



Utilisation of WhatsApp as a Learning Tool Among Pre-Service Teachers in Tanzanian Universities

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Abstract

This study investigated the pedagogical application of WhatsApp among pre-service teachers enrolled in selected universities within the Dar es Salaam region of Tanzania. The research specifically examined the extent to which WhatsApp was employed for academic engagement and identified the challenges associated with its use. A qualitative methodology was adopted, employing an exploratory case study design to gain in-depth insights into the phenomenon. A total of 28 participants were selected through purposive and convenience sampling techniques. Data collection was conducted via focus group discussions and in-depth interviews with pre-service teachers. The findings indicated that WhatsApp served as an effective medium for academic communication between students and lecturers. It facilitated collaborative learning through the formation of electronic discussion groups and enhanced access to educational resources. Moreover, the platform enabled peer-to-peer learning, whereby students shared diverse perspectives and experiences, thereby enriching the learning process and making it more engaging, enjoyable, and motivational. Despite these benefits, several challenges were identified. These included inappropriate use of the platform, high data costs, unreliable internet connectivity, non-compliance with group norms, and excessive message traffic, all of which impeded the optimal use of WhatsApp for academic purposes. The study concludes that while WhatsApp holds significant potential as a supplementary educational tool, it should not be viewed as a replacement for traditional classroom instruction. Instead, it ought to be integrated as a complementary resource that accommodates varied learning preferences and strategies. To enhance its utility, the study recommends the expansion of Wi-Fi infrastructure across university campuses to reduce the financial burden

associated with mobile data usage and to promote more equitable access to digital learning platforms.

Keywords: *WhatsApp, internet, digital technology, learning tool, universities*

Introduction

The evolution of digital technologies, including well-known innovations such as computers, laptops, tablets, smartphones, and the internet, has significantly impacted our daily lives in various ways. These technologies play an essential role in collaboration, community building, and participation. As a result, they have become crucial educational tools, greatly enhancing students' communication and learning experiences in Higher Education Institutions (HEIs) worldwide. According to Aizenkot and Kashy-Rosenbaum (2021), for example, e-learning is being used to improve teaching and learning in most 21st-century HEIs globally. Susilawati and Supriyatno (2020) assert that HEIs must utilise ICTs in education to remain competitive. Such technologies should be introduced to foster a society that embraces technology and to meet society's need for rapid, lifelong learning more efficiently and effectively (Rambe *et al.*, 2020). WebCT, Blackboard, and Moodle are examples of learning management systems (LMS). These LMS platforms can adapt to various university models of learning; however, e-learning may differ in various ways. Dhahir (2020) defines asynchronous e-learning as online lectures, examinations, and assignments supported by email and discussion forums.

According to Moodley (2019), simultaneous e-learning, such as video conferencing, requires learners to be present and actively participate. Students and instructors must engage with online platforms to attend lectures, presentations, and discussions. It is also worth noting that e-learning can occur remotely or in person using internet platforms. Therefore, students must utilise various ICTs to learn. Modern ICTs assist students in finding information quickly. They can use wireless networks, internet search engines, databases, websites, and Web 2.0 technologies to access and share electronic content like e-books and e-journals to enhance their learning (Al-Qallaf & Ridha, 2019). However, according to Hoq (2020), e-learning cannot replace face-to-face learning, but it can facilitate understanding by employing new instructional content and innovative learning methods. Meyer and Gent (2016) suggest that ICTs support learning but do not dictate it. Similarly, Aljabri and Bhutoria (2020) argue that teachers view ICT as only useful alongside other educational aids. They believe technology improves students' learning and

that an integrated system is essential for smooth teaching and learning. E-learning benefits from the increasing number of students and their diverse needs. This is because students increasingly require customised instructional programmes rather than standard delivery. To accommodate these different cohorts, institutions have had to adapt their programmes and delivery methods (Xhaferi, Farizi, & Bahiti, 2018).

In this digital era, social media platforms such as Twitter, MySpace, WhatsApp, Facebook, blogs, and LinkedIn are becoming increasingly widespread and gradually changing the way young people interact and socialise with others. Despite the growth of these social media platforms, this study specifically focuses on the use of WhatsApp as a learning tool. This is because WhatsApp is among the most popular applications used by young people to communicate with friends, family, and strangers, and it allows users to download multimedia and send text messages free of charge (Ajani, 2021). WhatsApp has gained popularity among youth due to its unique features, which include easy communication via text or voice messages, pictures, videos, and video calls between individuals or groups. These features make communication more convenient, faster, cheaper, and more engaging (Gul et al., 2021). Today, WhatsApp has approximately 2 billion users across over 180 countries, functioning as a free messaging and video calling app that operates on mobile devices and desktops through an internet connection, without any subscription fees (Alubthane & Alyoussef, 2021). This communication tool has quickly become widespread and greatly popular among the younger generation (Moodley, 2019). Besides being used for social and personal communication, scholars have rapidly adopted WhatsApp as an excellent pedagogical tool to support ubiquitous learning because of its potential to enhance teaching and learning processes (Annamalai, 2019). However, some forms of technology still unsettle many educators, which hinders their implementation in classroom settings.

