Exploring the use of Technological Pedagogical Content Knowledge (TPACK) to Advance Digital Literacy in the Teaching and Learning of French as a Foreign Language in Lesotho Secondary Schools

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Declaration

I, **Paballo Mary 'Molaoa,** declare that:

1. The dissertation, "*Exploring the use of Technological Pedagogical Content Knowledge (TPACK) to advance digital literacy in the Teaching and Learning of French as a Foreign Language in Lesotho Secondary Schools"* hereby submitted for the degree of Master of Arts in Education (French), is my original work and has never been previously submitted for a qualification at this university or any other institution of higher education.
2. All the sources that were quoted in this research study have been acknowledged and referenced using the American Psychology Association (APA) 6th Edition convention for citation and reference.
3. I have not permitted nor will I permit anyone to copy my work and pass it off as their own. That I am fully aware that plagiarism (using another person's work and pretend that it is one's work) is an academic offence.

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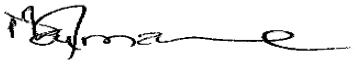
Supervisor's signature_____  10 October 2024

Dedication

I dedicate this dissertation to my late father Pekenene ‘Molaoa and my mother ‘Machabana ‘Molaoa who have been captains of my cheerleaders since the beginning. Mom and dad, thank you for your love and support, I am indeed grateful to you guys. Thank you for instilling it in me to be a dreamer and to work hard to achieve my dreams. Your prayers, love and support have carried me through turbulent storms. To my siblings, Chabana, Nts’eliseng and Naha and my beautiful nieces, Siphesihle and Sibahle ‘Molaoa, thank you for your immense support and guidance. I’m very grateful to have you as my pillars of strength.

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Abstract

The rapidly changing world necessitates a shift from traditional to modern teaching methods. Integrating Information Communication and Technology (ICT) into the classroom environment fosters dynamism and engagement. This study sought to explore the use of Technological Pedagogical Content Knowledge (TPACK) to advance digital literacy in the teaching and learning of French as a foreign language (FFL) in Lesotho secondary schools. This qualitative study was underpinned by two theories namely, TPACK and the Resources and Appropriation Theory. It was anchored on the critical paradigm. This was an emancipatory action research design comprising two phases: the problem identification phase and the therapeutic phase. The study purposively and conveniently selected and worked with four FFL teachers from four different schools. Four methods of data generation: document analysis, reflective journals, observations and semi-structured interviews were triangulated to generate authentic and insightful data. The data were to be analysed using thematic analysis entailing deductive and inductive analysis to encompass the predetermined and newly emerging themes. For deductive datasets, four themes were predetermined from the theories and the phenomenon of the study: attitude/motivation access, physical/material access, skills access, and usage access. However, there were no inductive data sets. The findings of the study revealed that there was a variation between the first and the second phase. In the first phase, participants were unaware of how TPACK could advance their digital literacy for improved practices. Therefore, as an intervention, participants were capacitated on how TPACK could be used to advance their digital literacy and attain learning goals. Resultantly, the second phase brought about an improvement as participants demonstrated awareness of TPACK, digital literacy and how they could use TPACK to advance their digital literacy and reinforce learners' comprehension. Therefore, this study proposes that the Ministry of Education and Training (MoET) revise the Lesotho Basic Education Curriculum Policy (LBCEP) to include practical guidelines on how teachers should equip learners with digital literacy. Moreover, French teachers should be provided with continuous professional training workshops on the integration of digital literacy into their practices.

***Keywords**: ICT, TPACK, digital literacy skills, emancipatory action research, professional training*

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1.1 Introduction

This introductory chapter lays the foundation for the study as it defines its fundamental phenomena: TPACK, digital literacy, French as a foreign language (FFL) instruction in Lesotho, and other pertinent issues such as ICT. Moreover, it entails the background of the research, statement of the problem, research objectives, questions, and the significance of the study.

1.2 Background

The rapidly changing world necessitates a shift from traditional to modern teaching methods. Integrating Information Communication Technology (ICT) into the classroom environment fosters dynamism and engagement (Yuldashevna & Tuhtayevich, 2020). ICT comprises a triad of components namely, hardware (HW) software (SW), and ideological-ware resources (IW), with HW referring to the physical tools that facilitate effective learning, such as smartphones, tablets, laptops, and interactive whiteboards (Violic-Koprivec & Tolj, 2022). SW resources are programs and applications that enable hardware resources to operate at their full potential, encompassing learning management systems (LMS) (Google Classroom, Moodle, and others), video conferencing platforms (VCP) (Google Meet, Zoom, Microsoft Teams, and others) and, social media sites (SMS) (WhatsApp, Twitter, Facebook, and others) (Camilleri & Camilleri, 2021; Makumane, 2021).

Makumane (2021) posits that IW resources signify mind processes and perceptions, beliefs, and theories surrounding the meaningful use of ICT for learning. IW resources are monumental in helping teachers select suitable HW and SW resources, as IW is shaped by teachers' personal experiences and knowledge of technology (Budden, 2016; Zuma & Mthembu, 2023). Additionally, IW resources represent teachers' identities, such as what they think about technology and how they interact with it, considering how their attitudes and experiences with technology influence their lesson design, planning, and teaching processes (Zuma, Khoza & Sokhulu, 2022). ICT is said to enhance the quality and accessibility of education while addressing time constraints and enriching instructional techniques in both face-to-face and online settings (Ghavifekr & Rosdy, 2015; Mphunyane, 2021).

The Lesotho Basic Education Curriculum Policy advocates using ICT to ensure effective learning in Lesotho schools (MoET, 2021). The policy further emphasises the need for Lesotho education to adhere to international standards and to align with 21st century instruction (MoET, 2021). Instruction of the 21st century focuses on knowledge building and applying such knowledge for the enrichment of life and the ability to blend in with others from a global perspective (Collins, 2020). The adoption of ICT by teachers in Lesotho can revolutionise how learners engage with content and collaborate (MoET, 2009; Lisene, 2017). ICT can be used to heighten learners' understanding of content, foster innovation in content delivery, and assessment, and boost the performance of learners through the use of various HW and SW resources to meet their learning needs (Dzinoreva & Mavunga, 2022). Furthermore, teachers integrate technology into their lessons to promote engaging learning environments and motivation (Oyediran & Dick, 2018). ICT can also be used to foster autonomy, which is learners' capacity to use HW and SW resources to discover and interact with learning content on their own (Oyediran & Dick, 2018). Learners may engage in online discussions, virtually interact with native speakers, and be exposed to authentic language use, enhancing their language competencies (Kutsarova & Andonova, 2020). Teachers, when equipped to use technology that caters to learners' needs, can choose appropriate HW and SW resources that improve language comprehension and foreign language usage (Shadiev & Wang, 2022).

Effective use of ICT requires attitudinal, material or physical, skills and usage access to HW, SW, and IW resources (van Deursen & van Dijk, 2019). That is, the level of motivation or lack thereof in the use of SW resources such as the Internet and HW resources such as computers, laptops, smartphones, and others, as well as IW resources, which constitute the level of awareness and competence in navigating such resources, knowledge of their uses and limitations, and the ability to employ them autonomously contributes to effective integration of technology for learning (Kennedy & Cronje, 2023). Accordingly, adequate HW and SW resources and internet access, equal access, and frequent use of HW resources lead to mastery and consequently, quality education through technology (Spires et al., 2018; Makumane & Mpungose, 2022).

The Technological Pedagogical Content Knowledge (TPACK) theoretical framework, developed by Mishra and Koehler in 2006, emphasises the significance of technology integration in education. TPACK builds upon Lee Shulman's conceptual theory of Pedagogical

Content Knowledge (PCK) (Koehler et al., 2014). PCK, as articulated by Shulman (1986), combines pedagogical knowledge (PK) (SW resources) and content knowledge (CK) (HW resources). CK pertains to a teacher's in-depth understanding of the subject matter, including the ability to teach concepts from simple to complex, while PK includes knowledge of learners' backgrounds, interests, classroom management strategies, curriculum knowledge, and various instructional approaches.

PCK integrates subject matter with effective teaching approaches, differentiation techniques, and curriculum adjustments to enhance learners' comprehension effectively. As alluded to, TPACK is an extension of Shulman's PCK theory which promotes teacher development but neglects technology (Mishra & Koehler, 2006). Contrarily, TPACK acknowledges that the world has evolved thus necessitating 21st century education which is technology-based. This is in addition to blending content matter and relevant instructional approaches, for education that prepares learners for employability and equips them with transferable life skills such as creativity and communication (Akhwani, 2020). TPACK highlights the necessity for teachers to possess robust disciplinary knowledge and the ability to create an inclusive and meaningful learning environment with appropriate technological tools to facilitate active learning and motivate learners (Harris et al., 2017; Zhang, 2022). The TPACK model comprises three main components: technological knowledge (TK) (IW resources), CK (HW resources), and PK (SW resources), which further branch into six sub-domains namely, TK, technological content knowledge (TCK), PK, CK, technological pedagogical knowledge (TPK), and PCK (Mishra & Koehler, 2006).

PK encompasses the knowledge of teaching processes, methodologies, classroom management, teaching styles, and philosophical foundations (Shulman, 1987). It involves accommodating learners' diverse backgrounds and learning needs while managing the curriculum and employing various instructional techniques (SW resources) (Gardner, 1983). CK reflects teachers' deep knowledge and mastery of the subject matter, allowing them to sequence topics and teach concepts effectively (HW resources). PCK stresses the importance of understanding individual students, adapting content to their learning needs, and selecting appropriate teaching methods, activities, and assessment processes (Mishra & Koehler, 2006; Meileni et al., 2022).

Moreover, TK, as a sub-domain of TPACK, entails teachers' knowledge of various technologies and their ability to use them effectively (Mishra & Koehler, 2006). It includes the selection of suitable technologies aligned with learners' needs (IW), familiarity with HW, and SW resources that can be used to attain learning goals (Malik et al., 2018). TPK, which relates to teachers' attitudes and thoughts regarding technology use in teaching and learning, emphasises the impact of teachers' interaction with technology on their teaching and learning views (Harris et al., 2017). Teachers demonstrate their TPK through their utilisation of various HW resources, such as laptops, cell phones, SW resources such as websites, and applications, and their IW resources (discernment of applicable HW and SW resources that enable all learners to understand the content and ensuring that teachers can use them to achieve learning goals) to create a dynamic learning environment (Asad et al., 2021).

Digital literacy is a 21st century learning skill that encompasses the ability to critically use HW resources such as computers and tablets, SW resources applications such as YouTube, SMS such as Twitter and Facebook, and VCP such as Zoom and Google Meet to access, evaluate, manage, communicate, collaborate, and share information (Marin & Castaneda, 2023; Pratolo & Solikhati, 2021). The 21st century learning skills are competencies that learners need to thrive in the contemporary digital age, rapid use and consumption of media and information from SW resources such as search engines and VCP, and HW resources such as tablets and laptops. These skills are profitable academically and socially for lifelong learning. They include skills such as creativity, collaboration, communication, growth mindset, problem-solving, reasoning, and global awareness (IW resources) (Gonzalez-Perez & Ramirez-Montoya, 2022). Moreover, digital literacy involves a range of skills, such as media literacy, information literacy, digital problem-solving, network literacy, and basic computer skills, which enable individuals to use their IW resources (their understanding and navigation of different HW and SW resources) to access credible information, maintain online safety, critically consume media, and apply critical thinking skills while upholding cultural and social ethics in situations such as cyberbullying, hacking and plagiarism (Afriliandhi et al., 2022).

FFL teachers use their digital literacy skills to tap into their IW resources to search on the Internet, find, and share information with their learners and to foster responsible and safe use of HW resources such as laptops, smartphones and tablets and SW resources such as SMS, LMS, and VCP for collaboration, sharing of learning content and to foster effective communication (Hestik, 2014; Smith & Arnott, 2022). In the same line of thought, they require

digital literacy to navigate HW resources and evaluate information obtained from SW resources such as websites and SMS effectively, to select HW and SW resources aligned with learning objectives, adapt or create digital content to meet specific learners' needs and stay updated on advancements in French language education (Boreland et al., 2022).

In a French as a foreign language classroom, digital literacy entails using IW, HW, and SW resources to access authentic resources such as podcasts, videos, applications, and SMS (Violic-Koprivec & Tolj, 2022). Digital literacy competence, in this case, promotes cultural awareness of learners, improved communication, access to authentic resources, motivation, and engagement (Toro & Kisi, 2022). Essentially, it offers teachers an opportunity to utilise IW, HW, and SW resources to meet learners' individual needs, levels, interests, and learning styles, thereby improving learners' critical thinking, problem-solving, creativity, innovation and overall increased understanding of French as a foreign language (Kumari & D'Souza, 2016; Toro & Kisi, 2022).

In the 1960s, following World War II, the French government initiated efforts to promote the French language and culture worldwide. They extended their educational outreach to countries where French was neither the first, second, nor official language (Ayres-Bennet, 1996). This led to the emergence of FFL education and the establishment of organisations such as Alliance Française, aimed at disseminating the French language and culture globally. France's goal was to compete with Britain and maintain French as a global language, used in international relations, trade, and globalisation (Ayres-Bennett, 1996). France and Britain's rivalry was caused by their historical and political history of both being influential languages that represent education and sophistication (Roth, 2011).

The adoption of FFL in many countries is attributed to French's status as an international language of fashion, culture, architecture, arts, and technology, which offers economic opportunities and personal development (Torres & Gonzalez, 2018). FFL education taught using communicative methods, aims to integrate learners' cultures and needs, fostering better communication and promoting plurilingualism and pluriculturalism (Council of Europe, 2001). Plurilingualism entails the knowledge of multiple languages at varying levels, while pluriculturalism involves an awareness of diverse cultures and ethnicities in a society (Council of Europe, 2001).

French language education in Lesotho has a history dating back to 1868, initiated by French Evangelical missionaries who introduced formal education (Gill, 1993). However, as a result of the political issues between Lesotho and South Africa, wherein the Boers were illegally inhabiting certain parts of Lesotho, King Moshoeshoe I, founder of the Basotho nation was forced – after countless attempts to stop them – to seek the British's protection against the Boers (Pheko, 2017). Following the British rule in Lesotho, their language, English, became the dominant language in the country, leading to a decline in the teaching and use of French (Gill, 1993). Importantly, there were several challenges such as a lack of resources and infrastructure, a lack of teachers due to the departure of the missionaries who could train them as most locals were not fully equipped to train teachers, and the lack of support from the government, which added on to the decline of French in Lesotho (Manyawu et al., 2013). The plan to revive French in Lesotho commenced in 2008, with a pilot project in 2010 involving 16 secondary schools, which aimed to address learners' needs and national issues such as unemployment, HIV/AIDS, and poverty (Makumane, 2009). The government's decision to reintroduce FFL education stemmed from the desire to include another international language in the local curriculum and honour the historical relations between France and Lesotho (Makumane, 2009; MoET, 2019).

FFL education in Lesotho offers numerous potential benefits, such as economic growth through trade relations, self-employment in translation, job opportunities, and scholarships in the Francophone world (Manyawu, 2007; Makumane & Ncgobo, 2018). French is offered as an optional foreign language (MoET, 2019). The curriculum integrates local and international standards, providing learners with global skills while addressing their specific needs (MoET, 2016; Makumane, 2020). The teaching and learning of French in Lesotho follow the action-oriented approach recommended by the Common European Framework of Reference for Languages (CEFR) and the French syllabus (MoET, 2016).

CEFR is a framework that provides a common basis for language proficiency. In addition, it is a guide map on how to learn, teach, and assess foreign languages, while promoting global citizenship and open-mindedness in the learning of foreign languages (Council of Europe, 2001). Equally important, CEFR is descriptive that foreign languages should be taught and assessed according to international standards, and it allows for reference to international standards for curricula formation (Council of Europe, 2001). The Council of Europe (2020) asserts that the CEFR comprises six levels ranging from A1, A2, B1, B2, C1, and C2 which

indicate the level of competency respectively. Levels A1-A2 represent the beginner phase, while levels B1-B2 are intermediary and levels C1-C2 represent the mastery level which resembles native speakers' competency. These levels portray learners' linguistic and cultural competencies in a language (Council of Europe, 2001). Notably, the CEFR promotes communicative competencies and learners' abilities to use language in various social contexts in their daily life experiences (Council of Europe, 2018).

The action-oriented approach places the action at the centre of language learning, emphasising practical language use over mere language structures. It encourages learners to be autonomous, use critical thinking, and solve problems as they engage in tasks (Piccardo & North, 2019). The action-oriented approach consists of learners creating a project or end product after the performance, and with the learning experience of the tasks (Piccardo, 2014). That is, given tasks are not very predictable thus necessitating learners to be autonomous, and utilise their critical thinking and problem-solving skills to judge given scenarios (Delibas & Gunday, 2016). This requires learners to use any and every resource they have and organisation of unavailable tools to achieve this goal. Self-reflection and examination assist learners in learning from their mistakes and create awareness of what they can do with or without assistance from their teacher (Kriauciuniene et al., 2020). There is an emphasis on using authentic resources such as newspapers, news clips, and advertising excerpts to reinforce comprehension of selected themes (Kaliska, 2016). The approach aims to foster plurilingualism and pluriculturalism, promoting the ability to use multiple languages and engage with various cultures (Council of Europe, 2001).

French is the second most commonly learned foreign language after English and has around 321 million speakers worldwide, with a significant presence in Africa (Stein-Smith, 2018; IOF, 2022). It is the most spoken language in the world succeeding Mandarin, English, Spanish, and Arabic and it is spoken in all five continents of the world (IOF, 2022). French is a co-official language in 29 African countries and is considered an African language due to its widespread use in the continent (Wright, 2006). Moreover, French also functions as a lingua franca in francophone Africa. A lingua franca is a standard language spoken by people with no common indigenous language (Wright, 2006).

The influence of French is felt in many international organisations such as: The United Nations (UN), The European Union (EU), the United Nations Educational Scientific and Cultural

Organisation (UNESCO), the North Atlantic Treaty Organisation (NATO), the International Olympic Committee, the International Red Cross and International Courts (Torres & Gonzalez, 2018). The French language has significantly influenced English vocabulary, with approximately 50% of English words having French origins due to historical interactions between the two languages (Roth, 2011). French has approximately 220 million speakers, including 72 million who have learned it as a foreign language (Torres & Gonzalez, 2018).

Likewise, Zimbabwe's educational system shares similarities with Lesotho's, and French education has experienced a similar pattern of decline and resurgence. Just as in Lesotho, Zimbabwe faced challenges related to the shortage of qualified teachers, educational resources, and infrastructure for effective FFL language instruction. French is also studied as a foreign language as Zimbabwe is an Anglophone country, a former British-ruled country, similar to Lesotho (Manyawu, 2008). Moreover, Manyawu (2008) reports that Zimbabwe introduced French into its educational system before gaining independence in 1981.

However, the period following independence witnessed a significant decline in French language instruction due to several factors, including a shortage of trained teachers, resources, infrastructure, and funding from the French government (Manyawu, 2008; Maidaani et al., 2023). It was only after independence that the French government allocated funding to enhance the training of French teachers, aiming to prevent the elimination of French language instruction and promote it in government schools (Manyawu, 2008). The decline, as noted by Ndlovu (2014), can be attributed to learners' perception of French as a difficult language and their inability to see its potential value in their lives. Additionally, parental advice often leads them to opt for subjects other than French, which is perceived as less important (Manyawu, 2008). To effectively motivate Zimbabwean learners to study French, it must be tailored to their needs and cultural context (Chibaya, 2016). Then, teachers should be trained on how to encompass learners' cultural and linguistic needs in their teaching (Manyawu, 2008; Mbariro, 2015; Chibaya, 2016).

Similarly, South Africa – a neighbouring country to Lesotho, in which Lesotho is enclaved – offers FFL (Ferreira-Meyers & Horne, 2017). Lesotho is reliant on South Africa as there is only one French representative for South Africa and Lesotho at the Embassy of France, located in Pretoria, South Africa (Ambassador of France in South Africa, Lesotho and Malawi, 2022). In support of this, Makumane (2009) emphasises the role played by this French ambassador,

which contributed to the decision to revitalise French in secondary schools, and the selection criteria of schools in Lesotho's 2010 pilot project for the reintroduction of French education.

South Africa, a multilingual country with 11 official languages, contrary to Lesotho and Zimbabwe, has a more robust educational system concerning resources and government support for French education (Horne, 2021). In 2022, there were approximately 30,000 French learners in South Africa, with around 20,000 of them being primary and secondary school learners, making French the third foreign language after English and Afrikaans (Ambassador of France in South Africa, Lesotho, and Malawi, 2022). The substantial number of French learners in South Africa suggests a strong appreciation for the value of French in the country. Initially, French was exclusively offered in private schools in South Africa, largely due to its perceived prestige associated with its "European" roots (Vigouroux, 1998).

However, South Africa's approach to language education evolved to emphasise language and culture awareness, coexistence, and respect, considering French not just a linguistic tourism tool but also a language spoken by nationals from francophone Africa and a resource for the African Union (Horne, 2013; Ferreira-Meyers & Horne, 2017). As a result, French began to be taught in numerous secondary schools as a foreign language, despite not being a first or official language in South Africa (Horne, 2013). Furthermore, French – as suggested by Rust et al., (2015) – holds the promise of economic, personal, and national development as it serves as a language of global politics, business, globalisation, and diplomacy. In line with this, the teaching of FFL in South Africa follows communicative and learner-centred approaches, providing learners with opportunities to see its practical application in various social contexts (Ferreira-Meyers & Horne, 2017).

The appreciation of the French language across the globe is pervasive and necessitates contemporary instruction, with the use of technology (Altum, 2019). Essentially, Su (2022) attests that the TPACK framework informs teachers on how to merge their knowledge of the subject they teach with relevant teaching styles, and their knowledge of technological resources to attain learning goals. TPACK gives teachers exposure to the use of technology for dynamic and actively engaging FFL lessons, and gives them an opportunity for self-reflection concerning their knowledge of ICT and its integration in the classroom (IW resources) (Altum, 2019). Furthermore, Altum (2019) opines that TPACK may enhance teachers' digital literacy skills, based on their reference to their IW resources, for selection and adaptation of HW

resources such as smartphones and interactive whiteboards, and SW resources such as websites and applications, for interactive exercises, collaborative tasks and presentations (Tomczyk & Fedeli, 2021).

To further elevate their digital literacy skills, Gonzalez-Perez and Ramirez-Montoya (2022) purport that teachers can use VCP such as Google Meet to facilitate virtual interactions with native French speakers, colleagues, and other teachers globally to share ideas and tips on how to keep their instruction up to standard. They can also have access to content that they can modify to address learners' needs and levels (Kumari & D'Souza, 2016). It is said that digital literacy may not only equip teachers with a progressive mindset (IW resources), but it may also help them promote autonomous learning by providing learners access to SW resources such as websites and applications, which they can use to learn independently (Su, 2022). Notably, FFL teachers' digital literacy denotes their ability to reflect on their IW resources and their capacity to manoeuvre multiple HW and SW resources (Tomczyk & Fedeli, 2021). This suggests that they can use their IW resources to practise cyber safety, maintain online privacy of their profiles to avoid being hacked, caution learners not to practise cyberbullying, and conscientise them on how they can identify it (Akhwani, 2020).

FFL teachers need to have digital literacy skills so that they can verify the authenticity of information and acknowledge sources of the resources they obtain online while using creativity and critical thinking skills to modify and adapt the information to their satisfaction instead of blindly consuming information obtained online (IW resources) (Su, 2022). In the same vein, they can use technology for assessment and grading and to learn other teachers' assessment strategies (Tomczyk & Fedeli, 2021). These teachers can also note when their SW and HW resources need maintenance and repair and thus seek help (Khan & Gul, 2022). This study is hinged on the premise that with the help of TPACK, teachers' digital literacy skills are enhanced, thus resulting in improved learning experiences (Gonzalez-Perez & Ramirez-Montoya, 2022). Therefore, the purpose of this study is to explore the use of TPACK to advance digital literacy in the teaching and learning of French as a Foreign Language in Lesotho secondary schools.

1.3 Statement of the problem

The literature claims that the adoption of TPACK for FFL instruction promises teachers a practical perspective towards effectively integrating technology to buttress comprehension of the French language (Marice & Basyaruddin, 2019; Sharaf, 2020). This can be achieved through personalised activities which cater to learners' individual needs in creating a dynamic learning environment and a holistic approach to the intersection of content, teaching methods, and ICT resources (HW, SW, and IW resources), appropriated in the classroom (Mimis et al., 2023). Moreover, the TPACK framework is said to have the potential to improve teachers' digital literacy skills through their use of IW resources, to find apt HW and SW resources which will consequently, aid them in cultivating other vital IW resources that encapsulate critical thinking, communication, creativity and information literacy skills (Su, 2022; Mimis, et al., 2023).

In contrast, FFL teachers are said to face the challenge of being unable to integrate technology, and ensuring that the subject matter and teaching practices are in alignment with the HW and SW resources of choice (IW resources) (Ghany, 2019; Dismas, 2018; Mashinini, 2020). In other words, teachers view technology infusion as isolated from content and teaching methods, which may be detrimental to their digital literacy skills (Nobre & Martin-Fernandez, 2018; Lebrun & Lachelle, 2014). This suggests that their acquisition and improvement of digital literacy skills may be hampered due to a lack of knowledge on how to integrate technology (Nobre & Martin, 2018). Similarly, the Examinations Council of Lesotho (ECoL) states that "teachers must train learners in listening exercises to build their listening skills. Learners should be encouraged to visit YOUTUBE for samples of the DELF A1 examination." (ECoL, 2023; p. 2). This assertion indicates that FFL teachers are required to possess robust digital literacy skills and foster them among learners. Promoting these skills capacitates learners to access and leverage varied multimedia from across the Internet autonomously, to enrich their French language competencies. Gomez-Trigueros (2023) asserts that TPACK alleviates teachers' digital literacy skills as it enlightens them on the efficacious use (IW resources) of a variety of HW and SW resources for the accomplishment of learning goals.

In light of this, the Lesotho Basic Education Curriculum Policy recommends integration of technology to enrich learners' communication competencies, and digital literacy skills (MoET,

2021). The Lesotho Basic Education Curriculum Policy, (MoET, 2021), lacks the practical guidelines for technology integration as it offers no support in terms of capacitating teachers with the requisite skills to implement technology in instruction. Moreover, the policy also simply states that learners should be equipped with digital literacy skills without explicitly stating how teachers should acquire and integrate such skills into their teaching practices. Digital literacy is seemingly implicitly embedded in the Linguistic and Literacy learning area under the effective communication curriculum aspect (MoET, 2009). The Linguistic and Literacy learning area aims to equip learners with positive attitudes and the requisite abilities to read, write, listen, speak well, and comprehend communication from various types of communication tools such as graphics, signs, and technology to be effective communicators. This aims to develop people who are tactful in how they pass the message across to different people in society and can participate in national and global issues such as politics and the economy (MoET, 2009; Alsman, 2017). Digital literacy skills are said to endow teachers with the essential IW resources, instrumental in identifying and using relevant HW and SW resources to obtain information for the construction of knowledge, to maintain ethical considerations and cultural principles (MoET, 2021; Jeanneau & Olivier, 2017).

Therefore, as stated by Bouhali (2021), TPACK in FFL instruction may enhance teachers' capacity to effectively imbue technology with the subject matter and adopt aligning teaching methods, thus breeding teachers' familiarity with technology, and amplifying their digital literacy skills. It is against this backdrop that this study seeks to explore the TPACK framework for the augmentation of teachers' digital literacy skills in the teaching and learning of French as a foreign language.

1.4 Research Objectives

According to Creswell and Creswell (2018), research objectives highlight the goals that the study intends to achieve, and they serve to shed light on the process of data generation, analysis, and interpretation. Therefore, the objectives of this study are as follows:

1. To inspect the strategies used by FFL teachers to advance their digital literacy.
2. To explore the challenges faced by FFL teachers in integrating digital literacy into their teaching practices.
3. To examine how TPACK can be used to enhance FFL teachers' digital literacy.

4. To explore the benefits and challenges of using TPACK to improve FFL teachers' digital literacy.

1.5 Research Questions

The research questions below have been formulated from the above objectives to respond to the statement of the problem, highlight the factors which are addressed in the review of literature as well as set the basis for participants' responses, and overall structuring of the study (Khoo, 2005). Further, these questions provide guidelines for the methodology in this study such as the research design, method, and tools that would be used to resolve the identified problem. Leedy and Ormrod (2021) state that researchers divide the problem into manageable sub-problems, the research questions, to effectively address it. Thus, these are the questions which guided the study:

1. What strategies do FFL teachers use to advance their digital literacy?
2. What challenges do FFL teachers face in integrating digital literacy into their teaching practices?
3. How does TPACK enhance FFL teachers' digital literacy?
4. What are the benefits and challenges of using TPACK to improve FFL teachers' digital literacy?

1.6 Significance of the Study

This study holds potential significance for various stakeholders in the education sector as outlined below:

- Teacher trainers may gain insights into training teachers on effectively integrating technology into FFL classrooms.
- FFL and other language teachers may enhance their digital literacy skills and transform their pedagogical practices by employing TPACK.
- Moreover, curriculum developers may include digital literacy integration in the FFL curriculum and provide guidelines for implementation.
- Learners of FFL may improve their French language proficiency and gain competitive digital literacy skills, as a result of technology use.
- Equally important, researchers may explore further research on technology-enhanced FFL and other languages' instruction using TPACK.

Chapter 2: Review of Literature

2.1 Introduction

This study explores the use of TPACK to advance digital literacy in the teaching and learning of French as a foreign language in Lesotho secondary schools. The extent to which FFL teachers perceive TPACK to be of use for digital literacy advancement will be investigated along with how FFL teachers integrate digital literacy into their teaching practices and how TPACK may enhance their digital literacy skills. This chapter attempts to provide a detailed outline of the phenomena under scrutiny thereby providing clarity on the research questions. A review of literature is characterised by an in-depth comprehension of what the existing literature says about a topic, which is the problem, coupled with the ability to centre that on the unique questions and ideas from which the study seeks to draw knowledge (Ramdhani, Ramdhani & Amin, 2014). Therefore, this chapter encompasses the review of literature, theoretical framework, and empirical review.

2.2 Review of the literature

Technology transforms language instruction as it helps teachers come up with activities that promote lifelong learning that can be impactful to learners in and outside of the classroom (Wang, 2023). In FFL instruction, technology reinforces learners' confidence and proficiency through the use of varied HW, SW, and IW resources which improve their engagement and motivation to study (Gonzalez-Vera, 2016). The TPACK framework of Mishra and Koehler (2006), which was initially predominately used as a lens in the ICT, Science, and Mathematics subjects' education, is useful in exploring the impact of digital literacy in the current technologically driven world as it stresses the importance of embedding aligned HW, SW and IW resources within a discipline.

This theory is said to be anchored on the three main domains of knowledge – content knowledge (CK), pedagogical knowledge (PK), and technological knowledge (TK) – in ensuring harmony between what is being taught, how it is delivered, and what modes of technology are used to reinforce understanding of the French language and culture (Aoyama, 2020). Therefore, teachers may explore the TPACK framework to augment their digital literacy skills by ensuring that they fully understand technology integration and its intricacies such as

the creation of diverse learning experiences for the inclusivity of all learners. This includes the use of varied hardware (HW), software (SW) and ideological ware (IW) resources, using technology for evaluation, creating and adapting activities from different sources (SW applications and websites), and facilitating virtual interactions with native speakers of French and collaboration with peers from across the globe as well as classmates for group tasks (Aoyama, 2020). This TK then becomes strengthened through constant interaction with technology and develops into digital literacy.

