy intervention strategies aimed at enhancing digital skilled employment opportunities in Limpopo. The link between digital skills development and job creation is a key takeaway from this study.

7.6 Closing the Digital Divide

One of the most significant outcomes is the closing of the digital divide. Previously underserved communities have gained access to the same digital resources and opportunities as more urban areas, promoting equity and inclusion. This finding aligns with the broader goals of the SA Connect initiative and is in line with the international concept of digital inclusion, which emphasises equal access to digital technologies (Warschauer & Tate, 2017). The SA Connect initiative has demonstrated its effectiveness in fostering economic growth, enhancing the quality of life for South Africans in the Limpopo province, and contributing to digital skills development and job creation. These results underscore the importance of continued investment in initiatives aimed at expanding digital connectivity and digital inclusion (Gallardo et al., 2021).

8 Conclusion and recommendations

8.1 Conclusion

In conclusion, the findings of this study highlight the significant impact of policy intervention strategies, particularly the SA Connect initiative, on various aspects of economic and social development in the Limpopo province. The implementation of policies aimed at enhancing digital connectivity and inclusion has resulted in tangible benefits, including economic growth, improved quality of life, digital skills development, job creation, and the closing of the digital divide. These outcomes underscore the importance of continued investment in initiatives that promote digital infrastructure and literacy, not only in Limpopo but across South Africa.

8.2 Recommendations

Implementing agencies should conduct regular monitoring and evaluation of policy initiatives to assess their impact and identify areas for improvement. This will ensure that resources are allocated effectively and that interventions remain responsive to evolving needs. Improving digital infrastructure,

there is a need for targeted skills development programs to equip individuals with the necessary competencies for the digital economy. These programs should be tailored to address specific skill gaps identified within the local context. Collaboration between government, private sector stakeholders and civil society organisations can help leverage resources and expertise to support digital skills development and job creation initiatives. Public-private partnerships can facilitate knowledge sharing, innovation and the scaling up of successful interventions. Engaging local communities in the design and implementation of digital skills programs is essential for ensuring relevance and sustainability. Empowering communities to take ownership of these initiatives can foster a sense of ownership and promote long-term impact. Digital skills development should be integrated into broader policy frameworks related to education, labour and economic development. This holistic approach will ensure that efforts to promote digital inclusion are aligned with overall development objectives and priorities.

9 References

Akbar, S., Haerisma, A.S. and Suharto, T., 2023. Analysis of factors influencing employment opportunities in west java province in 2015-2020. Journal of Economic Development and Village Building, 1(1), pp.53-64.

Andrychowicz, M., Raichuk, A., Staczyk, P., Orsini, M., Girgin, S., Marinier, R., Hussenot, L., Geist, M., Pietquin, O., Michalski, M. and Gelly, S., 2020. What matters in on-policy reinforcement learning? a large-scale empirical study. ArXiv preprint arXiv: 2006.05990.

Aruleba, K. and Jere, N., 2022. Exploring digital transforming challenges in rural areas of South Africa through a systematic review of empirical studies. Scientific African, 16, p.e01190.

Bano, Y. and Vasantha, S., 2019. Review on employability skill Gap. International Journal of Research in Social Sciences, 9(2), pp.438-452.

Beaunoyer, E., Dupéré, S. and Guitton, M.J., 2020. COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. Computers in human behaviour, 111, p.106424.

Behera, J.K., 2021. Digital transformation and its impact: An analytical study. In Digitisation of economy and society (pp. 27-49). Apple Academic Press.

Brunetti, F., Matt, D.T., Bonfanti, A., De Longhi, A., Pedrini, G. and Orzes, G., 2020. Digital transformation challenges: strategies emerging from a multi-stakeholder approach. The TQM Journal, 32(4), pp.697-724.

Cane, S., McCarthy, R.: Analysing the factors that affect information systems use: a task-technology fit meta-analysis. J. Comput. Inf. Syst. 50, 108–123 (2009)

Chonsalasin, D. and Khampirat, B., 2022. The impact of achievement goal orientation, learning strategies, and digital skill on engineering skill self-efficacy in Thailand. IEEE Access, 10, pp.11858-11870.

Deganis, I., Haghian, P.Z., Tagashira, M. and Alberti, A., 2021. Leveraging digital technologies for social inclusion. United Nations Department of Economic and Social Affairs.

Dittes, S., Richter, S., Richter, A. and Smolnik, S., 2019. Toward the workplace of the future: How organisations can facilitate digital work. Business Horizons, 62(5), pp.649-661.

Downing, T., 2019. Employment growth accelerates in 2018, extending a lengthy expansion. Monthly Lab. Rev., 142, p.1.

Freiman, V., Godin, J., Larose, F., Léger, M.T., Chiasson, M., Volkanova, V. and Goulet, M.J., 2017. Towards the life-long continuum of digital competences: Exploring combination of soft-skills and digital skills development. INTED2017 Proceedings, pp.9518-9527.

