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Computer proficiency for social development in the rural areas of KwaZulu-Natal

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Background: Computer literacy is a pressing issue in many rural communities across South Africa, primarily because of a lack of resources and training opportunities. This shortage has significantly contributed to the increasing number of computer-illiterate individuals. This study originates from a community engagement programme aimed at providing computer literacy training in the KwaZulu-Natal province.

Objectives: The objective was to assess the perceived computer literacy improvements and access characteristics among post-matric youth who participated in a computer literacy community engagement programme in KwaZulu-Natal.

Method: A quantitative approach was used to assess changes in computer literacy and perceived social development among 50 post-matric youth who completed a community-based training programme in Mbazwana and Mtubatuba, KwaZulu-Natal. The study used a questionnaire to collect data from a cohort of 50 students who were trained in a computer literacy community engagement programme in Mbazwana and Mtubatuba, KwaZulu-Natal.

Results: The study revealed that post-matric youth primarily accessed computers in public spaces and faced significant barriers such as limited device access, Internet connectivity, and low motivation. Despite these challenges, participation in the programme led to measurable skill acquisition and perceived personal growth.

Conclusion: These findings confirm that structured computer literacy initiatives in rural areas can meaningfully enhance individual capabilities and contribute to broader socioeconomic development.

Contribution: The study provides policymakers with empirical data on the challenges and opportunities related to computer literacy in rural communities. This information can guide the development of targeted policies that enhance digital access and literacy programmes.

Keywords: computer proficiency; computer literacy; social development; rural communities; ICT skills; youth empowerment; digital divide.

Introduction

Digital literacies are a barrier in developing countries because of the lack of finance and infrastructure. Kos-Łabędowicz (2017) notes that the rise of Information Communication Technologies (ICTs) and their usage have led to changes in individuals' circumstances and broader societal dynamics. While ICTs bring new opportunities for socioeconomic development, they also introduce new risks of inequality among communities. In the literature, the digital divide is articulated in two forms: material and immaterial definitions (Kos-Łabędowicz 2017). Material digital divide encompasses the lack of access to computers and the Internet by the people, and the immaterial digital divide comprises the lack of knowledge, motivations and needs fulfilled by the access (Kos-Łabędowicz 2017; Van Dijk & Van Deursen 2010). Angelova (2021) pointed out that the digital divide may severely affect certain groups, such as the elderly, pensioners and the retired, the unemployed, low-education people, residents of rural areas, the underprivileged, those living on welfare and the disabled. Digital literacies include media literacy, computer literacy, information literacy and library literacy. Communities must be well-equipped with these literacies in order to participate fully in the socioeconomic development in the digital age.

Chapter 9 of the National Development Plan (NDP 2012) 2030 targets education, training, and innovation as central to South Africa's long-term development, as these targets contribute

massively to the eradication of poverty and inequalities. Developments in all spheres of life – educational, economic, social or personal – are highly influenced by technological innovations. Iberdrola (2021) appreciates the beauty of ICTs and cites them as proving greater access to information, cost reduction in labour sector, collaboration among people, and eradication of unemployment. According to Irungu, Mbugua and Muia (2015), ICTs contribute to youth capacity building when young people value innovation and technology efficiency. According to Irungu et al. (2015), when young people understand technology properly, they are easily drawn to business opportunities that feature technological innovations. For instance, Irungu et al. (2015) have noted that ICTs attract youth into profitable agriculture in Kenya. This calls for youth to have valuable skills and knowledge in ICT for them to understand and cherish technology.

Iberdrola (2021) applauds that digital inequality has been exacerbated with the emergence of the coronavirus disease 2019 (COVID-19) pandemic. Iberdrola (2021) calls upon policymakers to consider the global pandemic as an intrinsic motivator to bridge the digital divide, mostly observed in rural areas. The digital divide is more noticeable in rural areas, and according to Herselmann (2003), South African rural school teachers, both at primary and secondary levels, lack technical skills, such as computer literacy. A further problem in rural areas is the lack of proper infrastructure for teaching and promoting computer literacy. In general, rural areas in South Africa remain impoverished as a result of a lack of infrastructure that compromises development efforts, as reported by Herselmann (2003) and in Chapter 9 of the NDP (2012).