2.2.1 What is digital literacy?

The term digital literacy is a combination of two words "digital" and "literacy". By definition, literacy refers to basic skills of communication such as reading and writing, and the ability to interpret and use them appropriately in various contexts (Spires, Paul & Kerkhoff, 2017). However, literacy in this digital age refers to the capacity to use, access and utilise information obtained from HW, SW and IW resources (Gomez-Trigueros et al., 2019). Relatedly, the term digital literacy (IW) was coined by Gilster (1997) with the belief that it reveals people's capacity to interpret and disseminate information acquired from different HW and SW resources. This competency is considered vital as it readies learners for functioning in the fourth industrial revolution (IR 4.0) where they are required to be competitive global citizens fully equipped with 21st century skills such as problem-solving, analytical thinking, ethics, reasoning, and communication skills (IW resources) (Laila & Asrizal, 2020).

The IR 4.0 is the period in which digital media of high technology is used to provide people with the convenience to empower them to be more productive through the use of products such as AI (artificial intelligence), robotics, cybersecurity, and the Internet (Elayyan, 2021). Digital literacy encompasses several skills such as functional literacy, scientific literacy, informational literacy, technology literacy, scientific literacy, cultural literacy, and global awareness which are crucial in addressing the challenges posed by IR 4.0. This assertion suggests that digital literacy in FFL is manifested by teachers' ability to choose through a wide range of HW, SW, and IW resources to select one or multiple resources that complement one another to design and plan lessons.

Jayanti and Damayanti (2023) and Fatimah et al., (2023) use the term multimodal or multiliteracies interchangeably with digital literacy as it signifies the familiarity with several sources (HW, SW, and IW resources) to purposefully surf the Internet, access and utilise the information to transform practices and several literacies such as information, media and data literacies. Using various modes of communication for foreign language learning appeals to different learners' senses and abilities. Nevertheless, factors such as teachers' inability to adapt to technology and its effective integration are influential, hence it is suggested that teachers' perceptions of what multimodal literacy is should be examined before their training to assist them accordingly (Jayanti & Damayanti, 2023). Presumably, it is wise to have an idea of the extent to which FFL teachers have digital literacy skills through prior knowledge assessment activities.

Conversely, digital literacy has no uniform definition as it is simply a requisite competency for teachers and learners to access, comprehend, and apply the knowledge from HW, SW, and IW resources (Pehlevan & Unal, 2023). For teachers it necessitates filtering through various SW resources such as websites, SMS, LMS, and HW resources such as projectors, smartphones, and laptops, and IW resources such as critical thinking, innovation, and information literacy skills to reinforce the subject matter, metamorphosise learners' attitudes and behaviours towards technology use as teachers are influential in how learners constructively engage with technology (Sandra & Yuliawan, 2022). Thus, digital literacy is pivotal in elevating countries' social economic, and economic development (Afriliandhi et al., 2022; Kim, 2023). FFL teachers are seemingly required to be able to purposefully select videos, online quizzes, and exercises and modify them to suit learners' levels and learning needs to ensure that they cultivate important skills such as autonomy and elevate their speaking, listening, reading, and writing skills.

On that note, Afzal et al. (2022) argue that it is pivotal for teachers to possess digital literacy skills to enable them to help learners acquire them. Furthermore, digital literacy skills play a huge role in learners' readiness to thrive in the digital age, be independent in attaining tasks, and prepare for marketability (Afzal et al., 2022). For example, some may use available HW, SW, and IW resources to study on their own and to find online friends to discuss with on SMS as the world has predominantly gone digital. Additionally, people stand to gain several benefits

such as the exploitation of technology to economise on time and money as it is faster and more convenient in terms of access to services, dispersing information across the world, and being innovative and creative while performing tasks hence the development of organisational and critical thinking skills (IW resources) (Isabella & Agustian, 2023; Sandra & Yuliawan, 2022). Is it assumable that FFL teachers may be able to organise their lessons and sequence, and pace them effectively with the help of digital literacy skills, thus innovatively promoting the use of varied HW, SW, and IW resources for the attainment of learning goals and stimulating learners' interests and help sharpen their critical thinking?

Digitally literate people are privileged to access information from SW resources such as the web and other HW and IW resources and distribute it to change various aspects of their lives. For example, they can distinguish between real and fake news on SMS, and use varying HW and SW resources such as smartwatches, smartphones, laptops, and other expedients to refine their lives while performing daily activities (Sandra & Yuliawan, 2022). They can help develop their countries, for instance, they can access public services through the use of disparate HW, SW, and IW resources, communicate information, and partake in forums that are impactful for their cities and countries (Isabella & Agustian, 2023). Digital literacy is said to also have the capacity to improve the quality of life and interactions and transform analysis skills (Shadiev & Wang, 2022). This view is in line with that of Kim (2023) who attests that many countries have integrated digital literacy into their educational systems and national development strategies, emphasising its significance in economic growth, social inclusion, and global competitiveness. For FFL teachers, this seemingly states that they can apply for scholarships in francophone countries, facilitate virtual classes on VCP and LMS and help learners realise the importance of appropriating technology to meet learning goals.

Importantly, Pradana (2018) outlines four basic principles of digital literacy namely, understanding, interdependence, social factors, and curation. That is, there has to be sufficient comprehension of various media, how they operate the interpretation of information contained in them, and the interlinking of understanding across similar media. Also important are the social principles that come into play while using various HW, SW, and IW resources, and the capacity to use critical thinking, reasoning and innovations (IW resources) to gather information and navigate different HW and SW resources. Digital literacy provides the ability

to access knowledge and to cautiously seek, understand, and disseminate information as it is a potential solution to vanquish multiple problems of reading and consuming SMS text messages (Mardiana et al., 2022).

As opined by Chama and Subaveerapandiyan (2023), digital literacy is classified into four pillars: digital skills, digital ethics, digital culture, and digital safety. This demonstrates the importance of having competencies to manipulate different HW, SW, and HW resources to attain goals and, adapting different SW applications and websites such as VCP, SMS, LMS, and AI to cater to learners' diverse learning needs and being digitally creative (Arafah & Hasyim, 2023). Digital ethics pertain to moral codes of conduct in cyberspace and are inclusive of an assortment of factors such as respecting the online privacy of others, acknowledging sources from which information has been derived, and being responsible in the use of HW, SW, and IW resources (Chama & Subaveerapandiyan, 2023; Arafah & Hasyim, 2023). FFL teachers are required to be aware of the amount of information they share about themselves online and help learners realise that as they utilise the Internet and SMS for learning and personal matters.

Digital culture entails collaboration in impactful discussions online and sharing knowledge that encourages intellectual growth and advancement while also being multicultural, respectful, and sensitive to different cultures and ethnicities online hence the use of respectful and inclusive language (Chama & Subaveerapandiyan, 2023; Nore et al., 2010). Moreover, digital safety demonstrates the ability to use the Internet and HW, SW, and IW resources bearing the safety precautions in mind. It entails the creation of stronger passwords to protect against access by unauthorised people, being cognisant that what one posts does not pose harm or danger to self and others (cyberbullying), and being able to identify hoaxes and malware that can damage HW, SW and IW resources (Arafah & Hasyim, 2023). Due to the ubiquitous use of HW, SW, and IW resources, FFL teachers should imbue safety precautions in the classroom activities that require the use of these resources.

Digital literacy can also be defined as the effort to study, explore, comprehend, evaluate, and employ digital technology (the HW, SW, and IW resources) to foster communicative thinking,

collaborative learning attitudes, and creativity (Shadiev & Wang, 2022). According to Hobbs (2010), there are five digital literacy competencies namely, access, analysis and evaluation, creation, application of ethical and social responsibility concepts, and action. That is, there has to be an ability to purposefully surf the Internet for useful information (IW resources) through HW and SW resources, and then use IW resources to critique the quality and reliability of information and the potential dangers of its consumption (Hobbs, 2010). After that, there has to be adaptation and creation of authentic materials which are contextual to the current learning situation for originality, considering recipients or participants, and ethics and social responsibility that show one's taste, social identity, and positive behaviours and attitudes and generally being creative by doing things uniquely (Fazilla et al., 2022). Thereafter, one has to act by showing awareness of social and worldwide issues while exchanging information (Fazilla et al., 2022; Sandra & Yuliawan, 2022). Importantly, it appears that FFL teachers are required to use their IW resources while selecting online information they wish to use in their lessons, and they have to be innovative and adjust such information to make it relevant to their learners' contexts.

2.2.2. Strategies used to advance digital literacy skills

Employment of the hybrid or blended learning approach can be an integral instrument used to accentuate digital literacy skills (Vonti & Rahma, 2019). Importantly, hybrid or blended learning is the use of the quintessential face-to-face instruction and online instruction to foster active participation and the effective use of HW, SW, and IW resources to meet learning goals and learners' multifaceted learning needs (Sheerah, 2020). Additionally, blended learning is said to be instrumental in fostering autonomy by providing teachers and learners with unlimited access to learning content that they can find on various LMS, allowing them to explore different HW, SW, and IW resources to collaborate with their teachers and peers on VCP and SMS to disseminate content (Makumane et al., 2023; Sheerah, 2020). Blended learning also helps teachers provide timely and constructive feedback in face-to-face interactions and explanations and guidance, which may be useful in online learning sessions (Tang & Chaw, 2016). Therefore, blended learning may be beneficial in improving digital literacy skills in that there has to be responsible use (IW resources) of the Internet and HW and SW resources, and resultantly, basic ICT skills are heightened to operational skills which can be used to achieve learning outcomes (Vonti & Rahma, 2019). Moreover, teachers are propelled to be self-directed in learning how to utilise various information depositories, scrutinise various HW and SW

resources and assemble information in a way that prompts agency in the classroom as well as inclusivity (Tang & Chaw, 2016).

Rahman et al. (2023) explicate that the guided discovery teaching method is vital in the teaching of digital literacy skills. Guided discovery is a problem and inquiry-based method of teaching that necessitates the use of diverse HW, SW, and IW resources to create innovative, learner-centred lessons that are filled with stimulating activities to capture learners' interests thus rendering them motivated to not only be stereotyped to using certain resources but a variety of them to accomplish learning goals (Casad & Jawaharlal, 2012). In the same vein, this method fosters the transferability of knowledge and skills to empower learners to utilise technology in general, to achieve their real-life and educational goals thus sharpening their critical thinking, global citizenship, awareness, creative thinking, problem-solving, and reasoning skills (IW resources) (Rahman et al., 2023). The guided discovery teaching method places learners' needs at the forefront enabling them to be proactive and learn through the experience of using various HW, SW, and IW resources to construct their knowledge for meaning. Thus, they expand their knowledge of the subject, understand simulations, manage and critique information to come up with solutions hence the need to use a variety of resources and filter through vast amounts of information (Muhali et al., 2021).

The education of the 21st century is not only reliant on learners' comprehension and mastery of the discipline, but it also places value on the life skills that they can use to navigate the global sphere, empowering their use of technology and giving them a chance to participate in national and global development initiatives which require them to be technology savvy (Sinanga et al., 2023). Therefore, Sinanga et al. (2023) propose the use of the project-based learning model (PjBL) in achieving global digital competitiveness, as this model is used to promote a creator instead of a consumer mentality. It also encourages self-construction of knowledge and a dialogical learning environment to promulgate learning how to exploit any available resources to perform educational tasks, thus providing motivation, collaboration, and sensitivity to oneself and others (cultural and ethical concerns). It further sharpens curiosity and enhances critical thinking and innovation skills to purposefully filter out useful information from the internet and SMS (Sinaga et al., 2023).

The WE-Are (Warm-up, Argumentation, and Resume) learning model can be effective in augmenting digital literacy skills (Amin et al., 2023). This model is learner-centred and views education as a process of the social construction of knowledge, wherein all learners participate and are allowed to have their perspectives regarding content, for equality and respect for multiple perspectives (Amin et al., 2023; Makhachashvili & Semenist, 2021). The WE-Are model cultivates cultural thoughtfulness, intentional searching, and access to knowledge through varied sources (Internet, SMS, VCP, LMS, HW, and SW resources) thus bolstering confidence, critical argumentative thinking, reasoning and understanding of information from multiple perspectives. In the process, this improves attitudes, interpretation of information, and coexistence with other members of society (mutual respect, courtesy and adherence to rules) (Amin et al., 2023). Equally important, this model stresses collaboration, cooperation, and coordination of ideas and knowledge for an actively engaging and meaningful environment where all learners' contributions are valued and they are encouraged to keep on evolving just as knowledge and technology are (Makhachashvili & Semenist, 2021).

WE-Are also enables learners to be engaged in using numerous resources to search, find, and critique credible information, which they shall adapt to their needs and explore deeper information on concepts and topics on their subjects while being guided by their teachers. In the context of FFL instruction, this includes teachers using the warm-up phase to assess and critique the HW and SW resources they intend to integrate based on the lesson objectives. Then in the argumentation phase, they critically evaluate the potential benefits and challenges of using these resources and then find means to supplement them with others. Lastly, in the resume phase, teachers intentionally design and formulate lesson plans that encapsulate learners' learning needs and require them to be agentive, and the HW and SW resources are effective for content delivery, as well as evaluation strategies that help reinforce content and technology comprehension. In this last phase, teachers also assess the level of collaboration or assistance they may need from peer teachers in creating technologically effective lessons.

Dewi (2022) highlights the significance of distance learning, online learning, or e-learning (electronic learning) to improve digital literacy skills. Accordingly, e-learning, distance learning, or online learning is a mode of instruction that is solely conducted virtually through LMS, VCP, and SMS and it uses HW, SW and IW resources to form an interactive knowledge-

sharing learning climate (Mpungose & Khoza, 2020; Makumane & Mpungose, 2022). Since online learning requires rigorous use of HW, SW, and IW resources, it then necessitates familiarity and confidence in the use of such resources to help distinguish facts from speculations for pertinent information to be synthesised and selected from vast amounts of material. This enables appropriate interpretations from multimedia sources such as texts, audios, videos and pictures to target learning needs and match with prior knowledge in the process of appropriating differing HW, SW, and IW resources for educational purposes (Anass, 2023). Being aware of the strengths and limitations of various HW and SW resources and being mindful of how to supplement them with others elevates digital literacy skills (Dewi, 2022). As such, online learning can be used as an imperative strategy to improve digital literacy skills in the educational sphere. This is particularly so in FFL instruction as it prompts reflection on teachers' habits, attitudes, and practices towards the use of HW and SW resources for designing and planning innovative and meaningful lessons, thus honing communication, analytical and innovation skills for cautious use of technology for individual (privacy concerns) and collective situations (culture and principles for social interactions) (Anass, 2023).

2.2.3 Integration of Digital Literacy

Effective integration of digital literacy in an FFL classroom requires it to be used alongside the action-oriented approach (Hestick, 2014). This can be achieved through facilitating interactive and engaging activities such as incorporating Google Docs wherein learners can collaborate concurrently to create a project or a report (Delibas & Gunday, 2016; Hestick, 2014). Furthermore, learners can use SMS, LMS, and VCP to connect and share ideas pertaining to their school work among themselves and with their peers worldwide (Djamel, 2019). For instance, encompassing activities such as Google Maps 360̊ pictures and videos of countries and cities provide learners with a virtual tour (Hestick, 2014). This enables them to be familiar with various places and the French culture. To exemplify, a news bulletin video in France, a podcast about a football match in France, a video of people inside a restaurant in France, or a video of a French student in a cafeteria are authentic resources that provide insight into the French language and culture (Delibas & Gunday, 2016). Likewise, assigning learners a task of recording themselves talking about themselves links to certain exercises they should undertake, and asking them to do PowerPoint presentations on a certain given theme taps into their digital literacy and the action-oriented approach (Djamel, 2019). Noteworthy is that, with digital literacy, FFL learners can undertake auto-evaluation where they can evaluate online

assessments (online exercises) to test their level of French (Delibas & Gunday, 2016). This suggests that FFL teachers in Lesotho should have the capacity to navigate multiple HW, SW, and IW resources in conjunction with the action-oriented approach. This ensures that they create a dynamic and learner-centric classroom environment where learners are creators instead of consumers of knowledge.

Isabella and Agustian (2023) note that integrating digital literacy requires technology infrastructure and individuals' readiness and preparedness to transcend from traditional to digital ways of learning and thinking, as well as comprehension of the potential benefits of technology. Interestingly, the common impediments to digital literacy integration include issues such as the digital literacy gap, privacy concerns, engineering and accessibility issues, and cultural diversity or change (Isabella & Agustian, 2023). Put differently, the digital literacy gap involves the demarcation between technologically savvy people, and those with varying socioeconomic backgrounds, education, and intelligence levels (Martinez-Bravo et al., 2022). Privacy concerns are raised by people's inability to search, access, use, and disseminate information (Martinez-Bravo et al., 2022). In concurrence, Laila and Asrizal (2021) attest that infrastructure restricts digital literacy implementation as there are limited HW and SW resources in some schools thus making it difficult for teachers to use technology in their practices. Importantly, FFL readiness and the availability of resources may impact attempts to promote digital literacy.

Other barriers to integrating digital literacy are identified as access to HW, SW and IW resources and teachers constantly experiencing time restraints and their failure to adapt teaching strategies due to inadequate teacher training (IW resources). This requires governments and other stakeholders in the education sector to equip schools with sufficient HW and SW resources and provide suitable training for teachers (Choudhary & Bansal, 2022; Saenab, Saleh & Adnan, 2022). Due to ignorance, misinformation, or lack of exposure to the internet and HW, SW, and IW resources, some people may lack the awareness to understand their full potential. Thus, they need to be conscientious of how they operate, and there has to be effective communication and guidance. Technical and accessibility hindrances should be addressed as not all people hail from privileged socioeconomic backgrounds with good Internet connectivity and availability of efficient HW and SW resources (Buabeng-Andoh, 2012).

Moreover, this is likely to cause a huge cultural shift for people who are not quite conversant with technology as some may feel anxious about using it for various purposes and settling into cyberspace (Buabeng-Andoh, 2012). For this reason, professional training of teachers to acclimatise them to technology and its various uses in their teaching practices may be invaluable and the schools together with the government should ensure there are sufficient facilities so that teachers can promote and seamlessly integrate digital literacy in their instruction (Purmayanti, 2022). It seems like FFL teachers have to be mindful that learning French demands learners to learn the culture; and learning the culture comes with the use of HW, SW, and IW resources for learning.

On the contrary, it is cautioned that the process of digital literacy integration requires a purposeful approach as it uncovers several challenges such as teachers' readiness and preparedness to integrate technology into the curriculum, availability of HW and SW resources (socio-economic factors) and teachers' critical thinking in terms of pedagogical concerns (IW resources) (Purmayanti, 2022). In other words, the availability of resources involves the distribution of HW, SW, and IW resources and the Internet which unearths impediments such as inequality in resource acquisition resulting in inequities in the acquisition of learning content (Vasinda et al., 2015). In this light, Stinson (2022) and Middleton (2022) advocate the use of a digitalised curriculum for effective integration of digital literacy in instruction as it could boost learners' innovation through practical teaching methods, content and pedagogical demands (holistic instruction) of the 21st century education. Furthermore, Khoza and Mpungose (2020) and Makumane (2023) add that a digitalised curriculum enables teachers to harness SW resources (social interaction through LMS, VCP, SMS, and diverse search engines), HW resources (their digital literacy skills) and their IW resources (their knowledge of technology and how to effectively integrate it in creating a real-life experiences'-based instruction for 21st century education). Importantly, it is assumed that teachers struggle to effectively integrate digital literacy due to the challenge they face in adapting the content and digitalising it (Makumane, 2023; Middleton, 2022; Stinson, 2022). This is likely to be of vital importance in the instruction of FFL as teachers purportedly grapple to adopt technology in their teaching, thereby fully harnessing its practical utility.

Teachers' fear of technology and unfamiliarity with technology use inclines them to be overly reliant on using the prescribed textbook as the sole teaching aid (Knight, 2015). Interestingly, Knight (2015) attests that in most cases, the prescribed textbook is not sufficient to address learning needs as it fails to expose learners to culturally relevant content that incites engagement and interactivity. In other words, the textbook limits teachers' and learners' interactivity, creativity, critical thinking, and innovation, as it is devoid of real-life relevance. Thus, it marginalises learners from interacting with authentic cultural contexts and meaningful learning (Chevant-Aksoy & Corbin, 2022). Digital literacy offers them versatility and multiple opportunities to interact with a wealth of culture-rich content from diverse multimedia on the Internet (Chevant-Aksoy & Corbin, 2022). This enables them to be conversant with all four language competencies, and the ability to juxtapose the French culture with theirs. An example of this is shown by the Examinations Council of Lesotho (ECoL) in stating that FFL learners in Lesotho seemingly fail the listening part of the final examination due to a visible lack of exposure to various listening resources. Thus, ECoL urges teachers to endorse learners' use of YouTube to practise their language competencies (ECoL, 2023). Correspondingly, Lephoi-Sooknanan (2021) asserts that FFL teachers in Lesotho blindly follow the prescribed textbook. As a result, they marginalise learners as they struggle to relate the French language and culture to theirs. This seemingly hints at a possible misalignment between the recommended textbook *"Et Toi?"* and the French curriculum, as the textbook appears to be insufficient on its own. This textbook insufficiency compels supplementation with technology (Knight, 2015; Risager, 2021). In this light, it is pivotal for FFL teachers to establish a synthesis between employing the textbook and their digital literacy in their teaching practices (Risager, 2021; Chevant-Aksoy & Corbin, 2022).

The textbook is a traditional teaching resource that lacks agency and engagement and hinders teachers' creativity and innovation and thus may be considered outdated (Lustyantie & Dewi, 2020). Whereas, technology comprises multitudes of resources that can be leveraged simultaneously to cater to learners' diverse needs to facilitate a learners-centred environment (Knight, 2015). Hence, FFL teachers have to be capable of creating their own textbooks using an array of multimedia from other textbooks and the Internet, as the world is ever-evolving bringing about newer ways of foreign language instruction (Lystyantie & Dewi, 2020). However, it is noteworthy that some teachers may be forced to solely depend on the use of the

textbooks due to the absence of ICT resources in their schools (Chevant-Aksoy & Corbin, 2022).

It is noteworthy that teachers use learner-centred teaching methods to promote active participation and engagement with HW, SW, and IW resources (Soekamto et al., 2022). However, it is not only pedagogy that counts, but also the technology integration, teachers' competency, desire, and motivation to transform instruction, digital access, and HW, SW, and IW resources (Vasinda et al., 2015). Teachers' readiness concerns their adeptness to efficiently integrate technology into their instruction while ensuring that they foster a dynamic environment that encourages learners to cultivate digital literacy skills and build their capacity to use different HW, SW, and IW resources while also keen on keeping abreast with emerging technologies (Soekamto et al., 2022). Importantly, it is remarked that Africa, unlike North America and the European Union, is in a serious crisis with a significant lack of infrastructure and internet connectivity issues thus experiencing limited access to technology education (Hosek, 2018). Seemingly, learner-centred approaches are still quite challenging for FFL teachers due to a scarcity of digital resources which then suggests an inability to create dynamic lessons capable of making learners digital citizens.

Zamista and Azmi (2023) aver that digital literacy embeds learners with the skills to be global citizens, to be aware of global changes and challenges, and the opportunity to participate in them. Further, it is suggested that improved digital infrastructure in schools – and teachers' constant professional training workshops for equitable access to quality education for all learners regardless of their socioeconomic backgrounds and areas, whether rural or urban – can be the answer to digital literacy integration challenges (Zamista & Azmi, 2023; Damuri et al., 2022). Since some rural and socioeconomically disadvantaged people may not be able to access HW, SW, and IW resources, they become digitally excluded. This view is corroborated by Kim (2023) who opines that there have to be policy frameworks in place that integrate and provide guidance on how teachers should incorporate digital literacy in their instruction as per the curriculum. Moreover, there is a need for mediation from the government in providing resources to bridge the digital divide caused by unequal access to HW, SW, and IW resources in the classroom (Kim 2023; Soekamto et al., 2022). Additionally, effective digital literacy integration requires well-functioning HW and SW resources, electricity, and internet coverage,

and teachers who are conversant with technology and keen to explore technology's use to transform instruction (Omboto et al., 2022). It is assumed that most FFL teachers' digital literacy skills are limited hence they believe using data projectors is the ultimate digital literacy integration.

Teachers should be aware that digital literacy skills may also vary based on people's ages. The younger they are, the more they can adapt to newer technologies and adopt them in their instruction thus preparing learners for a robust digitally structured life, as the youth is presumably familiar with technology and data literacy (Damuri et al., 2022). Moreover, lack of skills, interest, and access to the internet and HW, SW, and IW resources mars the effective integration of digital literacy skills. Dermitas and Mumcu (2021) underscore that although teachers demonstrate knowledge of basic computer applications, they also have to have ICT literacy and show an understanding of various ICT educational applications.

2.2.4 TPACK for enhancing digital literacy skills

TPACK enables teachers to integrate technology (TK). This requires them to adopt suitable teaching methods and break down the subject matter (CK) to ensure that the content is accessible to all learners (van Deursen & van Dijk, 2015; Koehler & Mishra, 2009). That is, FFL teachers' exposure to various HW, SW, and IW resources and the Internet may assist them in being mindful of how to navigate these resources to meet learning goals while maintaining responsible use and fostering favourable attitudes to learners (Angraini et al., 2023; Van Deursen et al., 2019). This helps to ensure that teachers develop and hone their digital literacy, and then incorporate activities that enable learners to cultivate digital literacy (van Dijk, 2005).

TPACK endows teachers with the fundamental principles of effective technology incorporation, thus it empowers them to reflect and evaluate how they view technology (TPK). Being empowered through technology helps teachers to keep learners motivated (Angraini et al., 2023). Capacitating teachers to reflect on the learning objectives and find suitable digital resources could help them turn the subject matter into manageable and attainable sections

(Angraini et al., 2023; van Deursen & Helsper, 2015). This assertion suggests that FFL teachers have the opportunity to hone their digital literacy skills with TPACK.

In their application of digital resources, teachers should consider the learning pace and learners' background knowledge of technology to foster active learning (Mishra & Koehler, 2006). Active learning creates a positive learning environment wherein learners play a central role in their learning and are enabled to participate actively in their knowledge construction (Hosek, 2018). TPACK promotes personalised learning as it encourages teachers to understand individual learners and cater evenly to their diverse needs (Siero, 2017; van Dijk, 2005). Accordingly, FFL teachers are allowed to diversify classroom activities and to design and plan lessons that require learners to be hands-on while practising how to effectively communicate in French, through the help of several HW, SW, and IW resources (Hassan & Mirza, 2021).

Schools need to host training workshops for teachers to impart professional development on the use of TPACK in instruction, as well as how it fortifies their digital literacy (Islami et al., 2022). Through these workshop initiatives, schools should provide teachers with ICT resources such as laptops, Wi-Fi routers, or data, which they can use to accentuate their abilities and seamlessly integrate digital literacy (Siero, 2017; Scheeder et al., 2017). Teachers' professional development workshops should be continuous to scaffold them in authentic experiences, and to elucidate their awareness and valuing of digital literacy in instruction (Muntu et al., 2023). In other words, teachers will be enabled to create classroom experiences that foster digital literacy among learners so that they may be able to perform school and life tasks such as handling vast amounts of information across multiple sources (HW, SW, and IW resources), safety and responsibility while communicating and sharing information online using diverse HW, SW and IW resources to access credible information (Erwin & Mohamed, 2022). It is vital for teachers to first realise and appreciate the technological, content, and pedagogical use of technology (TPACK), as they will draw from them to strengthen their digital literacy skills (Muriganeza, 2021).

Teachers can also use co-teaching, and online professionalisation through online courses and conferences to serve the purpose of professional development where teachers also learn the

practical utility of TPACK and how it could improve their digital literacy skills (Siero, 2017). That is, teachers get exposed to the nature of effective technology integration and how to manipulate varied HW, SW, and IW resources to address learners' learning needs and how to create a perfect blend of concurrently transferring content and digital literacy (Erwin & Mohamed, 2022).

Classroom management is achievable when teachers integrate digital literacy (Muntu et al., 2023; Rahmat et al., 2022). This warrants that teachers facilitate lessons where all learners are cooperative, respectful, and are held accountable (where they do their assignments and given tasks), their motivation and interests are stimulated, and where they can all equitably access study materials (Muntu et al., 2023). Additionally, teachers should be aware that the basic ICT skills learned from TPACK are a stepping stone to their digital literacy skills augmentation (Perez-Escobar et al., 2019; Perla et al., 2018; Sabado, 2018; Xiangun & Lei, 2024). This suggests that the use of TPACK to advance teachers' digital literacy helps FFL teachers to integrate the four language competencies (reading, writing, speaking, and listening) through multimodal activities such as videos, audio, pictures, quizzes, and exercises.

Fazilla et al. (2022) maintain that TPACK is the cornerstone of 21st century technology integration as it unifies teachers' differing types of knowledge for the curriculum, learners, content as well as technology into one for innovative and dynamic lessons. Thus, TPACK buttresses the comprehension to unite content, technology, and teaching practices (pedagogy), ensuring that FFL teachers have equivalent access to varied HW, SW and IW resources and are knowledgeable in employing them (TK) (Koehler & Mishra, 2009; van Deursen & van Dijk, 2015). TK thus enables teachers to surf, access, and share information across diverse HW, SW, and IW resources and shapes them into well-rounded responsible content creators who can adapt and modify online exercises, quizzes and videos to suit learners' needs and teach them how to how to share knowledge on VCP, LMS, and SMS while upholding social ethics and maintaining online safety. Learners should also be capacitated to filter or distinguish all useful information from hoaxes and be open minded to the French culture which may likely be different from theirs.

The TPACK framework neutralises teachers' attitudes and digital literacy skills as it expands their ability to utilise HW, SW, and IW resources to accommodate all learners and accomplish their goals (Fazilla et al., 2022). Nore et al., (2010) believe that TPACK can amplify teachers' digital literacy skills and improve their interaction with HW, SW, and IW resources in general and their teaching practices. TPACK operates as a profitable model to assess and comprehend practice and management which teachers and school managers can use to refine their development and help teachers become more globally competent in technology integration, thereby being innovative, creative, and efficient in handling any amount of information to detect misinformation and misdirection and to interpret and disseminate it responsibly in the cyberspace (Pehlevan &Unal, 2023). Furthermore, digital literacy is linked with the ability to distinguish facts from opinions while constructing knowledge acquired from HW, SW, and IW resources (Jayanti & Damayanti, 2023). Moreover, it requires people to have a critical understanding and invest in comprehension of the precise information they seek online (Pehlevan & Unal, 2023). This ensures that teachers are capable of fully operating the Internet to achieve educational goals and foster digital literacy (Scheeder et al., 2017). Therefore, FFL learning may be made more accessible and understandable to learners when HW, SW, and IW resources simplify cultural practices, and when learners collaborate for practice, and creation of projects that will help them engage with native speakers and other experts of the language.

The TPACK framework has the potential to augment FFL teachers' digital literacy in that they will be well-versed with the diverse HW, SW, and IW resources to grade learners, provide them with timely constructive feedback, diversify activities and modes of ICT resources while also ensuring that there is interplay between that and the subject matter under consideration (Pacheco-Guffrey, 2021). Teachers – if well equipped with the abilities to determine which SW, HW, and IW resources are suitable in various contexts and with the ability to merge them with the content – are likely to model digital literacy to learners and have learners cultivate the skills simultaneously with the French language and culture (Greene et al., 2023). This provides them with the requisite knowledge of accessing and exploiting ICT resources to accommodate all learners (van Dijk, 2012). Essentially, teachers become confident in their technological competencies and develop and modify content while pairing it with the ICT resources that reveal their talents instead of copying and pasting everything sourced from the Internet or other SW resources (van Dijk, 2012; Wohlfart & Wagner, 2022). Teacher education programmes must integrate digital literacy with pedagogy to demonstrate the significance of digital literacy

and offer innovative ways to address it in instruction (Pacheco-Guffrey, 2021). In some instances, teachers may have only learned digital literacy from their training hence they believe it should be holistically taught with their subjects. Furthermore, with an understanding of

TPACK and how it operates, teachers' digital literacy is bound to grow exponentially as they can manage and teach learners how to manipulate a variety of HW, SW, and IW resources to meet their educational goals (Johannesen et al., 2023).

