

Views of Student Teachers at a University in Lesotho about their Digital Literacy and Online Safety: Building Sustainable Digital Practices

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Abstract

Digital literacy has become crucial for functionality and productivity in academics, work, and everyday community lives. However, easy access to digital technologies, accompanied by limited digital literacy, can expose users to the dangers that lurk in the digital world. Young people, who are frequent users of these technologies yet have less experience and wisdom, could quickly become victims of such dangers. This is why there has been a call for learning institutions to ensure that young people graduate with digital knowledge and skills. This study explored the level of digital literacy among 61 student teachers majoring in Literature in English at a university in Lesotho. The study was framed through the theoretical lens of connectivism. Data was collected using classroom discussions, focusing on the student teachers' views about the status of their digital literacy and its influence on their lives. A thematic approach was used to analyse this data. The findings of this study indicate that many student teachers viewed digital literacy in a very simplistic way that excluded issues of online safety and security. They described digital literacy as a limited ability to use digital devices to complete tasks, suggesting that they did not think much about digital safety and security in their descriptions. This could suggest that even in their everyday interactions with these technologies, they do not consider safety and security issues. It is recommended that learning institutions make efforts to address the digital literacy needs of their students, particularly student teachers who are future classroom teachers who will be responsible for guiding young people in the classroom on digital use, safety, and security.

Keywords: computer literacy, connectivism, digital literacy, digital safety and security, sustainable literacy

Introduction

The high prevalence of digital technologies that have resulted in the high demand for digital literacy skills in the academic, business, and everyday community lives has given rise to digital literacy being viewed as “one of the key competencies in today’s

world" (Tomczyk, 2018, p.6). This situation has also heightened a call for intensified efforts to increase digital literacy so that everyone can enable their functionality in this modern world highly driven by digital technologies. Even though digital literacy goes beyond just knowing how to use digital gadgets and related software, many still view digital literacy as a concept that is limited to the ability to operate and apply digital technologies to complete a task at hand. Rarely is this concept viewed to include digital safety and security. As such, many digital technology users are often at risk of being exposed to and becoming victims of the dangers that lurk in the digital world. This has also been observed by Cerf (2016) and Shiundu (2019), who believe such users are potential victims of misinformation, propaganda, financial fraud, and irresponsible health advice. This study explored student teachers' views about their digital literacy at one university in Lesotho. The main question of this study was, how do student teachers view the concept of digital literacy? Do their views include vigilance of digital safety and security as part of digital literacy, and how are their views of digital literacy likely to influence their behaviour when interacting with digital devices and platforms?

Background

Even though digital literacy has become a cliché in contemporary times, many find it difficult to define because of many literacies that have emerged over time and are associated with information and communication technologies. Such literacies include media, technology, information, and computer literacy. Many of these literacies have resulted in the meaning of literacy shifting beyond its traditional meaning of having basic skills such as reading and writing (Castañeda & Villar-Onrubia, 2023). This has also been observed by Carvin (2000), who argues that essential reading and writing skills should be regarded as the basic literacy for other literacies in the quest to distinguish literacies. The literacies associated with information and communication technologies – media literacy, technology literacy, information and communication technologies (ICTs) literacy, computer literacy, and digital literacy – are difficult to distinguish.

There are contradicting views about literacies associated with ICTs, their meaning, and relationships. One view is that technology literacy, information literacy, computer literacy, and digital literacy are concepts that should be used interchangeably as they are about the essential knowledge and skills relating to the use of information and communication digital technologies. The other argument, supported by this study, insists that these concepts should be differentiated in their meanings. Thus, technology literacy should be considered an umbrella term covering the essential knowledge and skills that could be applied to operate hardware and software of analogue and digital technologies (ITEA/ITEEA, (2000/2002/2007). Information literacy should be described in line with UNESCO's (2023) definition that recognises the individual's ability to decide when information is needed, where it is located, how it should be evaluated and how it is used effectively. The definition of computer literacy should be understood along the view of Rodríguez-de-Dios et al. (2018), who refer to it as the essential knowledge and skills a user needs to use computer devices and related applications such as word processors and electronic spreadsheets.