Lau et al. (2021) caution that amid the COVID-19 pandemic, a digital divide exists among rural entrepreneurs, who are struggling as they lack ICT knowledge. This assertion is in line with the general observations made in KwaZulu-Natal (KZN), South Africa, as most people are self-employed and lack ICT knowledge and skills. This situation mainly emanates from the lack of basic computer literacy education observed in high schools in South Africa, as noted by Herselmann (2003). This results in poor participation in the social and economic development of the youth in rural areas. Lack of ICT and computer literacy hinders the ability of the youth to access opportunities as most of the opportunities are online or they need skills and knowledge in technological initiatives. Kamaruddin and Jusoh (2008) advocate the view that in the information age, literacy among citizens should not only consider the ability to read and write in the vernacular language but also deal with a wider implication that includes computer literacy. This assertion emphasises the importance of computer literacy among young adults. In rural communities, even the infrastructure that is used for teaching computer literacy is outdated and insufficient; hence, Kamaruddin and Jusoh (2008) and Saidu et al. (2017) suggested that such ICT infrastructure should be upgraded and added to accommodate a number of citizens.

Aker (2019) notices the high unemployment rate in sub-Saharan Africa among the youth. Rural youths encounter particular challenges in terms of their capabilities to participate in the labour market, such as fewer social networks, low literacy rates, limited work experience and limited access to capital (Kluve et al. 2016). Aker (2019) blames this occurrence on the knowledge and availability of ICT tools such as computers and other smart gadgets to the youth in rural areas. Iberdrola (2021) confirms this by stating that the digital divide affects 52% of men and 42% of women around the world, while in Africa, only 39.3% of the population has access to the Internet.

Rural areas in South Africa remain below subsistence level due to limited access to basic infrastructure vital for economic growth and development. Fourie (2008) alludes that ICTs help improve the livelihoods of poor individuals, families, and communities in rural areas and increase their income opportunities, thereby improving their likelihood to escape from persistent poverty and strive towards better social development. The ICTs in South Africa have not been adapted appropriately, since the country lacks basic infrastructure, such as electrical reticulation and communication in rural areas (Fourie 2008). Herselmann (2003) supports the view that ICT developments for deep rural areas in South Africa were not properly planned, as many school leavers have no basic computer knowledge. Fourie (2008) emphasises the significance of ICTs in improving the quality of life in rural communities. Information Communication Technologies contribute to meeting everyday practical needs such as facilitating telecommunications and providing access to critical information, while also promoting empowerment by enabling these communities to participate in and contribute to global discourse. The report by Fourie (2008) in Information Development suggests that all parties should be involved in ensuring that sustainable ICT or computer training projects are planned, implemented and managed in South African poor rural communities.

KwaZulu-Natal's rural areas are not innocent of the rural divide as there are several rural communities in the province. According to the KZN transformation strategy 2020–2025 (2020), KwaZulu-Natal is among the provinces with the highest digital divide in terms of digital and ICT infrastructure. KwaZulu-Natal had access to the Internet using mobile devices, with much of this access accounted for by households living in urban areas at 62%, and limited access to the rural communities. Lack of ICT infrastructure and access to the Internet is another challenge, as analysis shows that many South Africans continue to rely on Internet cafés, educational facilities and workplaces to get access to the Internet. The implication is that those who cannot afford to use Internet cafés are unemployed and are not enrolled in any institution of learning. They cannot access the Internet or ICT infrastructure, presenting a digital divide. This hinders the socioeconomic development of the rural dwellers; hence, the purpose of this study was to explore the perceptions of post-matric youth regarding their access to digital tools, the

factors affecting digital literacy, and the skills they believed they developed during a computer literacy programme in two rural communities of KwaZulu-Natal.

The community engagement programme has been active in two rural communities in KZN, which are Mbazwana and Mtubatuba. The Mbazwana and Mtubatuba rural communities mostly have schools that have no ICT infrastructure at secondary level. Learners who leave such schools are usually computer illiterate. Lack of such skills makes them struggle to access opportunities relating to education and employment, as they are severely affected by the digital divide, as stated by Kos-Łabędowicz (2017). They are mostly experiencing most of the challenges highlighted by KZN transformation strategy 2020–2025 (2020).

Problem statement

Computer literacy has been recognised as a powerful tool for the development of rural communities. It can significantly empower rural communities in terms of knowledge. Akuoma (2012) argues that computer literacy has tremendous impacts on rural communities as they strive to remain competitive and become technologically powerful nations. Despite the increasing importance of computer literacy in the digital age, rural areas in South Africa reportedly face numerous challenges, including inadequate ICT infrastructure and low levels of computer literacy skills. Consequently, these challenges adversely affect many aspects of society (Aruleba & Jere 2022; Chisango & Lesame 2017). It has been observed that matriculated learners in the rural areas of KZN, most notably Mbazwana and Mtubatuba, lack adequate computer literacy skills, as well as knowledge and perceived difficulties in using computer systems. These rural communities are characterised by learners, students and adult workers who have little to no computer skills. Lee Shong (2020) affirms that students in rural areas of South Africa face difficulties in training and using computers, resulting in poor literacy skills, which may be related to the high levels of poverty in many rural and low-income communities.

