


# Teaching Practice Supervisors' Experiences of Being Involved in Mobile App Development at an ODe-L Institution

Matshidiso Joyce Taole, University of South Africa, South Africa\*

 <https://orcid.org/0000-0002-1398-7946>

## ABSTRACT

This study used a case study to map teaching practice supervisors' experiences of being involved in developing the teaching practice mobile app (TPMA) for supervising students at an open distance e-learning (ODEL) institution. The technology acceptance model (TAM) was used as a theoretical framework for the study. Data were collected through semi structured interviews and analyzed thematically. The perceived usefulness of participating in app development is associated with empowerment and the opportunity to reflect. The participants' perceived ease of use was unfavorable, as they found downloading the app challenging and received minimal support from the developer. Even at an ODeL institution, supervisors would typically travel to visit students in teaching practice. The teaching practice mobile app would give supervisors flexibility and access to their students, as they would no longer have to travel to schools, and they could supervise their students remotely. The study recommends support for university supervisors to integrate mobile technologies into their teaching practice.

## KEYWORDS

Acceptance Model, Empowerment, Flexibility, Mobile App, Open Distance E-Learning, Reflection, Teaching Practice Mobile App, Teaching Practice Supervision

## INTRODUCTION

Mobile applications (apps) represent a revolutionary approach to education and have been introduced to the teaching and learning process (Ates & Garzón, 2022; Gangaiamaran & Pasupathi, 2017; Wai et al., 2018). Prior research has shown that mobile apps have experienced a surge in popularity since 2003 in the education context (Chen et al., 2003), especially in higher education institutions (Wai et al., 2018). Notably, the Coronavirus disease of 2019 (COVID-19) pandemic has forced learning institutions to use mobile applications, particularly in higher education institutions.

According to Yurtseven Avci et al. (2016), using modern technologies is essential in this quickly evolving teaching and learning space. However, integrating mobile apps into teacher education programs and equipping preservice teachers with 21st-century skills is challenging (McGarr &

DOI: 10.4018/IJOPCD.323650

\*Corresponding Author

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

Gallchoir, 2020). The concept of mobile learning does not enjoy a common interpretation among researchers; other concepts, such as m-learning (mobile learning), u-learning (Ubiquitous learning), personalized learning, learning while mobile, ubiquitous learning, anytime/anywhere learning, and handheld learning are used to define mobile learning (Mehdipour & Zerehkafi, 2013). Crompton & Burke. (2018) offer a simple definition of mobile learning. They view mobile learning as involving a mobile device, while Al-Emran et al. (2016) define it as learning mediated across multiple contexts using portable mobile devices. El-Hussein and Cronje (2010) contend that mobility can be divided into three significant areas: mobility of technology, mobility of the student, and mobility of learning, especially in the higher education landscape. These three elements are interdependent and equally important in making mobile devices viable as instruments for delivering higher education instructional content.

Yurtseven Avci et al. (2016) argue that academics must find alternative methods to make their classes enjoyable and effective for students using technology. As a result, academics need the right skills and knowledge to meet the demands of teaching in the 21st century. Kalliisa et al. (2017) maintain that although mobile learning is prevalent in higher education, its use in higher education, especially in developing countries, is still experimental and needs to be used to its full potential, especially for pedagogical reasons. According to Amhag et al. (2019), one of the reasons is that academics are constantly battling with technology in their teaching practice. The study conducted by Amhag et al. (2019) on teacher educators' use of digital tools in two universities in Sweden found that university teachers do not use digital tools primarily for pedagogical purposes and, therefore, need extensive pedagogical support in creating digital teaching. Similarly, a study by Dias-Trindade et al. (2020) revealed that academics have moderate digital competence. Jena (2015) and Hatlevik and Hatlevik (2018) support this view that academics are often less technology-savvy than their students and constantly need to adapt to the ever-changing demands and rapidly changing information and communication technologies. Academics must be dynamic, up-to-date, and capable of creatively solving students' problems.

In the context of the institution in this study, supervisors visit students to support and mentor them, playing a vital role in ensuring that they have a worthwhile experience when they do their teaching practice. In an attempt to embrace online opportunities with the help of technology, the Teaching Practice Mobile App (TPMA) was designed and developed by academics with the help of an app designer for teaching practice supervision.

In their role as supervisors, academics are teaching practice module coordinators. They are responsible for developing course content, supporting student learning, marking assignments and portfolios, and designing assessment activities. Teaching practice supervisors gave the app developer, who did not have prior experience with teaching practice issues, content. The success of the experience the app offers is dependent on curating the appropriate content. The content relates to the template that should be utilized to assess students' activities, including lesson observation, lesson presentation, reflection after lesson presentation, feedback questions, and general school observations. Additionally, the content offered downloadable articles on teaching practice supervision and tutorials, video clips, and lesson plan examples.