Irfan and Dhimmar (2020) have stated that although WhatsApp is a relatively new social media application adopted by many HLIs for communicating upcoming events and other campus news to students, it facilitates synchronous and asynchronous communication to promote closer social interaction. Additionally, it supports learning approaches by enhancing creativity, critical thinking, collaborative skills, and critical reflection. Gon and Rawekar (2017) argue that WhatsApp enables learning beyond the classroom's borders and hours. Moreover, there is evidence suggesting that the utilisation of mobile technologies such as WhatsApp plays a significant role in influencing students' academic performance and habits in university education (Yeboah & Ewur, 2020).

In its usage, WhatsApp caters to the diverse learning needs of learners (Mtega, 2021; Jimmy & Mgata, 2022). It allows students to re-read or replay voice recordings multiple times and receive the information as it was sent, with no alterations (Oztok *et al.*, 2019). According to Annamalai (2019), WhatsApp suits students who prefer a textual interface as well as audio and visual learners. Similarly, So (2016) argues that students feel more comfortable expressing themselves on WhatsApp platforms compared to face-to-face encounters in the classroom because the application permits them to be invisible within a group. Ujakpa *et al.* (2018) have noted that, with WhatsApp, there are many opportunities for students to share their views about schoolwork or any topic given to them, especially those who are shy in class or need time to think and respond. Studies by Masele and Rwehikiza (2021), Jimmy *et al.* (2022) indicate that the WhatsApp platform can be used to facilitate collaborative learning. It provides opportunities for interactive collaboration, knowledge sharing, and effective communication among student teams, which contributes to building a sense of community in higher education. Students participate in teams and learning communities such as students' support groups, assignment groups, and clubs or societies via WhatsApp. This aligns with constructivist approaches whereby students learn more effectively when actively involved in constructing knowledge collaboratively (Vygotsky, 1978). According to constructivist theorists such as Vygotsky (1978), knowledge resides within learners, and they can construct their own meanings if given the opportunity. In this context, therefore, WhatsApp becomes a valuable learning tool among many HLIs in Africa, promoting collaborative learning and positive attitudes among students (Cetinkaya, 2017; Darkwa & Antwi, 2021).

COVID-19 prompted a shift in human interaction, which in turn changed teaching and learning practices. As a result, the importance of using WhatsApp in the education sector became evident during this period, where it played a vital role in enhancing students' learning experiences at universities. Following the COVID-19 outbreak, Tanzania's Ministry of Education, Science and Technology initiated measures to improve learning opportunities, including broadcasting educational content on radio, television, and YouTube (Masele & Rwehikiza, 2021). Consequently, some universities also ensured that learning continued virtually through various platforms. A study by Rambe *et al.* (2020) found that in most African countries, including Tanzania, lecturers and learners were unprepared for the COVID-19 pandemic; thus, there was a need to adopt new methods of learning. Respondents in that study described online platforms such as Google Hangouts, Zoom, and Microsoft Teams as foreign, stating they had to quickly adapt and learn

how to use these new tools and devices to deliver lectures and conduct assessments. However, little attention has been given to the use of WhatsApp as a learning tool in Tanzanian universities.

WhatsApp continues to present new opportunities for integrating computer-based technologies into teaching and learning processes. However, literature indicates that the opportunities provided by ICT in education are not without limitations (Abualrob, 2020; Alubthane & Alyoussef, 2021). For instance, if learners lack the ability to filter relevant information or develop a coherent organisational principle, the nearly limitless access to information in an educational setting can result in information overload. Although many studies show that WhatsApp is indeed used for learning, there is limited research exploring its application in Tanzanian education. Therefore, this paper aims to examine the use of WhatsApp as a learning tool from the perspective of pre-service teachers at selected Tanzanian universities. The research question addressed is: How do pre-service teachers utilise WhatsApp as a learning tool? This study is important as it contributes to the ongoing discussion on the adoption and adaptation of WhatsApp for teaching and learning in Higher Education Institutions. The findings may help university instructors and students recognise the pedagogical value of social media platforms, particularly WhatsApp, in educational activities. Tanzanian Higher Learning Institutions (HLIs) have undergone significant transformations through various government initiatives aimed at implementing national digital technologies to enhance digital education. Notably, one such initiative is the Higher Education for Economic Transformation (HEET) programme.