Consequently, this lack of computer literacy and skills limits rural learners without computer experience from fully benefiting from the array of opportunities computers bring to the learning environment (Czerniewicz & Brown 2014; Dzansi & Amendzo 2014). The lack of computer literacy skills hinders their social and economic development. Further, these youth in rural areas are socially excluded since most job opportunities are only accessible online and require a digital skill to access. Iberdrola (2021) argues that experiencing a digital divide can lead to a lack of communication, obstacles to studying and learning, accentuated social differences and gender discrimination. To overcome the challenges presented by a lack of computer or digital literacy, digital literacy programmes can be very helpful. Very little research has been done on the lack of computer proficiency in these rural areas; therefore, the study sought to bridge the digital gaps in the use of computers that exist among matriculated learners.

Theoretical framework

The theoretical framework is regarded as one of the most important aspects of any research work in social sciences. The theoretical framework serves as the structure to explain the research problem under investigation and supports researchers to understand the context of their study and to better understand what they are trying to accomplish. It helps to confirm a knowledge gap and to provide a justification for conducting a study (Ravitch & Riggan 2012). Ukwoma and Ngulube (2021) explain that the theoretical frameworks assist researchers in explaining social phenomena they are setting out to study and frame their studies. Ravitch and Carl (2016) affirm that theoretical frameworks are useful for guiding researchers seeking to situate and contextualise formal theories in their research studies. Akintoye (2015) attests that the theoretical framework assists the researcher in determining the research methods, analytical tools and techniques for his and/or her research inquiry. It helps make research findings more meaningful and applicable (Akintoye 2015). Kivunja (2018:46) defines the concept of a theoretical framework as the structure that can hold or support a theory of a research study.

The Activity Theory was used to underpin the context of the study. According to Hashim and Jones (2007), Activity Theory is a theoretical framework that deals with the analysis and understanding of human interaction through the use of tools, artefacts and instruments. Bertelsen and Bodker (2003) regard Activity Theory as a sociocultural perspective on understanding the interconnections of people, organisational rules and culture, and mediating tools, all directed to some outcome or goal. The Activity Theory provides a holistic method of discovery that can be used to help support research. According to Activity Theory, technology can be used as a tool for mediating social action. Tools may include an instrument, a sign, a language, a machine or a computer. Through the community component, individuals are considered about their environment. Van Der Merwe and Van Heerden (2013) concede that Activity Theory defines an activity as a collaboration between a subject and another human agent (community), mediated by a tool (artefact), and influenced by cultural factors within that community. Activity Theory is inherently descriptive, as it offers a framework for understanding how individuals navigate and manage contextual elements such as the division of labour, societal norms and community dynamics. It also explains how individuals engage with technologies and systems to accomplish specific goals or outcomes (Lim and Chai, 2004; Schmidt & Tawfik 2022). Thus, the theory was used as an analytical framework to study, analyse and understand how matriculated learners in KZN interact with computer systems to acquire and develop applicable skills and knowledge during training (Lim & Hang 2003).

The Activity Theory was used to describe how learners engage in goal-directed behaviour through using a computer within an activity system and social context. From the perspective of the end user, Activity Theory enabled the

researcher to describe the learners and their roles in relation to task-related work (activity) and group-related work (action) on an individual level. In the context of Activity Theory, computer literacy is considered a goal-oriented meaning-making activity mediated by computers and influenced by the rules and division of labour of the learning community (Schmidt & Tawfik 2022).

Research methods and design

This study was conducted in the Mbazwana and Mtubatuba areas of the KwaZulu-Natal province in South Africa. Data collection took place over a period from November 2022 to December 2022. A quantitative research approach was adopted, employing a descriptive survey design to assess the perceived computer literacy improvements and access characteristics among post-matric youth who participated in a computer literacy community engagement programme in KwaZulu-Natal. To facilitate data collection, a structured questionnaire was implemented. Self-administered questionnaires were developed and distributed to collect information from participants. The study measured participants' perceived skills and experiences through self-reported responses and did not include objective or performance-based assessments of digital competencies. The study specifically targeted post-matric youth between the ages of 18 and 35 years. In defining the term 'youth', the study adopted the South African National Youth Policy (2015–2020), which broadly categorises youth as individuals aged between 14 years and 35 years. Although the policy encompasses a wider age range, the study focused on the post-matric segment within this definition, those who have completed secondary education, recognising them as a key demographic for examining transitions into higher education, employment or entrepreneurial opportunities.