The argument on how these literacies should be treated continues to indicate that these literacies (technology literacy, information literacy, and computer literacy) appear to have evolved with the advancement of ICTs. For example, when analogue technologies (e.g., radio, TV, films, and information projectors) first emerged and

became popular, there was a need for users to have basic skills and an understanding of how they operated. This resulted in a push for technology and media literacies. With the emergence of computers and the resultant information explosion, the emphasis shifted to computer and information literacies. With so many digital technologies emerging daily, the emphasis has shifted from computer and information literacies to digital literacies. Digital technologies include computers, related devices, and software. However, these technologies are now more sophisticated than when computers first emerged. Thus, computer literacy appears more simplistic in covering the essential knowledge and skills required to operate today's digital devices and software. This situation has raised many questions about digital literacy, what it is, and what its definition should include.

Digital Literacy

Like other literacies, digital literacy has emerged and been emphasised because of the proliferation of digital resources. The complexity and sophistication of digital resources have complicated how digital literacy should be defined, generating much debate around this concept. For example, Payton and Hague (2010) argue that digital literacy should be viewed as more than just being able to access computers and related devices. It should include having the knowledge and skills to collaborate, stay safe, and communicate effectively in digital spaces. One implication from the above reasoning is that digital literacy should involve the skills and knowledge that enable critical, creative, and safe practices when engaging with digital technologies. Martin (2006) and Mahao (2019) add to this argument that digital literacy should be about identifying, accessing, evaluating, analysing, and synthesising digital resources. Others, such as Shillair et al. (2015) and Singh (2018), insist that awareness of the safety and security issues when online should also be considered key when defining digital literacy. Shillair et al. (2015) and Singh (2018) further stress that the knowledge of the dangers of digital platforms – such as cyberbullying, sexting, fraudulent transactions, internet addiction, and privacy and security concerns – should be important to any digital user. They claim that all digital users should have the appropriate level of digital literacy to stay safe online. As such, Arafah and Hasyim (2022) and Martin (2006) insist that the definition of digital literacy should be much more involving and about a more extensive repertoire of skills, including the ability to use digital devices and resources. If this definition of digital literacy is accepted, it may be true that many people are digitally illiterate.

Importance of Digital Literacy for Online Threats and Safety

According to Whitehead et al. (2013), the concern for online safety is triggered by the Internet and the proliferation of other social media platforms, which provide an open and unlimited space that the international community of millions of people has access to. In this way, personal safety becomes critical for every digital user (Whitehead et al., 2013). Users of personal digital devices such as cell phones (also called mobile phones) can be lulled into a false sense of security by believing that these devices provide them with security or safety, not appreciating the dangers that lurk in the digital world. When working on their devices, users may assume they are safe and immune to digital dangers as long as they do not disclose personal and private information or perform 'digital things' that can make them vulnerable to digital dangers. However, without adequate digital literacy, users can expose themselves to

digital hazards in many ways, even when using their devices. For example, as observed by Whitehead et al. (2013), bullying, teasing, name-calling, and threats – which have become rampant in digital spaces – are not triggered by the victims' behaviours but by users looking for trouble. These perpetrators just pick on innocent victims (users with low literacy levels). As such, digitally illiterate users often face these threats without intention.

What is important in the digital world is not only physical access to or ownership (personal or shared) of digital devices or the type of digital devices or resources used. Access also means working safely in the digital world. For example, users with low levels of digital literacy may have a perceived sense of safe and secure privacy, security, and anonymity in digital spaces. However, the same environment also gives others the confidence to perpetuate the culture of violence. Consequently, these perpetrators disguise their identity while using the same digital space to advance their evil deeds almost with impunity (Patton et al., 2019). On the other hand, the false sense of privacy, anonymity, and security in the digital world can also lure young people into risky escapades and tendencies (Naezer, 2018).

The presence of criminals in the digital world is one of the reasons for the constant call for digital literacy that enhances the safety practices of digital users when online, especially young people. This call is primarily directed to the learning institutions, teachers, and parents who should work together to ensure that young people are safe whenever they use digital devices. The need for a call for digital safety is increasingly becoming important for young people because digital technologies and practices are slowly dominating classrooms. Even Traynor (2018) and Buckingham (2007) suggest that while teachers increasingly integrate digital technologies into the learning environment, they should teach and emphasise digital safety and security. Outside the classroom, parents, too, should put in place measures and tools that protect their children from digital dangers. Mahao (2019) notes that where digital users, particularly young people, fail to acquire the digital skills outlined by Martin (2006), teachers and parents should provide constant guidance to ensure that young people

- Stay focused on the learning tasks;
- Navigate digital environments with caution;
- Sift volumes of information to select and use appropriately what is relevant for their tasks;
- Detect sites and information that may contain harmful content; and
- Do not stray into dangerous sites.