Methodology

This study is situated within the interpretive research paradigm. Adopting this paradigm allowed the researcher to explore the experiences and perspectives of pre-service teachers regarding the use of WhatsApp as a tool for learning and the challenges they encountered in using it. This study adopted a qualitative methodology to analyse and interpret the phenomenon under study. Dawson, Hancock and Algozzine (2017) have argued that qualitative research helps a researcher study the experiences, meanings, and perspectives of participants in their natural settings. Likewise, an exploratory case study design was used to guide the study. Dawson et al. (2017) have elucidated that an exploratory case study design is usually used to investigate an undefined study problem. Since the use of WhatsApp as a learning tool is a new concept, the aim of this study was not to provide final and conclusive answers to the research question of the study, but to

explore the problem in varying depth. This study was conducted in two selected public universities with teacher education programmes. The choice of these universities was because they were among the first universities in Tanzania to implement the national digital education strategy 2024/25-2029/30. They also benefited from the Higher Education for Economic Transformation (HEET) project, which aims to modernize academic program delivery and administrative processes to improve learning outcomes. Hence, two universities with education programs were purposefully selected based on the reasons described above to enable the researcher to obtain relevant information needed for the study. The sample for this study comprised 28 participants: 24 pre-service teachers. Twenty-eight participants were selected because the number was adequate for the researcher to interact with extensively (Creswell, 2014) and to understand how they were using WhatsApp as a learning tool and the challenges they were experiencing. Both purposive and convenience sampling techniques were used to select all 28 respondents. Purposive sampling enabled the researcher to select participants who had in-depth knowledge of the use of WhatsApp as a learning tool. The researcher acknowledges that purposive sampling has the potential for bias when selecting participants; however, an effort was made to choose participants who possessed substantial knowledge of WhatsApp as a learning tool in Tanzania's HLIs. With regard to the selection of pre-service teachers, the researcher requested permission from group leaders to be added to the class WhatsApp groups for a period of three weeks. This approach enabled the researcher to observe in the group the chat patterns, identify active members, and select participants who responded quickly for inclusion in the study. The researcher also used screenshots as another strategy to collect information. Also, the researcher requested the pre-service teachers who had been in a WhatsApp group chat for more than three months to allow him to take screenshots of their conversations. These screenshots were read by the researcher to check the pre-service teachers who contributed the most in the group chat in order to request them to participate in the study. The selected pre-service teachers were able to share and express their opinions on how they used WhatsApp as a learning tool and the challenges they faced. This is consistent with purposive sampling, which targets participants who are information-rich. Four lecturers who regularly used WhatsApp in sharing learning resources with pre-service teachers were selected. These four lecturers shared learning materials often with their students on WhatsApp for learning purposes.

Focus group discussion and semi-structured interviews were used to collect data. According to Yin (2011), open-ended interviews and focus group discussions are

among the crucial sources of exploratory case study information, which this study employed. In this study, semi-structured interviews were used to solicit information from all 28 participants. This refers to the capacity of interviews to produce data on the views of respondents rather than the researcher dictating the direction of respondents, as is often the case with structured interviews (Flick, 2014). The interview was conducted in a convenient and agreed-upon place with pre-service teachers and lecturers, lasting between 45 and 60 minutes. This approach allowed the researcher to ask probing follow-up questions to gain a more in-depth understanding. Probing questions are used to get deeper into the interview responses for the purposes of eliciting more information from the respondents (Flick, 2018). Likewise, focus group discussion was used to supplement interview information from the pre-service teachers. In this study, two FGD groups consisted of six pre-service teachers from each sampled university, which is consistent with the required number of focus group participants. Focus group discussions were preferred because they helped to generate a rich understanding of pre-service teachers' views on how they used WhatsApp as a learning tool and the challenges they face.

