

2023

Pre-Service Teachers Awareness of Using WhatsApp as a Pedagogical Tool for The Practicum Program During Coved-19 Pandemic

H. M.M. Bokhari

Curriculum and Instruction Department, College of Education, Umm Al-Qura University, Makkah, KSA,
hmbokhari@uqu.edu.sa

Follow this and additional works at: <https://digitalcommons.aaru.edu.jo/isl>

Recommended Citation

M.M. Bokhari, H. (2023) "Pre-Service Teachers Awareness of Using WhatsApp as a Pedagogical Tool for The Practicum Program During Coved-19 Pandemic," *Information Sciences Letters*: Vol. 12 : Iss. 7 , PP -. Available at: <https://digitalcommons.aaru.edu.jo/isl/vol12/iss7/23>

This Article is brought to you for free and open access by Arab Journals Platform. It has been accepted for inclusion in Information Sciences Letters by an authorized editor. The journal is hosted on [Digital Commons](#), an Elsevier platform. For more information, please contact rakan@aarj.edu.jo, marah@aarj.edu.jo, u.murad@aarj.edu.jo.

Pre-Service Teacher's Awareness of Using WhatsApp as a Pedagogical Tool for The Practicum Program During Coved-19 Pandemic

H. M.M. Bokhari

Curriculum and Instruction Department, College of Education, Umm Al-Qura University, Makkah, KSA

Received: 21 Mar. 2023, Revised: 22 May 2023, Accepted: 24 Jun. 2023.

Published online: 1 Jul. 2023.

Abstract: This study explored the extent to which pre-service teachers were aware of using WhatsApp effectively as a pedagogical tool for educational purposes during the Covid-19 pandemic. Due to the COVID-19 pandemic outbreak, Saudi Arabia's education system switched to distance learning; accordingly, there was a growing reliance on information and communication technology (ICT) for online teaching and learning. Furthermore, the increased use of social networks such as WhatsApp could have many benefits and consequences on students' learning. Twenty-six female preservice teachers (PSTs) made a WhatsApp group to collaborate with their peers for eight weeks during the Covid-19 pandemic. Each week, the PSTs were required to share a minimum of three posts for a total of twenty-four posts. The instructions given to the PSTs focused on sharing useful posts related to their practicum program. A mixed-method research design was used for this study. First, quantitative data were collected by recording the frequency and range of posts to determine the amount of participation. Second, the qualitative data were gathered by conducting focus group interviews to understand the reasons behind each PST's participation. Findings revealed that the contribution rate of the entire group was high (77%), with 20 PSTs meeting the minimum required number of posts. Remarkably, these 20 PSTs formed a unique norm of the learning community by regulating their own and other peers' works as well. Only six pre-service teachers did not meet the required number of useful posts. The reasons behind the contributions, more findings, and further research suggestions and recommendations for educational settings are discussed.

Keywords: Web 2.0, WhatsApp, Social Networks, Awareness, Preservice Teachers, Practicum program, Community of Practice (CoP).

1 Introduction

In the twenty-first century, the world has witnessed remarkable progress in the field of information communication technology (ICT). Individuals of all ages use multiple ways of communication, including electronic communication through ICT innovation namely mobile devices. Mobile devices such as cell phones, smartphones, iPhones, handheld tablets, laptops, etc. are used as a part of our daily lives. Their applications have been used for communication and knowledge sharing and for facilitating learning processes simply by connecting the device to the internet [1, 2]. The most frequently used mobile device applications are instant messaging applications, such as WhatsApp, Line, WeChat, Telegram, etc. Of these applications, WhatsApp is the most global mobile technology with two billion users worldwide [3]. WhatsApp is an internet-based social network application where people share stories and influence others by socially exchanging messages [4]. Social network applications offer a promising future interactive teaching and learning environment. It offers a space and tools for individuals to produce and share knowledge [5]. WhatsApp is one of these social networks that provide users with faster and easier communication services to share knowledge and information in pairs or groups at anytime and anywhere [6, 7]. It offers greater functionality for users to send and receive messages in various formats: text, documents, emojis, photos, and voice and video calls [8, 9]. Since its inclusive launch in 2009, WhatsApp has become hugely popular in more than 109 countries around the world [10]. WhatsApp is a very popular social network among the Saudi citizens. Statistics show that the number of social network users in Saudi Arabia increased by 20 million between April 2019 and January 2020 (Statista.com (2020), particularly among young adults [11]. Thus, there are growing efforts to study the extent, adequacy, and ease of its use in the educational process. Many studies [6, 7, 8, 12, 13] have revealed the effectiveness of using WhatsApp for acquiring knowledge and skills. Research by Damayanti and Sibarani (2020) showed the positive impact of using WhatsApp on teaching and learning English as a foreign language. Another study revealed the effective use of WhatsApp as a learning tool for enhancing cognitive achievement, developing skills, and improving students' learning outcomes in a Saudi university [13]. Moreover, research emphasized the usefulness of WhatsApp for increasing opportunities for discussing, exchanging ideas and experiences, and expressing opinions in a way better than face-to-face conversations [14, 15]. Both Al-asmari [16] and Al-Shammari et al [6] confirmed that students and faculty had a positive attitude toward the use of WhatsApp in the teaching and learning