Furneaux, B.,Task-technology fit theory - a survey and synopsis of the literature.pdf. In: Information Systems Theory Integrated Series in Information Systems, pp. 87–106 (2012).

Gallardo, R., Beaulieu, L.B. and Geideman, C., 2021. Digital inclusion and parity: Implications for community development. Community Development, 52(1), pp.4-21.

Gumede, W., Bob, U., de Beer, D., Lues, R. and Anelich, L., 2020. Position paper: priority setting for interventions in pre-and post-pandemic management: the case of covid-19.

Jagannathan, S., Ra, S. and Maclean, R., 2019. Dominant recent trends impacting on jobs and labour markets-An Overview. International Journal of Training Research, 17(sup1), pp.1-11.

Jin, Y., 2021. Enhancing digital diffusion for higher productivity in Spain. OECD Economics Department Working Papers No. 167.

Lebopa, T.B., 2023. The impact of local economic development on livelihood strategies in communities of Botlokwa Village, Molemole Local Municipality, Limpopo Province (Doctoral dissertation).

Lee, S. and Lee, D.K., 2018. What is the proper way to apply the multiple comparison test?. Korean journal of anesthesiology, 71(5), pp.353-360.

Madzunye, T.E., 2021. Factors influencing the implementation of e-learning technology in rural secondary schools in South Africa (Doctoral dissertation, Cape Peninsula University of Technology).

Mokgotho, M.G., 2022. The effectiveness of national financial aid scheme towards student skills development at the University of Limpopo, South Africa (Doctoral dissertation).

Mwapwele, S.D., Marais, M., Dlamini, S. and Van Biljon, J., 2019. Teachers' ICT adoption in South African rural schools: a study of technology readiness and implications for the South Africa connect broadband policy. The African Journal of Information and Communication, 24, pp.1-21.

Nkadimeng, M.P., 2022. Implementation of blended learning in Sekhukhune District schools in Limpopo Province, South Africa (Doctoral dissertation).

Nosratabadi, S., Atobishi, T. and Hegedűs, S., 2023. Social sustainability of digital transformation: Empirical evidence from EU-27 countries. Administrative Sciences, 13(5), p.126.

Nurhikmah, H., Farida, F. and Ervianti, E., 2021. The Impact of Computer-based Test and Students' Ability in Computer Self-Efficacy on Mathematics Learning Outcomes. Journal of Education Technology, 5(4).

Padmanabhan, S., 2023. Digital transformation is reshaping the workforce. Dr. Rohit Srivastava, p.10.

Radovanović, D., Holst, C., Belur, S.B., Srivastava, R., Houngbonon, G.V., Le Quentrec, E., Miliza, J., Winkler, A.S. and Noll, J., 2020. Digital literacy key performance indicators for sustainable development. Social Inclusion, 8(2), pp.151-167.

Ranjan, J. and Foropon, C., 2021. Big data analytics in building the competitive intelligence of organisations. International Journal of Information Management, 56, p.102231.

Rakowska, A. and de Juana-Espinosa, S., 2021. Ready for the future? Employability skills and competencies in the twenty-first century: The view of international experts. Human Systems Management, 40(5), pp.669-684.

Selane, L.S., 2021. The importance of managerial skills in the implementation of the regional bulk infrastructure grant in Mopani District Municipality, Limpopo Province South Africa (Doctoral dissertation).

Sibiya, P.T. and Ngulube, P., 2023. Perceptions of employers in South Africa on library and information science graduates' skills, knowledge and competencies on digital scholarship. Heliyon, 9(2).

Union, A., 2020. The Digital Transformation Strategy for Africa (2020-30).

Van Deursen, A.J. and Van Dijk, J.A., 2014. Digital skills: Unlocking the information society. Springer.

Vasilescu, M.D., Serban, A.C., Dimian, G.C., Aceleanu, M.I. and Picatoste, X., 2020. Digital divide, skills and perceptions on digitalisation in the European Union -Towards a smart labour market. PloS one, 15(4), p.e0232032.

Warschauer, M. and Tate, T., 2017. Digital divides and social inclusion. In Handbook of writing, literacies, and education in digital cultures (pp. 63-75). Routledge.

World Bank, 2020. The COVID-19 pandemic: Shocks to education and policy responses. World Bank.

Zemlyak, S., Gusarova, O. and Khromenkova, G., 2023. Entrepreneurial Initiatives, Education and Culture: Hubs for Enterprise Innovations and Economic Development. Sustainability, 15(5), p.4016.

Zhang, W., Zhang, M., Zhang, W., Zhou, Q. and Zhang, X., 2020. What influences the effectiveness of green logistics policies? A grounded theory analysis. Science of the Total Environment, 714, p.13