Learners are likely to inherit the technological mistakes of their teachers, leading to marginalisation in content access (TCK) (van Dijk, 2013). Hence, it is indispensable for teachers to develop their digital literacy skills and use TPACK as a blueprint to sharpen their skills (Muslim et al., 2023). TPACK is also said to accentuate teachers' digital literacy skills through its well-rounded view towards coordinating teaching methods, content, and technology into one. It evaluates how teachers view technology integration as not separable from digital literacy competencies, as it requires a mastery of understanding which resources to use, when, and how they can reinforce the concepts of the subject (Chen, 2023). With the help of TPACK, FFL teachers can learn how to effectively integrate technology into their classroom thus necessitating them to build rapport with technology and they will design and plan interesting and stimulating authentic learning environments hence increasing confidence and keenness to engage with diverse resources for practical learning experiences (Strydom et al., 2021). Therefore, the TPACK framework sensitises teachers to meaningful technology integration, thus neutralising their attitudes and beliefs about technology and giving them the motivation to explore different perspectives and aspects of its integration hence their development of digital literacy (Dermitas & Mumcu, 2021; van Deursen & van Dijk, 2021). The education of the 21st century requires teachers who are always professionally trained so that they keep abreast with the technology advancements in the field, hence the adoption of TPACK to help educate teachers on how to positively transform their lives and those of learners in an educational setting (Dermitas & Mumcu, 2021).

Digital literacy requires awareness and praxis (IW resources) and aims at both categorising the usage which is the adoption, adaptation, appropriation and innovation and the pedagogical use of technology (PK, CK, TK) (Van Deursen & van Dijk, 2019). This knowledge is also referred to as the ICT didactic competence (Sandra & Yuliawan, 2022). The ICT didactic competence

is likely to be achieved by using the TPACK framework to gain insights into how technology appears from an educational perspective (TPK). Thus, TPACK empowers teachers for technological innovation and how they can, in turn, empower their learners through authentic activities that require them to facilitate their problem-solving, self-awareness and awareness of others, critical thinking and communication skills to develop and heighten their knowledge of the French language and culture (Johannesen et al., 2019).

2.2.5 Benefits of using TPACK to improve digital literacy skills

The 21st century education is ever-evolving and requires a dynamic learning environment (Iqbal et al., 2022). As such, TPACK mitigates challenges such as the inability to manipulate (skills access) ICT resources to attain learning goals (van Deursen & van Dijk, 2021). It enables teachers to manage and intersect the three elements of TPACK namely, TK, PK, and CK. These elements are proclaimed to be useful in helping language teachers to be well-versed in their subjects, in varied teaching styles and methods, and in being aware of the various HW and SW resources they can employ to achieve specific learning goals (Iqbal et al., 2022). Encompassing learners' diverse learning styles helps teachers to ensure that all learners access equitable knowledge in a classroom, and can equally participate in their learning. (Fazilla et al., 2022).

TPACK reinforces teachers' awareness of the content (CK), teaching methods (PK), and objectives of the lessons and technology (TK). This knowledge helps them to improve their digital literacy skills (Koehler et al., 2017). Thus, ensuring that teachers transfer equilibrated access to TK, CK and PK and digital literacy among learners (Van Dijk, 2013). TPACK augments teachers' understanding of creating a synchronised link between content, and technology while encompassing diverse learning needs and styles (Fazilla et al., 2022). This propels learners towards comprehending how to surf, access, evaluate and disseminate information acquired from various resources while maintaining their privacy and not copying and pasting the information as it is (altering information for the applicable context) and using inclusive language on the internet while collaborating with other members of society on SMS and LMS (Fazilla et al., 2022; Scheeder et al., 2017).

According to Johnson et al. (2016), TPACK empowers teachers to mitigate their professional development with enlightening experiences to familiarise themselves with HW, SW, and IW

resources suitable for attaining educational goals. The target is to cultivate lifelong learning amidst technology evolution, to learn how to reflect on their practices and abilities in order to elevate learners' effective technology use in learning (Siero, 2017). However, teachers may be resistant to developing and sharpening their digital literacy skills deeming TPACK sufficient for 21st century technology integration in instruction (Johnson et al., 2016).

Abubakir and Alshaboul (2023) postulate that TPACK provides guidelines on how teachers should intersect the technology, pedagogy, and content knowledge domains to optimise critically thought-out lessons. As a result, this exposure capacitates teachers with TK to responsibly use technology (privacy, ethics, and cultural principles), and the ability to synthesise and create knowledge using a variety of HW, SW and IW resources allowing for adaptable and reflective learning. This implies that TPACK is efficient in perfecting digital literacy skills as teachers require awareness and the ability to merge teaching skills and methods with content and technology concurrently for efficient technology use in education for well-trained and equipped 21st century teachers. Nevertheless, factors such as a dearth of HW, SW, and IW resources, time, and a large student-to-teacher ratio may demand teachers to use repetitive resources and activities to fully engage all learning resulting in delayed improvement of their digital literacy skills (Abubakir & Alshaboul, 2023; Boreland et al., 2022). It is also noteworthy that in enabling teachers to perfect their technology skills and apply their IW resources, TPACK helps to curb challenges such as negative attitudes and demotivation, brought to the fore by lack of technology understanding (Isalmi & Arifin, 2022; van Dijk, 2005). Additionally, this exposes teachers to varied HW, SW and IW resources, to ensure that they know the intricacies of such resources, and how they can be exploited to accommodate learners' learning needs (Siero, 2017; van Deursen & van Dijk, 2019).

TPACK scaffolds teachers to have a firm grasp on merging technology, pedagogy and content to alter varying HW and SW resources to suit learners' interests and preferences in the same line as fostering their comprehension of the subject matter, and this sharpens teachers' digital literacy skills. Consequently, they can expertly surf through information, evaluating and adapting it to fit their desired context and dispersing it in a manner that is digestible to all learners while also protecting their online privacy and steering clear of bogus sites (Iqbal et al., 2022). This ensures that FFL teachers acquire the skills to effectively integrate digital literacy,

and to prevent students from developing unequal technological skills and digital literacy (Erwin & Mohamed, 2022; van Dijk, 2013).

2.2.6 Challenges of using TPACK to improve digital literacy skills

As a result of disproportionate access to different HW, SW, and IW resources due to factors such as infrastructure, lack of digital literacy, and access to the Internet, teachers find it challenging to effectively use TPACK to enhance their digital literacy (Xiangun & Lei, 2024). This is because although TPACK may provide professional development, the deficit of HW and SW resources presents a lack of skills access. This exacerbates the gap between teachers with and without access to HW and SW resources (van Dik, 2013). This causes teachers to cultivate unequal TK and, in turn, digital literacy skills (Sabado, 2018). Subsequently, this prevents FFL teachers from fully fostering meaningful learning experiences for learners (Muriganeza, 2021). Schools and the government can address this by providing teachers with equitable access to ICT resources through professional development initiatives and, accordingly developing and fortifying their digital literacy (Muriganeza, 2021).

Teachers grapple with being conscious of what technology resources to utilise but struggle with the requisite skills to access relevant resources due to factors such as poor internet connection. In addition, the process of using TPACK to boost digital literacy skills entails creativity and diversification of resources to make knowledge construction an innovative and intriguing task in which all learners can be motivated to actively participate (Arcueno et al., 2021). Moreover, factors such as poor internet connection and lack of access to ICT resources compound uneven access to technology, and influence the level of teachers' technological knowledge (TK) and in turn, digital literacy (Chama & Subaveerapandiyan, 2023). Moreover, teachers may develop confusion regarding how to use content-specific HW, SW, and IW resources to reinforce learners' comprehension of content and simultaneously maintain ethical and cultural values while utilising them (Arcueno et al., 2021).

Furthermore, some teachers may struggle to put theory into practice and struggle to let go of their old habits of simply integrating technology to generate learners' interest, thus crafting activities that require learners to be knowledge creators who can critically and creatively develop and evaluate content (Stoilescu, 2014; Khoza & Mpungose, 2020). This requires

constant collaboration in lesson planning and design although it is not easy for some teachers due to the fear of being criticised. This may help them to have similar TK with their peer teachers, therefore gaining confidence and developing adaptable attitudes and skills to improve their digital literacy (Stoilescu, 2014; Su, 2023).

Teachers' unfamiliarity and lack of confidence in appropriating technology bring about resistance (Khoza & Mpungose, 2020). Consequently, the resistance marginalises them from developing global citizenship and technology skills requisite for 21st century instruction (Rahmat et al., 2022). Despite this, Choudhary and Bansal (2022) highlight the necessity for teachers' continuous professional development training (digital literacy training). Access to the Internet for various technological resources such as videos, pictures, podcasts and speaking engagements are instrumental in improving teachers' digital literacy and in turn boosting learners' understanding of content (Yaman, 2015). Equally important, teachers may be subjected to predictability in the resources they use as they may perhaps appreciate the agency they elicit, which they can mitigate by utilising diverse resources to solidify their literacy skills and ability to foster them in their lessons (Ghayyur & Mirza, 2021; Valtonen et al., 2023).

Makumane et al. (2023) attest that TPACK addresses the domestic and global digital divide. On the one hand, the domestic digital divide alludes to the inequalities within a country owing to infrastructure, digital skills, age group, demography and access to the Internet among different individuals. For instance, there could be a gap between private and public-school teachers due to their uneven access to and usage of ICT resources. Similarly, there could be a gap in teachers' performance in rural and urban schools based on their access to and usage of ICT resources. On the other hand, the global digital divide is characterised by disparities in terms of access and appropriation of technology between developing and developed countries (van Dijk, 2005; van Deursen & van Dijk, 2019). In this light, TPACK equips FFL teachers with equitable knowledge (TK, PK, CK) to integrate digital literacy effectively. Furthermore, TPACK equips FFL teachers with technological skills that will enable them to constantly refine their digital literacy for global competitiveness in the digital age.

2.3 Theoretical Framework

This study is anchored on the TPACK theory (Mishra & Koehler, 2006) to revolutionise how French teachers integrate technology and ensure that it aligns with the teaching methods and subject matter. This theory was found to be applicable in this study, as it assisted teachers in viewing technology as an entity that could augment education in the 21st century. Thus, creating meaningful learning experiences for learners when coupled with suitable teaching methods and subject content. The Resources and Appropriation Theory (van Dijk, 2005) was also useful in unearthing the complexities that arise during technology integration. This theory was deemed relevant in this study due to its capacity to enlighten teachers on how multifaceted technology integration is, and thus equipping them with the awareness of the different layers and challenges of how technology is perceived by different people and their individual interactions with technology, as well as how the affordability of HW and SW resources affects education.

Moreover, the Resources and Appropriation Theory (RAT) enlightened teachers that IW resources are also invaluable during the process of technology integration in their classrooms. Further, the study used RAT as a lens to delve deeper into the underlying issues of technology use in the French classroom, how technology integration was much more than just having resources, or not having them, as their use relied on how, when and why they were to be appropriated in the first place.

2.3.1 TPACK

The TPACK theoretical framework was founded by Mishra and Koehler (2006) as a continuation of the conceptual framework of PCK by Shulman (1986). This framework was designed to modernise the teaching and learning process, incorporating technology for progressive teaching and learning. However, it acknowledges that technology integration cannot be in isolation. It requires teachers to reflect on their abilities and those of the learners, their utilisation of relevant teaching methods which align with the content they intend to deliver, and planning for the various tools which can be used to deliver the subject matter (Harris et al., 2017). Importantly, Mishra and Koehler (2006) state that this model converges three knowledge areas: technology (TK) (IW resources), pedagogy (PK) (SW resources), and content (CK) (HW resources), and then divides those into seven sub-domains namely, technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK),

pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), and technological content knowledge (TCK). TPACK argues that positive educational outcomes are likely to be achieved with a good blend of HW, SW, and IW resources and aligned teaching methods (Su, 2022).

TPACK is a practical model that sheds light on how teachers can adapt several ICT resources and match them with their teaching methods and content to reinforce comprehension in the classroom, particularly in 21st century classrooms wherein technology plays a huge role in empowering learners to reach their optimum potential in being active participants in their learning (Aoyama, 2020). This model also emphasises the experiences that come as a result of effective integration of technology and it underscores that teachers have to keep on diversifying the resources they use to create innovative and creative lessons that engage all learners while also developing their interests and motivating them to understand the content (Strydom et al., 2021).

PK (SW resources) demonstrates teachers' deep mastery of the subject, learners, and the curriculum (Khoza & Biyela, 2019; Mishra & Koehler, 2008). Pedagogy refers to the methods and practices of teachers, how they assess, and implement the curriculum in the classroom, classroom management as well and the teaching styles they use (Ali et al., 2018). This component of TPACK highlights the importance of teachers' awareness of the cognitive, social, and emotional development of their learners, their prior knowledge, interests, age, and intellectual abilities and then designing and planning lessons that are inclusive to all. Moreover, this provides an insight into how learners have to be graded, and the constructive and timely feedback for them to stay motivated to improve their knowledge and skills (Mishra & Koehler, 2006). Teachers are also required to have background knowledge of various teaching methods so that they can use those that are most suitable for equipping learners with the relevant knowledge and skills to operate autonomously in their lives and for societal change (Tosuntas et al., 2021). Currently, it is recommended that FFL teachers in Lesotho use the action-oriented approach to enrich learners with autonomous experiences where they have to take charge of their learning through practical activities such as mini-projects to use language in contextual situations.

CK (HW resources) calls for teachers' comprehension of the subject matter and how they can divide it into manageable categories which will be sequenced into different lessons. Shulman (1986) attests that content knowledge is informed by the theories, concepts, and principles in each discipline which together form knowledge of it. This is the expert knowledge of the subject which informs teachers on how to sequence topics and concepts; teachers are required to have knowledge of the subject and why it is structured the way it is (Shulman, 1967). Teachers with CK have a comprehensive understanding of their subject matter, curriculum standards, and learning goals which learners have to cultivate (Habiyarembe et al., 2023). In the context of the study, FFL teachers are required to have mastery of the subject for them to be able to break down the concepts into understandable sections towards achieving the learning goals of learners acquiring all four language skills and being effective speakers of French.

PCK aids teachers' understanding of the subject matter and how they sequence and pace their lessons to simplify the concepts using apt teaching methods and considering learners' abilities to comprehend the content (IW resources) (Ismail & Jarrah, 2019). PCK fuses content with pedagogy to refine modes of instruction concerning how learners engage with the content, with the teacher clarifying concepts that learners struggle to grasp to effectively drive the learning goals home. It also involves teachers' ability to use different methods to help learners understand the content, as there are varying levels of intelligence in a classroom (Ismail & Jarrah, 2019; Shing, 2015). This is to say that PCK entails a deep understanding of the nature of the subject and the level of learners, their age, their prior knowledge, socioeconomic background, and intelligence to develop activities that are challenging yet interesting for them to be motivated to actively participate in their learning (Mishra et al., 2009; Mishra & Koehler, 2008). Therefore, FFL teachers portray their PCK through their ability to use the action-oriented approach which is learner-centred in nature, with activities such as role-play to create a birthday celebration wherein there are introductions and speeches.

TK (IW resources) involves teachers' knowledge and experiences of basic to complex technology such as HW, SW, and IW resources (Mishra & Koehler, 2006). It highlights that teachers' beliefs, attitudes, and experiences with technology determine how they view its utilisation in the classroom (IW resources) (Mishra, 2019). This suggests that FFL teachers have to, at least, have basic knowledge of technology before they specialise and focus on being

conversant with digital tools appropriate for their lessons. It also includes being aware of the various HW and SW resources' propensities, constraints, and potentials that make them better suited to perform certain tasks (Koehler & Mishra, 2009; Mishra & Mehta, 2017).

TCK concerns how technology can be integrated into the subject matter to make it easier for learners to understand and to make it interesting to create an interactive learning experience for them where they can use technology on their own to learn more and to collaborate virtually with their peers without the teachers' supervision (IW resources) (Tomczyk & Fedeli, 2021). This pertains to FFL teachers' ability to effectively integrate digital literacy skills from their understanding of the theories and concepts of a discipline (Akhwai, 2020). This prompts FFL teachers to deeply reflect on how their beliefs attitudes and experiences affect their fusion of content with technology in the classroom (Altun, 2019).

TPK represents how technology transforms the manner in which teachers design and plan their lessons, how they adapt and develop activities from videos, pictures, and exercises obtained from SW resources such as websites, applications, and the internet on their HW resources like smartphones and tablets to accomplish learning objectives and reinforce creativity and innovation in their classroom (Akhwani, 2020). Technology integration is not a one-size-fits-all approach and individual teachers interact and infuse technology into their content uniquely (Koehler & Mishra, 2009). Importantly, FFL teachers are required to coordinate teaching methods that cater to all learners' learning needs and find one or more HW, SW, and IW resources that align with the methods for reinforced understanding of the French language and culture.

Importantly, the TPACK framework helps FFL teachers to understand that effective technology integration requires a balanced blend of content that aligns with the teaching methods and HW, SW, and IW resources that help support comprehension of the French language and culture. In addition, this understanding leads to the development and improvement of digital literacy skills as a result of exposure to technology and the rigorous process of matching it with content and teaching methods. Consequently, digital literacy skills are cultivated and FFL teachers master their integration for evolutionary education of the 21st

century. Figure 1 below depicts and summarises the TPACK framework as adapted from Mishra and Koehler (2006). This framework highlights the interplay between the three types of knowledge; technological, content and pedagogical knowledge and how they fuse together to form three sub-domains of knowledge namely technological pedagogical knowledge (TPK), pedagogical content knowledge (PCK) and technological content knowledge (TCK).

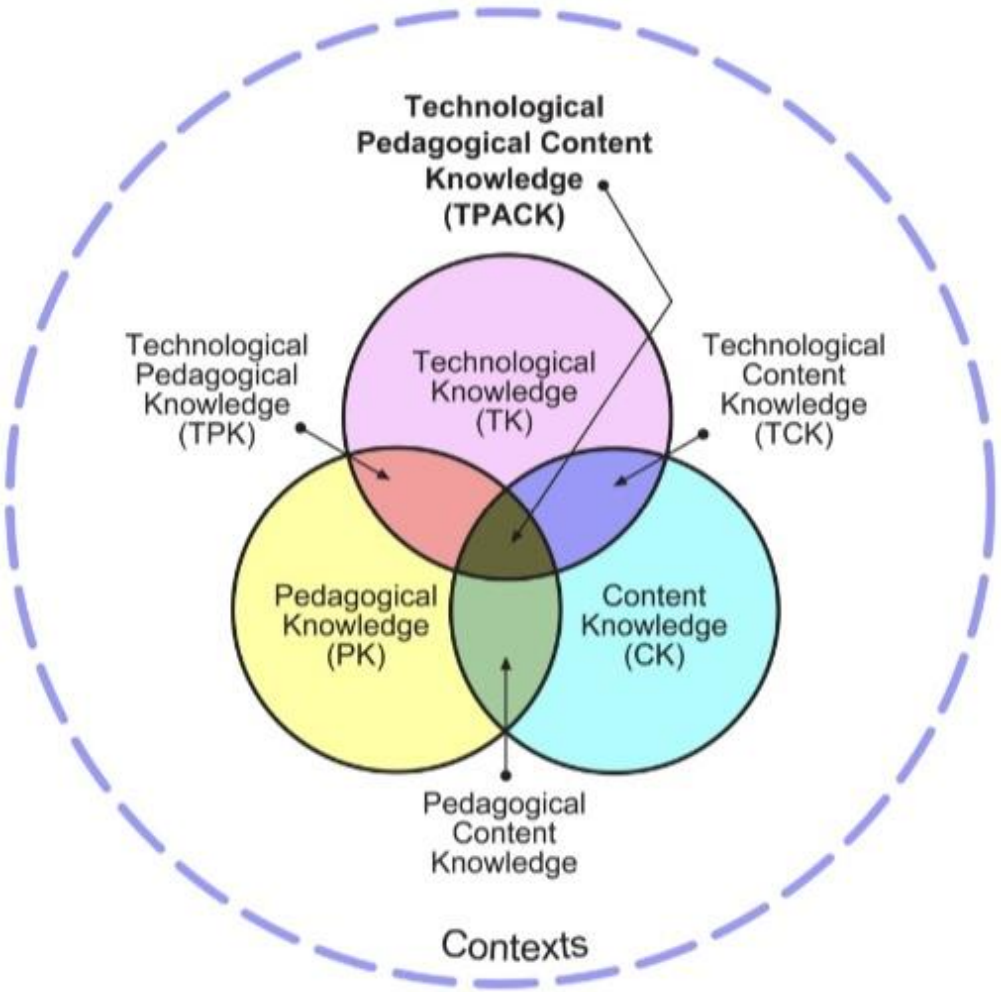

Figure 1: The TPACK framework adapted from Mishra and Koehler (2006)

2.3.2 Resources and Appropriation Theory

This theory was founded by van Dijk (2005) to explore technology acceptance and adoption in education, how it exposes various socio-economic disparities, and how it affects learning and access to the internet. According to van Dijk (2013), this theory encompasses four causal and

sequential types of internet access spanning, attitude or motivation, physical or material (HW), digital skills (SW), and usage (IW) (van Dijk, 2005; van Dijk, 2013).

Motivational access represents the desire or lack thereof to utilise technology for learning (van Deursen & van Dijk, 2015). This assertion tallies with that of van Dijk (2005) and van Deursen and van Dijk (2021), who posit that motivation denotes the attitudes displayed in relation to internet usage, as attitudes are principal to internet access since they determine the level of openness and earnestness to use it. In concurrence, Pan (2020) avers that a favourable attitude towards technology incites the intention to use it thereby bringing forth the need to use it and the understanding of how it works. On the one hand, a positive attitude towards Internet use is exhibited through eagerness to use and try any HW and SW resources available, while on the other hand, negative attitudes are depicted by resistance, avoidance, and excuses against the internet and HW and SW resources exploration. They are also referred to as the technology "want-nots" (van Deursen & van Dijk, 2015; van Dijk, 2013). Importantly, to maintain teachers' motivation to integrate digital literacy, schools should reward them and acknowledge their efforts (Abbas et al., 2023).

Additionally, positive attitudes may result from feeling engaged and stimulated to use technology to achieve tasks commonly found in digital natives and digital learners. On the other hand, negative attitudes may breed from the inability to understand the intricacies of HW and SW resources, resulting in the birth of technophobia and computer anxiety (van Dijk, 2013). David (2022) illuminates that the term digital natives or digital learners refers to people born during the digital era, who are, by age, interested in technology use for a multitude of purposes and also conversant with it thus being eager to constantly upgrade their technology skills. Technophobia is said to be the fear and insecurities associated with internet use, as well as the struggle to comprehend technology progression (Nestik et al., 2018). It is deeply rooted in people's cognitive and cultural domains, being further influenced by factors such as age, gender, and social background and this is associated with digital immigrants (Nestik et al., 2018).

Computer anxiety is an adverse nervousness, fear, and mistrust towards technology, and adversely affects people's interaction with HW and SW resources (Alkhawaja et al., 2021). Digital immigrants are people who were born and grew up before technology was pervasive and had to adapt to it later in their lives. They are uncomfortable and uneasy with technology use and would rather opt not to use it at all, or instead use it minimally, as they prefer to do things traditionally (David, 2022). In essence, this type of access suggests that teachers have to be innovative and mindful to integrate HW and SW resources that stimulate and engage learners so that they feel motivated to learn (van Deursen et al., 2019). This type of access is invaluable in FFL education wherein learners seemingly find the subject difficult. Therefore, the use of technology has to be innovative and creative to keep them stimulated and as a result, they will fully participate in understanding and speaking the language.

Physical and material access (HW) presents people's possession of HW resources, the cost, maintenance, and replacement of such HW resources, and Internet access (van Deursen & Helsper, 2015). This type of access is influenced by factors such as age, experience, gender, education level, social status, income status, and health status (van Deursen & van Dijk, 2015). This is to say that income inequalities are glaringly responsible for creating a division in terms of the type of HW and SW resources people can afford, the quality of those resources, and their maintenance, which determines how people then encounter them (Leonard & Kunkeler, 2021). Importantly, learners with social relations and support have the privilege of being aided to repair, replace, or even borrow HW and SW resources when they encounter problems with theirs (van Deursen & van Dijk, 2021).

People from high-income homes have the advantage of sustaining their Internet connectivity and purchasing HW and SW resources of good quality unlike their low-income home counterparts (van Deursen & van Dijk, 2021). Unfortunately, people from low-income homes are only able to afford second-hand HW resources and free SW resources such as applications and websites, as opposed to new ones and SW resources that are subscribed for. This means their comfort and convenience are different from those who can afford new and high-quality digital devices (van Deursen & van Dijk, 2014). In an FFL classroom, this entails diversification of activities and grouping learners so that they can share ideas and resources.

Thirdly, digital skills (SW) are the requisite capacities to use HW, SW, IW resources, and the Internet efficiently (van Deursen et al., 2016). This concerns the skills necessary to use the Internet and HW and SW resources, ranging from operational and informational to social and content-creation focused (van Deursen & van Dijk, 2019). These are categorised skills (SW) which are further branched into medium and content-related skills (van Dijk, 2013). Moreover, medium-related skills encapsulate operational skills, being the basic skills used to navigate the Internet browser. These include skills such as saving and opening documents, and formal skills, which are those used to manoeuvre the Internet (van Deursen & van Dijk, 2014). Content-related skills are used to help people develop comfort and accomplish various tasks on the Internet, they include skills such as digital literacy skills (van Deursen & van Dijk, 2014). People of different genders, ages, and socio-economic backgrounds may be capable of performing tasks differently using HW, IW, and SW resources (van Deursen et al., 2019). Scheerder et al. (2017) indicate that these are digital literacy skills used to browse, locate, find, and share information with the use of HW, and SW resources. Moreover, digital skills are vital in enhancing digital literacy skills for FFL teachers.

Lastly, usage (IW) demonstrates how people in different social groups engage with technology to perform tasks (van Deursen & van Dijk, 2015). It indicates that more practice leads to mastery in the utilisation of technology, and renders individuals capable of using certain HW and SW resources to attain different goals (van Deursen et al., 2019). Usage is characterised by the amount of time paired with the activities involved while using the Internet (van Deursen & van Dijk, 2015). In essence, frequent use of the Internet without any substantial activities does not translate to good usage. For instance, less educated people may spend much of their time on the Internet socialising and not necessarily using their cognitive abilities (IW resources) to enhance their academic performance (van Deursen & van Dijk, 2015). When people have more HW and SW resources, they gain more knowledge and skills than those with limited resources, as they learn how to appropriately utilise them (van Deursen & van Dijk, 2015). FFL teachers require a robust practice of varied HW and SW resources so that they can efficaciously integrate them into their lessons. Figure 2 below demonstrates the four successive kinds of access in appropriating digital technology. This figure indicates that the four types of access build up to one another in advancing FFL teachers' digital literacy. They start from motivation to physical and material access, digital skills and usage access.

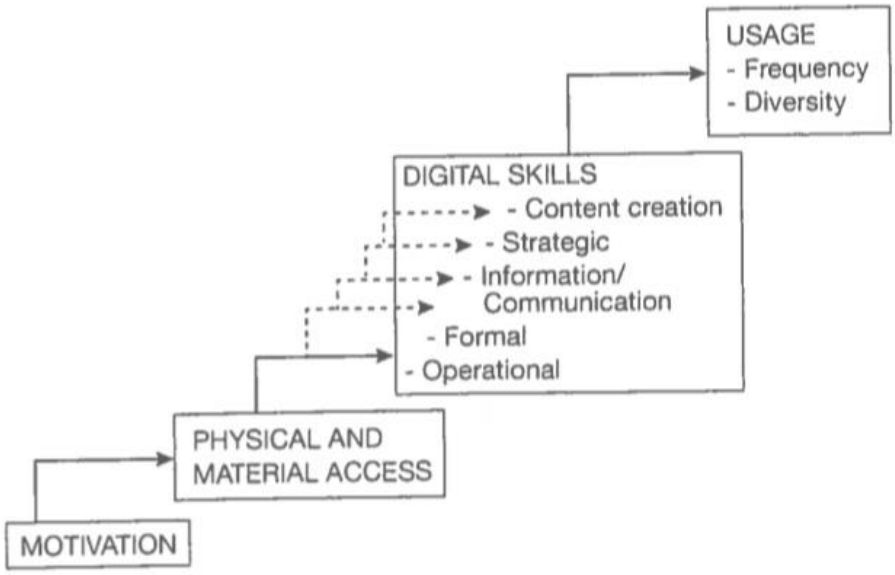

Figure 2: Four successive kinds of access in the appropriation of digital technology adapted from van Dijk (2013)

According to van Dijk (2005) and van Dijk (2013), the Resources and Appropriation Theory is driven by five core principles namely, categorical inequalities in society produce an unequal distribution of resources, an unequal distribution of resources causes unequal access to digital technologies, unequal access to digital technologies, unequal access to digital technologies brings about unequal participation in society and unequal participation in society reinforces categorical inequalities. Interestingly, all five principles are cyclical and feed into one another as they successively suggest that categorical inequalities promulgate a disequilibrium in resources' dissemination, which leads to unequal access to HW and SW resources, about inequities in participation thus leading to categorical inequities (van Dijk, 2013; van Deursen et al., 2019).

Figure 3 below depicts the five principles of the Resources and Appropriation Theory. It underscores that these principles are cyclical and are influential on how FFL teachers engage with technology to advance their digital literacy. Therefore, French teachers' advancement of digital literacy depends on the personal and positional categorical inequalities, the distribution

of resources, access to ICTs, the characteristics of the ICTs available and the participation in society.

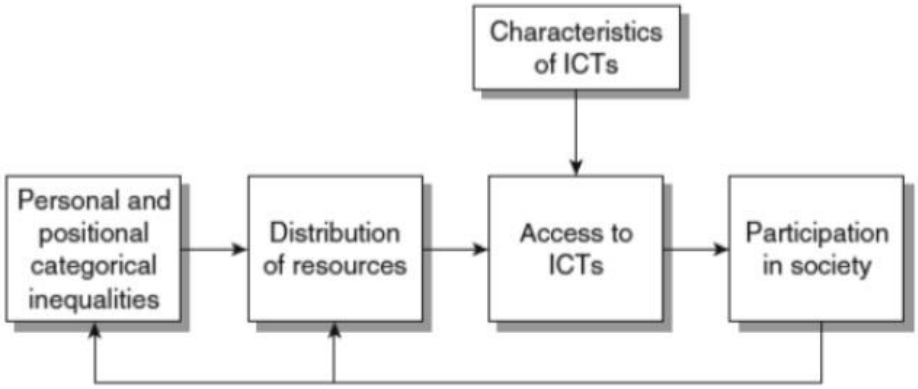

Figure 3: A Causal Model of Resources and Appropriation Theory, adapted from van Dijk (2012)

Firstly, categorical inequalities in society produce an unequal distribution of resources. This principle expounds those categorical personal and positional concepts such as gender, age, ethnicity, personality, intelligence, health status, education, and employment position which indicate how people access and use information from HW and SW resources (van Dijk; 2013; van Deursen & van Dijk, 2021). Further, van Deursen and van Dijk (2021) explicate that high education and intellect put people at an advantage to reap information and skills from HW, SW, and IW resources that are otherwise not easily accessible to those with less intelligence and education. Those who are highly intelligent and educated can use those resources to their maximum potential while being oblivious to the dangers that come with technology use.