This discussion shows that digital literacy should not only be about the ability to use digital resources. It should include users' ability to navigate and use digital resources appropriately, responsibly and effectively while staying safe online. Further, users should develop ethical practices when online, irrespective of whether they use privately-owned or shared devices. These users should develop a heightened awareness that digital spaces never have privacy or exclusiveness. Many people of different calibres and varying intentions use the spaces. Hence, being secure, safe, and ethical and staying focused on the task to be completed is important.

Problem Statement

In the Faculty of Education of the university where the study was carried out, all first-year Bachelor of Education students take a computer literacy course to introduce them to digital devices and resources. This course is supposed to provide basic skills to allow these student teachers to use computers and other digital devices. Among others, student teachers need these skills for their pedagogical responsibilities. Teacher trainers in this faculty have also begun integrating digital resources in teaching and learning activities. Some course modules integrate digital technologies and require student teachers to use these resources for online activities. A course on Literature in English curriculum and teaching has a module that integrates digital technologies. The module is *ICT, Digital Media and the Importance of Digital Literacy: Implications for Literature*. It is offered in the teacher education programme's final year (4th year, 1st semester). Student teachers taking this module are assumed to be digitally literate as the module expects them to critique the importance of digital literacy, focusing on the implications for literature. The problem identified with these student teachers is that despite nearing completion of their studies and close to joining the teaching profession as fully-fledged teachers, they still appear to have a limited understanding of what it means to be digitally literate. This could be a concern in two ways. Firstly, digital literacy is an important skill in a world dominated by digital tools and media. Secondly, student teachers are future teachers whose knowledge and understanding of digital literacy can ensure they guide their learners along the digital literacy path, which could be infested with danger.

Research Purpose and Questions

The primary purpose of this study was to explore student teachers' views on their digital literacy. Thus, the main question examined the views of these student teachers on their digital literacy. The following questions generated data: (1) What do student teachers understand by digital literacy? (2) How do these student teachers view their level of digital literacy? (3) What kind of online support do these student teachers receive from home and university? (4) What are the implications for their future professional practice?

Theoretical Framework

The study is viewed through connectivism, a theory that considers how access to digital devices and media influences the use and application of digitally sourced information. In an era where digital technology lies behind almost every aspect of daily life, the theory of connectivism recognises the need to harness the opportunities and affordances provided by digital technologies and devices to access information and advance teaching and learning goals. Siemens (2005) asserts that in a world dominated mainly by digital connections, traditional learning theories (such as behaviourism, cognitivism, and constructivism) that were developed long before the emergence of digital technologies in teaching and learning should be considered obsolete. As Siemens (2005) observed, this obsolescence is caused by digital technologies reorganising how people live, communicate, and learn. As such, today's learning needs require theories that describe the learning principles and processes that reflect these developments. Dunaway (2011) observes that connectivism stresses the significance of networking

and interactive information and communication technologies (ICTs) in teaching and learning and recognises their ability to allow humans to access information through multiple sources. Similarly, Whitehead et al. (2013) called for a review of the commonly cited learning theories that came before the digital resources dominated in education. Such context, as suggested by Whitehead et al. (2013), calls for more profound reflections on long-existing learning theories that do not include the role of digital technologies in teaching and learning.

It is, however, worth noting that much as the prevalence of digital technologies in the teaching and learning environments appears significant in today's classroom, it does not guarantee that all learners have equal access to these technologies or the same level of digital literacy. This view is supported by Dixon, Ferreira, Granville, and Newfield (2014). Scholars such as Thinyane (2010) and van Deursen and van Dijk (2019) have suggested that the different backgrounds of learners influence how they access technology. Their view is that differing backgrounds perpetuate a digital gap among users. Different economic factors, particularly family income, are of particular importance in terms of learners' backgrounds. Thus, learners from lower economic backgrounds are unlikely to own a digital device. Where they do, the device could be of lower quality or a second-hand one abandoned by the first owners, perhaps because of their interruptions and malfunctioning. On the other hand, those from high-income backgrounds would have the latest devices, which, because of their speed and sophisticated digital tools, provide them with better service, giving them an advantage over the other learners. Other issues related to unequal access include the quality of electricity and ICT infrastructures, literacy level (reading and writing), and the understanding of foreign languages with which the technology is often packaged.