*Corresponding author e-mail: hmbokhari@uqu.edu.sa

process and its role in developing curriculum and solving academic problems students face. In addition, Bhatia and Haider [14] and Alenazi [17] declared that preservice teacher students had a positive attitude toward the use of WhatsApp as a learning environment to support traditional classrooms that increased participation and collaborative thinking. As a result, the majority of students turned to WhatsApp as a means to broaden and enhance access to their courses and subjects, especially during the Covid-19 pandemic period.

Because of the quick spread of the COVID-19 pandemic, the World Health Organization (2020) recommended that countries need to implement social distancing and physical distancing for all businesses and education. Due to this situation, the education system all over Saudi Arabia relied on technology and used online learning settings for the teaching and learning processes. Online learning can link people across vast distances and between different sources of information [18]. Accordingly, all the education programs were delivered online, including the teaching practicum program (a full-time professional preservice teacher [PST] education program). This education program was challenging because it required shifting student teachers from practicing teaching in a traditional classroom to an online teaching setting. This situation forced preservice teachers to adopt online learning more than expected, taking them out of their comfort zone. They had to be aware of every technological way to complete their education process, including utilizing social networks such as WhatsApp.

Cetinkaya [19] indicated that although many social network applications can be operated on mobile devices, WhatsApp is the most favored application among students at the higher education level, especially Saudi students [16]. WhatsApp is a free application that can be installed on any mobile device, it is easy to use for communication between individuals such as students and lecturers, it is available anytime and anywhere, and it helped users follow health precautions [15]. Studies by Aljaad [20] and Bensalem [21] pointed out that the features of the WhatsApp application provided opportunities to apply it as an effective educational tool that distinguished it from many other systems and applications. Students integrated WhatsApp into their academic life and spent a lot of time exchanging knowledge; getting information; building relationships with others; sharing pictures, videos, and voice messages; and discussing ideas and thoughts. Research [18, 20, 21, 22, 23, 24] revealed that students were very familiar with WhatsApp, understand and knew how to use it effectively, and had positive attitudes toward using it for their learning process. Bhatia and Haider [14] found that awareness of such a social network, WhatsApp, could enhance the PSTs' self-regulation skills, help them learn effectively, and reflect on their teaching practice during their practicum program. Moreover, several studies [9, 10, 14, 21, 25] revealed that the use of various social network applications including WhatsApp to enhance interactions between students play a vital role in community creation, increase learners' satisfaction, and foster creative thinking.

On the other hand, some research [4, 5, 6, 16] showed that the majority of students seem to be too obsessed with social networks and spend their time on the WhatsApp application at the expense of their academic activities. In addition, they do not know how to use the application professionally. Thus, despite the positive effect of the WhatsApp application, some studies [16, 17] indicated great concern about the potential negative effect, if it is used imprudently and unwisely, on creativity, thinking skills, and reduced time devoted to learning, which lowers students' academic achievement. These studies recommended the need for more research on the awareness of using WhatsApp in the educational process. In this regard, it could be argued that the success of using any educational technology depends on the user's awareness toward applying it in the educational process [26]. The awareness concept is the knowledge, understanding, perception, and feeling of a particular field, which may affect the individual's behavior toward the use of this field [4, 5].