Along similar lines, gender stereotypes mean that males may be estimated to be more technology conversant than females, and abled people savvier than their (physically) disabled counterparts. Again, older people generally employ technology less frequently than younger people due to little or no understanding of how it works and also due to their anxieties as they were only exposed to technology later in their lives (van Dijk, 2013; van Deursen et al., 2019). This suggests that disproportionate access as the aforementioned factors act as impediments for people encountering technology at the same level. This in a classroom may affect learners'

motivation to use technology for learning (Gultein, 2023). In an FFL classroom, this requires the use of pair or group activities for learners to not only share resources but perspectives as well as they may all get to experience the use of resources they do not have.

Secondly, various personal concepts such as income, employment status, education level, work position, and level of national development are significant in the number or the quality of HW and SW resources people can have at their disposal (van Deursen et al., 2019). In addition, learners from high-income homes are better placed to afford high-quality HW and SW resources, manage to install all security features required and maintain them accordingly. This puts them at an advantage to acquire more benefits from these resources, whereas those from low-income homes can only afford low-quality resources, and not be able to cover maintenance and replacement costs (van Deursen & van Dijk, 2013).

This view is corroborated by Makafane and Chere-Masupha (2021) and Sepiriti (2021) who affirm that as a result of high data costs, some learners were prompted to risk their lives and do their school work near their institution campus during the Coronavirus (COVID-19) hard lockdown, to access free Wi-Fi so that they could do their school work while others studied comfortably from their homes. The strict lockdown imposed by Lesotho, like many other countries, meant schools had to release learners, thus necessitating online learning with the use of LMS and VCP (Mtamanda et al., 2021).

Moreover, educated people may be conversant with technology due to the obligation to utilise HW and SW resources in their lines of work, hence they become conversant and open-minded to learning how to operate various resources. However, less educated people use limited features as they do not necessarily feel compelled to explore them, and also due to the absence of resources or Internet connectivity (van Deursen & van Dijk, 2019). This means unequal distribution of resources causes unequal access to digital technologies, suggesting that an FFL teacher has to organise activities that can engage the entire class but with learners taking the central role. Such activities could include projecting and presenting in groups or using the smartboard to do presentations to accommodate all learners rather than excluding those without efficient HW and SW resources.

Thirdly, unequal access to digital technologies also depends on the characteristics of these technologies. In disseminating this principle, van Deursen and van Dijk (2015) expound that several HW and SW resources are fundamentally different, and they subsequently yield different benefits or information. To illustrate this point, Internet access for academic research from a smartphone may be quite limited as compared to a laptop, hence unequal access to information (van Deursen & van Dijk, 2015; van Deursen & van Dijk, 2021). This is why it is more practical to use desktops or laptops for academic work and smartphones for leisure or more relaxed tasks since it is impractical to solely rely on a laptop for fun, but SMS is more suitable for a smartphone (van Deursen & van Dijk, 2021). Accordingly, Makumane and Mpungose (2022) affirm that certain brands of HW resources may be preferable over others due to their cost, longevity, and efficiency.

Makumane and Mpungose (2022) further exemplify using the Apple brand (iPads, Macbooks, iPhones) which is afforded and used by a minority, and the Android brand resources (smartphones, laptops, tablets) which are quite affordable to the masses. Seemingly, learning experiences cultivated from the above-mentioned brands may be different due to their fundamental differences in reliability and performance. Importantly, FFL could permit the use of all the different HW and SW resources and help make learners understand that they can all still be used to achieve learning goals although others may be more suited than others. For example, the use of smartphones, laptops, and tablets to create PowerPoint presentations can be done.

Fourthly, unequal access to digital technologies brings about unequal participation in society. People with high incomes participate more in technology compared to their low-income counterparts. Robust employment of HW resources such as smartphones and tablets and SW resources such as SMS and VCP intensifies communication skills, and problem-solving and leads to mastery of using technology not only for socialisation but also for learning (IW) (van Deursen & Helsper, 2015). In this case, FFL teachers may request the use of the school computer labs to have all learners use the computers and then gain transferable skills or the teacher can use their laptop and projector, divide learners into groups to perform activities, and

present to the whole class. The key purpose is to ensure everyone has access to technology irrespective of family background.

Lastly, unequal participation in society reinforces inequalities and unequal distribution of resources. Uneven access to material resources bolsters the inequities of accessing and using the Internet, IW, SW, and HW resources hence some learners may be disadvantaged from benefiting from technology use (Makumane et al., 2023). Furthermore, this outlines that FFL teachers have to use technology in a way that engages every learner, regardless of whether the teacher may have to borrow other learners some HW resources such as a laptop, tablet, and smartphone during the lesson to partake in activities so that they also cultivate the digital literacy skills.

The absence of any or all of the aforementioned principles of Resources and Appropriation and failure to address the four successive types of access simultaneously results in a phenomenon called the digital divide (van Dijk, 2013; van Dijk, 2005). A digital divide (DD) is by definition, a barrier that causes inequities in Internet access through SW, HW, and IW resources (Makumane et al, 2023). DD is also explained as the distinction between the haves and have-nots of Internet access and the capacity to use it successfully between individuals, households, businesses, or geographic areas (van Dijk, 2005; van Dijk, 2013). Therefore, DD bridges lines of demarcation between learners who can and who cannot access knowledge and skills with the use of technology, and sheds light on vital issues that affect the adoption and use of the Internet for learning. DD can also be perpetuated by the inability to use a range of HW and SW resources for knowledge construction (Makumane et al., 2023). There are three levels of DD namely, the first, second, and third-level DD (van Deursen & van Dijk, 2015).

The first-level DD involves access to computers and the Internet (van der Werfhost et al., 2022). That is, positional and personal categorical inequalities such as socio-economic status, gender ethnicity, culture, and socio-demographic status are found to be highly influential in the kind of interaction between people and the Internet and HW and SW resources (van Deursen & Helsper, 2015; Gomez, 2018). National status is also taken into consideration since some countries have high data costs, and slow network coverage while others emphasise ICT use and

ensure that schools have Wi-Fi and computers, which then bolsters and amplifies learners' ability to manage and navigate ICT use (Sharma, 2017). There is an imbalance in technology use in developed and developing countries, the educated and uneducated people, learners in urban and rural schools as well as those in public and private schools (Sharma, 2017). In the same breath, Afzal et al, (2023) highlight that access is not only limited to ICT, but to factors such as language, content, education, and literacy as they increase the effective use of the Internet, HW, and SW resources. For people who have adequate resources and are well versed with technology, lack of access pertains to their ability to utilise HW and SW resources for them to partake in economic, political, and social aspects of life (Vassilakopoulou & Hustad, 2023; Mugiraneza, 2021). To add on, Chama and Subaveerapandiyan (2023) note that there is a huge gap between people with and without access to HW and SW resources in Africa. FFL teachers should reflect on their relationship with HW, SW, and IW resources, tap into their transferable knowledge and skills from the ones they have been exposed to, and then thoroughly familiarise themselves with the resources they plan to use in their classes, and their terminology and ensure that they train learners to use such resources even beyond their academic work.

The second-level DD is attributed to actual usage, that is skills (SW) and usage (IW) (Scheerder et al., 2017; Gomez, 2018). This is the ability to determine which skills are applicable in a situation and the extent to which they should be effectively used (van de Werfhost et al., 2023). In other words, how do teachers integrate technology and how do learners welcome it? The second-level DD concerns the digital literacy skills of teachers and learners, and how effectively they can carry out online tasks and successfully see them to completion, thus attaining their goals (Afzal et al., 2023). It brings to light, network literacy, communication and comprehension competencies together with information skills and literacy, and computer literacy (Afzal et al., 2023). Afzal et al., (2023) thus suggest incorporation of digital skills training for teachers to enrich their capacity to efficiently use HW, SW, and IW resources in their classrooms and beyond.

DD exists even in situations where people have unlimited access to the Internet, HW, and SW resources, signifying the need to have the skills to navigate HW, SW, and IW resources, and to constantly improve those skills (Chetty et al., 2017). Therefore, Liu (2021) proposes that

governments should ensure that rural schools have sufficient infrastructure, and good Internet connectivity and that the teachers have the requisite digital skills to effectively integrate ICT. This is believed to be a good step towards curbing the digital divide (Liu, 2021). In FFL education, this entails learners being able to filter out relevant information and knowledge to apply it in real-life experiences.

The third level of DD involves the inequity in the effects of technology access and technology skills and usage (use efficacy) (van Deursen & van Dijk, 2019). This is the knowledge and skills that learners at the individual level obtain from engaging with ICT and how they use it to improve their learning experiences (Scheeder, van Deursen & van Dijk, 2017). This level is likely to be caused by personal and positional categorical inequities or by individuals' self-readiness to use technology to transform their learning, which shows that there is a probability of unequal outcomes from Internet and computer access and employment of skills and usage (van der Werfhost, Kessenich & Geven, 2022).

The Resources and Appropriation theory is pivotal in unpacking and repacking the intricacies of the multi-layered notion which is technology integration in a classroom, specifically a French classroom (van Dijk, 2013). Therefore, motivation develops a favourable attitude toward technology integration, leading to material access, being the ownership of HW resources and the monetary expenses that are associated with it such as repair, maintenance for HW and SW resources, and replacement costs. Thereafter it is important to operate these HW and SW resources to perform basic and technical tasks and usage, to meaningfully engage them in life-changing tasks (van Deursen & van Dijk, 2021). This is to say that FFL teachers need to have a positive attitude towards technology, to be able to integrate it efficiently. Thereafter, they have to have HW and SW resources, take care of their maintenance costs, and develop their SW resources. They have to then ensure they have digital literacy skills and that their usage of HW, SW, and IW is put to good use, through their selection of online exercises and quizzes, which they may edit to cater to their learners' needs.

Moreover, FFL teachers should consider learners' home backgrounds, gender, age, and other factors to determine their learning needs and to form a base of how to integrate all disparities

in the class to bridge the academic gap (categorical inequalities in society produce an unequal distribution of resources). Teachers may use their resources (HW and SW resources) or give group work activities so that learners may equally access the knowledge regardless of some's lack of resources (Internet connectivity, HW, SW resources) (an unequal distribution causes unequal access to digital technologies). In this case, teachers of FFL need to find activities that may be performed from various resources to not disadvantage learners. For instance, online exercises from a website that require learners to fill in answers and record themselves would be more inclusive as smartphones, laptops tablets and desktop computers can be used (unequal access to digital technologies also depends on the characteristics of these technologies). In this context, groups or pair work activities may be given, grouping learners with resources and those without them so that they may assist one another and work together, and the teacher may project or use a smart board, and allow learners to present their work. This gives all learners exposure to ICT, thus enhancing their skills and usage (unequal access to digital technologies brings about unequal participation in society). Teachers need to be mindful of how diverse their learners are, in terms of gender, age, home background, intelligence, and confidence hence they should design and plan lessons that accommodate them all.

2.4 Empirical Review

This section reviews four studies on the use of TPACK for expanding teachers' digital literacy skills albeit neither of them was in the teaching and learning of FFL in secondary schools. Empirical studies provide evidence of relevant research on a phenomenon under study.

Khan and Gul (2022) conducted a study where they explored the potential importance emanating from the relationship between digital literacy skills and TPACK among secondary school teachers. The study employed a survey research design to investigate the link between digital literacy skills and TPACK. The findings of the study revealed that digital literacy and TPACK can be linked hence teachers should be professionally trained with TPACK to enrich their capacities to use varied HW, SW, and IW resources for educational gain. This had a bearing on augmenting their digital literacy skills for the benefit of 21st century education.

In the same vein, Angraini et al. (2023)'s study delved into TPACK-based active learning to promote digital and scientific literacy in genetics. The study adopted a pre-test-post-test three-

treatment design, and the data was collected through a questionnaire which was based on the digital literacy indicators. As a result, the study concluded that TPACK transformed teachers' engagement with technology as they were able to plan innovative and meaningful lessons. That enabled learners to be at ease in educational technology use thereby acquiring both digital literacy skills and scientific literacy.

Equally important, Altun (2019) conducted a study investigating pre-service early childhood teachers' TPACK competencies regarding digital literacy skills and their technology attitudes and usage. This study used the correlational research design and made use of the TPACK scale (TPACK-Deep), the digital literacy skills form, the online reading comprehension strategies form, and the demographic information form to collect data. Consequently, the study highlighted that TPACK is highly influential on teachers' digital literacy skills which then improves the attitudes and usage of technology. Therefore, the essentiality of TPACK for digital literacy is attributed to the fact that digital literacy consists of people's cognitive, technical, and socio-emotional capacities (IW resources), which inform the utilisation of HW and SW resources. The findings further suggest that TPACK should be integrated into pre-service teachers' instruction to bolster their development and heightening of digital literacy skills together with their technology attitudes and usage.

Along similar lines, Horlescu (2017) conducted a PhD research study to explore TPACK for the integration of digital literacies in the English Language classroom. The study employed a case study design and engaged lecturers of English as a second language and as a third language in questionnaires and semi-structured interviews before and after the intervention. TPACK reflected teachers' understanding of technology use and the exposure to different HW, SW and IW resources, thereby enriching their digital literacy skills.

Therefore, this current study identified a knowledge gap and intended to advance Lesotho's FFL teachers' digital literacy skills using the TPACK framework. Secondly, it intended to fill the methodological gap through the use of action research in two phases (problem identification and therapeutic phases) to ascertain that FFL teachers' digital literacy skills are fortified through the use of TPACK.

Chapter 3: Methodology

3.1 Introduction

As opined by Igwenagu (2016), the methodology delves into the process of data generation. It reveals how data was obtained, the participants involved and their selection criteria, the study context as well as how much data was synthesised and critically evaluated to show whether the study managed to achieve the objectives and create the impact it set out to. This chapter outlines the research paradigm, approach, design, sampling techniques, methods of data generation, data analysis, trustworthiness, dependability, confirmability, credibility, transferability and ethical issues.

3.2 Paradigm

A paradigm is defined as a philosophical stance that informs the researcher in data generation, analysis and discussion of findings. Thus, this study is guided by the critical paradigm (Kivunja & Kuyini, 2017). The critical paradigm is an emancipatory tool used to closely examine institutionalised power structures, which are cultural, political and ethical norms that restrict the freedom of other members of society. That is, it identifies problems, works on finding solutions to them and undertakes a process of transforming practices for social change (Kivunja & Kuyini, 2017; Yong et al., 2021). It is also referred to as a social justice philosophical approach of the oppressed, as it seeks to empower the disempowered with knowledge and skills of how to refine practices and create an environment where all members of the society have equitable knowledge and can all participate in knowledge building thus improving their lives (Okesima, 2020).

The ontology of the critical paradigm is that it views the world from the lens that there should be emancipation and progressive transformation as it challenges oppressive beliefs concerning social issues such as political, cultural, economic, ethnic, and gender values, for a harmonious and free society (Kivunja & Kuyini, 2017). Moreover, the epistemological stance is subjective, stating that embracing multiple realities unearths profound information indispensable for solving a problem (Callaghan, 2016). The methodology of this paradigm is dialogic as the process of data generation required interactions through the sharing of in-depth perspectives and reflections of the participants and the researcher (Callaghan, 2016). Therefore, this

paradigm is especially suitable for this study as it seeks to dig deep into the problems that cause FFL teachers to have difficulties in their integration of digital literacy and it seeks to gain comprehensive insights into such problems and employ the TPACK framework to enhance FFL teachers' digital literacy. This ensures that they are globally competitive and can foster digital literacy in their everyday teaching practices, therefore in line with the Ministry of Education and Training and ECoL's de.sire for Lesotho secondary school learners to be equipped with digital literacy skills.

3.3 Research Approach

This is a qualitative research study that aimed to understand the nature of digital literacy among FFL teachers, what they perceive it to be, how they integrate it and how they improve their digital literacy using the TPACK framework. It also involves the researcher being present to collaborate with and help the teachers improve their digital literacy through the use of the TPACK framework. Furthermore, qualitative research is descriptive and deals with non-numerical data sets, videos, photographs, audio and texts to acquire in-depth information to fully comprehend the underlying issues of a phenomenon (Unyere & Eze, 2023). This approach requires the attitudes, beliefs and experiences of participants to gain in-depth insights into the problem, to inform the process of problem resolution and to reflect on the situation after the solution has been found (Aspers & Corte, 2019).

Qualitative research provides a detailed explanation regarding the "why" and the "how" of the phenomenon under investigation and the findings cannot be generalised. The findings in qualitative studies only factor into certain situations and open methods that provide an unrestricted amount of information such as in-depth interviews, focus group discussions and observations which are used to generate qualitative data (Leedy & Ormrod, 2021). Thavanathi (2017) indicates that qualitative research is characterised by a smaller number of participants for rich and profound information because it entails exploring a problem in detail and providing clarity on the central phenomenon. A central phenomenon refers to the key idea or concept under scrutiny to comprehend the research problem of which the researcher seeks to understand its variables (Leedy & Ormrod, 2021). In this regard, the qualitative research approach was found to be suitable as this study aimed to collect comprehensive individual experiences and

viewpoints of FFL teachers about their exploration of TPACK for the enhancement of their digital literacy skills.

3.4 Research Design

Action research is an inquiry approach that investigates problems and solutions for situations that occur in people's daily lives (Thavanathi, 2017). Action research enquires into a precise problem and seeks to find a practical solution to it, as it is a practical inquiry aimed at improving practices through theory (Humphries, 1997). It is a reflective cyclical activity that necessitates the identification of the central problem, planning, data generation process (action), implementation and monitoring (observing), and evaluation of the actions (reflecting) to transform practices in society (McNiff, 2013). Similarly, action research is emancipatory in that it equips people with broadened knowledge and understanding through which they can refine their practices for equal access to knowledge and societal development (Cohen et al., 2018).

Action research has been used for many years in fields such as social sciences, organisational development, and education (Oranga & Gisore, 2023). In the education sector, action research is used to identify problems, to empower teachers by refining their teaching practices and how they can effectively engage all learners and address underlying classroom challenges that affect teachers' and learners' performance (Thavanathi, 2017; Oranga & Gisore, 2023). In the same line of thought, action research is said to be a cognitive revolutionary action that transforms people's beliefs and cultures which are exhibited through their language and skills (McNiff, 2013). These are changed for the sake of diagnosing and remedying them granted that they are solvable and add to existing knowledge on how to make education a powerful and effective tool of society and to create diverse solutions to classroom challenges as they require reflective people who are willing to expand their knowledge through a spiral of cycles of planning, action, observation, reflection, and re-planning (Cohen et al., 2018).

Action research can be used as a tool that undertakes a microscopic view of several problems such as classroom challenges and social issues for effective instruction and a positive impact on learners' academic and personal lives (Bergmark, 2020; Boog, 2016). Moreover, action research integrates theory with practice, bridges the gap between the expectation and

performance gap, incessant professional and personal development of teachers, and increases performance for the attainment of educational goals (Oranga & Gisore, 2023). The duration of the action research depends on several factors such as the availability of the researcher and participants, the skillset, and the research questions (Bergmark, 2020). This is to say that since it is cyclic it can be done for a long or short time depending on the researcher's satisfaction that they have done all they could to address the research questions and that they have time to continue and whether the participants still can participate further in the study.

According to Newton and Burgess (2008), there are three types of action research namely, practical, participatory, and emancipatory action research. Practical action research involves in-service teachers' active involvement in the process of addressing identified hindrances to effective instruction practically. The researcher is also a participant in this case (Thavanathi, 2017). Moreover, participatory action research (PAR) involves collaborative efforts between the researcher and the in-service practitioner in addressing specific practical challenges for the betterment of daily instruction (Thavanathi, 2017). Emancipatory action research, on the other hand, is characterised by improving practices and heightening the abilities of in-service teachers through collaboration with researchers who aim to help take them through a process of self-awareness which is reflective and a rigorous process of transformation (Nehez, 2024). This leads to a quest to free participants' minds from the shackles of control, of being mere followers of what the curriculum says and blindly following the syllabus. They are encouraged to view education as life, where they have to critique whether it is indeed used to prepare learners for their lives as independent critical thinkers who take responsibility of their lives (Burns, 2015). This then shall make them challenge whether the currently used teaching approaches are effective for their learners, in their context (Burns, 2015).

On this note, this study intended to use the emancipatory action type as it is rooted in the critical paradigm that guides this study. It also used this type of action research to enrich FFL teachers with an empowering experience as they develop and refine their digital literacy through the use of TPACK. Moreover, their voices were heard, and they were treated as unique individuals who had their perspectives and viewpoints as they were helped to improve their mindset towards effective integration of digital literacy in their everyday lessons. Importantly, emancipatory action research unshackles professionals from traditional teaching methods to

ensure that they augment their performance to address learners' learning needs which enable them to thrive as individuals and as global citizens (Boog, 2016).

Additionally, emancipatory action research seeks to raise awareness and take into account the voices of the in-service teachers, their experiences, and opinions to help them address their challenges and accelerate their abilities for the creation of dynamic and engaging classrooms that equip learners with the capacity to positively contribute to society (de Klerk & Palmer, 2020). At the core of it, in-service teachers are actively involved as it is democratic, to allow them to feel free and open to learning, and for them to be aware that their experiences and viewpoints are valued. Affording them the opportunity to be seen as unique people who have valuable contributions to improve their interaction with content and learners and how they design, plan, and organise their lessons to embrace digital literacy skills (McNiff, 2008). This type of action research entails an incessant integration of theory into practice and vice versa (de Klerk & Palmer, 2020). It acknowledges that unfairness or imbalance moulds people's viewpoints and experiences (Thavanathi, 2017).

Emancipatory action research comprises a cyclic process whereby practitioners start with the problem, critically evaluating it and self-evaluating their impact on the problem. They undergo a process of strategic planning wherein they identify the problem, they act by implementing a damage control to assess and examine the problem, then plan on how they can combat it by coming up with an intervention strategy, they then evaluate their intervention and assess its effectiveness thereby critically evaluating their impact on the issue as well as reflect on how they can gradually solve and improve the problem. Then they use the information obtained from the process to inform the second cycle and more (McNiff, 2013; Burns, 2015). However, emancipatory action research is critiqued as self-contradictory and not objective (Cohen et al., 2018).

In the same vein, action research is said to be done in two stages or phases namely the problem identification phase wherein there is an analysis and diagnosis of the problem, and the problem resolution phase whereby the intervention is carried out to solve the identified problem (Sagor, 2005; Efron & Ravid, 2013). This two-phase process is conducted in four steps which are

planning, acting, observing, and reflecting (Efron & Ravid, 2013). Additionally, this states that the process is initiated by finding and locating a problem, then setting an objective of how it shall be solved, followed by implementing a strategy to achieve the objective of combating the problem, undergoing a monitoring the effectiveness of the implementation strategy, evaluating it and self-evaluating impact on the objective attainment and using this information to inform the successive cycle (Sagor, 2005; McNiff, 2013). This study underwent the emancipatory action research in two phases namely phase 1 and phase 2. The four stages of action research namely reflect, plan, observe and plan are presented in figure 4 below. These stages were used to observe participants' lessons, probe them to reflect on their lessons, plan and act by implementing an intervention. As such, these stages were used in both phases of the study to render participants capable of using TPACK to advance their digital literacy.

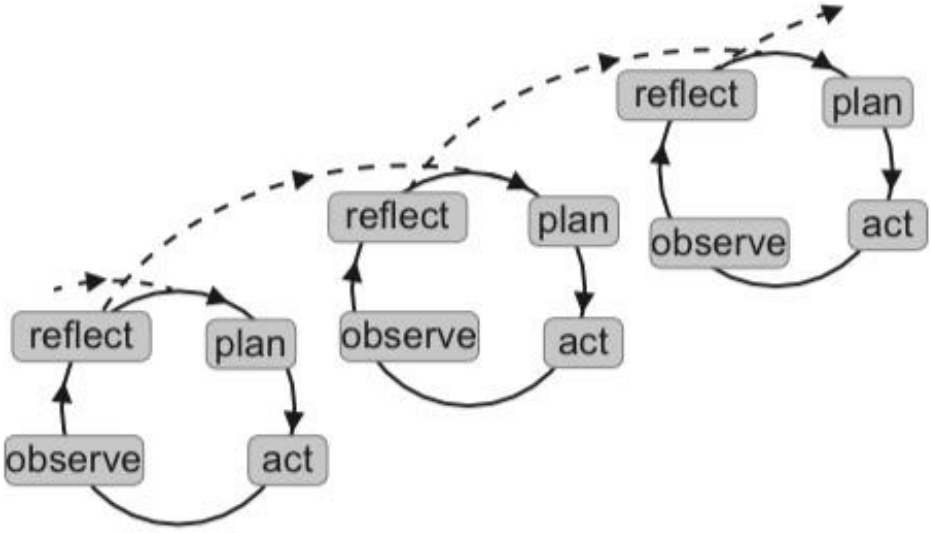

Figure 4: The Remis and McTaggart (1988) spiral action research model

3.4.1 Phase 1 (Problem identification)

The first step in this phase is the problem identification stage, wherein teachers' existing knowledge and abilities are examined for an informed resolution plan. First and foremost, the researcher engaged the participants in classroom observations to understand how they implemented the strategies that they use to improve their digital literacy, and then a semi-structured interview to gain information on the strategies FFL teachers used to advance their digital literacy skills. Thereafter, the researcher asked for teachers' previous and current lesson plans to examine how digital literacy was integrated into their lessons, then further observed

the integration of digital literacy skills in typical lessons to comprehend the challenges they faced in integrating digital literacy skills. This activity made the researcher aware of how FFL teachers were struggling to create dynamic lessons and embrace 21st century skills in their daily lessons.

As a follow-up to the observation, the researcher used semi-structured interviews to have a one-on-one discussion with each participant to delve into their attitudes, beliefs, and experiences regarding how they integrate digital literacy in their teaching practices. This was meant to get an insight into where their digital skills' integration challenges stem from, based on their perspective to strengthen what had been observed. This phase entailed a review of the strategies used to advance FFL teachers' digital literacy skills and their digital literacy integration challenges in their instruction, and the study used observations, document analysis, reflective journals, and semi-structured interviews to unpack the phenomenon of the study from the participants' viewpoints.

Furthermore, the findings in this phase necessitated an intervention. I provided participants with oral explanations and study materials on the strategies they could use to advance their digital literacy. I enlightened them on how to curb the challenges of integrating digital literacy and how TPACK could be used to advance their digital literacy. Further, I empowered them to reflect on the challenges and benefits of using TPACK to advance their digital literacy.

3.4.2 Phase 2 (Therapeutic phase)

After a rigorous examination of the problem, reflection, and observation of the participants, the study underwent the process of problem resolution. The problems identified in the first phase informed the second phase which consisted of participants' implementations of transformed practices. As alluded to, action research aims to transform practices and empower those in practice with refined knowledge and abilities to effectively carry out their teaching practices (McNiff, 2013) Moreover, the researcher offered participatory remedial sessions to conscientise the participants on the TPACK framework, and how it structured their teaching practices as well as digital literacy and ensure that they understood those two vital issues. Furthermore, the researcher asked them to integrate digital literacy into their daily teaching practices, observe them to determine how the remedial sessions had impacted their

understanding of TPACK and digital literacy, and how they could integrate digital literacy and portray their understanding of TPACK. Their lesson plans were examined to check how they explored the use of TPACK to advance their digital literacy and how they then integrated digital literacy in their classrooms. Moreover, participants were engaged in a reflective journaling activity to delve into their opinions, attitudes, and experiences concerning their perceived benefits and challenges of the use of TPACK to improve their digital literacy. Additionally, there was a series of observations to see how they exhibited their TPACK-enhanced digital literacy skills in FFL teaching.

On the use of reflective journals, document analysis, and observation, the researcher was inclined to believe that the participants would have comprehended how their use of TPACK to advance digital literacy may have influenced the challenges they encountered in integrating digital literacy in their classrooms. Also considered was how their knowledge and understanding of TPACK and digital literacy positively impacted attainment of their learning goals and their strategies to address the 21st century skills of learners in subsequent lessons.

3.5 Sampling

Sampling is a process of selecting a representative group of participants determined by certain characteristics that aid the researcher in generating authentic and informational data (Leedy & Ormrod, 2021). This study used both the purposive and convenience sampling techniques of non-probability sampling. Non-probability sampling techniques are those which depend on the researcher's subjectivity to provide judgement on how accessible the participants are and the features they have (Bhardwaj, 2019). In this way, the purposive sampling technique is reliant on the researcher's judgement about the specific characteristics possessed by the participants as it is beneficial in zoning out any features which may not be of use for the study (Obilor, 2023). This technique is applicable in qualitative research studies as it helps researchers opt for participants who are highly likely to provide in-depth detailed information vital for the study, since it is also useful in studies involving a small number of participants (Bhardwaj, 2019).

Purposive sampling is time efficient as it allows the researcher to only go for the participants that fit into the context of the study (Obilor, 2023). Nevertheless, since this technique uses a small number of participants, the researcher is at risk of bias which may lead to the researcher

following their interests or participants' interests which may not necessarily align with the research objectives and questions (Stratton, 2021). Thus, this study aimed to purposively select five FFL teachers from 20 secondary schools that offer FFL as a taught subject in Maseru. Five was believed to be a number that could provide diverse, authentic, and in-depth information that would help determine whether TPACK can successfully enhance FFL teachers' digital literacy skills. However, only four participants out of the intended five were able to participate in this study. This is because one participant could no longer continue due to unforeseen circumstances that cannot be disclosed without compromising the identity of the school.

Equally important, the study employed the convenience sampling technique. This technique operates on accessibility and proximity (Obilor, 2023). The researcher uses participants who are accessible with minimal effort and are keen to participate, however, they are not considered to represent the entire population (Bhardwaj, 2019). It is also important when researchers are doing a pilot project and wish to have an understanding of the reality of participants. On the contrary, the drawback is that there is a high possibility of bias as there are no selection criteria for participants, instead they are selected based on being readily available to the researcher (Bhardwaj, 2019). This study aimed to select and work with accessible and willing FFL teachers who had been practising for at least three months. This was because it was believed they would be able to provide their previous lesson plans and would have become familiar with the learners. Pseudonyms were adopted to reference participants and their schools. They were as follows: T1 from S1, T2 from S2, T3 from S3 and T4 from S4.

Table 1: Description of participants

Participants' pseudonym	**School's pseudonym**	**Experience**	**Gender**
T1	S1	Grade 8: 8 months Grade 9:1 year and 8 months Grade 10:2 years and 8 months	Male
T2	S2	Grade 7: 4 months Grade 10: 4 months	Male

		Grade 11: 1 year four months	
T3	S3	Grade 8: four months Grade 10: 2 years and 4 months Grade 11: 3 years and 4 months	Male
T4	S4	Grade 8: 8 months Grade 9: 1 year and months Grade 11: 1 year and 8 months	Male

Table 1 above demonstrates the description of participants. This table highlights participants' and schools' pseudonyms, experience and gender. Accordingly, T1 had been teaching Grade 8 for eight months, Grade 9 for a year and eight months, Grade 10 for two years and eight months, and Grade 11 learners for years and eight months. T2 had been teaching Grade 8 and 10 learners for four months, and Grade 11 for a year and four months. T3 had been teaching Grade 8 learners for four months, Grade 10 for two years and four months, and Grade 11 learners for three years and four months. Lastly, T4 had been teaching Grade 8 learners for eight months, Grade 9 for a year and eight months, and Grade 11 for a year and eight months. Notably, all participants were male.

3.6 Methods of data generation

These refer to the means used to extract data from the sources and they are sequenced in a way that one supplements the other (Creswell & Creswell, 2018). This study used four methods of primary data generation in the form of observations, reflective journals, document analysis, and semi-structured interviews to fully comprehend the research objectives and questions. Primary data sources are those that researchers generate from their first-hand experiences with participants and they are regarded to be authentic, objective, and reliable as they present unfiltered data (Kabir, 2017). Moreover, these methods of data generation were useful in getting a comprehensive review of the nature of FFL teachers' exploration of TPACK for digital literacy skills' enhancement, the challenges FFL teachers face in integrating digital

literacy skills into their practices, and how they can use TPACK to augment their digital literacy skills. These methods of data generation were triangulated for authenticity purposes. Triangulation in research is the use of more than one theory, method of data generation, or approach to effectively address research questions and objectives. Triangulation in this study was used to avoid or at least minimise bias and to provide more information leading to a deeper understanding of the research phenomenon under investigation (Heale & Forbes, 2013).