The thematic analysis technique was used in the data analysis. The researcher began by transcribing the raw data while listening to the recorded interviews and focus group discussions. The transcripts were first read and then re-read to develop familiarity with the content. Then, initial codes were generated, capturing the participants' views on how they used WhatsApp as a learning tool and the challenges they encountered when using it. These codes were organised into meaningful themes through an iterative process of data coding, categorisation, and comparison. Coding was followed by the development of initial themes that were used to report the findings. During the process of developing the main themes, some codes were revised while others were merged to ensure that the data analysis was coherent and logical. To maintain the rigour of the analysis, the researcher used a codebook to record the codes and the initial themes that he developed. Keeping the codebook helped the researcher make informed decisions about which codes to merge to develop the initial themes. The author also continuously reflected on the initial themes he developed; consequently, some themes were merged to produce the final themes used to report the findings of this study.

Findings and Discussion

In the utilisation of WhatsApp as a learning tool, four major themes emerged as presented in the following section.

WhatsApp for Communication Purposes

The findings from the research participants showed that WhatsApp was used as a communication tool among users. All pre-service teachers who took part in this study stated that WhatsApp offered easy access to information and was used for sharing academic-related updates, such as when lectures were cancelled or venues changed. WhatsApp provided channels for effective communication and interactive collaboration among student groups, thus helping to foster a sense of community in higher education. The pre-service teachers unanimously agreed that WhatsApp was an effective communication tool. One third-year pre-service teacher said, "I have been using WhatsApp during my studies and it is helpful because it is easy for me to get information from other students, especially when I need something urgently to use for my study." Another second-year pre-service teacher added, "WhatsApp is easy to use to transfer information as everyone can access information sent by lecturers. Sometimes, when the timing of a lecture changes or it gets cancelled, it is easy to find out about it." This indicates that it helped facilitate the sharing of learning-related information, such as venue changes or class cancellations. It also supported communication among pre-service teachers and with their lecturers, especially for students living off-campus and far apart. WhatsApp allowed them to send text messages, images, voice messages, and make voice calls. To highlight this, one second-year pre-service teacher remarked:

Based on my experience at this university over the past two years, I can sincerely say that WhatsApp allows us to form learning groups, which makes our communication easier through its various features, such as text messages, audio recordings, videos, and images. This is because many students have smartphones with WhatsApp installed. (Interview with a pre-service teacher, 2025).

A third-year pre-service teacher further said:

I can say that WhatsApp connects us because we live in different places. Some live outside the university hostels, and others even stay with their families. In this situation, the WhatsApp group connects us and makes communication easier. (Interview with a pre-service teacher, 2025).

Furthermore, it was found that students used WhatsApp to communicate with their lecturers and share information about lectures and seminar schedules, such as venue changes, timings, and assignment collection. The statement "class representatives get information from lecturers and send it to groups" from one respondent highlighted WhatsApp's effectiveness as an information-sharing tool between lecturers and students. In this context, WhatsApp facilitated easy communication

for pre-service teachers with their lecturers. One pre-service teacher commented on WhatsApp during the focus group discussion:

At this university, we have a general WhatsApp group for all third-year education students, along with smaller groups based on specific departments or courses. Currently, I am part of about five of these groups. Sometimes, even lecturers create groups to facilitate communication or to share seminar questions. As a result, all information related to a particular subject is shared there and spread to every student teacher within that group. This has become the norm here. Therefore, having a smartphone is essential to avoid missing out. (FGD, in university A, 2025)

During the focus group discussion, one pre-service teacher noted:

This WhatsApp application provides us with a platform to communicate easily with our lecturer. That is why many lecturers prefer to create WhatsApp groups for students enrolled in their courses to share announcements about the course, such as the lecture room, assignments, due dates, or the final submission date for projects. For me, it is simpler and better than other social media like Facebook because with WhatsApp, you do not have to worry about finding time to meet classmates and ask them about assignments, exams, and deadlines for homework. (FGD, B, 2025)

The above claim indicated that pre-service teachers used the WhatsApp application for communication purposes, including facilitating effective communication among students and their lecturers, receiving announcements regarding lectures, seminars, courses, and departmental issues, deadlines for submitting assignments and coursework, and sharing resources and links related to course content. They identified four key features of WhatsApp that they considered most important for group collaboration: read receipts, quote messages/replies, group chats, and emojis.

Findings revealed that group chats were frequently used to share information and gather opinions among group members. One third-year pre-service teacher claimed that WhatsApp group chats ensured efficient distribution of lecturers' information to all group members and facilitated collecting opinions through responses posted in the chat. This finding corroborates Díaz-Ramírez's (2020) research, which found that utilisation of WhatsApp in educational settings offered a wide range of benefits and opportunities for both lecturers and students. The advantages include improved communication and collaboration between students and lecturers. According to HersHKovitz et al. 2019), the incorporation of WhatsApp into academic matters has the potential to produce a range of beneficial outcomes. An advantage of this technology is its ability to facilitate communication and collaboration between students and facilitators. The WhatsApp platform enables swift and simplified

communication, providing benefits in the realm of collaborative group efforts and discourse.