Methodology

A qualitative research approach was used to explore the views of fourth-year university student teachers at a Lesotho university regarding their digital literacy. This approach was deemed suitable because this study is interested in people and their social issues in their natural settings to understand their experiences, reasons, opinions, behaviours, and the associated underlying social issues. Those who subscribe to this approach believe that in a natural setting, the objects or persons investigated exhibit normal behaviours and generate data likely to be authentic (Chere-Masopha & Mothetsi-Mothiba, 2022). Based on this view, it could be argued that methods associated with this approach – such as narratives, stories, and discussions – allow participants to reveal their views, hopes, concerns, frustrations, fears, and aspirations. As a result, the approach allows the researcher to view the world through the eyes of the participants and understand their reality, giving the researcher a deeper understanding of the issue being investigated. Thus, classroom discussions were considered suitable for generating data on digital literacy from the point of view of student teachers.

Discussion as Data Collection Tool

The word 'discussion' can be described as an activity in which one or more people engage orally or through writing to express their different viewpoints (Cashin, 2011) and as a teaching strategy to share views and engage in mutual and reciprocal critique

(Brookfield & Preskill, 2005). According to Abdulkaki et al. (2018) and Sybing (2015), many teachers prefer discussion as a method of teaching because of its ability to create a classroom atmosphere that is less controlled by the teacher but at the same time allows them to check learners' understanding of the learning material and comprehension of ideas. Other benefits of classroom discussions as a teaching strategy include the ability to

- Create a classroom environment that is friendly and non-judging and that often encourages shy and introverted learners to participate.
- Create a supportive and friendly classroom climate that results in learner participation that is often voluntary. This allows learners to engage in mutually beneficial interaction with the teacher and among each other, thus helping them to thrive.

In addition to the role of a classroom teaching strategy, the classroom discussion strategy is a valuable research method in educational research that is valued for creating opportunities to gain insight into the beliefs and wishes of learners (Carrasco & Irribarra, 2018). Examples of studies that used the discussion method for data collection include Tilbergien (1979) who explored the views of learners about the instruction they had just been exposed to; Champagne et al. (1980) who used this method to establish learners' ideas on the mechanics and structure of their explanations; and many others such as Driver (1981), Campbell (2008), Caro and Schulz (2012), Godfrey and Grayman (2014), and Barber et al. (2015) who have used classroom discussion to investigate various issues.

Planning for Classroom Discussions

Even though there are no clear standardised and universal principles guiding classroom discussion as a method of teaching or research, Howard (2015) argues that using the method requires significant prior planning. This is because unplanned class discussions lead to unproductive arguments. Best practices of classroom discussion, as suggested by researchers such as Anastas (2010), Rotenberg (2010), and Henning, (2005) include

- the intended curriculum objectives;
- sufficient knowledge of the content by the teacher to allow them to absorb the flow of ideas;
- a planned structure and flow of the central topic/theme and subtopics/themes, including strategies (questioning, responding, and listening) that would be used to steer the discussion, including how to deal with responses and questions that may misdirect the discussion away from its purpose;
- allocation of sufficient time for the discussion to allow every learner to express fully their viewpoint;
- the comments or questions that may be raised by learners in class;
- unhealthy arguments that may occur and the strategies to deal with them.

Participants and Data Collection

Data was generated from a class of 61 fourth-year student teachers between the ages of 21 and 30, majoring in curriculum and teaching of Literature in English in the

Faculty of Education at a Lesotho university. Of these student teachers, 43 were females, and 18 were males. This data was collected while teaching the module: *ICT, Digital Media and the Importance of Digital Literacy: Implications for Literature*. The module was taught in seven instructional one-hour lessons. The main teaching method was a classroom discussion method, in which the student teachers' viewpoints and perspectives on digital literacy were examined. The student teachers were informed about the research intention of the discussion. They permitted an audio device to record the discussion and unstructured observational notes to be taken.