3.6.1 Observation

Observation is a way of watching, monitoring and examining a phenomenon. It involves a methodical process of planning what to observe (semi-structured observation) and recording as it occurs in its natural setting for an informed analysis and interpretation (Creswell & Creswell, 2018). In concordance, Ekka (2021) defines observation as a technique that involves watching and monitoring the behaviours of people, actions, and events in their everyday context and recording the changes over time. Furthermore, observations require a certain amount of time to fully see progress in ordinary and typical situations as research shows that people feel the need to feign perfection when they are being observed, hence it has to be a progressive process for them to eventually feel free to be as comfortable as they would be when they are not being observed (Kawulich, 2005; Moment, 2018). The questions are typically open-ended to allow participants to respond and observations are best reinforced by interviews (Creswell & Creswell, 2018). Observations are said to allow researchers to watch and take note of what is happening in natural settings, evaluating and drawing conclusions from them, instead of solely depending on participants to explain their perspectives which may be devoid of certain pertinent information (Ekka, 2021).

Nevertheless, Ekka (2021) outlines that there is a possibility of biases as the researcher may only note down what they are familiar with and not necessarily all the important occurrences. This also helped to generate data that is authentic and useful in broadening the understanding of how FFL teachers generally explore digital literacy and integrate it into their teaching practices setting the base for TPACK can be used to accelerate their digital literacy skills. In this case, the researcher undertook observations to note all occurrences that took place in the FFL classroom to note their implications on teachers' digital literacy skills and how they used TPACK to advance their digital literacy skills. In this process, the researcher purposefully

monitored how FFL teachers structured their lessons to promote digital literacy, how they fostered digital literacy through classroom activities, and how they explored the use of TPACK to improve their digital literacy skills. Notably, observations are influenced by several factors such as the time, place, and engagement between people, how the activities are sequenced and the feelings and emotions taking place between the people taking into account their context (Ciesielska et al., 2018).

3.6.2 Semi-structured interviews

An interview is a dialogue between two people wherein one asks questions about a particular topic and the other provides answers (Jong & Jung, 2015). Qualitative research comprises three types of interviews: structured, semi-structured, and unstructured interviews (Elhami & Khoshnevisan, 2022). Structured interviews are conducted using a rigid framework of questions that have to be answered as they are, while semi-structured interviews are in-depth discussions that are guided by a rubric of important themes to cover although there is a possibility of follow-up questions to those questions (Ruslin et al., 2022). Unstructured interviews, on the other hand, are not pre-planned and they are just an in-depth discussion between the researcher and the participants wherein too much irrelevant information may be discussed and compromise vital issues (Elhami & Khoshnevisan, 2022). As such, the current study deemed it fit to use semi-structured interviews to provide detailed information regarding the phenomenon under scrutiny as the researcher asked pre-determined questions about the research objectives and questions, but with the allowance that those could unearth other important issues which were not part of the questions as it was open-ended (Adams, 2015; Ruslin et al., 2022).

It is advisable to tape record the discussions to avoid misinterpretation as a lot of crucial information may come up thus not affording the researcher the time to jot down all the information all at once. Again, giving participants undivided attention builds rapport and makes them feel their input is valued (Leedy & Ormrod, 2021). Needless to say, there may be limited and short responses from the participants (Leedy & Ormrod, 2021). Semi-structured interviews were used to supplement observations as FFL teachers were granted an opportunity to provide their thoughts, experiences, and opinions regarding the struggles they face in integrating digital literacy skills in their teaching practices and what they could attribute the causes of such

challenges to and how they thought the problem could be resolved since observations may have not focused on their voices. Furthermore, they were assured that the confidentiality of what they said would be maintained as well as their anonymity so that they could be comfortable to give satisfactory responses. The researcher also struck informal interviews in the form of ordinary conversations with the participants before and at the end of lessons to and from the staffroom regarding their overall perceptions of the lessons in general, their ideas, beliefs, and experiences with digital literacy and how they believe digital literacy could be beneficial for their FFL instruction.

3.6.3 Reflective journals

Reflective journaling refers to detailing people's thoughts, behaviours, and attitudes towards certain experiences and provides key information they can use to sharpen their abilities (Thavanathi, 2017). Bashan and Holsblat (2017) affirm that reflective journals help participants keep track of their performance so they notice changes that may have been impacted by the process of transforming practices. Moreover, reflective journals help participants to be aware of their meta-cognitive abilities, to develop self-awareness and responsibility by fully engaging themselves in positive actions or habits that get the best out of their performance and that of the teachers to produce a conducive learning environment for both parties hence this activity is emancipatory (IW resources) (Bashan & Holsblat, 2017). This method of data generation is applicable for FFL teachers to enable them to fully examine their interaction with content, with the learners, and how they address learners' learning needs while also constantly developing themselves personally and professionally. Reflective journals are invaluable in teacher training and professional development as they help them develop the ability to self-analyse without any bias and use that criticism to improve their teaching practices (Lutz & Paretti, 2019).

Reflective journaling is vital for teachers to examine their mindsets and practices before intervention. The journal considers how teachers' practices take shape during intervention, and how their perspectives and experiences are influenced after the intervention process, as this helps them evaluate the impact of the intervention on their practices and how enriched or lack thereof their experiences are post-intervention (Lutz & Paretti, 2019). It is noteworthy however that detailed information depends on the willingness of participants to intentionally record their

honest thoughts and feelings over time (Thavanathi, 2017). Additionally, some participants are likely to feel overwhelmed by drastic changes and progress within a short period and they may cease reflections after the research has been completed. Therefore, the researcher emphasised the importance of journaling as it informs their practices and addresses the challenges encountered by learners too hence it should be done in daily instruction because it enhances transparency (Kothari, 2004). Importantly, I ensured that the participants understood what the study intended to achieve (objectives) and provided clear instructions and prompts for participants to follow when doing their reflective journaling, and they were offered support and guidance throughout the research process (Kothari, 2004).

3.6.4 Document analysis

Document analysis is a sequential process of evaluating documents and reviewing them (Morgan, 2021). It is a comprehensive view of text from which data is extracted as it includes reading and interpretation of the information derived from documents such as texts, images, books, newspaper articles, academic journals, and reports (Nayak & Singh, 2015). Moreover, the process of document selection involves a critical examination of how legitimate a document is and the significance of its content for the context of the research (Morgan, 2021). In contrast, the literature argues that some documents may only provide limited information and force the researcher to accept the little information they can get (Nayak & Singh, 2015). In this case, this study used document analysis of the FFL teachers' previous and present lesson plans to get a thorough insight into how they document their use of TPACK for the improvement of digital literacy skills, how they integrate digital literacy skills, and how they follow those processes after the impact of TPACK with the aim to enhance their digital literacy skills.

Table 2: Data generation methods

Table 1 below presents the data generation methods used to address each research question and the action research stage used to advance the data generation process.

Research Question	Action Research Stage(s)	Data Generation Methods

1. What strategies do FFL teachers use to advance their digital literacy?	Reflect, observe, and plan	Reflective journals and semi-structured interviews
2. What challenges do FFL teachers face in integrating digital literacy into their teaching practices?	Act/implement, observe, and reflect	Document analysis, observations, and semi-structured interviews
3. How does TPACK enhance FFL teachers' digital literacy?	Observe, plan, and implement, and reflect	Document analysis, observations, Reflective journals, semi-structured interviews
4. What are the benefits and challenges of using TPACK to improve FFL teachers' digital literacy?	Observe and reflect	Reflective journals and semi-structured interviews

Table 1 above presents the data generation methods used to address each research question and the action research stage used to advance the data generation process. This table demonstrates how the research questions of this study were addressed in line with the action research stages and data generation methods. It shows how FFL teachers were capacitated to use TPACK to advance their digital literacy through various research questions, action research stages and data generation methods.

3.7 Data analysis

This study employed thematic analysis as it combines both inductive and deductive reasoning in a hybrid approach (Proudfoot, 2023). On the one hand, the deductive aspect of this analysis entails the use of pre-determined themes from the interaction with the theoretical framework and the review of literature on the phenomenon of the study (Fereday & Muir-Cochrane, 2006; Thompson, 2022). On the other hand, inductive reasoning necessitates emerging themes from the generated data that address the research questions (Fereday & Muir-Cochrane, 2006;

Thompson, 2022). Therefore, the study developed pre-determined themes derived from the Resources and Appropriation Theory. The themes were: attitude/motivational access, physical/ material access, skills access, and usage access. Importantly, these themes were derived in line with TPACK and the phenomenon of the study, digital literacy as it primarily looks into factors such as purposefully searching on the Internet, accessing, evaluating, and sharing information obtained from HW and SW resources.

Data analysis also involved these factors: ethics, culture, the digital divide, and developing critical thinking, reasoning, and problem-solving skills. Moreover, the themes are well aligned with the TPACK theory principles which involve meticulous consideration of which HW, SW, and IW resources are to be incorporated in an FFL classroom to integrate content and use of relevant teaching methods with the concern of the level of learners, their technology background, their age and learning needs for them to be contributors in society. In this light, the study adopted the hybrid (inductive and deductive) thematic analysis to bridge the gaps that may arise from the pre-determined themes by using the one that develops themes from the data sets during analysis (Proudfoot, 2023). The Atlas.ti software would be employed to analyse inductive datasets. Inversely, the study identified no inductive data sets, thus only analysing deductive datasets.

3.8 Trustworthiness

Research trustworthiness is the research's ability to achieve what it was intended to, hence producing acceptable results. Similar outcomes may be achieved even when the research is conducted by another person although there might be a few nuances as it is subjective to the researcher, since reality is constructed (Lincoln & Guba, 1987). Trustworthiness states that research should yield accurate findings and it should be applicable for other researchers within the same field to refer to (Creswell & Creswell, 2018). This study qualitatively detailed an exploration of the use of TPACK to advance FFL digital literacy. Trustworthiness consists of four aspects namely, credibility, dependability, transferability, and confirmability which were considered in this study (Lincoln & Guba, 1987; Stahl & King, 2020).

3.8.1 Dependability

Dependability, also referred to as the use of direct quotations, involves the consistency and stability of the research findings over time, as well as their applicability in different conditions (Leedy & Ormrod, 2021). Echoing this assertion is Chowdhury (2015) who indicates that dependability enquires into whether the same participants can be used in a similar context and still yield the same findings. Dependability can be promoted through a clear documentation of research procedures, and allowing for transparency and replicability in the study (Leedy & Ormrod, 2021). As such, this study detailed the research questions, objectives, and participants' characteristics, and also provided the questions used for the semi-structured interviews, together with accompanying quotations to highlight participants' exact words during data interpretation. For auditing, the researcher's supervisor examined and evaluated the accuracy and relevance of the data generation tools used, the data analysis, and the interpretation of findings.

3.8.2 Confirmability

Confirmability (triangulation through the use of multiple sources to authenticate the findings) relates to the objectivity and neutrality of the research so that it does not mirror the researcher's personal biases, ensuring there are no traces of the researcher's interests and beliefs that do not align with the study (Leedy & Ormrod, 2021). It can be promoted by keeping comprehensive documentation of the research process, and being upfront about any possible conflicts of interest (Creswell & Creswell, 2018). Therefore, a robust methodology was undertaken in this study. I stipulated the data generation process for transparency of how the findings of TPACK enhanced FFL teachers' digital literacy skills. In the same vein, observations were used to supplement document analysis to gather information on FFL teachers' integration of digital literacy skills which may have not been detailed in the lesson plans. Semi-structured interviews were used to comprehend FFL teachers' thought processes towards digital literacy integration and improvement which observations did not entail. Complementary to this, reflective journals were also used for FFL teachers to self-evaluate, with the aim of transforming practices critically.

3.8.3 Credibility

Credibility examines how the findings match with the actual state in the field (Leedy & Ormrod, 2021). Credibility is the truth value that provides an insight into how realistic the

findings are, and it can be reinforced through triangulation to verify that the findings are believable through employing several methods of data generation (Nowell et al., 2017). Moreover, credibility can be achieved by providing a comprehensive research process, ensuring data is accurate through triangulation, and outlining any potential threats or limitations of the study (Creswell & Creswell, 2018). This study triangulated two theories: TPACK and Resources and Appropriation Theory as well as methods of data generation tools used to address each question in exploring the use of TPACK for FFL teachers' digital literacy. Both the theories and the methods of data generation were used to ensure they would fill in the gaps in order to generate valid findings. Moreover, I informed the participants of the findings of the study for them to verify whether they were believable (not misinterpreted) and could positively impact their instruction going forward.

3.8.4 Transferability

Transferability outlines how much the findings of a study can be generalised to fit other different contexts (Nowell et al., 2017; Cohen et al., 2018). It requires a clear description of the context of the study, the participants' characteristics, and the methods of data generation used for others to evaluate how they can fit them into their own unique or similar contexts. Therefore, although the findings can be generalised, there is no warranty that the findings of this study are transferable to other contexts as there are several contributing factors such as participants' cognitive abilities as portrayed by their performance throughout the research due to the fact that French is taught as a foreign language in Lesotho. Thus, it necessitates different ways of instruction as opposed to other languages taught. Hence, a variety of socio-cultural and socio-economic situations were likely to affect the findings.

3.9 Ethical considerations

Ethical considerations refer to the codes of conduct adopted by the researcher to ensure that the data generated are only related to the researcher and the participants. They pertain to the researcher's manner of conduct at personal and professional levels throughout the research as they involve working with human participants (Cohen et al., 2018). Creswell and Creswell (2018) highlight that the researcher has to respect the values, principles, and beliefs of the participants, ensure they are not exposed to any harm, their privacy is maintained, and they will not be obliged to participate whenever they decide they want to withdraw participation. In this regard, the researcher sought a letter of permission from the institution of study and took it to

the selected schools, met with the principals, and requested to conduct the study in their schools. Thereafter, I made participants aware of the research objectives of the study and fully explained to them the role they were to play to help make this study come to fruition. Then they were made aware that their anonymity and confidentiality would be maintained and they were also alerted to any possible dangers or threats. Thus, they were at liberty to participate for as long as they were willing to, without any coercion to continue when they no longer wished to. Participants were also assured that there would be no sharing of confidential information that would expose their identity or betray their trust (Fleming & Zegwaard, 2018).

Chapter 4: Discussion of findings

4.1 Introduction

The previous chapter presented the research paradigm, approach, design, sampling techniques, methods of data generation, data analysis, trustworthiness, and research ethics. In light of this, the findings shall be presented well in line with the methodology. This chapter presents the information obtained from the participants through the use of the four methods of data generation used in the study. These are document analysis, semi-structured interviews, observations, and reflective journals, and they are in line with the themes developed from the theories of the study. This chapter also details the limitations of this study.

The findings of this study are presented and discussed according to the four themes (attitude/motivational access, physical/material access, skills access, and usage access) in alignment with the four research questions to provide a comprehensive detailing of the issues each question sought to uncover. Thus, the findings shall be presented in the two action-research phases, the problem identification phase (phase 1) and the therapeutic phase (phase 2). Each theme is presented in both phases. The research questions are as follows:

1. What strategies do FFL teachers use to advance their digital literacy?
2. What challenges do FFL teachers face in integrating digital literacy into their teaching practices?
3. How does TPACK enhance FFL teachers' digital literacy?
4. What are the benefits and challenges of using TPACK to improve FFL teachers' digital literacy?

4.2 Discussing the findings

4.2.1 Theme 1: Attitude/Motivation Access

Do you think it is important to integrate digital literacy into French lessons?

Motivation access is defined as a type of access that depends on an individual's eagerness or lack thereof (IW resources) to use HW and SW resources (Abbas et al., 2023). Motivational access is depicted by the opportunities sought to use HW, SW, and IW resources as some teachers may not use them at all (van Deursen & van Dijk, 2015). On the one hand, a positive attitude or motivation is highlighted by people's ability to find opportunities that entail

exploring different HW and SW resources (Pan, 2020). On the other hand, negative attitudes or no motivation is displayed by digital immigrants, technophobic people, and people with technostress. These people are also referred to as the "want-nots" of technology use (van Dijk, 2013). They are characterised by minimal avoidance of the use of HW and SW resources due to factors such as mistrust or lack of confidence and negative comments (van Dijk, 2013). Motivation access leads to the type of material resources (HW, SW, and IW resources) used (Abbas et al., 2023). In the present study, FFL teachers' motivation to use technology is scrutinised based on their eagerness to explore digital literacy, thereby displaying how beneficial they perceive digital literacy integration to be. Thus, FFL teachers' motivation to integrate digital literacy is manifested through the strategies they employ to advance their digital literacy skills.

4.2.1.1 Phase 1: Problem Identification Phase

This phase revealed participants' oblivion of the vitality of technology appropriation in the instruction of FFL. For instance, upon participants' reflection on the question, *"Do you think it is important to integrate digital literacy in French lessons?"* T1 concisely responded, *"Yes, I think it is because we are in the generation of technology."* This response was not unique to T1 as T2, T3 and T4 concurred. T2 stated: *"Yes, it is important to integrate digital literacy in French lessons."* T3 stated: *"Yes,"* and T4 expressed: *"Yes, it is important to integrate digital literacy in French lessons to make learning fun and interactive."* These participants' responses presuppose that they may have had an idea of what digital literacy is and therefore find it valuable.

Intriguingly, the observations revealed that T1 and T3 opted for no use of HW, SW, and IW resources in the instruction of FFL, as even their lesson plans neglected the inclusion of technology. For instance, in one of his lessons where he taught *"les matières"* (school subjects), T3 introduced the lesson and asked learners to read a passage from the textbook and the answer the questions provided in the textbook. He further asked the learners to refer to their dictionaries for any words they found difficult. Thereafter, T3 marked the learners and provided an overall summary of the lesson. T1, while teaching the topic *"l'utilisation de la verbe vouloir et l'infinitif"* (the use of the verb to want and other infinitive verbs), explained the content and asked learners questions that required them to create their own statements using the verb to

want and other verbs in their infinitive form. In T1's lesson plan, he outlined the objective (learners should be able to provide differing sentences where they use the verb "to want" in conjunction with the other verbs in their infinitive forms). The teaching aids/resources (the textbook). These participants' lesson observations emphasise a reliance on textbook usage and the chalkboard. This confirms that participants favoured the traditional teaching method and were hesitant to employ technology.

Knight (2015) corroborates this and underscores that teachers tend to overly rely on the use of the textbook as a teaching resource due to a shortage of ICT resources and infrastructure. However, teachers are not encouraged to establish a balance between technology and the use of the textbook. Notably, technology provides a wealth of information from multifarious HW, SW, and IW resources of which authentic resources can be accessed, as opposed to the textbook, which is devoid of interactivity, culture-relevant content, innovation, and creativity (Risager, 2021). This prompted me to delve deeper into participants' perceptions of technology and its utility in FFL instruction. This would shed light on what discouraged them from exploring digital literacy and whether they were willing to overcome such hindrances. These participants' viewpoints on digital literacy would inform the researcher of the need to familiarise them with the benefits of technology use for heightening FFL learners' understanding of French. Thus, transforming participants' technology awareness and encouraging them to have a progressive mindset towards digital literacy.

Additionally, this suggests that participants seemed not to use technology to enhance their digital literacy as they purportedly regarded it as a superficial tool that deviates theirs and learners' attention from the content of the subject (CK). Thus, this latter assertion implies that they are the "want-nots" of technology use in instruction (van Dijk, 2013). Resonating with this view are Nestik et al., (2018) who assert that teachers who are digital immigrants or those with technostress, technophobia, or mistrust of technology, and "the want-nots" are characterised by a negative perception of what technology is and its full potential in instruction. Therefore, they overlook how they can positively leverage it to keep learners engaged, interactive, and motivated to even explore it autonomously to reinforce their understanding of the content. The literature substantiates that a lack of enthusiasm and motivation to access and

use technology marginalises individuals from experiencing their full potential (van Deursen et al., 2019).

Conversely, T2 (in two lessons out of eight observed) and T4 (in 1 out of seven lessons observed) although seldom, displayed their appreciation for technology as they occasionally integrated it into their lessons. During observations, T2, while teaching *"décrire quelqu'un"* (describe someone), copied an excerpt of someone describing their best friend from his smartphone to the chalkboard, asked learners to each read, and then asked them to write about their friends/best friends. T2's lesson plan detailed the lesson objective; that learners should be able to talk about their best friends/friends. The teaching aid/resource was stated as the textbook. Importantly, the said participant also outlined the classroom activities highlighting that learners copied the excerpt from the chalkboard to their books and thereafter wrote descriptions about their friends/best friends. Likewise, T4, while teaching *"C'est ou, chez toi?"* (Where do you come from?), projected pictures of the monuments in Lesotho before displaying the monuments in France, to prompt learners to critically think and juxtapose the Lesotho and France monuments. T4's lesson plan detailed the lesson objective, ICT resources (textbook), and the teacher's and learners' activities. It was found intriguing that these particular participants had access to HW and SW resources yet they did not consistently use technology.

In corroboration, Rahmat et al. (2022) and Stoilescu, (2014) state that the occasional integration of technology could signify teachers' lack of confidence in their technological skills. In other words, the willingness to use technology is characterised by a teacher creating an opportunity for digital literacy integration into their lesson. This is followed by an indication of the activities undertaken, an exchange of the teacher's and learners' roles, and the ICT resources to be used (Muntu et al., 2023). In light of this, the literature indicates that teachers who are motivated to integrate digital literacy are open-minded and willing to explore various HW, SW, and IW resources to keep up-to-date with the developments in their subject areas. Thus, establishing a dynamic and meaningful use of technology to improve learners' understanding (Shadiev & Wang, 2022; Sandra & Yuliawan, 2022). T2 and T4 prompted me to enquire into why these participants did not have the motivation or confidence to frequently integrate technology into their lessons and why they did not include laptops, projectors, and smartphones as part of the resources used in their lesson plans. This would also uncover their attitudes

towards technology and the opportunities enabled by the use of technology to attain learning objectives. This would inform how participants perceived the importance of technology in FFL instruction, and would inform how they viewed the potential integration of digital literacy in FFL lessons. Participants' eagerness to leverage technology was deemed purportedly influential in their motivation to demonstrate digital literacy.

In the semi-structured interviews, participants explained the importance of integrating digital literacy into French lessons. T2 said:

> *It is important because it helps us go to the Internet and do research. For instance, with conjugation, we can go to the Internet to search how to do it as there are videos from YouTube to explain better. Moreover, learners can be given assignments through WhatsApp which they can do autonomously, hence I say it is helpful.*

T1 stated:

> *Yes, the benefits being that there is more information, learning, and facilitation of learning as learners may also have access to learning by themselves. As teachers we can even facilitate distance learning.*

Furthermore, T4 stated:

> *Yes, for instance, we can use different platforms. Here where I work, we use Manage Back, which we use to assign them to work and grade them. We also have In Thinking, a platform where learners can submit and access study materials. It is like an online library for them. In that way, I am integrating digital literacy and fostering it among the learners.*

T3 stated:

> *Yes, learners have to be exposed to listening, so technology exposes them to the understanding of the language. For instance, they could watch French movies autonomously and understand.*

These statements indicate that teachers had to reflect on the significance of digital literacy to provide them with the motivation or lack thereof to explore digital literacy in their lessons. Thus, revealing the attitude that they have towards the effective use of HW, SW, and IW resources in French instruction. Supporting this, Alkhawaja et al. (2021) remark that it is easier

for teachers who are motivated to put their energy into understanding how to effectively navigate technology. This suggests that teachers become reflective of their engagement and relationship with technology. After that, they then galvanise learners' engagement, and agency, capacitating them to realise how with the world's rapid evolution, technology can help accomplish not only learning goals but also real-life issues.

Equally important, I noted a mismatch between participants' semi-structured interview responses, reflective journals and participants' lesson plans and classroom observations. They seemingly had the awareness and appreciation of the importance of digital literacy in semi-structured interviews and reflective journals, yet their lesson plans and lesson observations reflected that they were oblivious to digital literacy. Hence, they purportedly did not demonstrate its importance in their teaching practices.

Noteworthy is that motivation/attitude leads to teachers' strategies to improve and/or integrate digital literacy into their lessons (David, 2022). As such, when asked to state the strategies they use to advance their digital literacy in the semi-structured interviews, T4 asserted:

> *Looking for other platforms that can help me to distribute lessons in such a way that they are efficient, interactive and engaging. I try now and again to try something new, and then reflect on how it worked, the strengths and the weaknesses.*

Additionally, T3 highlighted: *"Reading and attending some online workshops."* T2 explained:

> *I always go online to read and broaden my understanding of how to use digital literacy in teaching. Luckily, the French Embassy holds training workshops for us French teachers at Alliance Française frequently and they sometimes take us to France to teach us how to effectively integrate technology in French instruction.*

Accordingly, T1 noted:

> *We have training from external people on computer literacy, as teachers here. We do also have personal training where we contact some people for more knowledge on IT.*

These declarations imply that the participants did not have or use any strategies to advance their digital literacy and perhaps harness them to integrate it into French lessons, and they corresponded with the ones provided in participants' reflective journals. From the aforementioned assertions, it is apparent that participants claimed they employ strategies such as blended learning, guided discovery, and digital literacy workshops to improve their digital literacy. Blended learning, guided discovery and digital literacy workshops require rigorous use of HW, SW, and IW resources to foster learner-centred and meaningful learning that necessitates innovation, creativity, critical thinking, and adaptability (Vonti & Rahma, 2019; Rahman et al., 2023; Sinanga et al., 2023; Choudhary & Bansal, 2022). However, their lesson observations seemed to dispute this issue, emphasising that they mostly relied on the traditional method of teaching. This could be attributed to them not having any strategies in place to advance and integrate digital literacy.

Interestingly, in the classroom observations, it was evident that T3 had no strategy in place to advance his digital literacy as his lessons were devoid of any efforts to include HW, SW, and IW resources. This particular participant only used the textbook as a teaching aid and did not facilitate engaging lessons. In addition, he seemingly did not cater to learners' need to collaborate and engage in a dynamic learning environment. Likewise, T1 did not seem to create opportunities that required the use of HW, SW, and IW resources in his lessons. T1 facilitated lessons wherein learners would read a passage from the textbook and translate it from French to English to ensure learners understood. Then he would provide further explanations and write down the meanings of words (vocabulary) on the chalkboard for learners to copy into their notebooks. This was further emphasised by his lesson plans, wherein there were clear lesson objectives, activities, and teaching resources (the textbook). Furthermore, T4's lesson observations revealed that he appeared to possess slight knowledge of how to manipulate HW, SW, and IW resources such as a projector, a laptop, and the Internet. T4 used a picture of Lesotho monuments to probe learners' critical thinking, reasoning, and problem-solving skills on the monuments in France. However, it was noted that T4 used technology in only two lessons from the eight that were observed.

In the case of T2, it was evident that he employed the rigorous use of HW, SW, and IW resources such as smartphones and the Internet. This is because T2 used an excerpt from the

Internet, a projector, a laptop, and a Bluetooth speaker to teach hobbies. Moreover, T2's lesson plans outlined the objectives of the lesson, and classroom activities, and outlined the Internet as the resource used. The researcher's concern with all participants' strategies was that they claimed to have certain strategies in place; such as constantly reading and researching which ICT resources they could use and how they could use them. Nevertheless, they demonstrated little awareness of the strategies used to advance digital literacy and consequently, used none (T3 and T1). T4 and T2 seemed to use acquainting themselves with varied ICT resources for the instruction of FFL as their strategy to advance digital literacy.

In light of the above findings, participants were made aware of the importance and practicality of digital literacy integration in FFL lessons. This was to capacitate them to develop a favourable attitude towards understanding the importance of employing digital literacy. Moreover, participants were encouraged to always create opportunities that required them to leverage technology, and to develop love and passion towards the integration of digital literacy. This would result in them creating dynamic classrooms fostering learners' interactivity and motivation to learn content in a setting that provokes their attention and enthusiasm to heighten their understanding of French.

Additionally, participants were enlightened and also provided with reading materials highlighting the importance of digital literacy, and how they could leverage technology in FFL instruction. Participants were further empowered on the strategies used to advance digital literacy. They were also made aware of the importance of having varied strategies and adopting them to advance their digital literacy. Furthermore, they were made aware that strategies used to advance digital literacy reflected their attitudes towards the integration of digital literacy. This was done in line with each participant's context, as they all portrayed unique interpretations of the importance of digital literacy and strategies used to advance digital literacy.

4.2.1.2 Phase 2: Therapeutic Phase

In this phase, there was evidence of a transformation in participants' motivation to integrate digital literacy into their teaching practices as the previous phase had indicated a critical need for them to improve their attitudes towards technology and their motivation to integrate digital

literacy. For instance, during the lesson observations, T4 seemed to display enthusiasm for technology use by adopting technology creatively and critically in his everyday lessons, as opposed to phase 1. He facilitated activities that fostered active learning. His lesson plans included a section that signified the ICT resources that were to be used during the lesson (the Internet), how differentiation would be attained, and an indication of both his and learners' roles (participation) in such a lesson. In the same way, T1 used technology creatively and innovatively to reinforce learners' comprehension, using a smartphone or a laptop connected to a portable speaker to play a video or audio or display pictures. In his lesson plans, he detailed the lesson objective and ICT resources as well as how they would be used in the class to foster active learning.

T3 used a laptop and smartphone to heighten learners' understanding of the French language and culture. This seemed to depict creativity and innovation in navigating technology to serve educational needs as he used audios, pictures or videos that boosted learners' understanding. In that way, T3 seemed to have the eagerness and enthusiasm to utilise technology to attain learners' learning needs. Equally important, T2 in this phase, unlike in the first phase, used technology in all FFL lessons to promote a learner-centred learning climate. This indicated a deeper understanding of the practical value of using technology to attain learning goals. This was done by using a smartphone, a laptop, and a Bluetooth speaker to boost learners' understanding and also by giving them handouts as additional study material. In T2's lesson plans, he stated the lesson objectives and narrated how the classroom events would take place, highlighting the exchange of roles and the HW and SW resources used. Notably, participants' motivation was purportedly elevated due to their comprehension of the practicality of using technology in FFL instruction. Thus, summoning their willingness to employ creativity, innovation, and critical thinking skills to design and plan interactive and dynamic lessons.

In their reflective journals, participants posited that the integration of digital literacy is vital in the instruction of French, and the semi-structured interview responses are in concordance. T1 stated:

> *Yes. It helps the teacher heighten learners' understanding by using technology. For instance, by using audios or finding any materials from Google and the Internet.*

This assertion is supported by the participant's lesson plans and classroom observations, wherein the participant ensured the integration of digital literacy to browse the Internet and access various teaching materials such as pictures videos, and audio, and evaluated those that were most relevant for learners' learning needs, motivation and fostered engagement in the classroom. Along similar lines, T2 affirmed:

> *Yes. We live in the era of technology currently. Therefore, we have to embrace technology in French lessons for learners to cultivate these skills, with which they can autonomously learn on the Internet using HW and SW resources.*

Correspondingly to T1, T2's lesson plans and classroom observations were aligned as the participant was seemingly invested in integrating digital literacy. This was to achieve learning objectives and to reinforce learners' understanding of content and digital literacy. Furthermore, this was evident in participants' lesson plans that postulated the HW and SW resources to be used and how they would be used to achieve the lesson objectives, as well as the exchange of roles in the lesson. In the same vein, teachers' keenness to use and galvanise technology in their lessons equips them with the preparedness and readiness to use it effectively; ease of use, and a progressive mindset (van Deursen & van Dijk, 2021). T3 stated:

> *Yes. It erases the monotony and predictability of lesson activities thus helping to create a motivating and interesting learning atmosphere.*

T4 said:

> *Yes. technology is evolving thus it has to be incorporated into our lessons to not be left out on the rapid changes in the world and to be able to access quality information that can be transferred to learners as the world has grown to be interconnected.*

T4 and T3's assertions, aligned with the observations of their classes, demonstrate that in this phase, participants stated the importance of digital literacy integration. Additionally, they also had a favourable attitude towards familiarising themselves with various HW, SW, and IW resources to reinforce learners' comprehension of the content. This fosters learners' positive attitude and motivation to stay engaged and interactive in not only learning effectively with the use of technology in their classes but also using it autonomously and seeking their teachers' assistance when necessary. This is unlike in the previous phase where participants would only state their appreciation of digital literacy integration but with little to no interest in putting that into practice, nor maintaining the frequency and varying activities. Alkhawaja et al. (2021) and

van Dijk (2005) posit that teachers' positive attitude and motivation in using technology in their instruction are exhibited by their frequent use of technology, and their willingness to learn how the features of different HW and SW resources help them achieve several tasks. In addition, technological knowledge demonstrates that teachers' beliefs and attitudes (IW resources) are impactful on their outlook and utilisation of technology in their classrooms (Mishra & Mehta, 2017).