While e-assessment is increasingly being used in education, the assessment of the teaching practice module needs to follow the pattern. Against this backdrop, the TPMA was developed to address the challenges facing teaching practice at one of the open distance e-learning (ODEL) universities in South Africa. According to University of South Africa (UNISA) (2018), ODeL focuses on removing barriers to accessing learning, the flexibility of learning provision, student-centeredness, supporting students, and constructing learning programs with the expectation that students can succeed. In the ODeL context, learning is mediated through various current and emerging digital technologies and resources (UNISA, 2018). The mobile app is one of the technologies that could support students learning. Even at an ODeL institution, supervisors would typically travel to visit students in teaching practice. The app is designed to put the supervisor and student in direct communication while the

student is in teaching practice. The supervisor will guide, mentor, and assess the student remotely. The app will likely be used by work-integrated learning programs at the university and possibly at other institutions. In essence, the app will serve as a common digital platform that offers online communication possibilities, such as sharing teaching practice documents, evaluation forms, feedback, lesson plans, and other relevant e-material, which can be packaged as a separate e-portfolio. In addition, uploading actual lessons via video clips is a unique feature and an innovative part of the app.

Research shows that designing mobile apps that contribute to student learning is a new phenomenon and is becoming increasingly important in improving teaching practice (Khaddage et al., 2016). Previous research has focused on students' use and motivation with mobile technologies (Chen & Denoyelles, 2013; Kaliisa et al., 2017). Gupta et al. (2021) systematically reviewed factors influencing mobile learning in higher education. Romero-Rodríguez et al. (2020) explored the models of good teaching practices for mobile learning in higher education. However, there is a paucity of research focusing on using technology in teaching practice supervision (McGarr & Gallchoir, 2020). The main research question guiding this study was: *How do teaching practice supervisors experience being involved in developing the Teaching Practice Mobile App for supervising students at an open distance e-learning (ODEL) institution?* This primary research question was explored using the following subquestions:

- What is the perceived usefulness of participating in developing a mobile app for supervising students?
- What is the perceived ease of use of participating in developing a mobile app for teaching practice supervision?

Contributing to existing literature, this article explores the experiences of teaching practice supervisors involved in developing the TPMA for supervising students in an ODeL context. It is essential to understand the use of mobile apps from the perspective of the teaching practice supervisors and highlight their experiences in being involved in mobile apps for content development.

## LITERATURE REVIEW

### Mobile Learning and Mobile Apps

The transformation in education brought about by using information and communication technologies has accelerated the use of digital content and materials in the learning environment (Unal & Uzun, 2019). The increasing availability of technology-enabled learning tools in education has led scholars to explore ways to enhance learning using emerging technologies such as mobile apps. The name "app" denotes application software. A mobile app is software for mobile devices, such as laptops, tablets, smartphones, iPads, and iPods. Researchers have demonstrated various ways of using mobile apps, which has increased motivation and collaboration among students (Ates & Garzon, 2022), particularly as mobile apps can be easily downloaded and used on mobile phone devices (Khaddage et al., 2011).

With students' greater access to mobile devices for learning, content can be presented in different forms, such as visuals or image-based materials, such as videos, animation, presentations, and/or concept maps. Visuals enhance the learning process by creating an interesting learning environment for students (Shabiralyani et al., 2015) and making learning authentic, which engages the students (Reyes, 2020). Therefore, university supervisors must support their students and enrich their learning environment (Jang et al., 2016) by developing appropriate content material for mobile devices. The affordances of mobile learning could be listed as extending classroom interactions to other locations via communication networks (Baran, 2014); giving both university supervisors and students access to information (Khaddage et al., 2011); facilitating easy access to learning materials due to their portability and accessibility (Gangaiamaran & Pasupathi, 2017); enhancing communication between students and university supervisors; providing feedback which university supervisors can use to

improve their teaching practice (Ooms et al., 2008); aiding collaborative learning among students (Hsu & Ching, 2013); enhancing reflection (Petko et al., 2019); and offering flexibility, accessibility, availability, and catering for numerous interactive activities (Makoe & Shandu, 2018).

In the Fourth Industrial Revolution, where the development of 21st-century skills is vital, academic facilitation and the adoption of mobile learning platforms are vital (Darby, 2004). Kaliisa et al. (2017), however, note that there are challenges facing mobile learning, which include infrastructure, policy, pedagogics, and perceptions. For example, technological constraints with the mobile app relate to students using different mobile devices; some use hi-tech smart devices, while others use low-tech smart devices (Khaddage et al., 2011). In addition, the screen size, memory, power consumption, and storage can impact the device's usability, which could present a challenge when using mobile apps is introduced in teaching and learning. Mobile app design is time-consuming and expensive. In some instances, it may not be possible for university supervisors to create content on different platforms due to their lack of technical skills and willingness to embrace new pedagogies. Some researchers perceive mobile learning as distracting students (Khaddage et al., 2011). Sobral (2020) contends that some students engage in cheating, sexting, and cyberbullying on their mobile devices.

According to Kebritchi et al. (2010), research on mobile learning has yielded mixed reports on its contribution to effective learning and teaching. Although mobile technologies are regarded as boundless (Khaddage et al., 2011), Chen and Denoyelles (2013) argue that mobile technologies should not be treated as a panacea for teaching and learning problems. However, Davison and Lazaros (2015) suggest that to get the maximum benefit from using mobile learning technologies; there are considerations that need to be met. One consideration should be to ensure that content is presented in a manner that is appealing to students and that the content should be designed to work on most devices, even the least advanced ones.

## **Teaching Practice Program in South Africa**

Two main programs for teacher education are offered by most universities in South Africa. These are a four-year Bachelor of Education (BEd) degree program for initial teacher training and a one-year Post Graduate Certificate in Education (PGCE) for graduates. Students enrolled in these programs are expected to do teaching practice. The knowledge expertise for students graduating from the BEd program includes inclusive education, skills in information communications technology (ICT) integration in classrooms, and skills in identifying and addressing barriers to learning, as well as in curriculum differentiation to address the needs of individual students within a grade (Department of Higher Education and Training, DHET, 2018). These skills and knowledge are honed during the teaching practice period.