A total of 50 individuals who participated in the computer literacy training programme across two centres in KwaZulu-Natal completed the questionnaires. All 50 respondents returned their questionnaires to the researchers for analysis. Statistical analysis of the collected data was performed using Microsoft Excel, which enabled efficient sorting and presentation of the findings.

Contextualising proficiency towards social development

Wilson, Scalise and Gochyyev (2015) emphasise that proficiency, especially in skills like computer literacy, is crucial for promoting social development, particularly within marginalised and underserved communities. Similarly, Kasemsap (2018) argues that developing proficiency in essential areas such as computer literacy empowers individuals to access new opportunities, including education, employment and entrepreneurship. For example, individuals equipped with basic computer skills can engage in online education, apply for job opportunities or establish small businesses through digital platforms (Kasemsap 2018). This empowerment fosters increased self-reliance, reducing dependence on external support, and enhances a sense of ownership over one's socioeconomic progress.

Moreover, increased levels of proficiency within a community can facilitate broader social development. When a larger portion of a community becomes adept at using technology, it can improve communication, expand access to government services and strengthen local networks. Martin and Grudziecki (2006) suggest that such collective digital capabilities enable communities to organise around local challenges, explore solutions through digital platforms and participate more actively in civic life. However, efforts to develop computer literacy in rural areas are hindered by several significant barriers, including limited access to computers, a shortage of qualified instructors, and inadequate infrastructure, particularly the lack of reliable Internet connectivity. Addressing these challenges requires strategic interventions, including public–private partnerships to enhance digital infrastructure, community-focused training programmes and government support for educational initiatives (Morgan, Sibson & Jackson 2022). These efforts are essential for equipping rural communities with the skills needed for meaningful social and economic advancements.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of South Africa College of Human Sciences Research Ethics Review Committee (No. 9038857_CREC_CHS_2022). Additionally, measures were taken to ensure the confidentiality and anonymity of respondents, safeguarding their identities and responses throughout the research process. An informed consent was obtained from all participants before the commencement of the data collection.

Results

The findings and discussion of the study are organised according to the background information of the respondents; access to the Internet and other ICTs; preferred location of access to the Internet and Electronic Learning Resources; Internet connectivity; access to the library website; and access to the ELRs provided by the library.

Demographic information of respondents

This section analyses the various demographic characteristics of the respondents. Supporting tables and figures are provided. Demographic information can be understood as socioeconomic information expressed statistically, including the geographical location, age, race and gender (Hayes 2022). In this research, the findings on the demographic profile of the respondents focused on gender and geographic location.

Gender distribution of the respondents

In the questionnaire, respondents were asked to indicate their gender identity. According to the study findings, out of 50 respondents sampled, the majority of respondents (56%, 28) were male, whereas the remaining 44% (22) were female. It can be deduced from the data that there were more male than female counterparts. The distribution of

respondents by gender is noteworthy, as the audiences are composed of different individuals with various needs. Figure 1 shows the breakdown of the responses by the gender of the respondents.

Description of the place where respondents live

To determine the geographical location of the respondents, they were asked to indicate where they reside. In response to the question, the findings revealed that a large proportion of the respondents (64%, 32) lived in rural areas of KwaZulu-Natal, while 36% (18) lived in semi-rural areas of KwaZulu-Natal. Furthermore, the study findings found that none of the respondents lived in urban areas. The findings are illustrated in Figure 2.

Age distribution of the respondents

The study respondents were asked to state their age range (18–35 years). Regarding age, the findings displayed in Table 1 show that the highest percentage of the respondents (52%, 26) were at age bracket of 18–24 years, while 28% (14) were in the age range of 25–30 years, and only 20% (10) of the respondents were in the age range of 31–35 years. From these statistics, it can be deduced that the age distribution of 18–24 years recorded the highest frequency of the entire population. This study included participants aged 18–35 years in line with the South African National Youth Policy definition of 'youth'.