Data Analysis and Findings

A six-phase model or a Six-Step-by-Step Framework introduced by Braun and Clarke (2013) was used to analyse data. Major themes identified from the data were (1) student teachers' understanding of digital literacy, (2) student teachers' views on their level of digital literacy, (3) student teachers' perceptions of social media and online safety and the factors that influence these perceptions, and (4) student teachers' perceptions of their safety online. The findings of this study are presented in line with these themes.

Student Teachers' Understanding and Level of Digital Literacy

The results showed varying levels of understanding of digital literacy among the participants. Fifty-one student teachers, roughly 84 percent, described digital literacy as the ability to access and produce information using digital sources and platforms. The following statements represent some of their responses:

- *Digital literacy means being able to access, create and produce information using digital devices such as a mobile phone or a computer.*
- *Digital literacy means a user can use electronics to type, draw and do other things required for the work.*
- *Digitally literate persons can use digital devices to access information, entertainment, and learning.*
- *I can retrieve and compose information using digital software. I access some information and post some comments online. As such, I view myself as digitally literate.*
- *Digital literacy means being able to use most social applications, which also serve as platforms for interacting, learning, and marketing; being able to navigate everything online; and knowing where to go to get information in order to achieve a particular task.*

One conclusion to be drawn from the answers from this group is that there is a low level of understanding as it excludes many other important aspects of the generally accepted definition of digital literacy. Their understanding is in line with the definition in Rodríguez-de-Dioset et al. (2018), which considers computer literacy as an understanding of the concepts, terminology, and operations that relate to general computer use, a definition that emphasises the ability to use computers and related digital resources.

The remaining ten participating student teachers (roughly 16%) included some aspects of digital literacy beyond just being consumers of the information who create, store, and retrieve basic documents. They view this type of literacy as the ability to

catch up with the new, various, and advanced digital technologies that emerge every day. This was particularly reflected in this response: "Technology is moving fast every day and it is difficult to keep up with it. So, when you are digitally literate, it should not be difficult to know anything digitally new that pops up." This group also believed that knowing trusted digital information platforms that provide accurate information forms part of digital literacy. This is a typical example of the response associated with this view: "A user has to know and be sure about the websites that are trusted with providing good information." This group of student teachers recognised the importance of the different skills required to successfully access, use, and re-use information from various digital platforms and sources and accepted that having basic skills to access, create, and retrieve information is not enough. However, even though this group's understanding of digital literacy appears to be more comprehensive than just viewing it as something beyond accessing and using information, it still lacks important aspects of digital literacy such as the digital user's awareness, attitude, and ability to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, and synthesise digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable social action; and to reflect upon this process (Luzon, Ruiz-Madrid, & Villanueva 2010).

Our findings also revealed that student teachers' interpretation of digital literacy matched their personal experience. For example, thirty participants – approximately half of the group, that described digital literacy as the ability to access, create, store, and retrieve information – believed that they were digitally literate because they were able to carry out these basic digital tasks, while out of ten student teachers who had an advanced view of digital literacy, nine believed they were digitally literate because they had the knowledge and skills they outlined in their descriptions. Only one student teacher from this group believed he was digitally illiterate because of a lack of knowledge and skills needed to evaluate digital platforms and identify the websites that could be trusted to provide good information. This participant further pointed out that being digitally literate is an important attribute to have.

Student teachers' views of online safety

In their descriptions of digital literacy, the participants in this study paid very little attention to the awareness of online safety as an important component of digital literacy. Their emphasis was more on finding and using digital information. However, when asked about safety in digital environments, all of them indicated that navigating digital platforms and sources is not always safe and sometimes could pose some dangers. The dangers they identified include:

- Leaking of personal information when one visits malicious digital sites.
- Hackers hacking into other people's bank accounts and other financial accounts or sensitive information with the intention of demanding ransom from the owner of the account or using the information to launder illicit money.
- Tracking people for human trafficking.
- Cyberbullying.

These findings suggest that the student teachers were aware of some forms of online danger. This could be viewed as a good starting point for enhancing their online safety practices.

Factors affecting the student teachers' views on online safety

Personal experiences appear to influence most of the student teachers' views on online safety. Information obtained for this study shows that their views were informed by the fact that they and some people in their private lives had been victims of online threats and bullying. For example, one student teacher alleged her email account was hacked. Others claimed to know people who had been swindled by fraudsters pretending to be online merchandisers, who did not deliver the goods paid for, and promptly disappeared. Yet another student was insulted on social media for airing a differing view. The experiences of these students reflect the often-cited inconveniences, dangers, and threats that digital users regularly encounter in digital environments.