The BEd program requires students to complete 20 weeks of teaching practice (a five-week practicum each year), while the PGCE students are expected to do ten weeks of teaching practice in a “functional” school. Functional schools are described by the Department of Higher Education (DHET, 2018) as schools that ensure that students perform to their maximum potential despite their challenges. However, Jiyane and Gravett (2019) argue that students should be exposed to varying educational contexts that would enable them to function in the authentic environment they will face. While doing teaching practice, students are expected to do practical learning, learning from and in practice (DHET, 2018). In addition, it is expected that students be systematically mentored, supervised, and assessed during the teaching practice over the four years of the BEd program and the one year of the PGCE.

## **Teaching Practice**

Teaching practice is a significant component of teacher education and provides student teachers with hands-on experience of what happens in the classroom and the school environment (Mubika & Bukaliyam, 2013). In teaching practice, student teachers are placed in schools to gain teaching experience (DHET, 2011), experience and “experiment” with their knowledge and skills in an authentic

teaching and learning environment (DHET, 2011), and observe subject teachers at work to learn about their abilities, techniques, and accomplishments in the classroom (Mokoena, 2017). Teaching practice provides an interface between studenthood and professional membership (Ranjan, 2013). Students, as preservice teachers, use teaching practice as an opportunity to put their philosophies about teaching and learning to the test and use it as an opportunity to integrate theory into practice. Karunagaran and Saimin (2019) explain that teaching practice is designed to develop experts prepared to face the challenges of the 21st century in the classroom. However, students often feel unsupported during their teaching practice period (Maor & Currie, 2017; Mokoena, 2017). Mokoena's study (2017) indicated that student teachers experienced challenges related to on-time placement in school, supervision, and mentoring. Other challenges include classroom management, teaching confidence, and a shortage of teaching materials (Ulla, 2016). There is literature to suggest that the provision of teaching practice can be improved through technology-mediated tools (Glover et al., 2016).

### Teaching Practice Supervision

Supervision is regarded as the main component of teaching practice and refers to assisting and assessing student teachers' performance (Musingafi et al., 2019). This supervisory task is assigned to an expert to stimulate students' individual growth and development, influence their behavior in the classroom (Abdullah et al., 2020), improve their professionalism (Abdullah et al., 2020), and ensure that specific standards and objectives are met (Yusuf et al., 2022). Supervision aims to support preservice students and ensure that guidance is provided as they prepare to become teachers (Abdullah et al., 2020). Hendry et al. (2014) identified two supervision components: supervisory procedure and content. Supervisory procedure deals with supervision, and supervisory content refers to what is assessed during supervision, elements that should be prioritized during teaching practice to produce quality teachers (Hendry et al., 2014). As Abdullah et al. (2020) argue, supervisors determine the quality of teaching that could be produced, develop student teachers' professional understanding and shape their professional identity, and assist them in reaching the intended learning outcomes.

### Reflective Practice

Reflective practice is essential to university supervisors' professional development (Petko et al., 2019). University supervisors are expected to reflect on their teaching practice and address the problems they encounter using the information from the reflective practice. When university supervisors reflect, they better understand themselves and their students (Mathew et al., 2017), become in tune with their teaching practice, question how they do things, and discover why they do things that way.

## THEORETICAL FRAMEWORK

In the context of technology acceptance, models, such as the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2012), measurement and analysis of computer user satisfaction (Shroff et al., 2011), and the Technology Acceptance Model (Davis, 1989) have been introduced. The TAM, developed by Davis in 1989, is used in this study as a lens to examine how university supervisors experience being involved in developing a TPMA for supervising students at an ODeL institution. *Technology acceptance* is defined by Dillon (2001) as a person's capacity to use technology for the intended purposes. TAM has its roots in the Theory of Reasoned Action (TRA) model, built by Fishbein and Ajzen (1980), and its main tenets aim to explain and estimate user acceptance of innovation. It explains the factors that influence the acceptance of technology in an organization. According to Davis (1989), TAM theory has core constructs determining the user's acceptance. These are perceived usefulness and perceived ease of use (Byun et al., 2018). Perceived use relates to individuals' beliefs on whether the application will help them do their job better. In the context of this study, perceived usefulness refers to the extent to which teaching practice supervisors believe that a mobile app is useful for teaching and learning. According to Nugroho et al. (2017),

users' opinions on the technology available and its usability may influence their desire to use it, particularly regarding online applications.

Perceived ease of use involves the belief that using the app will be effortless. Perceived ease of use in the context of this study refers to the extent to which teaching practice supervisors perceive the teaching practice mobile app to be user-friendly and easy to use. If the innovation is not easy to use, it will not be perceived as useful (Shroff et al., 2011). Attitude refers to a person's ideas regarding a particular behavior (Byun et al. 2018). A person's attitude and behavior will depend on how they respond to and perceive things that suggest how they view technology, and that will influence their behavior and attitude. Using ATM theory, this study explores teaching practice supervisors' experiences of being involved in the TPMA. How the teaching practice supervisors experience the involvement in developing the app could contribute to their adoption of the app, which was created specifically to address the present demand of utilizing technology in teacher education.