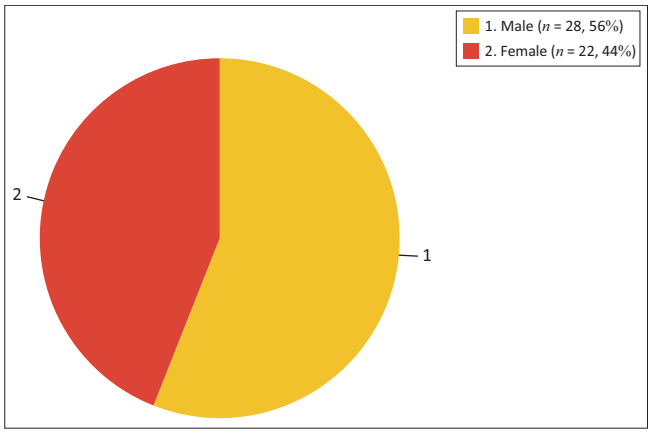


FIGURE 1: Gender distribution of the respondents (N = 50).

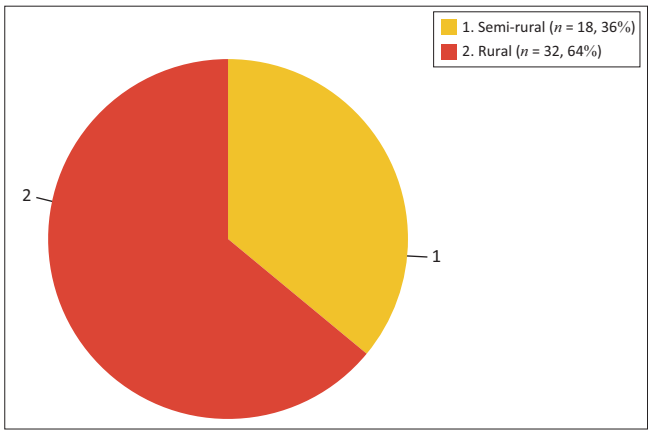


FIGURE 2: Description of the place of the respondents (N = 50).

TABLE 1: Age distribution of the respondents (N = 50).

Age group (years)	Count (*n*)	%
18–24	26	52
25–30	14	28
31–35	10	20
Total	**50**	**100**

Access and use of computers in facilities

The objective of this study was to examine the facilities where respondents access and use computers on a daily basis. In the questionnaire, respondents were asked what facilities provided them with access to computers. The findings showed that the majority of respondents (48%, 24) reported using computers in public libraries, 38% (18) in computer labs, while the minority (14%, 7) reported using computers in Internet cafés. It can be deduced that most of the respondents can access and use computers in public libraries (Figure 3).

In a follow-up question, respondents were asked to indicate whether they had experience and skills in using a computer to search for information on the Internet, and in response to the question, Table 2 shows that the highest percentage of respondents (74%, 37) had no experience and skills in using computers, while only 26% (13) of respondents had experience in using computers. It can be deduced from the data that many respondents had no experience in using a computer.

Knowledge about the programme

During the questionnaire, respondents were asked about their knowledge of how they found out about the computer programme. The findings of this study show that the majority of the respondents (48%, 24) heard about the computer programme through word of mouth, 26% (13) over the telephone, 14% (7) on a Facebook page, while only 12% (6) of the respondents heard about the programme through WhatsApp. Figure 4 illustrates these results.

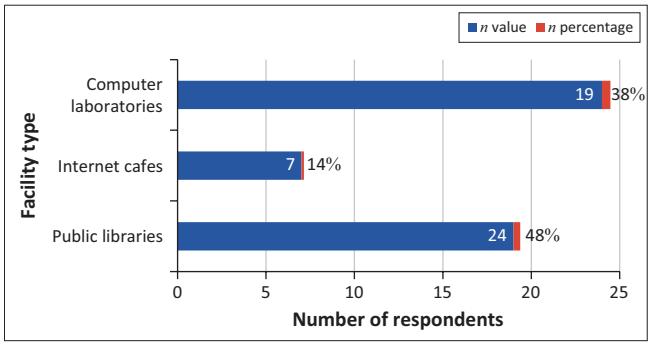


FIGURE 3: Facilities providing respondents with access to computers (N = 50).

TABLE 2: Experience and skills in using a computer (N = 50).

Variables	Count (*n*)	%
Yes	13	26
No	37	74
Total	**50**	**100**

Reasons for participating in the computer programme

Researchers needed to identify the reasons why youth from rural areas in KZN participated in the computer programme. In order to determine the reasons for participating in the computer programme, respondents were asked to identify their motivations. Figure 5 shows that the majority (nearly half) of the respondents (46%, 23) expressed that they joined the computer programme to develop and improve their personal skills, 26% (13) understand the use of a computer to perform tasks, 8% (4) improve typing skills needed for students, and only 20% (10) of respondents joined the programme to acquire job-seeking skills using the Internet.