Furthermore, upon enquiring into the strategies used by participants to advance their digital literacy in the semi-structured interview, T3 stated:

> *I attend workshops to keep track of new developments in French instruction and I also read and use various websites.*

In agreement, T2 stated:

> *The school offers us training to effectively integrate technology. The French Embassy also offers workshops for us French teachers on digital literacy.*

T1 highlighted:

> *I collaborate with other teachers on the Internet to share knowledge. I also use search engines to browse for authentic sites and materials that I can use while ensuring that I maintain my online safety.*

T4 posited:

> *I always try to discover new things I can incorporate in my lessons across the Internet. I try to collaborate with other teachers across the globe as we use an international curriculum that requires collaboration with others from all over the world. This is to see what they do, what works for them, and then try to incorporate and see if they can work in my context.*

These assertions are parallel to the ones provided in the reflective journals and they accurately reflected participants' lesson plans and actual lessons wherein they ensured that they engaged in robust use of HW, SW, and IW resources. According to these affirmations, participants seemingly employed blended learning, guided discovery, project-based learning, and digital literacy workshops. These strategies capacitate teachers to create interactive learners where learners are merely guided while they actively partake in the process of knowledge building

(Choudhary & Bansal, 2022). In support, teachers use a variety of HW, SW, and IW resources to create content and activities that elicit interactivity (TPK) among learners, thus motivating them to also try to use HW and SW resources autonomously to learn (Koehler et al., 2012; van Deursen & van Dijk, 2015).

4.2.2 Theme 2: Physical/material access (HW)

Which technological resources do you use while integrating digital literacy into French lessons?

Physical or material access concerns the availability of ICT resources in instruction. In this regard, the material resources are classified into three categories: hardware (HW), software (SW), and ideological-ware (IW) resources. HW resources refer to the physical tools that can be used to deliver content. These include resources such as laptops, smartphones, and projectors (Violic-Koprivec & Tolj, 2022). SW resources refer to the programmes and applications used to optimise HW resources and they include LMS (Google Classroom, Thuto), SMS (WhatsApp, X, Facebook), and VCP (Zoom, Google Meet) (Camilleri & Camilleri, 2021). Moreover, IW resources refer to the cognitive domains that help teachers discern which HW and SW resources to use, why, and how to use them to achieve learning goals (Zuma & Mthembu, 2023). This theme brings forth a comprehensive detailing of the currently available HW, SW, and IW resources. Moreover, the theme digs into how FFL teachers navigate accessible HW, SW, and IW resources. Thus, revealing how their use of those ICT resources could have either enabled or restricted their effective integration of digital literacy skills.

4.2.2.1 Phase 1: Problem Identification Phase

During the observations, T2 used a smartphone to access an excerpt from the Internet of one person describing their friend. He asked learners to copy it into their books and then write their descriptions about their friends/best friends. T2's lesson plans outlined the lesson objective, stating that *"learners should be able to describe their friends/best friends"* and resources as *"the Internet."* It was rather intriguing to note that T2 had the awareness that a smartphone has the potential to be used in an FFL classroom as a teaching resource. Furthermore, T3 used an audio player to play recordings. T4 used a laptop and projector to display pictures and comprehension passages from the textbooks to teach *"mon quartier"* (my village/neighbourhood). Meanwhile, his lesson plan was written as follows:

Topic: mon quartier. Lesson objectives: use the definite and indefinite verbs, situate a place on a map. Resources: Adosphère 1.

Teacher's activity: discuss with the students the neighbourhood of Imane (character), learners' activity: describe what they can see in Imane's neighbourhood. Assessment: formative assessment.

What became observable was that T4 used the laptop and projector to display the textbook as it appeared that learners did not have textbooks.

T1 used the textbook as a sole teaching resource. As such, he introduced the lesson by explaining the topic *"le passé composé"* (the past tense). He assigned learners to read and provide meanings (translations) of the passage from the textbook. Thereafter, he assigned learners exercises to do as classwork from the textbook. His lesson plan entailed the lesson objective: *"Learners should be able to talk about things that happened in the past"* Resource (s): *"Tricolore 1, pages 45-50"* homework section, *"write an exercise on page 48 of the textbook."* This revealed that the oblivion of the IW resources deprived participants of the awareness of how influential they are in their choice of HW and SW resources. In other words, their lack of awareness of their IW resources rendered them incapable of assessing the relationship or engagement they had with technology, which determines how, why, and when they can use technology in their lessons. Further, this could also have an impact on how they navigated and manoeuvred diverse HW and SW resources to suit learners' learning needs (IW resources). Moreover, I noted that all participants had access to smartphones, laptops and portable speakers. Thus, this compelled an in-depth analysis of why they did not use those resources (T3 and T1). For those who attempted their usage (T4 and T2), I needed to understand if those were the only available HW and SW resources they could use to integrate digital literacy.

Furthermore, from the observations of these participants' lessons, it was deduced that they did have digital literacy skills to a certain extent, or at least an idea of what those refer to. On the contrary, they seemed to lack the confidence nor the interest to fully explore technology by appropriating ICT resources to create versatile classroom environments. This hinders them from finding a way to advance their knowledge and integration of digital literacy. This is

reinforced by the idea that participants' lack of awareness of their level of digital literacy has an adverse influence on their integration of digital literacy as their awareness of it suggests they can exhaust all possible avenues (van Dijk, 2013). That is, the knowledge and awareness of diverse ICT resources with which they can diversify classroom activities thereby being always willing to improve their digital literacy (van Deursen & Helsper, 2015). Accordingly, participants' oblivion of their level of digital literacy affects their use of ICT resources, and this implies that they use limited resources due to a lack of awareness of how a range of other resources can still be used to effectively deliver content and heighten learners' understanding. This may also lead to teachers being resistant to change due to their insistence on employing only certain ICT resources that they are comfortable using in their lessons (Korkmaz & Akcay, 2024; Mugiraneza, 2021; Khoza & Mpungose, 2020).

It is however intriguing that some participants were somehow able to make use of available resources for their integration of digital literacy. To exemplify, T2 copied an excerpt from the smartphone to the chalkboard in the absence of the projector and inability to make printouts for learners. In support, there is a need for teachers to navigate different ICT resources and appropriate the limited available ones to closely fit their context. The aim is to ascertain that the quality of knowledge building is effectively facilitated and that such available resources can somehow help achieve learning goals (van Dijk, 2013). TPACK echoes this aforementioned statement as it postulates that teachers' knowledge of technology (TK) warrants their ability to leverage any available ICT resources (TPK), ensuring that they meet their learners' learning needs and refine their ability to integrate digital literacy effectively (Mishra & Koehler, 2006).

Participants noted down HW and SW resources accessible to them in their reflective journals. T3 wrote:

> *A radio, computer here and there. To make the learners listen to podcasts and some French music.*

T1 stated:

> *Audio for listening, Zoom app, Google app (Google Classroom).*

T4 cited:

> *Canva, Manage Back, and In Thinking are some of the technological resources I have used. Canva is an online tool that can make learning interactive in the sense that lessons are engaging. As for Manage back, learners can access and even submit their work digitally.*

T2 stated:

> *Laptop, phones, Internet (Wi-Fi), cell phones, CD player.*

These assertions indicate that participants lacked the awareness that technological tools broadly refer to HW, SW, and IW resources as they only stressed SW resources (T1 and T4), while some mentioned both HW and SW resources (T2 and T4). Notwithstanding, neither of the four participants mentioned IW resources even though they unknowingly employed them. This could be consequential to their lack of knowledge and awareness of the cognitive influence they have on the HW and SW resources they use in their instruction of FFL (Budden, 2016).

In the semi-structured interviews, T2 said:

> *We use a computer, smartphones, projector, CD and DVD players and WhatsApp as a software and others…,*

T1 declared:

> *Projectors, digital phones, laptops. We use the computer lab for audios and I connect either the phone or the laptop and they listen, then I ask questions afterwards to check whether they understood, their comprehension, and then we do them together.*

T3 stated:

> *Radio and laptop sometimes. I play a CD and ask them to state what they heard or simply to help them further understand what they read in the textbook.*

T4 stated:

> *I use the Canva app to design my lessons creatively.*

These declarations further emphasise participants' lack of knowledge of IW resources since neither of them touched on them, as they only talked about HW and SW resources. Van

Deursen et al. (2014) highlight that the type of ICT resources that teachers are exposed to have the potential to enable or restrict their ability to transfer learning content. Limited skills in leveraging available ICT resources can potentially hamper teachers' effective instruction in the digital age (Mugarineza, 2021).

In relation to the revelations made above, intervention was implemented with the aim of improving practice. Participants were informed about the IW resources and the role they play in their access to and usage of technology. Additionally, participants were made aware of varied HW and SW resources they could use in their teaching of FFL. They were thus enlightened on the importance of varying HW, SW and IW resources, as they have distinct characteristics. Moreover, they were informed that varying HW and SW resources would help them diversify activities, thus tailoring to all learners' learning needs. This is because I noted that T3 and T1 had access to smartphones, portable speakers, laptops, and data, whereas, T2 and T4 had access to the schools' Wi-Fi, smartphones, portable speakers and laptops. Notably, T1 and T3's smartphones and laptops could be effectively used to integrate digital literacy. However, T1 and T3's lack of access to Wi-Fi indicated that their digital literacy integration would be limited due to the affordability of data. Participants' disproportionate access to Internet connectivity made me aware that participants' diversification of ICT resources and activities would vary. For example, it would not be feasible to always use data on a laptop as opposed to a smartphone. Participants were capacitated on how they could exploit and diversify the HW and SW resources they had at their disposal, and ensure they could effectively use them to boost FFL learners' understanding of the French language and culture.

4.2.2.2 Phase 2: Therapeutic Phase

There was an improvement in this phase as teachers had been made aware of a different type of resource which they had initially not been aware of, which is ideological ware resources (IW). In their reflective journals, they stated all three types of resources they had at their disposal and those which they employed in their lessons (the SW, HW, and IW resources). This viewpoint is echoed by their explanations during the semi-structured interviews. T1 stated:

> *I use Google, WhatsApp, laptop, projector, smartphone, speaker and ideological ware resources.*

T2 declared:

Smartphone, computer, projector, Bluetooth speaker as hardware resources, Software resources such as the C++ app, WhatsApp and ideological ware resources.

T4 explained:

Software resources I use are the WhatsApp group chat and websites, hardware resources I use are laptop, projector, Bluetooth speaker and then ideological ware resources.

T3 said:

Radio, laptop, projector, audio, video, texts and ideological ware resources.

Notably, although T1 and T3 did not mention the resources while categorising them into HW and SW resources, there is evidence of awareness as SW resources are mentioned, followed by HW resources and lastly, IW resources. Importantly, participants seemed to have gained an awareness of varying HW and SW resources they could use in their FFL lessons, in addition to IW resources. Koehler et al. (2013) attest that teachers' deep mastery of the subject, CK (HW) sheds light on their selection and evaluation of HW, SW, and IW resources that they can employ to attain learning goals and transfer technological knowledge (TK) to learners.

In the lesson observations, T3 used an audio player, a laptop, and a smartphone to reinforce learners' understanding of "*le questionement"* (posing questions). A smartphone was used, for an excerpt from the Internet, of a dialogue between three people conversing about the things they liked and disliked (music, sports, and colours), and a laptop to display pictures to prompt learners to guess what the conversation could be about. This picture was used to sensitise learners to two people having a dialogue. This is because a dialogue requires posing questions and responding to them. An audio player was used to play an audio of two high school learners conversing about their likes and dislikes. In the same way, T2 used a laptop, a projector, and a smartphone to heighten learners' understanding and engagement in the topic of email writing, a laptop and a projector were used to demonstrate to learners how to create and send emails, while the smartphone was used to access an extract from the Internet. These activities were possible due to Internet connectivity from the school's Wi-Fi. In the lesson plan, T2 wrote:

Topic: email writing, lesson objective: learners should be able to write a formal email. Resources: Internet, laptop and projector.

Activities: the teacher will project and demonstrate to learners how to compile and send an email. Learners will also be assisted in creating Google accounts to access emails. The teacher will project emails submitted by learners for classroom discussion and to assist learners. As homework, learners will be asked to send each other emails and Cc the teacher.

Further, T1 used a smartphone, a portable speaker, a laptop, a textbook and an exercise from the Internet. He further used an extension cord to access electricity from the computer lab to the classroom. A smartphone was used to access audios, and an exercise from the Internet, whereas a textbook was used for a comprehension passage. In the lesson plan T1 wrote:

Topic: use of prepositions of place (chez, à la, au and aux), resources: Tricolore 1, a smartphone, the Internet.

Classroom activities: Reading of a passage in Tricolore 1 page 30, an audio and an exercise from the Internet. Homework: Tricolore 1 page 31-32."

T4 used a laptop, a Bluetooth speaker, and a projector to access and display videos, exercises and excerpts from the Internet, and audios, while also accessing the school's Wi-Fi. In the lesson plan, T1 outlined:

Topic: where is your place, lesson objective: understand directions in French.

Resources: français facile, Google Maps, YouTube, a laptop, and a projector.

It is, however, notable that this phase brought about resourcefulness from the participants. This contrasts with the first phase where they appeared to be of the view that lack of resources had been the cause of them not exploring varied ICT resources in the instruction of FFL. This is because they seemingly perceived effective instruction and technology appropriation as distinct notions. Participants' utilisation of varied ICT resources consequently revealed their motivation to effectively use technology in their teaching practices. Accordingly, teachers have to be well-versed with different ICT resources, which would then give them the confidence to effectively use and manipulate them to attain learning objectives while employing their pedagogical strategies (TPK) (Akhwani, 2020). Van Deursen and van Dijk (2019) posit that teachers' willingness to tactfully use diverse HW, SW, and IW resources to address learners' learning needs is essential for 21st century teaching and learning.

Moreover, based on the classroom observations coupled with participants' reflections, participants' awareness of IW resources underscored a significant improvement. The knowledge and usage of IW resources transcended their choice of ICT resources, and why and how to use them in their lessons. This is because they had been made aware that using these resources in their lessons was impactful, but this was based on availability, ease of use, and the overall objectives they want to achieve in their lessons. This seemed to have ignited a spark within the participants to fully explore all the available ICT resources with which they could address learners' learning needs. Despite this, there seemed to be a gap between resourceful participants and those who were not. This brings forth the first-level digital divide which is exacerbated by access to material resources and Internet usage (van Dijk, 2013). The first-level digital divide implies that teachers who are exposed to more ICT resources are at an advantage over those with limited resources (Gomez, 2018; van Deursen & van Dijk, 2019).

This results in less privileged teachers being less comfortable with technology owing to personal positional inequalities such as socio-economic status, intelligence, and age. This is said to cause a demarcation in knowledge acquisition and knowledge building between those with and without (limited) HW, SW, and IW resources (van Deursen & van Dijk, 2021). For instance, T4 and T2 had access to Wi-Fi, projectors, and could provide learners with handouts. This suggests that they had an upper hand in terms of varying lesson activities and resources. On the contrary, T3 and T1 were forced to improvise by moving around showing learners pictures on their laptops, and using an extension cord to access electricity from other buildings adjacent to their classrooms. This was a time-consuming task which required passion towards the use of technology.

4.2.3 Theme 3: Skills Access (SW)

Do you integrate digital literacy? How do you integrate digital literacy in French lessons?

Teachers' motivation to use varied HW, SW, and IW resources is influential on the types of resources they use and that leads to the technological skills acquired (how the resources are used) (van Deursen & van Dijk, 2019). Thus, skills access presents teachers' ability to navigate multiple HW, SW, and IW resources, and how they effectively manipulate them to perform educational tasks such as lesson designing, content delivery, and assessment to hone learners'

understanding (van Dijk, 2005). This theme delves into FFL teachers' digital literacy in the problem-identification and therapeutic phases.

4.2.3.1 Phase 1: Problem Identification Phase

In the observations, T2 used a laptop and a projector to display pictures from the Internet of people doing different hobbies. Thereafter he displayed a video of people having a dialogue about their hobbies, discussing the activities they liked and disliked. Thereafter, learners were asked to write down their hobbies. In the lesson plan, T2 wrote:

Topic: hobbies, lesson objective: learners should be able to talk about their hobbies.

Activity: the teacher will display pictures and a video. Learners will be asked to write down their hobbies.

Moreover, T3 played an audio from the CD-ROM (SW resource) that came with the textbook, on a radio (HW resource) twice after learners had read a comprehension passage from the textbook. T3 asked learners to write down answers pertaining to the audio they had just listened to, and he marked them. This infers that this participant was dependent on only using traditional modes of teaching as he insisted on using the textbook "Et Toi? 1" and its CD-ROM as teaching resources. T4 used a laptop and a projector (HW resources) to display the historical monuments of Lesotho as a way of evoking learners' critical thinking before displaying the monuments of France. Thereafter, T4 displayed an excerpt from the textbook and asked learners to read. Thereafter, T4 assigned learners an activity to write an exercise pertaining to the monuments in France from the textbook. In the lesson plan, T4 outlined:

Topic: les monuments,

Resources: Adosphère 1.

Teacher's activity: show learners different monuments in France and ask them to write an exercise from the textbook.

Learners' activity: they should identify different monuments in France. Assessment: summative.

Notably, T4 used the projector and laptop to display the textbook as learners had no textbooks. He also neglected to include the pictures used (monuments in Lesotho) in the lesson plan.

Importantly, participants seemed to lack digital literacy. This seemed to emanate from their neglect of using ICT resources innovatively and creatively to ensure that all language competencies were concurrently addressed (Afzal et al., 2023). Thus, enabling learners to be actively participative in their learning (Hidayati et al., 2023). The challenge however was that participants (T3 and T1) relied on using the textbook as a teaching resource, while T4 and T2 integrated technology into their lessons but not in a way that sufficiently addressed 21st century FFL learners' learning needs.

Therefore, iInoted that their lack of interest or knowledge in technology could have also stemmed from their dependence on using the textbook, or a dearth of ICT resources. Thus, there was a need for them to be made aware of the navigation (exposure) of different HW and SW resources to access and share information with learners. Moreover, there was a need for an evaluation of the ICT resources available at each participant's disposal and how they could each use them effectively to integrate digital literacy. Participants' resolve to use the textbook as opposed to other resources (ICT resources in this case) highlighted a lack of innovation, creativity, and motivation to purposefully select and employ varied HW, SW, and IW resources (Chevant-Aksoy & Corbin, 2022).

In the reflective journals, participants responded to the question *"How do you integrate digital literacy in French lessons?"* and then noted down their reflections. T4 stated:

> *I don't currently use it, but I think I have a bit of experience, whereby I'd ask learners to make presentations (PowerPoint) using an interactive smartboard in class.*

T2 affirmed:

> *I use a computer, and projector to teach, I sometimes ask them to come with their phones then we use them.*

This indicates that T2 understands that technology requires learners to be hands-on in their learning. In addition, T1 expressed:

> *The integration of digital literacy can be done using computers, phones in the classroom, or smartphones (some devices).*

T3 added:

I use a radio.

The findings from the reflective journals indicate that participants shared the same sentiments in the semi-structured interviews while explaining how they integrate digital literacy skills in their instruction of FFL. T4 affirmed:

> *I use Manage Back, In Thinking and Google Classroom although not daily. I also use Canva to plan and design my lessons. For instance, on Manage Back, learners can upload and submit their work and they can see the entire process of when I grade their progress. This enables them to do their corrections straight away. I also assign them tasks on In Thinking.*

T2 explained*:*

> *I ask them a day before to bring their smartphones with them to school. I first introduce a topic on the board then give them a website where they attempt an exercise which sometimes even marks, and gives them marks. I also use the laptop to project as a way of reinforcing their understanding. This is so that my learners get in touch with the technology or devices they use and get to be hands-on when learning.*

T3 articulated:

> *I play a CD twice or more depending on the level of learners so that they understand. I use a textbook for them to read and play a CD on the radio for them to listen to what they have read or respond to questions.*

T1 affirmed:

> *We use audio although not a lot. We also use digital literacy to send assignments to the kids, which they do on their own before coming to class.*

These pronouncements indicate that participants were aware that the integration of digital literacy requires the use of ICT resources (HW, SW, and IW resources). Contrarily, not all participants incorporated digital literacy (T1 and T3), based on the observations, also taking into account that even those who did, did not do so in a manner that fosters interaction and dynamism (T2 and T4). Based on the observations, reflective journals, and semi-structured interviews, teachers' integration of digital literacy skills seems to contrast. They seemed to lack the knowledge of how exactly they had to demonstrate their digital literacy skills. Participants' variations in digital skills (SW) revealed the second-level digital divide, which is Internet skills

and usage. The second-level outlines that a teacher has to be conversant with using the Internet to perform and achieve tasks, thus emphasising teachers' inequalities in the skills and use of the Internet (Scheeder et al., 2017) This level of digital divide emphasises that positional and personal inequalities owing to age, gender, educational level, socioeconomic status and level of employment prevent teachers from equally accessing the Internet and its benefits in instruction.

Moreover, the second-level digital divide further underscores that Internet skills depend on the availability of physical and material resources. In other words, some teachers have access to diverse HW and SW resources but lack the requisite skills to operate them to perform tasks and attain learning goals (van Dijk, 2013; van Deursen & van Dijk, 2019). However, some teachers do not have a variety of HW and SW resources yet they can perform tasks and see them to completion using available resources such as smartphones and laptops (Gomez, 2018).

This suggest that teachers have to be exposed to varied HW, SW, and IW resources to be able to effectively navigate these resources. In congruence, Internet/digital skills do not necessarily depend on people's possession of physical and material resources, as teachers' skills need to be developed and constantly refined for effective attainment of online tasks (Afzal et al., 2023; Gomez, 2018). Some teachers' lack of confidence in integrating HW, SW, and IW resources in their teaching practices (PK) stems from factors such as having been trained before the prevalence of technology and lack of skills hence they struggle to link their pedagogical knowledge (SW) with technology (Koehler et al., 2013).

Despite this, participants also noted the hindrances they encountered while attempting to integrate digital literacy into their reflective journals. T1 captured:

> *Lack of computer literacy, inadequate computers and no access to the Internet.*

In a similar vein, T3 noted:

> *No computer literacy, computers not being enough in number and no access to Internet.*

T2 also stated:

> *They do not always come with their phones to school. When they have brought their phones, they tend to spend much time on learning how to use software then delay on content.*

Similarly, T3 highlighted:

> *Electricity and school's welfare.*

T4 affirmed:

> *Sometimes learners do not have enough resources to have access to these types of online resources.*

From these affirmations, it can be deduced that participants were facing difficulties in fully exploring the integration of digital literacy in their lessons. In effect, they seemed to view the integration of digital literacy as impractical and unsustainable. Related to this, Chere-Masopha and Makafane (2020) and Sepiriti (2021) emphasise that the integration of technology in Lesotho institutions cannot be divorced from socioeconomic problems such as lack of infrastructure, and teachers' digital literacy skills. Remedying the problem calls for digital literacy workshops for teachers, the provision of HW and SW resources, and the improvement of schools' infrastructure by the government (Saenab et al., 2022; Mashinini, 2020).

Along similar lines, Internet connectivity and the affordance of the ICT resources as stated by the participants, lead to the first-level digital divide (van Deursen & van Dijk, 2019). The first-level digital divide is characterised by material and resource affordances. This is to say that, a dearth of material resources (HW, SW, and IW resources) and Internet access hampers teachers from effectively incorporating such resources while integrating digital literacy (van Deursen & van Dijk, 2019). Therefore, teachers who are not exposed to varied HW and SW resources and the internet are limited in terms of the tasks they can perform and how they can manoeuvre technology to sharpen their digital literacy skills. Consistent with this perspective is Koehler et al. (2013) who posit that resource affordability and access have the potential to empower or disempower teachers' practices (PK). In other words, teachers may struggle to integrate technology into their teaching practices (PK), which heightens learners' understanding of the

subject matter and keeps them engaged since there are no specific HW and SW resources designed to teach.

Noteworthy is that participants were enlightened on digital literacy and what it entails in FFL instruction. I noted that T3 and T1 had smartphones, portable speakers, and data while T4 and T2 had access to smartphones, the schools' Wi-Fi, portable speakers, and laptops. These ICT resources would enable them to effectively integrate digital literacy. Therefore, participants were capacitated with digital literacy in line with the resources they had. This signifies that their integration of digital literacy would be uneven as they had unequal access to resources such as Wi-Fi. Nevertheless, participants were capacitated to use their ICT resources such as smartphones and laptops to integrate digital literacy. Moreover, they were encouraged to avoid being dependent on using the textbook as a teaching aid. Instead, they were advised to create a balance between the use of the textbook and employing digital literacy. In other words, participants were made aware that they could supplement the textbook with authentic resources from various HW, and SW resources to engage their creativity and innovation, thereby fostering digital literacy among learners (IW). However, it was notable that there would be disparities in participants' integration of digital literacy owing to the data costs that T1 and T3 would incur as opposed to T4 and T2 who had access to the school Wi-Fi. As such, they were made aware that navigating and manipulating an array of ICT resources and improvising would prove beneficial in helping them to utilise their creativity, critical thinking, and innovation. This would enable them to effectively integrate digital literacy. Additionally, participants were capacitated on the use of digital literacy in conjunction with the action-oriented approach (recommended in the instruction of French in Lesotho).

4.2.3.2 Phase 2: Therapeutic Phase

This phase brought about a significant shift in participants' digital literacy skills. This resulted from participants being informed on digital literacy during the intervention phase and how it could positively impact their instruction of FFL in the 21st century. In addition, participants were also made aware of how digital literacy requires their enthusiasm and motivation to appropriate different HW, SW, and IW resources. In the same way, participants were enlightened on how effective integration of digital literacy entails in classroom contexts wherein there is use of the action-oriented approach. In the reflective journals. T2 stated:

I do integrate digital literacy by getting materials from the Internet, asking learners to go to certain sites to do some exercises.

In the same way, T4 stated:

Yes, I do so by using websites that allow me to have interesting and interactive lessons with students, e.g., français facile.com for exercises in class.

In the observations, T2 used a projector and a laptop to teach "email writing". In that lesson, T2 asked learners to write an email to their school principal to ask to be absent from school. Moreover, T2 connected the projector and reinforced learners while they were engaged in a hands-on activity. T2's lesson plan entailed:

Lesson objectives: learners should be able to write a formal email,

Resources: a laptop, a projector, the Internet.

Activities: the teacher will ask learners to state the difference between formal and informal ways of addressing people. They will be asked to explain how they would address their school principal to notify them of their absence from school. Learners will further be asked to explain how an email is written. The teacher will demonstrate how an email is compiled and sent, then ask learners to collaboratively write an email to their principal. Thereafter, the teacher will mark and give concluding remarks. As homework, learners will be asked to write an informal email to their friends and send it to the teacher.

T3 used a smartphone and a speaker to teach *"le questionnement"* (posing questions). In this lesson, the said participant copied an extract from his smartphone to the chalkboard and asked learners to read. Subsequently, T3 asked learners to discuss (who they are) in pairs necessitating them to ask each other questions and provide responses. The participant concluded the lesson by playing an audio of two people engaging in a dialogue (about their typical day at school). Likewise, T1 used a video (in the form of a song) of someone discussing their future activities to introduce a lesson on *"le futur"* (future tense). Thereafter, learners were asked to work in pairs and ask each other about their future plans (what they plan to do after school). Then learners were asked to write an exercise from the Internet. For homework, T1 sent learners a task in the WhatsApp group chat asking them to record themselves talking about their future plans and also put it into writing. T1's lesson plan indicated the lesson

objective, the teacher's and learners' tasks, the ICT resources used, and the homework assigned to learners. In the lesson plan, T1 wrote:

Topic: le future,

Resources: laptop and speaker, YouTube video,

Classroom activities: use of a YouTube video and an exercise from the Internet. Homework: learners should record themselves discussing their future plans and also write that down.

T4, on the topic *"les directions"* (giving directions*)*, projected a Google Maps (street view) image of the Maseru town. Moreover, T4 asked learners to identify and mention different places such as the bank and the library, and give directions to their school and other different places within the town. Learners were also asked to read an excerpt from the Internet. As an assignment, T4 sent learners a link to an exercise from the Internet in the WhatsApp group chat. In his lesson plans, T4 indicated:

Topic: les directions,

Lesson objective: learners should be able to identify and mention places and give directions. Resources: Google Maps, francais facile.

Teachers' activity: the teacher projects a Google Maps (street view) image of Maseru (town) and asks learners to identify different places within the town and give directions the teachers ask learners to read a passage from français facile.

Learners' activity: learners identify various places in town and give directions to different places. Learners read a comprehension passage and answer questions on it.

Homework: learners will be sent a link to an exercise from français facile in the WhatsApp group chat.

In this phase, participants addressed the challenge they had in the previous phase, where they did not robustly employ their digital literacy skills. This was a result of having failed to understand the implications of fully engaging digital literacy in all their lessons. It signified a transformation from a lack of understanding of the practicality of digital literacy. Restricting the dependability of using the textbook (lack of creativity, use of critical thinking skills, and adaptability to the 21st century language education). Equally important, participants demonstrated the ability to effectively integrate digital literacy while using the action-oriented approach. In support, employing the action-oriented approach in conjunction with digital

literacy ensures collaborative knowledge building and active learning for learners to be critical thinkers and innovative creators of projects. A variety of HW, SW, and IW resources are used to access authentic resources that provide learners with culturally inclusive contexts (Delibas & Gunday, 2016).

As such, the findings of this phase signify a positive shift as all participants seemed to demonstrate an understanding and appreciation of digital literacy through their consistent efforts to effectively integrate it into French lessons. T1 stipulated:

> *Yes. I use a smartphone to play audio for them to listen to and afterwards make a summary of what they have learned. I play audio once or twice depending, after that we discuss the audio with me asking some questions and then we make a conclusion. I also use pictures and videos from the Internet. I also use a projector in the computer room for photos and videos and ask learners to analyse them. I also send learners assignments on WhatsApp and ask them to go and research on the Internet about different topics we are to cover.*

It is intriguing how the participant presumably embraced the multimodal facet of digital literacy and stimulated learners' use of HW, SW, and IW resources through assignments sent in the WhatsApp group chat. Additionally, learners were assigned to do some autonomous research on the Internet on topics they were to study. T2 explained:

> *Yes. I ask them to use software such as C++ (app) to create a page wherein they do tasks and immediately get graded by it. When I have asked them to bring their phones, I send them a link to exercises and ensure that they are all able to access the website and do the activities. In a lesson where we discussed how to send an e-mail, I had to ensure that they all had Gmail accounts and I asked them to send each other emails and Cc me.*

These insights surmise that this participant had taken into cognisance the fact that digital literacy requires one not only to be a media consumer but to also be a creator, thus incorporating problem-solving, creativity, and critical thinking skills and concurrently emancipating learners with the skills (Wang, 2023). T3 cited

> *Yes. I integrate it in line with the prescribed textbook. For instance if the topic is "family" I project a picture and video while also taking learners' capacity in place. I*

try as much as possible to cover more language competencies. I shift and use a classroom that has plugs whenever I intend to project in a lesson.