## **RESEARCH METHODOLOGY**

### **Approach**

The methodological approach of this study was situated within qualitative research. The focus was on the meanings the participants in the study setting attached to their experiences (Creswell, 2014). The research was exploratory and sought to discover university supervisors' points of view from their own experiences. A single case study, which allowed for the in-depth study of the phenomenon under investigation (Yin, 2009), was used. Data were generated through semistructured interviews to provide insight into how teaching practice supervisors experience being involved in developing the TPMA for supervising students at an ODeL institution.

### **The Context**

The study was carried out at the UNISA within the College of Education, which has two schools, namely, the School of Teacher Education and the School of Educational Studies. UNISA is an ODeL institution. Students enroll for a four-year program (BEd) or a one-year program (PGCE) for students with graduate qualifications who want to pursue teaching. Teaching practice, a compulsory module for the BEd and PGCE qualification, requires classroom-based assessment and guidance, which, if not satisfactorily conducted, compromises the quality and status of the qualification. The unit responsible for teaching practice is part of the School of Teacher Education and oversees student placement, coordinates teaching practice supervision, and other activities related to student supervision, such as training supervisors and mentors. Teaching practice supervision has been identified as a significant concern at most teacher education institutions (Davids, 2015), with various studies indicating student dissatisfaction with assessment processes and practices (Davids, 2015; Mokoena, 2017).

### **Sampling**

The ten participants, purposively sampled from the population, were deemed informative, with the criterion for inclusion being experienced in their current position for at least five years and more. The assumption was that they would have accumulated information about the phenomenon under study and would visit ten or more student teachers during teaching practice. The small sample of ten was used to preserve the homogeneity and ensure that the analysis did not place more emphasis on the diversity of the sample than on the diversity of their experiences (Lefèvre et al., 2019). Only participants who were willing to participate were included in the study. After signing the consent form, participants were guaranteed anonymity and informed that they could withdraw from the study at any time. It should be mentioned that the university supervisors who participated in this study had limited experience in developing and using the app; however, they were given tablets for the study's purpose.

## Data Collection Method and Analysis

Semistructured interviews were used to collect data, which enabled the researcher to interrogate participants' points of view, beliefs, and attitudes with questions designed to encourage them to recount their experiences (Lefèvre et al., 2019). A predetermined set of questions was used, but participants were given the latitude in the breath of reference. The main research question guiding this study was: *How do teaching practice supervisors experience being involved in developing the Teaching Practice Mobile App for supervising students at an open distance e-learning (ODEL) institution?* This primary research question was explored using the following subquestions:

- What is the perceived usefulness of participating in developing a mobile app for supervising students?
- What is the perceived ease of use of participating in developing a mobile app for teaching practice supervision?

Interviews were recorded with the participant's consent. Before the analysis began, the recordings were transcribed and anonymized. The data analysis followed a thematic analysis framework to get a comprehensive, rich, and complete explanation of the data (Braun & Clarke, 2006). Data from the interviews were coded and categorized into themes. Pseudonyms were used to protect the identity of the participants. Member checking was conducted to ensure rigor in the research findings. After the final analysis, the consistency of the data was verified by listening to the audio and reading the transcription notes. Participants' experiences are reported in the findings section.

## Findings

Two main themes emerged when analyzing qualitative data: perceived usefulness and perceived ease of use. These main themes were discussed using subthemes. The subthemes for perceived usefulness are empowerment, the opportunity to reflect, and flexibility. The subthemes for perceived use are challenges with downloading the app and limited support from the app developer.

### Perceived Usefulness

#### *Empowerment*

When participants were asked about their experiences of being involved in developing the teaching practice app, many participants felt that they were empowered. They perceive the app as a useful tool that enhances their learning. Participants mentioned that they could decide what goes into the app. One participant indicated, "This has allowed me to decide on the app's content" (Mary). Another participant said, "I helped provide content, which allowed me to share my expertise and experience in teaching practice" (Mink). It emerged from these quotes that participants felt that their contributions were valued. As experienced university supervisors tasked with teaching practice supervision, they were allowed to share their knowledge which was seen as positive and made them feel important and valuable in the process.

#### *Opportunity to Reflect*

In addition, participants felt that their involvement in the app's design allowed them to reflect on their teaching practice and the teaching practice module. For example, one interviewee said: "This has encouraged me to reflect on the content of my teaching practice modules" (Piet). Another one said, "I was able to reflect on my teaching practices and decide how to improve my teaching" (Lerato). Participants' reflections helped them to interrogate their teaching and find better innovative ways for their professional practice.

## *Flexibility*

When asked what excited them most about the app, participants mentioned that the tool gave them flexibility. For example, their traveling would be curtailed when supervising the students, as that can be done from their offices on campus, so there would be more time to focus on the supervision process. One participant stated, “We will no longer have to travel to different schools to supervise the students. I can do that in the comfort of my home or office. This could reduce our time on the road while visiting the students” (Zilla). Another participant reaffirmed this by saying, “I am happy that I will no longer have to travel long distances and be away from my family” (Moses). Echoing the same sentiment, one participant mentioned, “At least we will not travel to visit the students. We can do that via the internet. This was inconvenient because we spent more time on the road than supervising the students” (Rony).

The above statements showed that participants were excited about what the new app could offer: flexibility. They believe most of the time was spent on the road instead of supervising the students. They felt that they would benefit from the affordances of technology, use that time in the actual supervision process, and not be away from family for extended periods.