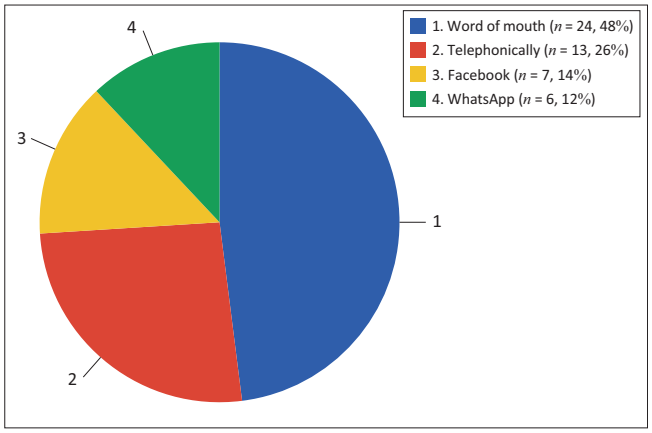


FIGURE 4: Knowledge about the programme (N = 50).

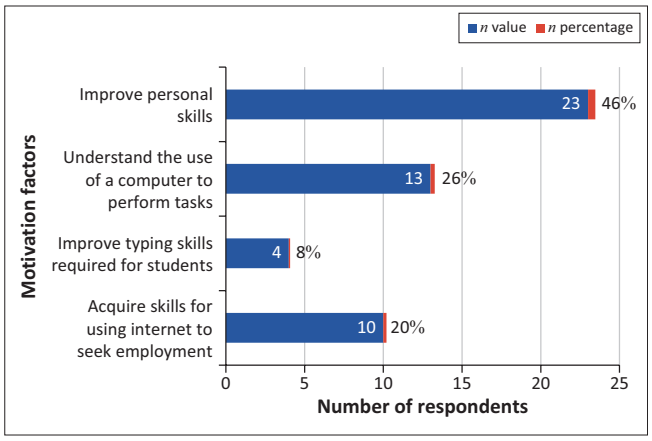


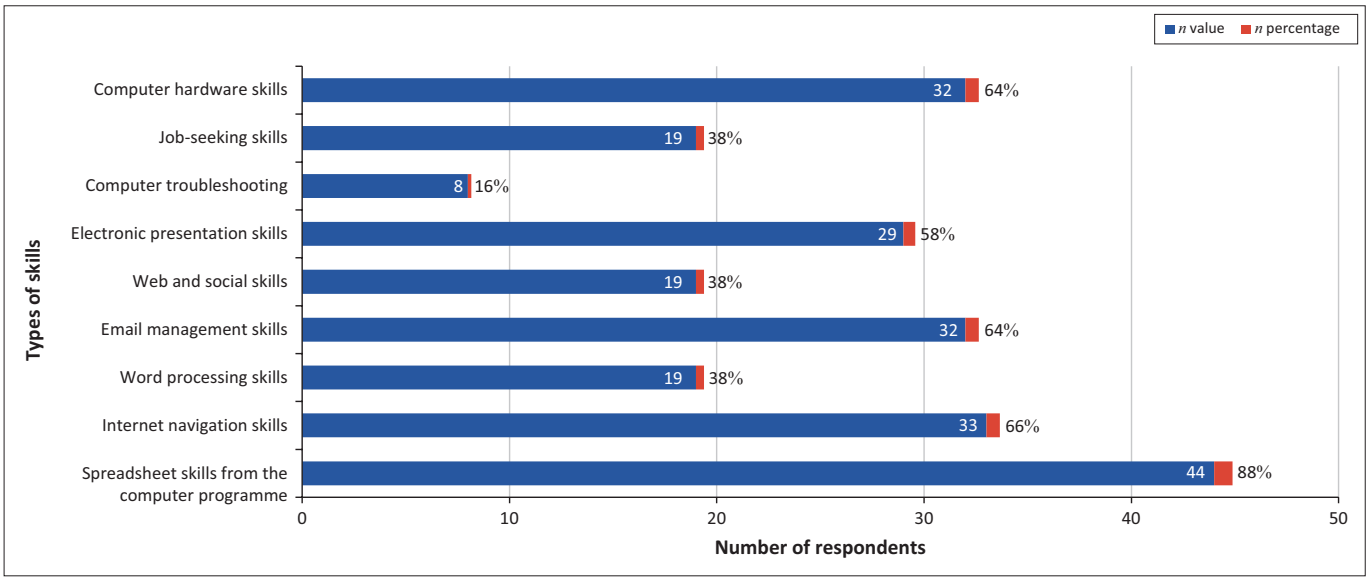
FIGURE 5: Reasons for joining the computer programme (N = 50).