Student teachers' views on their online safety practices

Even though the student teachers were aware of online dangers and threats, they appeared not to have adopted consistent practices and/or tools to counter these dangers, with none of them thinking they needed to develop these for themselves. Only one student teacher indicated she always ensures her safety online by not having strangers on her social network pages. She claimed that she was paranoid and thankful because many social apps allow users to keep some things private.

Regarding the support they receive from home and university to stay safe when online, the student teachers were of the view that they were not receiving much support. They considered both their homes and their university not as vigilant as they were supposed to be about their online safety as young people. Many believed their family members were initially worried about online safety and the trustworthiness and appropriateness of the information and things they were exposed to through *WhatsApp* and *Facebook*. According to these participants, their parents initially had limited understanding of the Internet and most social media platforms but as these resources became commonly used and their parents became regular users, their family members' concerns disappeared. One student teacher explained this by saying

In the beginning, they showed concern that we were being exposed to inappropriate things without parental guidance. Now that they understand that social media has become a way of life and a normal way of communication, they seem to have forgotten about their concerns. They also spend some time online.

According to one student teacher, his parents left him to be fully responsible for how he protects himself from online perils. This is how he put it: "They are never concerned because they believe I am now responsible for myself." Five student teachers, however, pointed out that their parents were only concerned about their addiction to *WhatsApp* and *Facebook* and the possibility of acquiring anti-social behaviours including isolation from the family. One conclusion of this discussion is that much as the student teachers and their family members were aware of the safety issues in digital environments, they did not view themselves as responsible for their safety.

When asked about their views relating to the role of their university in ensuring their online safety, many agreed that the university should play a more significant role than it is currently doing. The following two responses illustrate the view that the university should play a significant role:

Almost everyone in our university uses the Internet to access information, and since the institution encourages teaching staff and students to use Learning Management System for teaching and learning, I guess it would be great to have a policy that ensures that digital users are safe when online and all stakeholders' information is safe and protected. (Response 1)

A policy that targets to protect the users from scams or money laundering and that minimises the chances of hacking the system is necessary. (Response 2)

Only one student teacher believed that the university should not be obliged to play any role in the enhancement of digital safety because navigating through social media platforms and the Internet is an individual's choice. This is what this student said:

Our university is not as technologically advanced as other institutions and a large part of our university community still uses traditional methods. As such, I do not believe we have any digital safety issues as a threat.

The main conclusion to be made from the preceding discussion with regard to university responsibility is that many participants in this study believed their university was responsible for protecting them from digital dangers with a university-wide policy that protects their safety and security when they are online. This is quite contradictory coming from the same student teachers who did not think being digitally literate includes the ability to apply digital safety and security measures. They seemed not to think their family members were also obligated to ensure they stay safe when online.

Discussion and Conclusion

The key goal of this study was two-fold: to investigate the 4th year student teachers' understanding of digital literacy, and to explore their awareness regarding online safety and security. Most of the student teachers understood digital literacy in its narrowest sense as the ability to access and use online information. Very few participants appeared to understand the ability to identify the right sources of information and evaluate the information for accuracy as equally important. Even though the student teachers were aware of some of the dangers and threats that are found in the digital environments, they seemed unconcerned about online safety and security they could be victims of. There is evidence in the literature suggesting that there are many social anxieties regarding children's online activities (Van Zalk & Van Zalk, 2017). For example, Allison (2018, p.70) observes that parents are "keenly aware of the risks associated" with the use of devices such as smartphones and social media platforms where "explicit, often graphic, sexual content" is shared across devices. Many of the students who participated in this study, however, did not think it was their responsibility nor their parents' to ensure their online safety and security. Their view was that since the university was pushing for the integration of digital technologies in teaching and learning, it should be responsible for their online safety through relevant university policies. In addition, one of the student teachers thought their digital literacy could be enhanced through education. For example, the university could provide appropriate literacy courses that equip them with skills and knowledge they can apply in their everyday life and when working with their learners in their professional practice.