Furthermore, participants felt that using technology to assess their teaching practice students allows them to develop their skills in using technology. One participant mentioned, “It offers upgrading to Fourth Industrial Revolution(4IR) practices in a field. Teaching practice is only manually conducted until now” (Pat). Another participant affirmed, “The app will replace the manual process with digital technology, as I can assess my students remotely” (Frank). Participants felt they would be part of the rapidly changing learning environment, as they would use technology when assessing their students.

Although most participants felt that the app would benefit them, some argue that it would deprive them of the opportunity to interact with their students personally within their teaching practice context. One individual stated, “Although using technology is good, I feel this will rob us of the opportunity to see our students in person. Sometimes you just have to see and be there. That is how I feel” (Rony). Furthermore, another commented, “Technology is good, but I am just worried that we will not see our students in person. You know, seeing you on the screen is not the same as seeing you in person. If we are there, we can understand their context and understand why they do things the way they do” (Piet).

The above quotes showed that although most agree that the app and technology will save them time, some believe they will lose that personal touch that they experience when they visit their students. Visiting their students also helps them to understand the different contexts that their students find themselves in when doing teaching practice. Understanding the student teachers’ context would help participants better understand the challenges that the student teachers might face in different schools.

## **Perceived Ease of Use**

### *Challenges With Downloading the App and Working With the App Developer*

Dealing with technology has been challenging for some of the participants. Despite being given the tablet, the study showed that participants encountered problems when they were downloading the app. The tablet was familiar, but they were not used to working on tablets. Here are some of their comments, “I am not used to working on a tablet, so downloading the app was not easy. I always work on my laptop, so the tablet was like a new gadget to me” (Pat). “My biggest challenge was downloading the app on my tablet and navigating the app” (Moses). Participants reported that they experienced challenges in working with the app developer. They indicated that although the developer was easy to work with, he was not always available when needed. Here are some of their comments on this issue, “He was easy to work with, but he made assumptions about our knowledge of app issues some of the information needed to be clarified, and he was not available to do that” (Mary). “I struggled to get hold of him when I needed his assistance. However, he communicated with the team and updated the team with processes and procedures” (Lerato). “He was not always available. I will call him, and he will not answer his phone. I am unsure if he is busy or just ignoring our calls. It



is frustrating when you need help and no one can help you” (Pat). “Working with the app developer was my biggest challenge” (Mink).

From the statements above, the participants felt that the app developer assumed they should have some technical knowledge of mobile apps. However, some participants felt that the app developer took it for granted that they should have some knowledge of the app’s development and other functionalities. The information given to participants was insufficient and created problems for them. However, it is worth pointing out that although the developer did not explain the technical issues to the participants, he communicated with them and kept them updated on the app’s development.

## DISCUSSION OF THE FINDINGS

The current study explored teaching practice supervisors’ experiences of being involved in developing a teaching practice mobile app for supervising students at an open distance e-learning institution. The findings suggest some perceived benefits and usefulness of using technology in participating in app development. Participants felt empowered and that they could share their expertise when they were providing content for the app. Furthermore, participants maintained that their participation allowed them to reflect on their teaching practice. Following the present results, previous studies have demonstrated that individuals develop a sense of empowerment when participating in app development (Hsu & Ching, 2013). These findings resonate with previous studies suggesting that mobile apps allow academics to reflect on their practice, enhance their professional development (Petko et al., 2019), and help them improve their teaching (Mathew et al., 2017).

In addition, participants felt that using the mobile app in supervision makes them part of the transformation wave that advocates for the use of mobile apps in education. This idea aligns with Kaliisa et al.’s (2017) assertion that universities are moving toward using mobile technologies for teaching and learning, particularly within the Fourth Industrial Revolution.

Another important finding was that participants saw the app as a possible tool for student supervision. Participants perceive usefulness as the belief that the tool would give them flexibility, as they will no longer have to travel to schools; they can supervise their students wherever they are posted for their teaching practice. Mobile apps as a digital tool for student-teacher supervision increase supervisors’ accessibility to students and reduce visits to remote areas (Schmidt et al., 2015).

One unanticipated finding was that dealing with technology has been challenging for some participants. Perceived ease of use was negative for the participants. The study revealed that it was challenging for the participants to download the app on their tablets. This point contrasts with Khaddage et al. (2011), who cited that the advantage of using mobile apps is that they can be easily downloaded. A possible explanation for these findings may be the need for more adequate skills to navigate mobile technologies on the part of the participants. This aligns with the Hatlevik and Hatlevik (2018) assertion that teachers/instructors lack the necessary skills to integrate technology into their teaching. According to Chen and Denoyelles (2013), effective use of mobile technologies depends on possessing a particular set of digital skills, such as accessing, managing, and evaluating digital information. Kaliisa et al. (2017) argue that although mobile learning is popular within the higher education environment, its use in higher education, especially in developing countries, is still experimental and has yet to be used to its full potential. Furthermore, the participants are more used to working on their laptops than tablets.

These findings are congruent with Davison and Lazaros (2015), who found that students prefer to use laptops as mobile learning devices. Similar trends were observed with university supervisors in this study. In addition, the app developer assumed that the participants were technologically skilled and that there was no need to explain technical issues to them in detail. It was important for the participant to understand some technical nuances to use the app effectively. This finding corroborates the ideas of Khaddage et al. (2011), who suggested that it is expected that teachers should know how to work with

technology. According to Inukollu et al. (2014), app developers have a minimum knowledge of user demands and expectations, which could contribute to app failure if their concerns are not addressed.