This finding is supported by information from a review of group chat contents. While reviewing the chats, the following conversations were evident: “Hi all, our lecture today will be in lecture room 3, at the same time” ... “Collect group assignment, not later than tomorrow afternoon”... “...Guys, could you come to collect your first assignment on EF200?” ... “Sir, it seems some of our group assignments have not been factored into the coursework results”. It is therefore worth noting that, without this group, these students would have missed lectures, misplaced their assignments, or had to queue for hours to report these issues and have them sorted out. This finding aligns with the widespread use of WhatsApp as the most common communication tool between students and instructors (Azizur Rahman et al., 2020).

The study also revealed that incorporating WhatsApp into academic settings can enhance collaboration and communication among lecturers and students through various channels, including real-time messaging, asynchronous messaging, and group assignment coordination. Therefore, integrating WhatsApp into education can improve communication and cooperation among lecturers and students. This is because WhatsApp provides instant messaging, group communication, and file sharing capabilities, which can be effectively used to facilitate discussions and cooperative efforts (Alubthane & Alyoussef, 2021). Ajani (2021) argues that implementing this mode of communication can foster a sense of fellowship and motivation among students and facilitators, while also increasing access to academic materials and educational opportunities.

WhatsApp Platform to Share Learning Materials

The study revealed that pre-service teachers used WhatsApp to share learning materials. They stated that WhatsApp enabled them to access educational resources easily. They noted that it served as an effective platform for forming study groups, thus facilitating the exchange of academic materials. The findings also indicated that lecturers and students used WhatsApp groups to share educational content such as notes and research projects. Pre-service teachers employed WhatsApp to share the university timetable. Class representatives used this platform to send class schedules as text messages or attachments to other members of the class. This demonstrates that students found it convenient to share vital information requiring immediate action through the WhatsApp group, ensuring that even those not

physically present at the university received important updates. To emphasise this point, one of the third-year pre-service teachers remarked:

In our group, among other things, we share a lot of information through voice recordings and images. Through this platform, many group members like to share what they have learnt in lecture sessions so that even if someone misses points or lectures, they will benefit... They also share what has not been covered in the lectures, which helps students prepare for semester exams. (Interview with a third-year pre-service)

This assertion indicates that the WhatsApp application provides a platform for pre-service teachers to share learning materials, including lecture notes, and to access content before actual lectures. This helps learners to prepare thoroughly for the in-class activities that follow, thus enhancing their understanding of the topics.

One interviewee supported the idea that WhatsApp is the ideal tool for learning anywhere, at any time. This is reported by a third-year pre-service student who was absent for more than two weeks but had a final semester examination to sit later. The student used the WhatsApp platform to ask his classmates to post past papers and seminar questions they had attempted, as well as lecture notes they had taken, so he could prepare for his final semester examinations. This is evidenced by the interviewee's response:

I was unwell and admitted to the hospital two weeks before the semester exams. I asked my friend to send me the lecture notes, seminar questions, and examination papers they had completed. It was very helpful because I was able to prepare for the semester exams while I was in the hospital (Interview with pre-service teacher, 2025).

The other two respondents added to what the first said by mentioning, "You can get information related to seminar activities even while being at home or in other places. It is not necessary that you have to be physically present in the lecture room or university...", "...To get information early... it is not until you go to the university compound to look at the notice board..."

From the foregoing, it is clear that, through WhatsApp, learning is no longer restricted by geographical locations; students can access lecturers' notes and other activities outside the lecture hall. This suggests that WhatsApp plays a vital role in helping pre-service teachers share content and support each other continuously as they participate in out-of-class educational activities. Furthermore, WhatsApp encourages engagement among pre-service teachers when completing these activities.