The previous background shows that there is insufficient data on awareness of using WhatsApp as a pedagogical tool among students in the higher education context, especially PST in Saudi Arabia. In addition to the fact that while previous studies [7, 6, 27, 28] focused on the use of WhatsApp in the different disciplinary classroom and some [14, 17, 23] focused on teaching practicum program before the Covid-19 pandemic period, there was a lack of research focused on the Saudi PST students' use of WhatsApp in their practicum program during the Covid-19 pandemic. Our objective was to explore the preservice teachers' awareness of using WhatsApp as a pedagogical tool in their practicum program, especially at a time when the application was subjected to extensive use due to the Covid-19 pandemic. For this purpose, awareness was defined practically as the outcome of preservice teachers' understanding, perception, attitudes, and behaviors toward the use of the WhatsApp application in the educational process, where the awareness of this concept consists of (knowledge, realization, and behavior). More awareness in this area could help educators find effective ways of integrating technological innovations such as social networks, including WhatsApp, as part of teaching and learning in the practicum program. As well as the methods of employing it during similar circumstances to support the traditional practicum program. Also, it could attract the attention of higher education leaders and administrators regarding potential opportunities for integrating new technologies such as WhatsApp into the education field as well as methods to overcome some of the challenges that prevent the use of technological innovations in the educational process.

Hence, this study addressed the following question:

1. **To what extent are preservice teachers aware of using WhatsApp as a pedagogical tool in their practicum program During the Covid-19 pandemic?**

2 Literature Review

WhatsApp and Awareness

Undoubtedly, the excessive spread of information communication technology (ICT) during the first decade of the twenty-first century turned the world into a global village. The diverse range of digital technology has included social networks that have been an integral part of almost every aspect of our daily lives. Social networks are web-based services that allow people with common interests, experiences, and activities to get together and share their commonalities within a bounded system (Boyd & Ellison, 2007). Individuals of all ages use social networks as a convenient form that facilitates quick access to information and shares knowledge, career interests, and real-life connections with others [10]. Unlike the old days when individuals only had the traditional way to communicate and exchange information and experience, social networks now help everyone search, read, view information; share files; discuss ideas; chat; and email each other at anytime and anywhere on any topic they like [26]. Most people around the world originally were using social networks primarily for communication and entertainment purposes [8]. Nowadays, they are using social networks for different areas of their lives, such as health, business, socializing, and education.

Since 2009, there has been ongoing use of ICT innovations, including wider social network applications such as Twitter, Facebook, Messenger, and WhatsApp in the classroom as direct means of communication to make teaching and learning more valuable [9, 25]. Thus, most students and teachers are encouraged to use social networks for educational uses [11, 27]. Research [7, 5, 8] has indicated that these applications are popular among university students all over the world. The findings show that social network applications play a vital role in students' academic performance, self-reported learning experience quality, communication and interaction with other peers and lecturers, and establishment of friendships with other learners around the globe. Although there are multiple similarities between these applications, each of them has its unique features, which affect the prospect that, and the extent to which, students and teachers will use them [29].

A study by Adekonjo et al [8] on undergraduate students' awareness and usage of social networks showed that social networks are not new to most students. The majority are aware of almost all social network applications, with the highest rank of 99% for WhatsApp, followed by email (97.9%) and Twitter (95.3%). In his study, Waral [5] found that most participants have access to WhatsApp more than other social network applications. They used WhatsApp extensively for social communication and discussion more than for educational purposes. A few participants agreed that social networks play a significant role in their academic purpose. The study recommended that students need to be aware that the overuse of social networks is addictive, and a waste of time and they need to control their use of them. A mixed method research conducted by Salihu et al [26] on the awareness and usage of social networks among the mass communication students at Kano State Polytechnic showed that 98.2% of the students were aware of and use social networks including WhatsApp. The majority of students regularly accessed social networks using the internet through their mobile devices, a few students used their computers, and some students had to buy data to get access to social networks, while others went to café. Equally, some students respond that they use social networks to conduct research, write reports or share social news and information. Furthermore, the qualitative results showed that students intentionally used social networks for academic purposes, self-expression, entertainment, and to establish global friendships. The study pointed out that the success of social networks is related to the remarkable growth of a variable number of applications such as WhatsApp, Facebook, Line, T, and YouTube that allow users to send and receive messages efficiently at no cost with more flexible time and place [30] In addition, Boyd and Ellison [29] observed that while some students become academically smart because of the information they received through social networks, others become academically very poor as it is easy to get any materials for their assignments and completely rely on what they got from social network. Yet, it is obvious that this technology has a substantial role in collaboration, community building, and participation in learning. However, the most popular social network application in the Saudi market is WhatsApp [22], which is the focus of this study.