Echoing this view is T4, who stated:

Yes. Just like in the previous lesson, I used Google Maps (street view) to teach directions so that the lesson could be interactive as I used their town so that they would be able to relate.

This assertion was supported by the observations from this participant's lessons which indicated that he understood digital literacy requires well-thought-critical and creatively designed lessons where the teacher browses through HW, SW, and IW resources to find learning materials that are relevant to learners' context and motivate them to try learning independently (Gonzalez-Vera, 2016). Moreover, Mishra and Mehta (2017) maintain that creativity, critical thinking, communication, and collaboration skills are essential and should be integrated within the subject knowledge (CK) hence the need for robust PK for effective instruction in the 21st century.

Participants highlighted the impediments to their integration of digital literacy. T4 highlighted:

When students don't have things like phones or computers it is a bit hard to fully utilise digital resources.

T1 stated:

Internet, no access to enough computers.

Likewise, T2 explained:

Some learners do not have phones, so it is a bit challenging to reach them. It takes time to set up.

Lastly, T3 declared: *"School welfare."* Importantly, participants' responses suggest that these challenges impede them from effectively integrating digital literacy into French lessons. Nonetheless, they also made efforts to counteract and overcome the challenges that they could. In accordance, technical accessibility hindrances become exacerbated during the integration of digital literacy (Buabeng-Andoh, 2012).

In their quest to foster digital literacy among their learners, it was evident that some participants would send them assignments with links to websites or applications that reinforced their understanding of specific topics (T1, T2, and T4). This aligns with the view of Makumane et al. (2023) who opine that teachers use blended learning as a way of addressing the digital divide, as in this case, the schools did not permit learners to use smartphones in class. Participants were advised to give learners assignments and study materials through HW and SW resources to give them exposure to developing and consolidating their digital literacy at home. Moreover, T2 also came up with an initiative where learners had to bring their smartphones to school for him to assist them. In line with this, digital literacy outlines that teachers should be in a position to transfer the knowledge of operating various HW, SW, and IW resources to learners (MoET, 2021; Wang, 2023).

Significantly, teachers' awareness and interest in exploring various ICT resources in line with the teaching strategies and content helps them to select relevant HW, SW, and IW resources. These resources can be used to address their learning goals and emancipate them with knowledge of technology (Chama & Subaveerapandiyan, 2023; Mishra, 2019). Similar views were shared by Fazilla et al. (2022) who highlight that teachers have to frequently use HW, SW, and IW resources as a way of amplifying their digital literacy skills and addressing learners' learning needs. Contrarily, the challenge in this case was the fact that some participants revealed that as much as they appreciate digital literacy and its potential value to the instruction of French, they do regularly falter and default back to traditional teaching ways as change is not instantaneous (Ismail & Jarrah, 2019). Middleton (2022) and Stinson (2022) underscore the importance of using a digitalised curriculum to curb teachers' difficulty in adapting to the traditional curriculum while integrating digital literacy.

4.2.4.1 Theme 4: Usage Access (IW)

Can French teachers use technology to advance their digital literacy? How can that be done?

Usage access highlights that practising the use of technology leads to mastery and comfortability, ease of use, and motivation to use it to achieve various goals (van Deursen & van Dijk, 2015). In other words, frequent use of HW, SW, and IW resources and the number of activities undertaken heighten teachers' ability to be conversant with their use (van Deursen et al., 2019). Teachers' ability to use technology (TPACK) to advance their digital literacy

skills is impactful, as it helps them to accomplish competitive digital literacy skills with which they can facilitate meaningful 21st century learning instruction of FFL (van Deursen et al., 2016).

4.2.4.1.1 Phase 1: Problem Identification Phase

In the participants' reflective journals, T1 expressed:

> *Yes, French teachers can use technology to advance their digital literacy. It can be used to do assignments, teach using videos or distance learning, etc.…*

T3 said:

> *Yes, by attending workshops and being part of the French Teachers' Association*.

T4 added

> *Yes, by using/integrating education platforms more in class. It is a known fact that the world is evolving digitally. Therefore, in doing that, teachers will be exposed to a lot of new digital knowledge.*

T2 affirmed:

> *Yes, they can. Time and again the Embassy of France in Lesotho and South Africa provides workshops for teachers. They also buy us equipment.*

These statements surmise that the participants were seemingly of the notion that they were aware of the role played by technology (TPACK) in sharpening their digital literacy. Congruent to their insightful assertions, TPACK is a model of professional development that enables teachers to improve their instructional methods through the use of HW, SW, and IW resources (Rahmat et al., 2022).

In-depth data from the semi-structured interviews revealed a similar trend. Participants seemed to have never undergone any professional development of technology (TPACK) to improve their digital literacy. To exemplify, while responding to the question: *"Can French teachers use technology to advance their digital literacy? How can that be done?"* T2 stated:

> *Yes, the French Embassy has bought us some materials such as laptops, etc. for us French teachers to use in instruction so that we are well-equipped to use technology.*

T3 expressed:

> *Yes, attending workshops and reading, helps one learn how other teachers integrate digital literacy and how I can adapt it to my context.*

T1 declared:

> *Yes, French is not out of technology because there is more information online which I encourage learners to access. I also encourage them to Google some things, to learn some pronunciation and Google translator to check the meanings and pronunciation of words.*

T4 said:

> *Yes, by looking for new things to integrate into lessons and to avoid the monotony of using one thing in class. Finding new things that help me to introduce new topics.*

These affirmations presuppose that participants seemed to believe they were able to use technology as an anchor to help them amplify their digital literacy skills. Consequently, they were seemingly able to differentiate HW, SW, and IW resources and classroom activities.

On their use of technology (TPACK) to advance their digital literacy, participants were also probed to reflect on the challenges and benefits of using technology to enhance their digital literacy. The reflections from their reflective journals mirror the ones from their semi-structured interviews. T1 reflected:

> *Challenges are lack of trust in technology, lack of infrastructure and time. Whereas a benefit is that it helps learners learn by themselves and they can communicate or exchange with other students all over the world.*

This denotes that this particular participant was a digital immigrant or a "want-not" of technology use. Digital immigrants and technology "want-nots" are characterised by being pessimistic in their description of technology use resulting in technostress (van Dijk, 2013). Technostress disadvantages teachers from fully leveraging technology and, in turn, the inability to improve their technology skills (TK) (van Deursen & Helsper, 2015; Siero, 2017). In the same breath, T1 intriguingly seemed to believe that teachers' integration of digital literacy comprises transferring digital literacy to learners. T4 asserted:

> *Inadequate resources can be a challenge, while the benefit is that lessons will not be monotonous for teachers. This is due to their engagement and motivation planning for classes, therefore also gaining a lot of self-development.*

T2 affirmed:

> *Challenges can be time consumption, as learners take time to learn the how part (the actual subject content instead of technology). Access to the devices. Beneficially, it gives the teacher skills on technology, and it makes technology-wise learners, as they explore an array of software resources.*

This suggests that T2 does not seem to see the practical utility of transferring technology in line with content to learners, due to the view of technology use as time-consuming. T3 expressed it thus:

> *Challenges are teacher's training and school welfare. Benefits are that this makes learners exposed to the spoken language and improves their speaking ability.*

It is rather interesting to note that this participant seemingly highlighted teachers' professional development as an influential factor in teachers' digital literacy enhancement. In a similar vein, T3 pointed out that adopting technology in FFL instruction exposes learners to culture-rich contexts. In alignment, Knight (2015) posits that teachers can use varied multimedia from the Internet and ICT resources to use authentic resources in an FFL class. The use of authentic resources adopted from ICT resources exposes learners to the language and culture used in real-life situations. Thus, it enables them to be actors in various social settings. Overall, participants' viewpoints purportedly exhibit a lack of understanding of how technology was beneficial for enhancing their digital literacy. This is evidenced by the challenges they detailed. From the above assertions, it can be deduced that participants valued the interactive aspect of technology as they emphasised that it was instrumental in helping them create lessons that engage and motivate learners. However, they did not implement that into their lessons, indicating their need to be enlightened on TPACK and its significance in elevating their digital literacy. This would consequently improve their interaction with digital literacy in FFL lessons.

During the classroom observations, T4 occasionally employed technology in FFL lessons (in two lessons out of the eight observed). The teacher used a laptop and a projector to display a picture of the monuments in Lesotho before displaying those in France. T4 also displayed a

textbook page and asked learners to each read and then write an exercise from the textbook. T4's lesson plan outlined the lesson objective: *"identify various monuments in France"* and resources, *"Adosphère 1, pictures"* and the teacher's and learners' activities, *"learners are probed to identify the monuments in Lesotho before they are shown the monuments in France".* T1 only used a textbook as a teaching resource further assigning learners homework that necessitated the use of the textbook. In his lesson plan, he wrote, *"topic- des verbes, objective, conjugate regular (-er verbs), resource (textbook)"*. T3 used a textbook and CD player to teach *"les matières"* (school subjects). T3 explained the concept of school subjects to learners, thereby reading them a passage from the textbook. Subsequently, the said participant played an audio (exercise) from the CD-ROM and asked learners to respond to the questions from the textbook pertaining to it.

In the same vein, T2 used a smartphone while teaching *"décrire quelqu'un"* (how to describe someone*).* In this way, T2 copied the extract from his smartphone to the chalkboard, asked learners to copy it down into their books, and thereafter wrote a narrative describing their friends/best friends. Moreover, T2's lesson was written thus:

Objectives - learners will be able to describe their friends/best friends.

Activities: the teacher provides a comprehension passage. Learners copy into their books. The teacher asks learners to write down a paragraph describing their friends/best friends. Resources: Internet.

This infers that participants were oblivious that TPACK could be used to augment their digital literacy. It appears they regarded TPACK and digital literacy as interchangeable concepts, signifying their lack of awareness of how TPACK would enhance their digital literacy.

The data from participants' reflective journals, semi-structured interviews, classroom observations, and lesson plans revealed a gap in the use of TPACK to advance their digital literacy. They were oblivious to the efficacy of TPACK in advancing their digital literacy as they appeared unaware of digital literacy itself (how they could use TPACK to advance it). Therefore, this identified gap necessitated participants' enlightenment on digital literacy, TPACK, and how TPACK would enhance their digital literacy.

Importantly, taking the findings of this phase into account, participants were enlightened on TPACK as a model of professional development, and how it would support their digital literacy in FFL instruction. This ensured that participants would be able to reflect on the challenges and benefits of using TPACK to advance their digital literacy in order to regularly keep their level of digital literacy up-to-date.

4.2.4.1.2 Phase 2: Therapeutic Phase

This phase signified an improvement from the previous one. Participants were noticeably more confident and capable of using TPACK to advance their digital literacy. This was manifested by their display of more creativity and familiarity with different HW, SW, and IW resources. Further, this empowered them to be more strategic towards effectively integrating content, teaching practices, and technology in their lessons. Importantly, this improvement emanated from the researcher having capacitated the participants with the knowledge of TPACK, digital literacy, and how TPACK could be used to elevate their digital literacy. This knowledge endowed the participants with the ability to effectively adopt TPACK to enhance their digital literacy. Additionally, this enabled them to reflect on the benefits and challenges of using TPACK to advance their digital literacy.

Lesson observations reveal that T4 used a poem titled *"Déjeuner du matin- Jacques Prévert"* (What I had for breakfast yesterday) to teach learners how to recount events done in the past. Notably, the author of the poem was cited, and there was also the use of a YouTube video animating the poem. In that lesson, T4 provided learners with handouts, asked them to read the poem, and then projected the video. Thereafter, the learners were asked to each act out any action they noted from the video, and associate it with a line or word from the poem. T4 further projected an exercise from the Internet, giving learners a chance to collaboratively do it. Moreover, T4 also demonstrated to learners how to access diverse websites they could use while studying on their own. In the lesson plan, T4 wrote:

Lesson objectives: use the auxiliary verbs avoir and être, use the passe compose to talk about the past.

Resources: Adosphère, français facile, YouTube and a poem by Jacques Prévert.

Teacher's activity: facilitate the learning of avoir verb (play the video of Dejeuner du Matin). Learners' activity: participate in the activity (conjugation of avoir), note what they saw on the video and what it means.

Assessment: formative assessment, homework/assignment: write two sentences in the past.

In the same vein, T3 used an online excerpt to teach "*mes vacances*" (my holidays) and also used his laptop to show learners a picture of children enjoying their school holidays, to heighten their understanding.

T1 used a laptop and speaker to play an audio of someone describing themselves and where they come from to teach *"mon quartier"* (my village/ my neighbourhood) and used pictures that reveal different people's neighbourhoods. T1 also used an excerpt from the Internet on someone describing their neighbourhood/village. Moreover, learners were asked to work in groups of four to discuss their neighbourhoods and then present in front of the class. The homework entailed learners being asked to go and surf online on how different people described their neighbourhoods and note down the vocabulary. This participant's lesson plan outlined the following:

Lesson objective: learners should be able to describe where they come from (their village). Classroom activities: the teacher starts the lesson by showing learners pictures of different people's neighbourhoods on the laptop, learners are asked to state what they see, and what they think the lesson would be about. Learners are asked to read and answer questions pertaining to the excerpt and then describe their villages.

Resources: YouTube, metro live worksheets. Homework: learners will be sent a link to an exercise from the Internet in the WhatsApp group chat.

In the same vein, T2, while teaching learners how to create an e-mail, asked them to write formally to their school principal to seek permission of absence from school due to the need to go to the hospital. What stood out was that T2 projected and demonstrated to learners how to create and send an email, assisted those who did not have Google accounts and also asked learners to work in groups of four to assist each other. Learners were also asked to send each other emails on their own selected themes. In the lesson plan, T2 stated:

Lesson objectives: learners should be able to write a formal e-mail.

Resources: Google, laptop, projector.

Activities: The teacher will ask learners about the language used to address an elder, specifically their school principal and how they would address the school principal while seeking permission of absence from school due to illness. The teacher will then ask learners if they have any knowledge of an email. Learners will be asked to attempt to write an email (sending them to the teacher) and the teacher will project, to demonstrate how an email is compiled and sent. Furthermore, the teacher will provide further explanations and demonstration until learners show comprehension.

Intriguingly, participants displayed a mastery of their TK, PK, and CK, as a result of adopting TPACK to give exposure to effective use of technology in instruction. This highlighted their usage of technology in a manner that stimulates learners' attention and fosters their engagement in their learning of FFL (Mishra & Koehler, 2006).

In the reflective journals, T3, in agreement with all the other participants expressed:

> *Yes, by liaising with the French Teachers' Association so that every teacher working in schools can be trained on this issue.*

In support, Islami and Arifin (2022) affirm that it is important for schools to host training workshops for teachers to offer them professional development on the use of TPACK in instruction, and how it supports their digital literacy. This will empower teachers with equitable TK and digital literacy (Islami & Arifin, 2022). Teachers are encouraged to partake in continuous co-teaching collaborative efforts and online professionalisation through short online courses (Islami & Arifin, 2022). These initiatives give teachers a chance to be hands-on and involved in how technology is effectively integrated into instruction (Sabado, 2018). That is done in conjunction with learning how to employ varied HW, SW, and IW resources. Resultantly, in differentiating instruction and synthesising learning content across vast amounts of information online (Rahmat et al., 2022; Siero, 2017).

From the comprehensive assertions made by the participants in the semi-structured interviews, T1 declared:

Yes, we live in modern times where technology is in the hands of learners (accessible). Therefore, I use it to evaluate information and browse for authentic sites and materials that I can use while ensuring that I maintain my online safety.

T2 also expressed:

Yes, I use the Internet to read more on digital literacy, reflect, and heighten my digital literacy skills well in line with attaining learning goals.

T3 concurred:

Yes. It enlightens me on how to effectively use technology in instruction, it helps to use technology with the syllabus in consideration and use creativity.

In accordance, Koehler et al. (2013) aver that TK (IW) enables teachers to possess robust knowledge of various HW and SW resources and take note of their distinct diversions to efficiently utilise them for varied activities. Furthermore, T4 shared the same sentiments with all the other three participants and stated:

Yes, I use social media to communicate and share information with my learners. It helps me to manoeuvre and learn how to access and use various tools for attaining learning objectives.

This denotes that T4 seemed to have comprehended the efficacy of TPACK in enhancing digital literacy. TPACK empowers teachers to simultaneously harness their knowledge of pedagogy, content, and technology. This results in them developing innovation and creativity to handle vast amounts of information across multiple sources which teachers customise to aptly address learners' learning needs (Xiangun & Lei, 2024).

Participants noted their reflections on the use of technology to enhance their digital literacy. T4 affirmed:

Not having enough resources to fully access the desired content. The benefit is that lessons may be more interesting and varied depending on the variety of resources being used.

T2 cited:

Schools do not give teachers special classrooms to install their equipment, so it is hard to carry things around when one has to teach. The benefits are that learners get to listen to native speakers of French. Learners can also continue learning on their own as materials are all over the Internet.

T1 stated:

Virtual collaboration. The benefits are that it gives the teacher knowledge of which technology to use for subjects to teach, methodology to use, and various tools and equipment to use.

This surmises that the participant appreciated the usage of TPACK in advancing his digital literacy. It therefore suggests that TPACK equipped him with the knowledge of technology and how to effectively navigate in a classroom setting. T3 asserted

The challenge is the school's welfare and the benefit is that it motivates learners and breaks the monotony.

It is notable that participants' reflections supposedly underscore that the benefits of using technology outweighed the challenges to advance their digital literacy. This can be presumed to infer that it is because the challenges they encountered could seemingly be curbed by prolonged use of TPACK for advancing their digital literacy. Echoing this attestation, van Dijk (2013) and van Deursen et al. (2019) affirm that usage access (IW) requires constant access to the Internet to creatively differentiate instruction to cater to learners' learning needs, and thus attain learning goals. In this light, these findings reveal that FFL teachers proved to have the capacity to utilise TPACK to consolidate their digital literacy.

It was noted that participants were thus able to integrate the four language learning competencies: reading, writing, speaking, and listening through their use of videos, audio, exercises, quizzes, and pictures accessed from ICT resources in line with the learning objectives. These findings corroborate those of Khan and Gul (2022), Angraini et al. (2023), Altun (2019), and Horlescu (2017), who found that TPACK is instrumental in improving teachers' digital literacy in 21st century instruction. Furthermore, Xiangun and Lei (2024) indicate that TPACK enables teachers to effectively link their knowledge of technology, content, and pedagogy, for them to navigate various HW, SW, and IW resources to keep up with the new instructional developments. This ensures that teachers attain domestic (equitable

digital literacy with their peer FFL teachers) and global inclusivity (striving to have globally competitive digital literacy skills) in order to curb the digital divide that hampers the right knowledge and skills access (Makumane et al., 2023; van Deursen & Dijk, 2019).

4.3 An overview of how the research questions were addressed

4.3.1 Research question 1: What strategies do FFL teachers use to advance their digital literacy?

This question intended to unearth in-depth insight into FFL teachers' present awareness of digital literacy, and their efforts to advance it. The data were generated using reflective journals and semi-structured interviews, and this was done through the three action research stages: reflecting, planning, and observing. This question was addressed by theme 1 (Attitudes and motivation access). In the problem-identification phase, I undertook a profound exploration of the strategies that participants employed, to advance their digital literacy. This would then provide an insight into how knowledgeable they were on digital literacy, its importance in the instruction of FFL, and what they did to advance their digital literacy. This phenomenon was addressed in both action research phases of the study. The findings from the first phase reveal that participants' responses in the semi-structured interviews and reflective journals accordingly exhibited their oblivion to the strategies used to advance digital literacy. It was also uncovered that they had limited knowledge of strategies that could be used to advance their digital literacy.

For instance, when asked to state the strategies they use to advance their digital literacy in the semi-structured interviews, T4 asserted

> *Looking for various platforms that can help me to distribute lessons in such a way that they are efficient, interactive and engaging. Now and again, I try something new. Then reflect on how it worked, the strengths and the weaknesses.*

Additionally, T3 highlighted:

> *Reading and attending some online workshops.*

T2 explained:

> *I always go online to read and broaden my understanding of how to use digital literacy in teaching. Luckily, the French Embassy frequently holds training workshops for us French teachers at Alliance Française. They also sometimes take us to France, to teach us how to effectively integrate technology in French instruction.*

Accordingly, T1 noted:

> *We have training from external people on computer literacy, as teachers here. We also have personal training where we contact some people for more knowledge on IT.*

This suggests that although participants stated this information, they seemed to be unaware of the strategies used to advance digital literacy. Furthermore, participants' statements infer that they had limited knowledge of the strategies used to advance digital literacy. This underscored that they needed to be enlightened on various strategies they could use to advance their digital literacy. Furthermore, participants' affirmations indicate that the strategies they used to advance their digital literacy exhibited their motivation to integrate digital literacy. It can therefore be deduced that their oblivion to the strategies used to advance digital literacy resulted in a lack of interest in finding the need to evaluate and sharpen their digital literacy skills.

Furthermore, I enlightened the participants on numerous strategies they could use to advance their digital literacy. I further capacitated them on the significance of adopting strategies to advance their digital literacy. Then I informed them that these strategies would reveal their motivation or lack thereof towards the integration of digital literacy in FFL lessons. Equally important, participants were provided with reading materials on the strategies used to advance digital literacy, in addition to the oral explanations provided.

Needless to say, in the therapeutic phase, there was a positive shift. Participants had become aware of diverse strategies they could use to advance their digital literacy (observing, planning). Contrary to the first phase, participants confidently captured (reflecting) that they used strategies such as professional development training offered by Alliance Française and collaboration with other French teachers through the Lesotho French Teachers' Association. Strategies used included blended learning, the project-based model, guided discovery, and an exploration of different HW, SW, and IW resources to heighten learners' understanding of the French language and culture while also stimulating their enthusiasm to learn. Furthermore,

upon enquiring into the strategies used by participants to advance their digital literacy in the semi-structured interviews, T3 stated:

> *I attend workshops to keep track of new developments in French instruction and I also read and use various websites.*

In accord, T2 stated:

> *The school offers us training to effectively integrate technology. The French Embassy also offers workshops for us French teachers on digital literacy.*

T1 highlighted:

> *I collaborate with other teachers on the Internet to share knowledge. I also use search engines to browse for authentic sites and materials that I can use while ensuring that I maintain my online safety.*

T4 posited:

> *I always try to discover new things I can incorporate in my lessons across the Internet. I try to collaborate with other teachers across the globe as we use an international curriculum that requires collaboration with others from all over the world. This is to see what they do, what works for them, and then try to incorporate and see if they can work in my context.*

In alignment, Perez-Escoda and Garcia-Ruiz (2019) aver that FFL teachers can use the digital literacy training workshops offered by the schools and the Ministry of Education to hone their digital literacy. They can also employ inquiry-based modes such as assigning them tasks that require their use of ICT resources and critical thinking skills (Tang & Chaw, 2016; Sheerah, 2020). This is to expose them to the rigorous use of varied HW, SW, and IW resources to address 21st century French learners' learning needs (Sinanga et al., 2023).

4.3.2 Research question 2: What challenges do FFL teachers face in integrating digital literacy into their teaching practices?

To address this question, data were generated from lesson plans, observations, and semi-structured interviews through the three action research stages: acting, observing, and reflecting. This question was tackled in theme 2 (physical/material access) and theme 3 (skills access) in

both phases of this study. This question was observable, unveiling that participants grappled to effectively integrate digital literacy in FFL lessons. In the first phase, T1 stated:

> *Internet connectivity. There is no Wi-Fi in the school and I have to ensure that I download materials at home either on the phone or laptop.*

T2 concurred:

> *There is no specific class that is well equipped which can be used (language lab), as setting up takes time. Secondly, smartphones are not allowed at school hence I have to make arrangements and tell them a day before bringing them the next day. That means the smartphones are kept on my desk and I have to account for anything that might happen. That is very stressful.*

In a similar vein, T3 declared:

> *There are no well-functioning plugs in the classes hence I use a battery-operated radio. There is also no language lab or room that is equipped enough to be used, so setting up takes time as there are no readily available resources. Learners are not allowed to bring their smartphones to school and there is no sufficient Wi-Fi connection.*

T4 added:

> *AI is sometimes a disadvantage as learners use it to do their translations instead of their brains. Another one is that the school policy does not allow learners to use devices in class as they can sometimes get into mischief, so they need to be closely supervised. The absence of the smartboard as it is not possible to project while giving learners a chance to be interactive.*

This suggests that teachers have AI detection strategies, and they encourage learners to use their brains in order to be capacitated in digital literacy.

Furthermore, in the lesson plans and during classroom observations, T2's challenge seemed to be digital illiteracy. He used a projector, a laptop, and a Bluetooth speaker to teach hobbies. In the lesson plan, he outlined:

Lesson objectives: learners should be able to discuss several hobbies and state the ones they like and dislike.

Resources: The Internet. Activities: the teacher will ask learners to watch a video of people discussing their hobbies, and identify different hobbies from the pictures displayed. Homework: learners should write an exercise from the textbook.

Significantly, T2 neglected to list the HW resources he used and did not engage learners in a classroom dynamic that stimulated their active participation. T3 used a textbook and its CD-ROM as teaching resources. While teaching *"l'emploi du temps"* (time-table), T3 asked learners to read an exercise from the textbook and listen to an audio from the CD-ROM to do another exercise. Learners were thereafter asked to refer to their dictionaries for difficult words and explain their own timetables as homework. T4 used a laptop, a projector and the textbook as a teaching resource. He used the laptop and projector to display an excerpt from the textbook to teach learners how to give directions. After learners had read, the teacher translated the text for them, wrote down the vocabulary on the whiteboard and asked them to copy it into their books. In T4's lesson plan, he wrote:

Lesson objective: learners should be able to give directions.

Resources: Adosphère 1, evaluation: formative assessment.

Activities: The teacher asks learners to read the excerpt. The teacher elaborates the excerpt and gives learners notes on the vocabulary used when giving directions.

In the same vein, T1 only used the textbook as a teaching aid to teach learners how to make hotel reservations. Further, he would note down vocabulary on the chalkboard while asking learners to translate the passage they had just read. He wrote his lesson plan this way:

Lesson objective: learners should book a hotel reservation. Resource: Tricolore 1 (textbook). Activity: read the passage in the textbook on page 70 and do an exercise on page 70. Homework: learners should write an exercise on page 72 of the textbook.

Notably, this phase unearthed the participants' lack of or limited knowledge of digital literacy and its integration (observe, reflect). They seemingly relied on the textbook as their teaching aid, and those who exploited ICT resources did not use them to generate interactive lessons (creativity and innovation) that appealed to all four language competencies. Thus, it is presumable that participants were oblivious that they could improvise and still effectively integrate digital literacy amidst some challenges (observe, reflect). This propelled me to

awaken participants to digital literacy, its integration, and the importance of improvisation (act).

Therefore, the findings from phase 1 reveal that participants found it difficult to integrate digital literacy due to the "no smartphones" policy in schools. This marginalised learners as they could not be given tasks that required them to interact with HW and SW resources in the classroom. As a result, this impeded learners from being effectively guided while cultivating digital literacy in FFL lessons. Seemingly, participants failed to see beyond those impediments to effectively harness digital literacy. In concurrence, factors such as teachers' lack of digital literacy skills, the digital divide, a dearth of resources and infrastructure, and lack of support from the school negatively impact teachers' integration of digital literacy (Choudhary & Bansal, 2022). Teachers' inability to draw on their technological (TK) and technological content knowledge (TCK) impedes their ability to surmount their fear of using disparate SW and HW resources that are available, and manipulate them to perform required tasks (Perla et al., 2018).

Moreover, it was interesting to note that participants relied on the use of the textbook. T4 used "Adosphère 1" (published in 2011), T1 used "Tricolore 1" (published in 2014), while T3 and T2 used "Et Toi? 1" (published in 2013). In light of this, Chevant-Aksoy and Corbin (2022) and Risager (2021) avow that teachers should avoid using FFL textbooks only as their teaching aids as they are likely to contain obsolete information (cultural relevance). FFL teachers are therefore urged to establish a balance between the usage of textbooks and digital literacy, to ensure that learners' 21st century learning needs are addressed (Knight, 2015; Chevant-Aksoy, 2022; van Dijk, 2013; Lephoi-Sooknanan, 2021). Additionally, teachers' use of the digitalised curriculum could enable them to effectively integrate digital literacy in instruction (Makumane, 2023; Khoza & Mpungose, 2020; Middleton, 2022).

In light of the findings in this phase, participants were apprised of digital literacy and the importance of integrating it into FFL lessons. They were also enlightened on IW resources, which they seemed to be unaware of. This is because IW resources would be instrumental in their integration of digital literacy. Furthermore, participants were urged to illustrate in their

lesson plans, how they would exploit varied HW and SW resources used in their classrooms while integrating digital literacy. This would demonstrate how they integrated digital literacy into their lessons to attain learning objectives. As such, they were informed of the importance of using varied HW and SW resources, due to their distinct characteristics, that would enable them to achieve diverse goals. Moreover, I had noted that all participants had smartphones, laptops, smartphones, portable speakers, data (T1 and T3) and schools' Wi-Fi (T2 and T4). Therefore, I made them aware that any ICT resources available to them could still be used to attain learning goals. Hence, participants were urged to exploit the HW and SW resources that were readily available to them and ensure they varied classroom activities to differentiate their instruction of FFL (improvisation). Participants were also advised to give learners homework that would necessitate their use of HW, SW, and IW resources as the "no-phones" policy in schools made it impossible for learners to use their ICT resources in the classrooms. However, I took it into consideration that learners' integration of digital literacy would vary as they had unequal exposure to ICT resources such as Wi-Fi and projectors.

Nevertheless, the second phase witnessed participants' transformed ability to make effective use of available ICT resources to integrate digital literacy. This improvement (observing, reflecting) was consequent to participants having been apprised (acting) of what digital literacy was and what its effective integration entailed. In this phase, it was evident that participants exhibited confidence in their choice of resources, they displayed digital literacy and could effectively integrate it. In addition, they seemed to manifest eagerness to curb challenges anyhow they could. For instance, during the lesson observations and lesson plans, T2 used a projector and a laptop to teach "email writing". In that lesson, T2 asked learners to write an email to their school principal to ask to be absent from school. Moreover, T2 connected the projector and reinforced learners while they were engaged in a hands-on activity. T2's lesson plan entailed:

Lesson objectives: learners should be able to write a formal email.

Resources: a laptop, a projector, the Internet.

Activities: the teacher will ask learners to state the difference between formal and informal ways of addressing people. They will be asked to explain how they would address their school principal to notify them of their absence from school. Learners will further be asked to explain how an email is written. The teacher will demonstrate how an email is compiled and sent, then

ask learners to collaboratively write an email to their principal. Thereafter, the teacher will mark and give concluding remarks.

As homework, learners will be asked to write an informal email to their friends and send it to the teacher.

T3 used a smartphone and a speaker to teach *"le questionnement"* (posing questions). In this lesson, the said participant copied an extract from his smartphone to the chalkboard and asked learners to read. Subsequently, T3 asked learners to discuss (who they are) in pairs necessitating them to ask each other questions and provide responses. The participant concluded the lesson by playing an audio of two people engaging in a dialogue (about their typical day at school).