These findings further suggest that the student teachers who participated in this study had low levels of digital literacy. Two important implications follow from this observation. First, they could only engage superficially in discussions of the importance of digital literacy in the teaching and learning of literature. Second, unless something was done to improve their digital literacy before they were sent off to schools, they would not have enough knowledge and skills to guide learners and ensure their safety when online. As the findings indicate, some learning institutions in Lesotho are still producing graduates with no or very low digital literacy. Teachers produced by these institutions do not have the digital knowledge and skills that they can apply to integrate digital resources into their professional practice or to protect themselves and their learners from digital dangers and threats. This situation is similar to what a study found in Spain following the COVID-19-triggered teaching and learning environment, where Spanish teachers of all levels felt their digital competencies were low and hence required those skills to be strengthened (Sanchez-Cruzado et al., 2021). It is, therefore, evident that some learning institutions in Lesotho provide students with an education that excludes digital technologies, resulting in another cohort of graduates with poor digital literacy. Buchholz et al. (2020) indicate that learning institutions should start making efforts to produce graduates who are digitally literate and who, in addition to being able to read and write, can interact on or across [digital] screens to engage with diverse online communities. Institutions of the 21st century should be acutely alert to the fact that because of the different social platforms, humanity – particularly young people – have built complex social media communities that even attract and engage strangers whose plans may be unknown. Therefore, digital users should be equipped with a range of skills that extend their capabilities to include applying online safety practices and understanding and dealing with the complexities of online communities.

Producing teachers who lack digital skills and, by extension, are not competent in promoting children's digital skills is not only for the generation in the classroom but for the whole nation. Some of the graduates from these learning institutions are likely to be employed as civil servants or by large business companies. Because of poor digital literacy, these future employees could unknowingly expose these institutions to digital dangers. For example, lately, public and business institutions in Lesotho have been experiencing some incidents of leakages of important and highly classified information and documents as reported in the local media. This workplace behaviour could be associated with employees who are entrusted with important tasks and information, and yet their low level of digital literacy betrays this trust as they may not be aware of the repercussions of some of their acts. This suggests that educational institutions and companies should be keenly interested in developing literacy skills among graduates and workers, respectively.

Limitations and Future Studies

Even though the study has made significant findings about the digital literacy levels of student teachers in one of the universities in Lesotho, its limitations cannot be ignored. First, it involved a very small number of student teachers in the faculty which cannot be viewed as representative of all student teachers in this faculty. As a result, there is a need for studies that will include a significant number of student teachers from all teacher training institutions in Lesotho. Further, these future studies should use other research methods which do not rely only on participants' views as this study

did. Such methods may include reviewing teacher education programmes to check the extent to which they integrate digital technologies and assessing teacher educators' digital skills and knowledge and their digital integration strategies.

Implications for Sustainable Digital Literacy in Education

Technology has been one of the factors that have significantly transformed the field of education, and as digital competence continues to advance, it has now become more than just a skill – it is an essential tool which nurtures digital literacy and helps address the competencies required in a digital world. Digital competence is a lifelong learning skill (Loránd et al., 2020; UNESCO, 2014); which qualifies as an Education for Sustainable Development (ESD) indicator (Salite & Pipere, 2006). As the world transitions from the Fourth Industrial Revolution (4IR) in all spheres of life – including in Higher Education Institutions (HEIs) where artificial intelligence (AI) is fast gaining momentum and changing the atmosphere of learning – the implication is that mere mastery of how to manipulate computers will no longer be adequate. Student teachers – as teachers of the future – need to acquire the ability to comprehend technologies including AI, work with techno-educational systems responsibly, and evaluate information risk (Chiu, 2024).

The student teachers of this era are being prepared to teach in technologically driven classrooms hence lack of the aforementioned skills and qualities means they may face challenges understanding the technical changes, processing digital contents and protecting personal information. For student teachers, this aspect is important. As the future teachers, they will play a key role in helping learners navigate technology while also grasping its ethical and security dimensions. Thus, learning should be organised sustainably (Heasly et al., 2020). As a matter of fact, higher education institutions should take the initiative to integrate sustainable digital literacy programmes that extend beyond mere technical skills to encompass critical thinking, autonomy and online safety. This is attested by Nguyen et al. (2020), who proposes that “sustainability...can only be achieved when different parties are involved and take action” (p.20). This approach would not only improve the student teachers' job prospects but enable them to become responsible digital citizens, ensuring that digital literacy stays relevant and adaptable in an ever-evolving technological landscape.

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