Interview findings were consistent with those from the focus group discussions. During the focus group, most participants emphasised that the WhatsApp application made learning easier because it was accessible without any financial demands, as they used the university's internet. Additionally, there were no restrictions on sending messages via WhatsApp; thus, they could share as much material with group members as necessary. They could also download shared content from colleagues or lecturers quickly and easily. Furthermore, they could take screenshots of slides used in class and share them with friends unable to attend certain lectures. Video clips and other web resources were also utilised in their discussions. Pre-service teachers highlighted that, even from a hostel or home, they could respond to assignment-related chats without constraints. WhatsApp has the potential to support pedagogical practices at any time and place, providing immediate results that cannot be achieved with desk-bound computers. Unlike physical meetings, some student teachers were absent due to transport issues. At this point, a third-year pre-service teacher remarked:

With WhatsApp, I can join any group activities or meetings without needing to meet my fellow students face-to-face to discuss things. I can do it from anywhere, as all I need is a mobile phone and data. (FGD, university B)

Another second-year pre-service teacher commented:

WhatsApp allows lecturers to convey the materials quickly without sending them to us individually. Through the WhatsApp group, we can interact easily with lecturers because they can send messages directly to our group, and we can respond in kind. We can ask if there are materials that need clarification directly from the lecturer, enabling reciprocal interaction between us and our lecturers, even though learning does not happen face-to-face. (FGD, University A)

The above comments indicate that the use of WhatsApp in academic environments has the potential to improve collaboration and communication among lecturers and students through various channels, including both real-time and asynchronous messaging. This further enhances communication and cooperation among the two groups. This is because WhatsApp provides the ability for instant messaging, group communication, and file sharing, which can be effectively used to facilitate discussions and teamwork. WhatsApp can also serve as a platform for establishing study groups, enabling the exchange of educational materials and collaboration on academic issues among students. Alubthane and Alyoussef (2021) argue that WhatsApp can enable the creation of virtual classrooms, allowing lecturers to distribute instructional materials, assignments, and assessments to their students. Ajani (2021) contends that adopting this mode of communication can foster a sense

of community and motivation among students and educators, while also increasing access to academic resources and educational opportunities. Although the study by Alubthane and Alyoussef (2021) shows that students, especially those who are married, were somewhat reluctant to receive study materials outside college hours, teachers should learn the appropriate times to interact with their students. However, this study found that even students who are unwell support using WhatsApp to aid learning anytime and anywhere.

WhatsApp to Improve Learning Experience

The study found that WhatsApp enhanced students' learning experiences. The WhatsApp application was used by pre-service teachers to prepare themselves before seminar sessions for sharing knowledge, exchanging experiences and ideas, discussing seminar questions and social issues, seeking help, and supporting each other during their learning activities. It was natural for them to create posts, share information, and conduct online discussions using WhatsApp Messenger. In this context, one third-year pre-service teacher said, "When there is an unexpected quiz or assignment, we always use WhatsApp to communicate so that we can share ideas and refresh our memory." This suggests that pre-service teachers were satisfied with this online activity because they could integrate learning activities and maintain a positive attitude towards them. The enhanced use of WhatsApp in the university environment helped the pre-service teachers to collaborate easily with one another and improve their communication, thereby making it easier for them to prepare for learning before lectures begin. Therefore, students now need collaborative learning using technology that is simple and quick for sharing knowledge, both in formal and informal classes. This kind of interaction promotes learning of formal content in an informal way, with the possibility of accessing information at any time, thus enhancing interaction among all participants (Madge et al., 2019). Mtega (2021) argues that online lectures are more effective when combined with face-to-face lectures, intending to achieve learning outcomes. Therefore, students should become accustomed to maximising their learning through the WhatsApp platform before attending physical class lectures.

Five pre-service teachers claimed that WhatsApp helped group members to form discussions for learning purposes. During a focus group discussion, one pre-service teacher said that he used WhatsApp "to communicate with my fellow students about matters related to course requirements," and another added, "to discuss ideas about courses with my classmates," while a third mentioned, "...asking, responding and confirming information related to learning both from friends and lecturers."

This illustrates that the use of social networking and instant messaging fosters collaborative learning and supports active participation and engagement. This aligns with a study's findings, which showed that WhatsApp groups can serve as a useful tool in supporting various teaching and learning activities (Nsabayezu *et al.*, 2020). This indicator refers to all instances when students demonstrate, through questions and comments, how committed or concerned they are with the activity they are engaged in (Nursalim, 2021).

During focus group discussions, many participants revealed that they sometimes used WhatsApp to ask questions or seek clarification about their assignments from course coordinators. They also noted that, at times, they used the WhatsApp group to discuss questions that others found difficult to understand or solve independently. In this way, other pre-service teacher students provided clarifications or worked together to solve the questions. The following messages from WhatsApp chats are cited to support the point: "Hi friends, I have been challenged with a question here...is teaching technique the same as teaching strategy? I just wanted to know if the two words are synonymous." Another pre-service student replied, "I am not very sure...But I think they have different meanings." In another chat, a group member wrote, "Hi guys, I need to understand the difference between macro and micro educational objectives."