Likewise, T1 used a video (in the form of a song) of someone discussing their future activities to introduce a lesson on *"le futur"* (future tense). Thereafter, learners were asked to work in pairs and ask each other about their future plans (what they plan to do after school). Then they were asked to write an exercise from the Internet. As homework, T1 sent learners a task in the WhatsApp group chat asking them to record themselves talking about their future plans and also put it into writing. T1's lesson plan indicated the lesson objective, the teacher's and learners' tasks, the ICT resources used, and the homework assigned to learners. In the lesson plan, T1 wrote:

Topic: le future, resources: laptop and speaker, YouTube video.

Classroom activities: use of a YouTube video and an exercise from the Internet.

Homework: learners should record themselves discussing their future plans and also write that down."

T4, on the topic *"les directions"* (giving directions*)*, projected a Google Maps (street view) image of the Maseru town. Moreover, T4 asked learners to identify and mention different places such as the bank and the library, and give directions to their school and other different places within the town. Learners were also asked to read an excerpt from the Internet. As an assignment, T4 sent learners a link to exercise from the Internet (website) in the WhatsApp group chat. In his lesson plan T4 indicated:

Topic: les directions, lesson objective: learners should be able to identify and mention places and give directions.

Resources: Google Maps, français facile. Teachers' activity: the teacher projects a Google Maps (street view) image of Maseru (town) and asks learners to identify different places within the town and give directions the teachers ask learners to read a passage from français facile. Learners' activity: learners identify various places in town and give directions to different places. Learners read a comprehension passage and answer questions on it.

Homework: learners will be sent a link to an exercise from français facile in the WhatsApp group chat.

In the same vein, in the semi-structured interviews, all participants concurred with T2 and T4. T2 expressed:

> *When they did not come with smartphones to school. I go on to the Internet and get some materials which I write down on the chalkboard, or connect my smartphone to the portable speaker and play an audio. I also ask the ICT teacher to allow those without HW and SW resources to use the school computers after school to do assignments as the school has Wi-Fi. I do this for learners to be on the same wavelength.*

T4 reiterated that

> *In a context where I have assigned learners homework that requires the use of HW and SW, I do printouts for inclusivity for those who could not access them.*

From these assertions, it can be deduced that participants, upon seeing the practical utility of digital literacy, fully immersed themselves in studying how they could effectively integrate digital literacy in their teaching. The use of IW resources also positively impacted how participants integrated digital literacy. That is, they seemingly used their critical thinking and creativity skills to operate HW and SW resources. Furthermore, they seemingly used the search engines effectively to access authentic information vital in reinforcing learners' comprehension of FFL. This resulted in a dynamic and meaningful learning environment in contrast to the previous phase. Likewise, teachers are problem-solvers and they should use technology to transform practices, and to equip learners with global competitiveness, critical thinking and problem-solving. This enables them to appropriate any available resources to accomplish learning goals and address learners' learning needs (Sabado, 2018). This then also stresses the

issue that teachers should be continuously trained on how to effectively integrate digital literacy (Choudhary & Bansal, 2022). The government should furnish schools with the relevant infrastructure suitable for 21st century education (Koehler et al., 2017; Makumane, 2021). In addition, Violic-Koprivec and Tolj (2022) indicate that French is a language of modernity, hence it is vital to adopt contemporary strategies of teaching it.

4.3.3 Research question 3: How does TPACK enhance FFL teachers' digital literacy?

This question was addressed using document analysis (lesson plans), reflective journals, and semi-structured interviews through the three action research stages namely, observing, planning, and reflecting, and it was addressed in theme 4 (usage access). In the first phase, it was discovered that teachers theoretically used technology (TPACK) to advance their digital literacy. Furthermore, they seemingly believed that TPACK and digital literacy are one concept (observe, reflect). Therefore, this notion required me to familiarise them with TPACK and digital literacy, as independent concepts. Participants were also informed on how TPACK would support digital literacy skills (plan, act). To illustrate, T2 in accordance with all the other participants, reflected and elucidated:

> *Yes, they can. Time and again the Embassy of France in Lesotho and South Africa provides workshops for French teachers. They also buy us equipment.*

This declaration implies that participants were of the impression that they were well-versed in using TPACK to advance their digital literacy. However, the data from their lesson plans and observations disputes this notion as teachers showed oblivion towards TPACK and how it stood to enhance their digital literacy skills and integration. This notion is mirrored by Afzal et al. (2023) who postulate that some teachers grapple with having to put theory into practice in using TPACK. Moreover, teachers struggle to use TPACK to advance their digital literacy due to their lack of access to HW and SW resources, which consequently marginalises them from being on the same wavelength as other FFL teachers globally (Yaman, 2015; Lephoi-Sooknanan, 2021).

In the classroom observations, T4 rarely employed technology in FFL lessons. He used a laptop and a projector to display a picture of the monuments in Lesotho. Thereafter, he displayed a passage from the textbook and asked learners to each read and then write an exercise from the textbook on the passage they had just read. T4's lesson was as follows:

Topic: les monuments. Lesson objectives: learners should be able to identify different monuments in France.

Resources: Adosphère 1. Teachers' activity: the teacher will show learners different monuments in France and ask them to write an exercise identifying the monuments in France. Learners' activity: learners will view and write an exercise that requires them to identify different monuments in France.

T1 used the textbook as a teaching resource and assigned learners homework on an exercise from the textbook. In his lesson plans, T1 stated:

Topic: use of 'if' in the sentence, resource: Tricolore 1 page 77.

T3 used a CD player to teach *"les matières"* (school subjects). The teacher explained the concept of school subjects to learners, thereby reading them a passage from the textbook. Subsequently, the teacher played an audio from the CD-ROM and asked the learners to answer questions regarding that audio. In the same manner, T2 used a smartphone while teaching *"décrire quelqu'un" (how to describe someone).* T2 copied the extract from his smartphone to the chalkboard and asked learners to copy it down in their books and then write a narrative describing their friends/best friends. T2's lesson plan outlined:

Topic: décrire quelqu'un. Resource: The Internet.

Classroom activity: the teacher writes a passage on the board and asks learners to copy it into their books. Learners are asked to write a description about their friends/best friends.

In accordance, teachers' inability to use TPACK to augment their digital literacy reveals a lack of technology skills (TK) and the inability to manipulate them to perform and achieve observable tasks (van Dijk, 2013).

Aligning with the findings from this phase, participants were enlightened on TPACK as a model of professional development, and how they could use it to enhance their digital literacy skills. They were further provided with reading materials on the use of TPACK for enhancing digital literacy.

The second phase yielded an improvement (reflecting, observing), as participants had been acquainted with the knowledge of how they could use TPACK to enhance their digital literacy (act, reflect). To illustrate, in response to the question, *"Do you think French teachers can use technology to enhance their digital literacy? How can that be done?"*, T1 affirmed:

> *Yes. We live in modern times where technology is in the hands of the learners (access). Therefore, I use it to evaluate my information, for browsing texts online and for connecting my ideas.*

T2 stated:

> *Yes. I use the Internet to read more on digital literacy, reflect and heighten my digital literacy skills well in line with attaining learning goals.*

In the same line of thought, T3 stated:

> *Yes. It enlightens me on how to effectively use technology in instruction. It helps to use technology with the syllabus in consideration and use creativity.*

T4 expressed:

> *Yes. I use social media to communicate and share information with my learners. It helps me to manoeuvre and learn how to access and use various tools for attaining learning objectives.*

These statements indicate participants' appreciation of TPACK for the advancement of their digital literacy. Participants seemingly believed that TPACK helped them to strengthen their digital literacy, hence their ability to integrate digital literacy parallel to the syllabus, learners' capacities, and filtration of only relevant information from multiple HW and SW resources to tailor to learners' diverse needs.

This view is supported by participants' lesson plans and observations which embodied tactfulness in employing their digital literacy skills. Lesson observations revealed that T4 used a poem titled *"Déjeuner du matin- Jacques Prévert"* (what I had for breakfast yesterday), to teach learners how to recount events done in the past. The author of the poem was cited, and there was also the use of a YouTube video that animates the poem. In that lesson, T4 provided learners with handouts of the poem, asked them to read the poem, and then projected the video. Thereafter, learners were asked to each act out an action from the video and associate it with a

line or word from the poem. T4 further projected an exercise from the Internet (français facile) and asked learners to do it in pairs. In addition, T4 demonstrated to learners how to access varied websites when they are autonomously learning. In the lesson plan, T4 wrote:

Lesson objective: use the passé compose to talk about the past.

Resources: Adosphère, français facile, YouTube.

Teachers' activity: the teacher asks learners to read the poem. The teacher projects a video (play of Déjeuner du matin), projects an exercise from français facile.

Learners' activity: note what they saw on the video and what it means, collaboratively do an exercise from français facile.

In a similar manner, T3 used an excerpt from the Internet (live metro worksheets) to teach "*mes vacances*" (my holidays) and also used his laptop to show learners a picture of children enjoying their school holidays to heighten their understanding. T1 used an audio (from YouTube) of someone describing themselves and where they stay, to teach *"mon quartier"* (my village/ my neighbourhood) and used pictures that reveal different people's neighbourhoods in France. Moreover, learners were asked to listen to an audio of someone describing their neighbourhood, then work in groups of four to discuss their neighbourhoods and then present what they had written. The homework entailed learners being asked to go and surf online how different people described their neighbourhoods and note down the vocabulary. This participant's lesson plan outlined:

Topic: mon quartier. Lesson objective: learners should be able to talk about different neighbourhoods.

Resources: an audio from YouTube, an excerpt from live metro worksheets and a picture from the textbook).

Classroom activity: learners look at photos, listen to an audio and work in groups of four to describe their neighbourhoods orally and in writing.

Homework: learners should research how different people describe their neighbourhoods.

T2's lesson guided learners on how to create an e-mail as a way of teaching them how to write formally to their school principal to ask to be absent from school due to the need to go to the hospital. The teacher projected and demonstrated to learners how to create and send an email, assisted those who did not have Google accounts and also asked them to work in groups of four

to assist each other. Learners were also asked to send each other emails on their own selected themes. T2's lesson plan outlined:

Topic: email writing. Lesson objectives: learners should be able to write a formal email, resources: a laptop, a projector, the Internet.

Activities: the teacher will ask learners to state the difference between formal and informal ways of addressing people. They will be asked to explain how they would address their school principal to notify them of their absence from school. Learners will further be asked to explain how an email is written. The teacher will demonstrate how an email is created and sent, then ask learners to collaboratively write an email to their principal. Thereafter, the teacher will mark and give concluding remarks.

As homework, learners will be asked to write an informal email to their friends and send it to the teacher.

Rahmat et al. (2022) corroborate this and explain that by using the TPACK model, educators can examine what they know, how they teach, and how technology can be used to influence learners' achievement and learning.

4.3.4 Research question 4: What are the benefits and challenges of using TPACK to improve FFL teachers' digital literacy?

This research question was addressed using reflective journals and semi-structured interviews through the two action research stages (observing and reflecting) in theme 4 (usage access). In the first phase, teachers reflected on the challenges of using technology (TPACK) to advance their digital literacy. In the semi-structured interviews, T2 in agreement with all the other participants, noted:

> *Schools do not give teachers special classrooms to install their equipment, so it is hard to carry things around when one has to teach.*

This suggests that participants found it challenging to use TPACK to enhance their digital literacy due to issues such as infrastructure. While reflecting on the benefits of using TPACK to advance digital literacy, T3 in agreement with all the other participants stated:

> *It exposes learners to the spoken language and improves their speaking abilities.*

T4's response:

The teacher gets to know what works best for which group, thus being more informed on which platform to use, when and how they can be effectively used.

This emphasises that TPACK exposes teachers to various HW, SW, and IW resources and how to link them with the content and teaching methods. This enables teachers to search on the Internet, access, and evaluate apt HW and SW resources to modify and share information such as online exercises, quizzes and videos with learners (Perez-Escoda & Garcia-Ruiz, 2019). Noteworthy is that participants seemingly exhibited oblivion to TPACK and how it could advance their digital literacy (observe). This suggests that they did not understand the benefits and challenges this would present to them (reflect).

Consequently, participants were provided with reading materials highlighting the benefits and challenges faced when using TPACK to enhance digital literacy skills in FFL instruction. Participants were also enlightened on the benefits and potential challenges of using TPACK to advance digital literacy.

In phase two, participants seemed to have a heightened understanding of the challenges and benefits of using TPACK to advance their digital literacy. This came about as a result of having informed them of the benefits and challenges encountered in using TPACK to advance their digital literacy. In the semi-structured interviews, T3 stated:

The challenge is that it can be time-consuming as the Wi-Fi connection in the school campus is not satisfactory, requiring me to use my data. While the benefit is that I can use that to create interesting and interactive lessons.

T1 cited:

The challenge is, the use of skills, and the knowledge on how to use technology to amplify digital literacy. The benefit is that it (technology) gives us the methodology on how to use it in lessons. This is to say that it helps in passing the message and helping learners to easily understand. It helps in planning interesting lessons.

Similarly, T4 added:

The challenge lies in the lack of resources as sometimes the signal strength can be very low and time-consuming hence the slow progression of the lesson. Beneficially,

learners can relate easily and the use of digital literacy and technology catches their attention and they become more attentive and active in class rather than passive.

T2 articulated:

The challenge is that there are false/unauthentic sites such as Wikipedia which are easily accessible to both teachers and learners which can be misleading. Advantageously, technology is always accessible regardless of where I am and the time, thus being useful in advancing my digital literacy.

These above assertions align with their responses in the reflective journals.

It was revealed that participants encountered challenges alluding to lack of time, but generally enjoyed the benefits of using technology to improve their digital literacy. It can be deduced therefore that participants had reached a point where they could surf, access, and evaluate information (exercises, quizzes, videos, pictures, audio and excerpts) from the Internet using varied HW, SW, and IW resources. They were then able to adapt it to learners' learning needs while considering their educational level and socioeconomic status. In support, Violic-Koprivec & Tolj (2022) posit that digital literacy is crucial for lifelong learning as it capacitates FFL teachers to access authentic resources such as podcasts, videos, applications and SMS for cultural awareness and enhanced communication.

Aligning with this, TPACK is the cornerstone of 21st century technology integration as it unifies teachers' differing types of knowledge, the curriculum, learners, and content into one dynamic and innovative lesson. TPACK enables FFL to have requisite technology skills and can appropriate them to ensure learners can access the right knowledge of the subject (Fazilla et al., 2022). Usage indicates that more practice leads to mastery in the utilisation of technology, and it renders teachers capable of using a variety of HW, SW, and IW resources to attain different learning goals and to appeal to all learners' learning needs (van Deursen & van Dijk, 2015). Furthermore, TPACK affords FFL teachers with adaptability (TK), with which they can strive to constantly supplement their digital literacy (van Deursen and Helsper, 2015; van Deursen & van Dijk, 2021).

4.4 Limitations of the study

Creswell and Creswell (2018) indicate that research limitations allude to the challenges such as time, sample size, and funding encountered by the researcher during the research process. Research limitations are influential on research findings (Leedy & Ormrod, 2021). This study was conducted at a period when schools were preparing for examinations (revision period). Therefore, participants were engaged with preparing learners for examinations, thus also using their free lessons to teach. Scheduling with them to prepare for phase 2 (intervention) was not an easy task as they were very busy. However, they were made aware of the importance of the task and they found some slots that could be used for the intervention. In particular, the researcher played a mediation role in capacitating FFL teachers to use TPACK to advance their digital literacy, and furthermore providing participants with reading materials they could read on their own. Nevertheless, participants explained that they did not have time to read the materials provided, due to having limited time to read them. As a result, they relied on being orally enlightened about the use of TPACK in advancing their digital literacy. As such, participants had to be constantly scaffolded and reinforced on this phenomenon after their lessons.

Since this action research comprised two phases – the problem identification and the therapeutic phase – participants were noticeably confused as to why the second phase was conducted as it appeared similar to the first phase. This was because the same methods of data generation were employed. Participants deemed the second phase repetitive and unnecessary. However, they were enlightened on the importance of action research phases being conducted using the same methods of data generation for triangulation. However, one participant was resistant and yet unwilling to withdraw from participating. Therefore, the participant only partook in his preferred methods of data generation and declined to partake in one method of data generation. As a result, the said participant's data could not be analysed and compared to the other participants' data. However, this did not negatively impact the findings of the study as triangulation of the methods of data generation was implemented to provide in-depth insights into the phenomenon of the study. This was due to the understanding that participants had to be permitted to participate as much as they could, and that particular participant's efforts to participate were thus appreciated. Noteworthy is that this study initially aimed to have five participants from five schools (out of 20 secondary schools that offer French in Maseru) that were mostly convenient to the researcher. The number of participants was however reduced to

four due to unforeseen circumstances that cannot be disclosed. This is because disclosing these circumstances risked revealing the identity of the school and the teacher. As such, the findings of this study cannot be generalised as it consisted of a relatively small number of participants (sample size). Nevertheless, the findings can be transferable to other contexts.

For the sake of knowledge access, TPACK was termed ‘technology’ during data generation to avoid confusion among participants. This required the researcher to continuously remind participants of this issue, as they would sometimes seemingly perceive the two as distinct notions. The data was generated in only one month due to time constraints. Thus, the findings of this study, although insightful, would have been richer if it had been administered for a longer period of time. Presumably, a period of three to six months of data generation would have potentially added more rigour through numerous action research cycles.

Chapter 5: Conclusion and Recommendations

5.1 Introduction

The previous chapter outlined the findings of the study in the two phases of action research. The limitations of the study were also outlined. The significance of action research in improving FFL teachers' digital literacy in the instruction of FFL was shown. This chapter provides a synopsis of the study and highlights how the research purpose and objectives were attained. Furthermore, the implications of the findings of this study are presented concluding with the recommendations.

5.2 Conclusion

This was a critical action research study conducted with the express intention of exploring the use of TPACK in the teaching and learning of French as a foreign language in Lesotho secondary schools. Therefore, the study comprised two action research phases namely, the problem identification phase and the therapeutic phase. The two action research phases were used to address the four themes: attitude/motivation access, physical/ material access (HW), skills access (SW), and, usage access (IW). These four themes were adopted from the Resources and Appropriation Theory, in line with TPACK and digital literacy. In the first phase, it was revealed that participants were unaware of the importance of being passionate about integrating TPACK to promote digital literacy. This seemed to have stemmed from the participants' perception of digital literacy as impractical. Thus, they did not create opportunities that necessitated the integration of technologies in their lessons. This underscored the participants' lack of awareness of the strategies they could use to advance their digital literacy.

Furthermore, it was found that participants were unaware of IW resources and how they could employ them while using HW and SW resources to advance their digital literacy. Participants also proved to be oblivious to varied HW and SW resources they could use to attain learning goals (physical/material resources). Physical/material access unveiled the first-level digital divide, which is access to computers and the Internet (van Dijk, 2013; van Deursen & van Dijk, 2019). The access to computers and the Internet revealed that participants had an unequal distribution of HW and SW resources such as Wi-Fi and projectors. Consequently, participants

yielded uneven benefits in the use of HW and SW resources to advance their digital literacy. Notably, participants in more resource-rich schools were at an advantage over those in schools with less resources. For instance, T4 and T2 had access to projectors and Wi-Fi, while T3 and T1 could only use their laptops and smartphones without projecting, and with their own data.

The study further identified that participants were unaware of digital literacy and how they could integrate it into FFL lessons (skills access). Importantly, this demonstrated the second-level digital divide, which is Internet usage and skills (Gomez, 2018; van Deursen & van Dijk, 2021). This signified that participants who were able to manipulate the Internet used it to perform tasks and acquire observable outcomes such as surfing the Internet, accessing, modifying and sharing content acquired from HW and SW resources were at an advantage over those who could not.

Furthermore, it was unveiled that participants did not understand the difference between TPACK and digital literacy (usage access). As such, they could not use TPACK to advance their digital literacy. This denotes that they could not reflect on the benefits and challenges of using TPACK to advance their digital literacy. In light of the findings of the first phase, it was striking that there was a prevailing theoretical and practical gap in participants' use of TPACK to advance their digital literacy as the data from the semi-structured interviews and reflective journals contradicted the data from participants' lesson plans and lesson observations. This signifies that the participants were theoretically aware of the importance of digital literacy, its integration, and the utility of TPACK for advancing their digital literacy. However, in practice, participants appeared to be unaware of the integration of digital literacy in FFL lessons and how TPACK could be used to advance their digital literacy.

Therefore, as an intervention strategy, participants were enlightened on digital literacy and its significance in FFL lessons. They were made aware of IW resources and the importance of employing varying HW and SW resources due to their different characteristics. This is because I noted that all the participants had smartphones, laptops, and portable speakers, although T3 and T1 used their own data while T2 and T4 had access to the school Wi-Fi. In light of this observation, it was notable that T1 and T3's access to and usage of HW and SW resources was

limited, as opposed to T4 and T2 who had access to projectors and Wi-Fi. This unequal access to ICT resources led to discrepancies in the use of TPACK to advance participants' digital literacy. Importantly, participants were enlightened on how they could use accessible ICT resources and how to diversify classroom activities using them. Moreover, they were made aware of the effective integration of digital literacy in FFL lessons and how they could use TPACK to advance their digital literacy. This intervention addressed the domestic and global digital divide, thus ensuring that participants were on the same wavelength regarding their digital literacy and were striving to possess globally competitive digital literacy skills.

The second phase brought about a significant transformation. Participants had become aware of the importance of digital literacy and seemingly demonstrated it (attitude/motivation access). This was done through innovative and dynamic lessons. Participants had become aware of IW resources and how they could exploit varied HW and SW resources such as websites (Internet usage), smartphones, laptops, and portable speakers (CK) (physical/material access) to address 21st century learning needs of learners. Additionally, participants had become aware of digital literacy and what it entailed in FFL lessons. They ensured that they could use various multimedia from varying HW, SW, and IW resources to improve their creativity, innovation, and critical thinking skills (skills access). This empowered participants to foster digital literacy in different classrooms simultaneously with the action-oriented approach. As such, they facilitated lessons that embraced cultural awareness, collaboration, and appropriation of authentic resources to empower learners to effectively communicate in French (PK). Thereafter, participants used TPACK to capacitate their TK, PK, and CK (usage access) thereby enhancing their ability to effectively search, access, and share learning content with their learners. TPACK empowered participants to cater to diverse learning styles using a variety of HW, SW and IW resources to ensure equitable knowledge and skills (digital literacy) access among FFL learners. TPACK further empowered participants to foster digital literacy among FFL learners.

The findings from phase two highlighted the significance of action research, as it permitted constant reflection in FFL education, particularly in technology-based FFL instruction. This reflection allowed for experimentation with multifarious HW, SW, and IW to integrate and

advance FFL teachers' digital literacy. Further, it promoted a progressive mindset within FFL teachers, to equip them to constantly improve their digital literacy and be adaptable.

In summation, this study unveiled that FFL teachers need to have passion and enthusiasm to integrate digital literacy. This, in turn, motivates them to explore varied strategies they can use to advance their digital literacy (attitude/motivation access). Moreover, it is important to be aware of IW resources, and how different HW and SW resources (physical/material access) could be used to integrate digital literacy. This awareness capacitates FFL teachers to diversify classroom activities to ensure even access to knowledge (CK) and skills (TK) among learners. Importantly, access to varied HW, SW, and IW resources enables FFL teachers to integrate digital literacy and foster it among learners. Teachers get the opportunity to surf the Internet and access resources such as excerpts, videos, pictures, and audios, and modify them to suit learners' learning styles (skills access). This helps teachers to address all four language competencies simultaneously in their lessons, thereby enhancing learners' comprehension of FFL. As a result, this helps teachers to improvise and curb challenges such as textbook reliance and the inability to employ the action-oriented approach alongside digital literacy.

Furthermore, TPACK capacitates FFL teachers to simultaneously employ TK, CK, and PK in their teaching practices. This then augments their digital literacy in the sense that it equips them with TK which consolidates the way they search on the Internet, access and locate authentic content from HW, SW, and IW resources. As such, CK and PK equip FFL teachers to select and modify information that is relevant to learners' diverse learning styles to address their learning needs. TPACK also promotes adaptability to Internet usage, permitting FFL teachers to continuously enhance their digital literacy skills and promote them among learners.

5.3 Recommendations

In light of the findings of this study, the following recommendation are proposed:

- The Ministry of Education and Training (MoET) and the curriculum developers should revise the Lesotho Basic Education Curriculum Policy (LBECP) to provide practical guidelines and clearly outline how digital literacy should be adopted in Lesotho secondary schools. They should demonstrate how teachers and learners will be

supported throughout that process. This is because although the LBECP recommends that learners should be equipped with digital literacy to be global digital citizens, it neglects to mention how teachers should do so, and how they will be supported in that process.

- The curriculum developers should digitalise the French curriculum to enable FFL teachers to easily integrate digital literacy into their teaching practices.
- MoET should provide training workshops and seminars for FFL teachers on how to use the action-oriented approach in instruction.
- MoET should initiate support through continuous training workshops for FFL teachers to provide them with professional development in technology and digital literacy, for readiness and ease of use of technology in their teaching practices. Moreover, MoET should provide adequate SW and HW resources such as Wi-Fi, tablets, and smart boards to all secondary schools nationwide for effective integration of digital literacy.
- The schools should permit learners to use their HW and SW resources during lessons. This can potentially enable them to cultivate digital literacy skills, thereby harnessing them in practical classroom contexts to eventually render them capable of utilising them independently.
- Schools should provide or lend less privileged learners HW and SW resources to ensure that all learners are on the same wavelength. This will address the digital divide that often exists between learners from different socio-economic backgrounds.
- FFL teachers, through the Lesotho French Teachers' Association, should collaborate and empower one another on technology use in FFL, and integration of digital literacy. This will ensure they stay up-to-date with current developments in the teaching and learning of French in Lesotho.
- FFL teachers should adopt action research for reflective instruction in their daily teaching practices. This will capacitate them to improve their integration of digital literacy based on their contexts and the global perspectives on digital literacy integration in instruction.

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APPENDICES

Appendix 1: Introduction Letter

The National University of Lesotho

Telephone: +266
22340601/3631

P.O. Roma 180
Lesotho

FACULTY OF EDUCATION

Date 25th April, 2024

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

A Letter of introduction to undertake research

This !etter serves to introduce Ms. Paballo 'Molaoa, who is a Master of Arts in Education (M.A.ED) student in the Faculty of Education at the National University of Lesotho (NUL). The student is undertaking research in French Language Education, whereby she is exploring the use of Technological Pedagogical Content Knowledge (TPACK) to advance digital literacy in the teaching and learning of French as a foreign language in Lesotho secondary schools. The study involves classroom observations, interviewing French teachers, analyzing documents, particularly lesson plans, and reflective journals from teachers. It should be noted that this is an action research study with two phases, which means that the student will have to return to your school after the first phase to conduct the second phase of her study.

Kindly accord her the necessary assistance and support in this important activity.

Your cooperation in this matter is highly appreciated.

Yours sincerely,

Dr. Makhulu Makumane

NATIONAL UNIVERSITY OF LESOTHO
FACULTY OF EDUCATION
26 APR 2024
LASED DEPARTMENT
P.O. ROMA 180

Senior Lecturer

Head of Department of Language and Social Education

Appendix 2: Request Letter

Ha-Matala

P.O. Box 26

Maseru 100

Lesotho

29 April 2024

The principal

_____

_____

_____

Dear Sir/Madam

Re: Application for permission to conduct research in your school

I am Paballo 'Molaoa, a Master of Arts in Education (M.A.ED) specialising in French Language Education from the National University of Lesotho (NUL). I am undertaking a research study titled, **"Exploring the Use of Technological Pedagogical Content Knowledge (TPACK) to advance digital literacy in the Teaching and Learning Of French as a Foreign Language in Lesotho Secondary Schools".** The overarching aim of this study is to improve the instruction of French in Lesotho to ensure that it is aligned with the 21st century education goals and that teachers are globally competent in digital literacy skills integration. It is my belief that innovation starts with the teachers, as they may foster digital literacy in their teaching, thus resulting in French learners being digitally literate in their studies and in their lives in general. I am supervised by Dr. Makhulu Makumane from the National University of Lesotho, Roma. Her email address is makhulum@yahoo.co.uk. With this request to undertake my study at your school, please be aware of the following:

- The participating teacher is at liberty to participate for as long as they shall be willing to, and their withdrawal may come with no consequences.

- The confidence and trust of the teacher shall be maintained.
- Any information shared shall be kept confidential and will not be used against either the teacher or the school.
- There will be no pictures or videos captured, as I shall only audio tape the teacher during the semi-structured interviews.
- The interview and reflective journals may take up time spanning an hour or more.
- There will be no financial gain from this research as it is purely an academic study.
- The data gathered in this study will be kept safe.
- The teacher's and the school's anonymity will be maintained through the use of pseudonyms such as Teacher X, and School Y.

These are my contact details:

Cell phone: +266 53031675 email: marymolaoa10@gmail.com

Thank you for your help in bringing this study to fruition.

Yours faithfully,

Paballo 'Molaoa

_____

Appendix 3: Reflective Journal

Reflective Journal

Participant's name/Pseudonym: _____

School's name/Pseudonym: _____

Grade (s): _____

Date: _____

1. What do you think digital literacy is?

Teacher's reflections:

_____

_____

_____

2. Do you think it is important to integrate digital literacy in French lessons?

Teacher's reflections:

_____

_____

_____

3. Do you integrate digital literacy? How do you integrate digital literacy in French lessons?

Teacher's reflections:

_____

_____

_____

4. Which technological resources do you use while integrating digital literacy in French lessons? How do you use them?

Teacher's reflections:

_____

_____

_____

5. What are the challenges of integrating digital literacy in French lessons?

Teacher's reflections:

_____

_____

_____

6. What strategies do you utilise to improve your digital literacy?

Teacher's reflections:

_____

_____

_____

7. Do you think French teachers can use the technology to enhance their digital literacy? How can that be done?

Teacher's reflections:

_____

_____

_____

8. What do you think may be the challenges of using the technology to advance French teachers' digital literacy?

Teacher's reflections:

_____

_____

_____

9. What do you think may be the benefits of using technology to advance French teachers' digital literacy?

Teacher's reflections:

_____

_____

_____

Appendix 4: Semi-structured interview

Semi-structured Interview

Participant's name/Pseudonym: _____

School's name/Pseudonym: _____

Grade (s): _____

Date: _____

1. What do you think digital literacy is?

_____

_____

_____

2. Do you think it is important to integrate digital literacy in French lessons?

_____

_____

_____

3. Do you integrate digital literacy? How do you integrate digital literacy in French lessons?

_____

_____

_____

4. Which technological resources do you use while integrating digital literacy in French lessons? How do you use them?

_____

_____

_____

5. What are the challenges of integrating digital literacy in French lessons?

6. What strategies do you utilise to improve your digital literacy?

7. Do you think French teachers can use technology to enhance their digital literacy? How can that be done?

8. What do you think may be the challenges of technology to advance French teachers' digital literacy?

9. What do you think may be the benefits of using technology to advance French teachers' digital literacy?

Appendix 5: Observation Tool

Observation Tool

Participant's name/Pseudonym: _____

School's name/Pseudonym: _____

Grade: _____

Date: _____

Time and duration of the lesson: _____

Topic: _____

1. How do you portray your understanding of what digital literacy is?

Observation notes:

_____

_____

_____

2. How do you facilitate your French lessons to show the importance of digital literacy integration?

Observation notes:

_____

_____

_____

3. Do you integrate digital literacy? How do you integrate digital literacy in French lessons?

Observation notes:

_____

_____

_____

4. Which technological resources do you use while integrating digital literacy in French lessons? How do you use them?

Observation notes:

5. What are the challenges of integrating digital literacy in French lessons?

Observation notes:

6. What strategies do you utilise to improve your digital literacy?

Observation notes:

7. Can French teachers use technology to enhance their digital literacy? How can that be done?

Observation notes:

8. What are challenges of using technology to advance French teachers' digital literacy?

Observation notes:

9. What are the benefits of using technology to advance French teachers' digital literacy?

Observation notes:

Appendix 6: Turnitin Similarity Report