Features of WhatsApp in Education

WhatsApp is one of the most popular social networks among all different segments of society that is mainly used for communicating with people [22]. It is the product of the era of technical development and generations of smartphones and the digital age. According to Mfaume [4], the implementation of social networks such as WhatsApp is a global phenomenon among students, and its usage and reliance have been practiced worldwide. In the third quarter of 2020, there were around 100 billion messages, that have been daily sent by users on the popular WhatsApp chat. This showed that over 66 percent increase compared to the last quarter of 2017 when global users daily sent about 60 billion instant messages [31]. The highest number of WhatsApp users is in Saudi Arabia at about 28.24 million users [32]. WhatsApp

has various features that support this popularity: it is a free application that can be installed on every mobile device and computer and across multiple platforms iOS (formerly iPhone OS) and Android. It is easy to use and a fast way to connect with others, and it supports file sharing and enhances collaborative and interactive learning in pairs and groups [24]. Many studies [17, 23, 30, 33] have explored the features of some social networks, including WhatsApp, indicated that this application allows its users to send text messages, voice note, attach images, audio and video files, make voice or video call, and share documents in various format and with many applications through their internet connection at no cost. They found that social networking (referring to WhatsApp) is not limited in its features for socialization and entertainment. It is also more for sharing knowledge, experiences, and information, which increases its effectiveness for teaching and learning [17, 23], and provides students with successful learning experiences [30]. Additional features on WhatsApp include direct use from web browsers and multiple devices, the encrypted message that makes the connection secure as well as the easy chat with others by synchronizing all chats to the computer or devices by downloading the application or visiting the link web.whatsapp.com [33]. One notable feature of WhatsApp that makes its use more convenient is that the users can set the privacy settings, so they can mute group notifications, customize notifications, keep strange people from communicating with them, and more [24]. In addition, WhatsApp users can focus on what they do during their communication and learning with others without being distracted because the ads that are kept appear other social networks [23].

Effect of WhatsApp on Teaching and learning practice

WhatsApp is considered a useful learning tool that yields several functions in learning among students pursuing higher education at universities around the world [20, 35, 36]. It is a global phenomenon that provides users with a convenient learning environment to interact in various ways that enhance sustainable learning, increase learning motivation and participation in activities that make use of the collaborative potential [10, 20], and encourage learners to learn faster. Aljaad [20] surveyed 122 Saudi female students at King Saud University to identify the educational uses of the WhatsApp application. The results showed the vital use of WhatsApp for developing curricula and activating the role of student clubs as well as serving scientific research. Thus, there are increased efforts by researchers to gain insight into the contributions, extent, feasibility, and applicability of using WhatsApp in the educational process as it has been widely used in different academic disciplines such as education, mathematics, information systems, health, and language learning to bridge the digital divide among students. However, in the higher education field, several researchers [20, 23, 30, 34] focus on the use of WhatsApp as a learning tool both inside and outside the classroom. These studies concluded that the student's awareness and understanding of using WhatsApp in the teaching and learning process could develop students' critical thinking skills, collaborative learning, and communication skills [33, 36], enhance lifelong learning, and reinforce the authentic learning experiences. As well as used to enhance students' foreign language learning and developing skills. Research by Della and Jurberg [33] explored the use of WhatsApp as a discussion environment in pedagogical activities developed for students with visual impairments (VI). The findings revealed that the utilization of text and audio messages, easy navigation, and quick interactions in addition to the student's awareness of the privacy issues and their full responsibility for what they post on WhatsApp helped students to improve their social communication skills and increased their focus on discussion of important health issues to them. Studies focused on using social networks for enhancing pre-service and in-service teachers to effectively facilitate teaching and learning [18, 23]. After conducting a mixed-method study to investigate the extent to which PSTs use WhatsApp as a learning platform without instructor presence, Alenazi [18] indicated that WhatsApp gives PST opportunities to reflect and evaluate their and peers' teaching and learning performance through interactions and feedback. It leads to extending their self-regulation, improving their communication skills, and enhancing life-long learning experiences and skills. In the same context, a qualitative study [23] indicated that the PST perceived WhatsApp as a positive educational tool that would empower them to promote creative and innovative ideas for their future teaching and learning activities in the classroom.