## **CONCLUSION AND RECOMMENDATIONS**

The current study's main goal was to explore teaching practice supervisors' experiences of being involved in developing the TPMA for supervising students at an ODeL institution. The study has shown that the perceived usefulness of participating in app development is associated with empowerment and the opportunity to reflect. In addition, participants felt some benefits to using the app, including the feeling of being a more significant part of the rapidly changing learning environment. However, participants experienced challenges such as a lack of know-how in accessing the app. The study recommends that university supervisors be supported in integrating mobile technologies into their teaching practices. The findings of this study provide several practical implications. The information gained from this study would be helpful for educational stakeholders in guiding the use of mobile learning in higher education.

Furthermore, this study highlights the educational value of mobile app design by lecturers. It is hoped that the study might encourage lecturers to develop mobile apps to meet their students' teaching and learning needs. Further studies need to be conducted to explore lecturers' mobile practices to determine the support they need to integrate technology into their teaching practice fully.

## **AUTHOR NOTE**

Professor Taole (<https://orcid.org/0000-0002-1398-7946>) holds a PhD degree in Curriculum Development from the North West University. She is a full professor at University of South Africa (UNISA) in the Department of Curriculum and Instructional Studies. She is presently involved in research supervision in the fields of curriculum studies, multigrade teaching, and language teaching and learning. Her interests are rural education, multigrade teaching, teacher professional development, teaching practice, and teaching inclusivity in education.

The data sets used and/or analyzed during the current study are available from the corresponding author upon reasonable request. Although the manuscript is from the data from a large project in the College of Education at the University of South Africa, there was no funding received to assist with the preparation of this manuscript. The University of South Africa Open Distance and E-Learning Research Support Programme (ODeL RSP) is acknowledged for funding the project.

## REFERENCES

- Abdullaha, M. H., Sulongb, M. A., & Abdul, M. (2020). Development and validation of the music education teaching practice E-supervision system using the google classroom application. *Development, 11*(10), 102–116.
- Al-Emran, M., Elsherif, H. M., & Shaalan, K. J. C. (2016). Investigating attitudes towards the use of mobile learning in higher education. *Computers in Human Behavior, 56*, 93–102. doi:10.1016/j.chb.2015.11.033
- Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher educators' use of digital tools and needs for digital competence in higher education. *Journal of Digital Learning in Teacher Education, 35*(4), 203–220. doi:10.1080/21532974.2019.1646169
- Ateş, H., & Garzón, J. (2022). Drivers of teachers' intentions to use mobile applications to teach science. *Education and Information Technologies, 27*(2), 2521–2542. doi:10.1007/s10639-021-10671-4 PMID:34462627
- Baran, E. (2014). A review of research on mobile learning in teacher education. *Journal of Educational Technology & Society, 17*(4), 17–32. <https://eric.ed.gov/?id=EJ1045552>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. doi:10.1191/1478088706qp063oa
- Byun, H., Chiu, W., & Bae, J. S. (2018). Exploring the adoption of sports brand apps: An application of the modified technology acceptance model. *International Journal of Asian Business and Information Management, 9*(1), 52–65. doi:10.4018/IJABIM.2018010105
- Chen, B., & Denoyelles, A. (2013). Exploring students' mobile learning practices in higher education. *EDUCAUSE Review, 7*(1), 36–43.
- Chen, Y. S., Kao, T. C., & Sheu, J. P. (2003). A mobile learning system for scaffolding bird watching learning. *Journal of Computer Assisted Learning, 19*(3), 347–359. doi:10.1046/j.0266-4909.2003.00036.x
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. Sage Publications.
- Crompton, H., & Burke, D. (2018). The use of mobile learning in higher education: A systematic review. *Computers & Education, 123*, 53–64. doi:10.1016/j.compedu.2018.04.007
- Darby, J. (2004). eLearning as a change agent. *International Journal of the Computer, the Internet and Management, 12*(2), 171–176.
- Dauids, M. N. (2015). Teaching practicum assessment in post-apartheid teacher education: Is it self-serving or serving students? *Journal of Education for Teaching, 41*(4), 338–350. doi:10.1080/02607476.2015.1080349
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly, 13*(3), 319–340. doi:10.2307/249008
- Davison, C. B., & Lazaros, E. J. (2015). Adopting mobile technology in the higher education classroom. *The Journal of Technology Studies, 41*(1), 30–39. doi:10.21061/jots.v41i1.a.4
- Department of Higher Education and Training (DHET). (2011). *The Minimum Requirements for Teacher Education Qualifications*. Government Printers. <http://hdl.voced.edu.au/10707/224374>
- Department of Higher Education and Training (DHET). (2018). *Strategic policy framework on disability for the postschool education and training system*. Government Printers. <https://planipolis.iiep.unesco.org/en/2018/strategic-policy-framework-disability-post-school-education-and-training-system-6766>
- Dias-Trindade, S., Moreira, J. A., & Ferreira, A. G. (2020). Assessment of university teachers on their digital competences. *Qwerty-Open and Interdisciplinary Journal of Technology. Culture and Education, 15*(1), 50–69. doi:10.30557/QW000025
- Dillon, A. (2001). User acceptance of information technology. *Encyclopedia of Human Factors and Ergonomics, 1*, 1105–1109.
- El-Hussein, M. O. M., & Cronje, J. C. (2010). Defining mobile learning in the higher education landscape. *Journal of Educational Technology & Society, 13*(3), 12–21.