The study also found that pre-service teachers used WhatsApp to seek guidance and support from their peers and lecturers on various academic issues. They mentioned that WhatsApp enabled pre-service teachers to receive constructive feedback from both peers and lecturers on assessments and academic projects they were working on. Some of them valued the practical guidance received from their lecturers via WhatsApp. One second-year pre-service teacher said:

I like the ICT lecturer because she often provides us with feedback when we answer questions on WhatsApp. She also praises us when we get the correct answers and corrects our mistakes immediately when we are wrong. I feel comfortable learning from her. (Interview with a pre-service teacher, 2025)

Results further indicated that the use of WhatsApp can help pre-service teachers focus their attention on any information received in the discussion group; thus making it easier for them to integrate different issues into their learning. This finding regarding pre-service teachers' positive views on using WhatsApp in their learning aligns with other research findings (Alubthane & Alyoussef, 2021). WhatsApp technology provides students at various levels with opportunities to engage in collaborative interaction and learning (Ajani, 2021). In online discussions, collaborative practices are crucial, as participants work together and

employ different strategies to build knowledge and skills collectively, which are imparted easily and enjoyably. From a social learning perspective, it can be argued that social interactions form the foundation through which individuals learn within communities and groups (Rahaded et al., 2020). As pre-service teachers interact with their peers, lecturers, learning materials, objects, and activities are collaboratively co-created, shared, and disseminated through WhatsApp groups, creating opportunities for social learning. Additionally, social media has been found to support social learning by facilitating collaboration (Nsabayezu *et al.*, 2020), fostering knowledge creation, aiding students' deep understanding (Annamalai, 2019), and providing flexibility of time and space (Alsen & Augustino, 2021). Therefore, through ongoing communication and interaction, students develop confidence in self-expression and reflection, which promotes deep learning. Moreover, question-based interactions can facilitate Socratic dialogues that enhance students' intellectual development.

Challenges of Using WhatsApp as a Learning Tool

Findings from the interviews revealed that pre-service teachers participating in this study faced five main challenges when using WhatsApp as a learning tool. These included misuse of WhatsApp, exclusion of students without smartphones, lack of privacy due to limited options, and issues with internet access being unavailable or costly. During the interviews, many participants expressed concern that the WhatsApp group was being misused because of the absence of strict group rules. They pointed out that some pre-service teachers posted too many messages that were not academically related, such as business adverts and football match news. However, learning is a social process where students need to discuss social matters, even if these are not directly related to their academic goals for which the group was created. One third-year pre-service teacher explained, "Some students are not serious. They sometimes post irrelevant stuff in the class group, for example, a person posts a topic about the results of a football match instead of presenting academic issues that can be relevant to the intention of the group." Additionally, a second-year pre-service teacher said, "This is an uncontrolled media and anyone can post anything they feel like." A first-year pre-service teacher also reflected on the risk of posting numerous jokes that might cause important topics to be overlooked, saying, "Too many jokes may result in a person ignoring an important post and thinking that it is just a joke. This is because, at the initiation stage of the group, there were no rules in place about what should or shouldn't be shared through the WhatsApp group and what actions would be taken against someone

sharing content contrary to the group's goals.” During one of the focus group discussions, a participant said:

What I have observed is that initiators of groups usually do not establish any rules to guide members, such as what to do if someone misuses the platform. This does not mean they are ignoring the rules, but rather that they are unaware of the rules that promote proper use of the platform (FGD, in University B, 2025).

Another third-year pre-service teacher narrated:

When working on an assignment, irrelevant arguments sometimes arise, with someone introducing an unrelated idea and another person adding a different one altogether. It is much better to communicate the rules up front. Some students, when they start using voice notes, will send about four or more recorded clips in succession. Then, someone else will send theirs, resulting in a long list of voice notes to listen to (FGD, in University B, 2025).

Such a problem diverted pre-service teachers' attention and negatively impacted the quality of their intended academic interactions. Similar findings were reported in a study by Alsen and Augustino (2021), where participants considered the misuse of WhatsApp groups to be one of the most significant challenges affecting students' interactions on WhatsApp. To prevent distractions and issues caused by irrelevant messages, initiators should enforce some rules, including principles and foundations that WhatsApp group members must follow to organise their interactions and determine the types of messages to share on such platforms. Furthermore, pre-service teachers should be informed beforehand about the rules they need to observe when sharing information with colleagues or instructors. Their interactions and adherence to these predetermined rules should be monitored by group administrators or supervisors appointed by their lecturers. Azizur Rahman et al. (2020) have noted that “ground rules help identify formal issues that students can interpret as a guide to identify how to behave appropriately in course-related activities in both the synchronous and asynchronous platforms.