Researchers [10, 24] emphasized that the use of WhatsApp shifted users from passive recipients to active users and participants in services and applications, and from focusing on content prepared in advance to produce a meaningful and worthwhile interactive media and share with others. For instance, Dyavarishetty and Patil [24] investigated the effective use of WhatsApp as a supplementing tool in traditional classrooms and found that undergraduate medical students got higher grades on the post-test scores versus the pre-test scores, informative discussions increased with their peers about the cases they studied, and most of the students were satisfied and perceived WhatsApp as a teaching-learning tool encouraged their knowledge and expanded their learning tremendously. This study pointed out that the biggest challenges regarding the use of WhatsApp involved the long time spent designing case studies, keeping the students constantly participating, reminding students to send their responses, and giving individual feedback to each student's responses. Its up-to-date application leads to a rapid exchange of written and published information, and instructors and learners can utilize its numerous features in many teaching and learning activities [16, 37]. On the one hand, WhatsApp can be used to activate different learning strategies such as flipped learning [37] and brainstorming, enhancing students' interactions via discussions, and adding more enthusiasm and joy to the education environment to affect students' learning achievement [15, 28]. On the other hand, it has some drawbacks in terms of students' academic performance: feeling

isolated, time-consuming, neglecting some important life tasks, file size uploaded, and internet accessibility [14, 36]. Studies [38] found that extreme use and increased dependence on such social network application (WhatsApp) can lead students to experience mental and physical stress, which might have undesirable consequences on students' personal and academic performance. In addition to other invasions of privacy such as the possibility of being hacked and stealing of photos and videos. Moreover, several studies, pointed to other health effects of WhatsApp [14, 29, 35]. For example, it may cause eye irritation because users spend hours looking at the phone screen, in addition to staying up late, which can cause headache and physical fatigue.

3 Methodology

The foundation for this study was formed by Wagner's (1998) community of practice (CoP) theoretical framework where people "require both participation and reification to be presented and interplay" [39]. In this study, preservice teachers and the mentor teachers worked together during the teaching practicum to act and interact on WhatsApp and produce artifacts (such as tools, words, documents, concepts, theories, and so on). They come together around the topics of interest (the domain) to share knowledge about their practicum program, cases, rules, and documents and to learn together and address recurring issues in their specific context. All member of this community had equal possibilities and the same opportunities to engage and participate in the collective construction of knowledge.

participants

This study was conducted on twenty-six (26) preservice elementary school teachers who were under the researcher's supervision. Those preservice teachers were enrolled in the Bachelor of Education program at a female College of Education at a major Western university in Saudi Arabia. All the preservice teachers were in the final year of the program. They completed their 8 weeks of teaching practice in remote learning strategy because of the unexpected Covid-19 pandemic during the second semester of the 2020- 2021 academic year. They were in the three-hour general education online course to strengthen their understanding of the principles of curriculum and instruction and to prepare them for teaching professionally. All 26 preservice teachers were willing to participate in the study and were informed that their participation was voluntary and that they could withdraw from the study at any time with no consequences.

Procedures

At the beginning of the semester, the participants were informed about the purpose of the study. To find the extent of the preservice teachers' awareness of using WhatsApp in their practicum program, they were asked to create a WhatsApp group to share any academic information useful for their practicum program, where the useful information would be the posts added value to their school experiences program (practicum program) and un-useful information would be posted for communication or verification (e.g., that's a great post, Yes, the next week is our final week and we have to submit our e-portfolio). To understand the preservice teachers' awareness of using WhatsApp, they were required to send at least three useful posts per week (24 useful posts in 8 weeks). The role of the researcher, who is the university professor, in the WhatsApp group was limited to making sure that the preservice teachers created a WhatsApp group and each one of them and the mentor teacher added in addition to the researcher. In addition, by the end of the study, the researcher conducted the focus group interviews via virtual classrooms in the Blackboard. The researcher also observed the participants' posts in the WhatsApp group continuously. Using thematic content analysis, the data were analyzed and categorized.