Skills obtained from the computer programme

In the questionnaire, respondents were asked to identify the skills they had acquired during participation in the computer programme. The study results showed that the majority of respondents (88%, 44) obtained spreadsheet skills from the computer programme, 66% (33) Internet navigation skills, 38% (19) word processing skills, 64% (32) email management skills, 38% (19) web and social skills, 58% (29) electronic presentation skills, 16% (8) computer troubleshooting, 38% (19) job-seeking skills, and 64% (32) computer hardware skills. Figure 6 illustrates these findings.

Impact of the programme towards personal development

In this item of the questionnaire, respondents were asked to rate the extent to which they agreed or disagreed with particular statements. In response to the question, the majority of the respondents (48%, n = 24) expressed their strong agreement that the computer literacy programme contributed towards their personal development, 26% (n = 13) agreed with the statement, while 16% (n = 8) were neutral, 6% (n = 3) disagreed, and only 4% (n = 2) of the respondents expressed their strong disagreement. In the second item of the questionnaire, the vast majority of respondents (60%, n = 30) strongly agreed that the computer programme will be recommended to other residents of their community, 24% (n = 12) agreed with the statement, 6% (n = 3) expressed neutral opinion, and 6% (n = 3) cited disagreement, whereas only 4% (n = 2) of the respondents strongly disagreed. Table 3 shows these results.



Note: Respondents could select more than one skill; therefore, total percentages exceed 100%.

FIGURE 6: Skills obtained from the computer programme (N = 50).

TABLE 3: Level of agreement with the statements (N = 50).

Statement	Strongly agree	%	Disagree	%	Neutral	%	Disagree	%	Strongly disagree	%
Attending the computer programme contributed towards my personal development	24	48	12	26	8	16	3	6	2	4
The computer literacy programme will be recommended to other residents in my community	30	60	12	24	3	6	3	6	2	4

TABLE 4: Factors affecting computer literacy among post-matric youth (N = 50).

Variables	Count (n)	%
Limited access to computers, smartphones and Internet	21	42
Lack of resources, trained teachers and facilitators	3	6
Limited financial resources	5	10
Lack of awareness and motivation	17	34
Lack of support and interest	4	8
Total	**50**	**100**

Factors affecting computer literacy among post-matric youth

In the questionnaire, respondents were asked to identify the factors they believed impacted their ability to become computer literate. As shown in Table 4, the majority of respondents (42%, 21) cited limited access to computers, smartphones and Internet as the primary barrier to gaining computer literacy skills. Additionally, 34% (17) pointed to a lack of awareness and motivation as a significant factor, while 10% (5) mentioned limited financial resources. A smaller proportion of respondents (8%, 4) identified a lack of support and interest, and the minority (6%, 3) indicated that a shortage of resources, trained teachers and facilitators hinders their ability to acquire computer literacy skills.

Discussion

This section discusses the findings of the study. The findings of this study revealed that the majority of respondents in KwaZulu-Natal access and use computers primarily through public libraries and computer labs located in community centres. This underscores the pivotal role of these facilities as key hubs for digital access, suggesting that enhancing resources within these centres could significantly improve technological access for the wider community. However, the findings also indicate that many respondents lack the necessary skills to use computers effectively for tasks such as searching for information online. This aligns with the study by Akuoma (2012) and Seretse et al. (2018), who found that over 79% of children and young adolescents in rural Nigeria lack the essential skills and knowledge to use computers. Additionally, the study found that most respondents learned about the computer literacy programme offered by University of South Africa through word of mouth and telephone communication. Many were highly motivated to attend the programme to enhance their personal skills and to learn how to use computers for various tasks.

Respondents reported acquiring valuable skills through the programme, including proficiency in using spreadsheets, navigating the Internet, managing emails and understanding computer hardware. The findings also highlight that the majority of respondents strongly agreed that the computer literacy programme offered by UNISA significantly contributed to their personal development. They indicated a willingness to recommend the programme to other community members. Respondents' views on personal development were based on their own perceptions of growth, rather than on externally measured indicators of social development. Furthermore, it was found that factors such as limited access to computers, smartphones and the Internet, as well as a lack of awareness and motivation, hinder their ability to become computer literate. These findings are consistent with the conclusions of Bello et al. (2023), who noted that many children, adolescents and adults in rural communities across African countries face challenges related to limited access to digital tools, lack of awareness and insufficient financial resources to acquire computer literacy skills.