The findings also indicated that excluding pre-service teachers without smartphones from WhatsApp group activities was another challenge faced by the study participants. The participants warned that those who did not own smartphones were almost entirely left out of the information shared in their WhatsApp groups. This is because the group can only be accessed by pre-service teachers who own smartphones. In practice, one needs a smartphone and an internet connection to be online almost all the time. This challenge was highlighted by a first-year pre-service teacher who said: “Our fellow students without phones will miss important class

information, such as assignments. They can even miss meeting some deadlines due to not accessing information.” Another second-year pre-service teacher said:

Frankly speaking, if you do not have a smartphone or an internet bundle, you will not be able to keep up with others. You will be isolated and miss access to many important things; for example, you may go to the university campus only to find out that a lecture has been rescheduled or even cancelled. Sometimes, you may find yourself missing a class (Interview with a second-year pre-service teacher, 2025).

The findings also showed that a lack of privacy due to limited options was another challenge faced by pre-service teachers using WhatsApp groups. They complained that whenever someone sent a message, everyone could see it. This was because it was not possible to send a message to specific individuals within the group unless done through a different channel outside the group. This was illustrated by one interviewee’s comment: “Some students are shy and may have difficulties answering a question, but they would like to ask a specific person. They feel shy to expose their problem to everyone in the group and sometimes they are afraid of being ignored.” The participants suggested it would be more convenient if there were an option for people within the same group to communicate privately with only one person or a small group, such as just the course coordinator, without needing a separate group. This idea was reflected in a comment from another interviewee who said, “If you want to post something to specific people in a group, one finds that such an option is not available in the same group.” This finding contrasts with earlier research by Annamalai (2019), who compared privacy issues across email, SMS, Facebook groups, and WhatsApp platforms. Their study rated the privacy of WhatsApp, email, and SMS as relatively high. This aligns with what was expressed by one participant during the focus group discussion, who argued:

WhatsApp offers many benefits, but it also brings distractions. For example, a class representative might share assignment instructions from the facilitator, but some users could be making jokes through the group chat. However, many students may still be following such information. Sometimes, someone may even send a video picture to distract group members from a meaningful discussion. So, WhatsApp is useful but can also be distracting. (FGD, University A)

The study also found that some of the pre-service teachers complained about technical problems that limited their ability to use mobile phones for learning. Regarding third-year students, they expressed their dissatisfaction:

To utilise WhatsApp for learning, one needs internet access to send and receive information. This involves costs for data or reliance on university Wi-Fi, which

is often unavailable. Even when accessible, it is usually restricted to the university premises. Additionally, WhatsApp can be a waste of time, like any other social media platform. Its easy accessibility allows users to read information anywhere, which can be time-consuming. It also entails spending more time typing messages to send to group recipients. Moreover, it can be wasteful of internet bundles and personal credit, especially when discussions involve irrelevant issues. (Interview with a pre-service teacher, 2025)

The sentiments expressed by the participants indicate that, for them to be able to use WhatsApp effectively, they need internet bundles or access to Wi-Fi connectivity, which may sometimes be unavailable. This finding aligns with (Alsen *et al.*, 2021), who found that not all students have access to smartphones or the internet, which can create a barrier to participating in WhatsApp-based learning activities.

Conclusion and Recommendations

The findings of this study have shown that the use of WhatsApp allowed pre-service teachers to access learning and educational materials outside of the sessions held during physical lectures. It revealed that the social media platform could enhance communication between pre-service teachers and their lecturers, thereby promoting collaborative learning through the formation of electronic groups. The study provides evidence that chatting and learning simultaneously make the learning process more motivating and enjoyable. It also has the potential to help pre-service teachers learn from each other, as each student presents their unique style and experience, which may help others learn something new. This conclusion does not imply that classroom learning is unnecessary, but highlights that WhatsApp can be effectively used as a learning tool to support a variety of learning styles and strategies that enable collaborative learning among pre-service teachers. The study recommends that systematic research be conducted to improve WhatsApp as a means to facilitate more efficient teaching and learning. Additionally, it suggests establishing guidelines or ground rules for group members to foster best practices when using WhatsApp for educational purposes in Tanzanian universities. It also advises that students receive appropriate guidance on how to utilise WhatsApp to enhance their academic outcomes. Furthermore, further research is needed to examine the long-term impacts of WhatsApp on the communication and collaboration skills of both students and lecturers.

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