Fishbein, M., & Ajzen, I. (1980). Predicting and understanding consumer behaviour: Attitude behaviour correspondence. In J. Ajzen & M. Fishbein (Eds.), *Understanding attitudes and predicting social behaviour* (pp. 148–172). Prentice Hall.

Gangaiamaran, R., & Pasupathi, M. (2017). Review on the use of mobile apps for language learning. *International Journal of Applied Engineering Research*, 12(21), 11242–11251.

Glover, I., Hepplestone, S., Parkin, H., Rodger, H., & Irwin, B. (2016). Pedagogy first: Realizing technology enhanced learning by focusing on teaching practice. *British Journal of Educational Technology*, 47(5), 993–1002. doi:10.1111/bjet.12425

Gupta, Y., Khan, F. M., & Agarwal, S. (2021). Exploring factors influencing mobile learning in higher education-A systematic review. *International Journal of Interactive Mobile Technologies*, 15(12), 140–157. doi:10.3991/ijim.v15i12.22503

Hatlevik, I. K., & Hatlevik, O. E. (2018). Examining the relationship between teachers' ICT self-efficacy for educational purposes, collegial collaboration, lack of facilitation and the use of ICT in teaching practice. *Frontiers in Psychology*, 9(935), 1–8. doi:10.3389/fpsyg.2018.00935 PMID:29951018

Hendry, G. D., Bell, A., & Thomson, K. (2014). Learning by observing a peer's teaching situation. *The International Journal for Academic Development*, 19(4), 318–329. doi:10.1080/1360144X.2013.848806

Hsu, Y. C., & Ching, Y. H. (2013). Mobile app design for teaching and learning: Educators' experiences in an online graduate course. *International Review of Research in Open and Distance Learning*, 14(4), 117–139. doi:10.19173/irrodl.v14i4.1542

Inukollu, V. N., Keshamoni, D. D., Kang, T., & Inukollu, M. (2014). Factors influencing quality of mobile apps: Role of mobile app development life cycle. *International Journal of Software Engineering and Its Applications*, 5(5), 15–34. doi:10.5121/ijsea.2014.5502

Jang, H., Kim, E. J., & Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. *Learning and Instruction*, 43, 27–38. doi:10.1016/j.learninstruc.2016.01.002

Jena, R. (2015). Technostress in ICT enabled collaborative learning environment: An empirical study among Indian academician. *Computers in Human Behavior*, 51, 1116–1123. doi:10.1016/j.chb.2015.03.020

Jiyane, L., & Gravett, S. J. (2019). The practice learning experiences of student teachers at a rural campus of a South African university. *South African Journal of Childhood Education*, 9(1), 1–9. doi:10.4102/sajce.v9i1.702

Kaliisa, R., Palmer, E., & Miller, J. (2017). Mobile learning in higher education: A comparative analysis of developed and developing country contexts. *British Journal of Educational Technology*, 50(2), 546–561. doi:10.1111/bjet.12583

Karunagara, V., & Saimin, R. (2019). Challenges of pre-service teachers during teaching practice: A case study. *Infrastructure University Kuala Lumpur Research Journal*, 7(2), 64–72.

Kebritchi, M., Hirumi, A., & Bai, H. (2010). The effects of modern mathematics computer games on mathematics achievement and class motivation. *Computers & Education*, 55(2), 427–443. doi:10.1016/j.compedu.2010.02.007

Khaddage, F., Lattemann, C., & Bray, E. (2011, March 7). Mobile apps integration for teaching and learning. (Are teachers ready to re-blend?). In M. Koehler & P. Mishra (Eds.), *Proceedings of SITE 2011--Society for Information Technology & Teacher Education International Conference*. Association for the Advancement of Computing in Education (AACE). Retrieved November 15, 2022 from <https://www.learntechlib.org/p/36694>

Khaddage, F., Müller, W., & Flintoff, K. (2016). Advancing mobile learning in formal and informal settings via mobile app technology: Where to from here, and how? *Journal of Educational Technology & Society*, 19(3), 16–26.

Lefèvre, H., Moro, M. R., & Lachal, J. (2019). Research in adolescent healthcare: The value of qualitative methods. *Archives de Pédiatrie*, 26(7), 426–430. doi:10.1016/j.arcped.2019.09.012 PMID:31611145

Makoe, M., & Shandu, T. (2018). Developing a mobile app for learning English vocabulary in an open distance learning context. *International Review of Research in Open and Distance Learning*, 19(4), 208–221. doi:10.19173/irrodl.v19i4.3746