Recommendations

The study makes the following recommendations to improve computer proficiency to support social development:

- Since public libraries and community centres serve as the primary access points for computer use, it is essential to enhance the resources available in these facilities. This could include increasing the number of computers, improving Internet connectivity and providing up-to-date software to meet users' needs. Upgrading these resources will help ensure more individuals can access digital tools.
- The success of the UNISA computer literacy programme indicates a need for similar initiatives to be expanded across more rural areas. Collaborating with local institutions and community centres to deliver structured computer literacy programmes can help more individuals gain essential skills in Internet navigation, email management and other digital competencies.
- Many respondents learned about the programme through informal means, such as word of mouth. To reach a broader audience, awareness campaigns should be conducted using various channels like local radio, community meetings and posters in public spaces. This will help ensure that more community members are informed about available digital literacy opportunities.
- To overcome the challenges of limited access to computers, smartphones and the Internet, it is recommended that partnerships with private companies and non-governmental organisations (NGOs) should be established to provide affordable digital devices and Internet packages to rural households. Subsidies or grants could also be introduced to assist families in obtaining the necessary tools for digital learning.
- Given that many respondents lacked fundamental computer skills, it would be valuable to integrate digital literacy training into school curricula, particularly in rural schools. This early exposure to technology will

better prepare students to navigate the digital world and enhance their learning opportunities.

Conclusion

Computer literacy promotes personal and professional development, helps bridge socioeconomic divides, and encourages innovation and creativity. This study aimed at assessing computer literacy among the post-matric youth who were trained in the computer literacy programme upon completion of the programme. The findings of this study revealed that the majority of respondents in KwaZulu-Natal access and use computers primarily through public libraries and computer labs located in community centres. It was found that limited access to computers, smartphones and the Internet, as well as a lack of awareness and motivation, hinder the ability of post-matric youth to become computer literate. This makes a significant contribution to policy, theory and the community at large. The study provides policymakers with empirical data on the challenges and opportunities related to computer literacy in rural communities. Although the findings point to perceived personal development benefits, future studies adopting longitudinal and mixed-method approaches should be conducted to assess the social development impact of such programmes more directly. This information can guide the development of targeted policies that enhance digital access and literacy programmes.

Insights from the study can help South African local and national governments allocate resources more effectively, ensuring that public libraries and community centres receive adequate funding and support to improve their digital infrastructure. This research contributes to the existing literature on digital literacy by providing new insights into the barriers faced by rural populations. It may help refine existing theories related to technology adoption and digital divide. By shedding light on the importance of computer literacy, the study empowers community members with knowledge about available resources and programmes that can enhance their skills and improve their quality of life. The research can inspire community members to embrace lifelong learning and seek opportunities for personal and professional development through technology. The biggest limitation of this study is that it was conducted solely in KwaZulu-Natal, which limits the generalisability of the findings to other provinces in South Africa. This study also relied on self-reported perceptions and did not objectively measure either digital skills proficiency or the broader social development impacts of the programme. The unique socioeconomic, cultural and infrastructural factors in other regions may lead to different challenges and opportunities regarding computer literacy and access. Moreover, the study employed basic descriptive statistics; future studies could apply inferential techniques to explore relationships between demographic factors, access patterns and perceived outcomes.

Future studies should aim to include multiple provinces to provide a comparative analysis of computer literacy across different regions. This approach would help identify regional variations and common challenges, enriching the understanding of the digital divide in South Africa. Researchers could explore computer literacy in various settings, such as schools, workplaces and private homes, to gain a more holistic understanding of how different environments affect digital access and literacy. In conclusion, fostering computer literacy is not just about equipping individuals with technical skills; it is about enhancing personal and professional growth, nurturing innovation, and contributing to the socioeconomic development of our communities.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

P.T.S. conceptualised the research study and developed the study design. K.G.C. conducted the data analysis using statistical software, interpreted the quantitative results, and generated tables and figures for the results section. L.J. assisted with the development of survey instruments and data collection protocols and also provided expertise in the theoretical framework and contributed to the review of literature related to digital literacy and social development.

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Data availability

The data that support the findings of this study are available from the corresponding author K.G.C. upon reasonable request. Data are not publicly available because of privacy and ethical restrictions.

Disclaimer

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