- Maor, D., & Currie, J. K. (2017). The use of technology in postgraduate supervision pedagogy in two Australian universities. *International Journal of Educational Technology in Higher Education*, 14(1), 1–9. doi:10.1186/s41239-017-0046-1
- Mathew, P., Mathew, P., & Peechattu, P. J. (2017). Reflective practices: A means to teacher development. *Asia Pacific Journal of Contemporary Education and Communication Technology*, 3(1), 126–131.
- McGarr, O., & Gallchóir, C. Ó. (2020). Examining supervising field instructors' reporting and assessment of technology use by pre-service teachers on school placement. *Computers & Education*, 146, 1–11. doi:10.1016/j.compedu.2019.103753
- Mehdipour, Y., & Zerehkafi, H. (2013). Mobile learning for education: Benefits and challenges. *International Journal of Computational Engineering Research*, 3(6), 93–110.
- Mokoena, S. (2017). Student teachers' experiences of teaching practice at open and distance learning institution in South Africa. *Turkish Online Journal of Distance Education*, 18(2), 122–133. doi:10.17718/tojde.306564
- Mubika, K. A., & Bukaliya, R. (2013). Challenges in the training of teachers through open and distance learning: Implications for quality. *Asian Journal of Social Sciences and Humanities*, 2(3), 40–52.
- Musingafi, M. C. C., Dhliwayo, T., & Namusi, W. (2019). Challenges and prospects for teaching practice in the Zimbabwe Open University: Learning from experiences in the first semester 2016 teaching practice supervision exercise in Masvingo, Bulawayo, Matabeleland North and Matabeleland South. *Journal of Education and Practice*, 10(7), 77–83. doi:10.7176/JEP
- Nugroho, A. H., Bakar, A., & Ali, A. (2017). Analysis of technology acceptance model: A case study of Traveloka. *Journal of Business Management and Accounting*, 1(1), 27–34.
- Ooms, A., Linsey, T., & Webb, M. (2008). The in-classroom use of mobile technologies to support diagnostic and formative assessment and feedback [Conference session]. Paper presented at the 7th London International Scholarship of Teaching and Learning Conference, London, UK.
- Petko, D., Schmid, R., Müller, L., & Hielscher, M. (2019). Metapholio: A mobile app for supporting collaborative note taking and reflection in teacher education. *Technology. Knowledge and Learning*, 24(4), 699–710. doi:10.1007/s10758-019-09398-6
- Ranjan, R. (2013). A study of practice teaching programme: A transitional phase for student teachers. *Voice of Research*, 1(4), 24–28.
- Reyes, M. S. (2020). *My beliefs regarding the use of visual aids for teaching vocabulary* [Bachelor's thesis]. <https://repositorio.uahurtado.cl/handle/11242/25865>
- Romero-Rodríguez, J. M., Aznar-Díaz, I., Hinojo-Lucena, F. J., & Cáceres-Reche, M. P. (2020). Models of good teaching practices for mobile learning in higher education. *Palgrave Communications*, 6(1), 1–7. doi:10.1057/s41599-020-0468-6
- Schmidt, R., Möhring, M., Härting, R. C., Reichstein, C., Neumaier, P., & Jozinović, P. (2015, June 24–26). Industry 4.0-potentials for creating smart products: Empirical research results. In *Business Information Systems: 18th International Conference, BIS 2015, Poznań, Poland, Proceedings 18*. Springer International Publishing.
- Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqbal, N. (2015). Impact of visual aids in enhancing the learning process case research: District Dera Ghazi Khan. *Journal of Education and Practice*, 6(19), 226–233.
- Shroff, R. H., Deneen, C., & Ng, E. M. (2011). Analysis of the technology acceptance model in examining students' behavioural intention to use an e-portfolio system. *Australasian Journal of Educational Technology*, 27(4), 600–618. doi:10.14742/ajet.940
- Sobral, S. R. (2020). Mobile learning in higher education: A bibliometric review. *International Journal of Interactive Mobile Technologies*, 14(11), 153–170. doi:10.3991/ijim.v14i11.13973
- Ulla, M. B. (2016). Pre-service teacher training programs in the Philippines: The student-teacher practicum experience. *EFL Journal*, 1(3), 235–250. <https://doi.org/10.21462/eflj.v1i3.23> doi:10.21462/eflj.v1i3.23
- Unal, E., & Uzun, A. M. (2019). Using Web 2.0 technologies to support teacher candidates' content development skills. *Cypriot Journal of Educational Science*, 14(4), 694–705. doi:10.18844/cjes.v11i4.3737

University of South Africa (UNISA). (2018). *Open Distance eLearning Policy*. UNISA. <https://www.unisa.ac.za/static/myunisa/Content/Student%20affairs%20&%20SRC/Documents/SRC%20Important%20Policy%20Documents/Policy%20-%20Open%20Distance%20e-Learning%20-%20rev%20appr%20Exco%20of%20Council%20-%202010.12.2018.pdf>

Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *Management Information Systems Quarterly*, 36(1), 157–178. doi:10.2307/41410412

Wai, I. S. H., Ng, S. S. Y., Chiu, D. K., Ho, K. K., & Lo, P. (2018). Exploring undergraduate students' usage pattern of mobile apps for education. *Journal of Librarianship and Information Science*, 50(1), 34–47. doi:10.1177/0961000616662699

Yin, R. K. (2009). Case study research: Design and methods. In *Applied social research methods series* (vol. 5) Sage.

Yurtseven Avci, Z., Eren, E., & Seckin Kapucu, M. (2016). Practical tools for content development: Pre-service teachers' experiences and perceptions. *International Journal of Instruction*, 9(2), 19–34. doi:10.12973/iji.2016.922a

Yusuf, H. T., Odutayo, A. O., & Tuoyo, A. O. (2022). Effectiveness of teaching practice supervision as perceived by student-teachers in Ilorin Metropolis, Nigeria. *Journal of Educational Sciences*, 6(3), 312–319. <https://doi.org/10.31258/jes.6.3.p.312-319>