Data Collection and Analysis

This study carried out a phenomenological approach using a mixed method design to employ an interpretive approach to investigate Saudi female preservice teachers' awareness of using WhatsApp in their practicum program. Creswell [39] noted that a phenomenological study describes the lived experience of individuals about a specific phenomenon, and then provides a meaningful understanding of the phenomenon. A mixed method design, which combines quantitative and qualitative data, affords in-depth understanding of the phenomenon from the experiences and point of view of those who are closest to the event [40] and offers validity for the research results and makes it generalizable. Thus, the two sources of quantitative and qualitative data were collected. To ensure confidentiality and anonymity, codes were assigned as a name for each preservice teacher (PSTs) such as PST1, and PST2. The first data was quantitatively collected from WhatsApp group participation using tables of three main columns to record the frequencies and percentages for the participants' number and posts according to the type and status of participation. The three main columns included the PSTs' code in the first column. The second column was participants' post status, which was divided into two sub-columns: useful and not useful. Then, the third column was for PSTs' post type, which was divided into five sub-columns: text, video, document, voice message, and photo. Every week, each PSTs' posts were collected and then placed in a suitable spot on the table. At the end of the study, all weekly numbers were collected to find out the final number of useful posts and un-useful posts, in addition to the total number of each post type. Using descriptive statistics, the quantitative data

were analyzed to understand the magnitude of participation and determined the preservice teachers' awareness of WhatsApp in their practicum program.

The second data were collected qualitatively using focus group interviews. The PSTs were divided into three focus groups according to the magnitude of posts in the WhatsApp group over 8 weeks. The first focus group included 8 participants who exceed the required number of useful participants in their practicum program, while the second and third focus groups, meet the required number of useful participants (24 posts) and included 12 participants divided amongst two groups with 6 participants per focus group, and four focus group included 6 participants who failed to meet the required number of user participation. Each focus group was conducted via the virtual classroom on the blackboard with a duration of 40 to 45 minutes. Follow up with emails to validate information and member checking process. The interviews were conducted in Arabic, the participant's native language, to extend the conversation and get in-depth knowledge about the topic. The six semi-structured interview questions that were asked for each focus group were divided into three main sections for the reason of the size of their participation, their knowledge and perception, and concern and challenges of using WhatsApp as a pedagogical tool for their practicum program during Covid-19. The interviews were recorded and transcribed verbatim in Arabic and then translated into English. to validate the translated interview questions and data, the interview transcriptions were reviewed by two proficient English lecturers. Finally, the data were subjected to inductive content analysis to code and categorize emerging themes [41].

4 Findings

Findings from WhatsApp group participants were viewed quantitatively in tables, including the posts created by all the preservice teachers (PSTs) throughout the study. Each individual had to share at least three useful posts to their practicum program per week (i.e., 24 posts in 8 weeks), a total of 624 useful posts (24 posts for each individual of the 26 participants). The results in table1 describe the total count of posts produced by the PSTs (1802), including distribution for the created number of posts depending on the status of the posts (useful posts (1073) and un-useful posts (729)), and the frequency and percentage for each type of posts (text, photo, video, voice messages, and documents). It was clear from table 1 how well the PSTs were aware of how to use WhatsApp. They used all features in WhatsApp to share and post different information and suitably presented them at their practicum program.

Table 1: Description of posts created by the entire group of PSTs

Type of post	Status: Useful post	Status: Un-useful post	Total count	Percentage (%)
Text	880	632	1512	84 %
Photo	28	21	49	3 %
Video	27	13	40	2 %
Voice messages	107	46	153	8 %
Documents	31	17	48	3 %
The Total	1073	729	1802	100 %

Results in Table 2 show the frequency distribution of 1073 useful posts for each PSTs, and the range of required useful posts along with the number and percentage of PSTs in each group depending on their magnitude of participation. The table shows that 6 PSTs (23%) did not meet the required number of useful posts for their practicum program as the range of their produced posts was less than 24, while 12 PSTs (46%) met the required number, and their range of produce are 24 useful posts and only 8 PSTs (31%) exceeded the required number and their range produced is 24 useful posts and more. The latter 8 PSTs produced 501 extra useful posts. Subsequently, the actual number of useful posts created by the PSTs is $1073-501=572$, which represents a participation rate of 92% of the collective maximum required number of 624 useful posts. Thus, this result showed that all 26 PSTs (100%), including the group of the 6 PSTs who did not meet the required number of useful posts, produced posts to communicate and share more useful information and knowledge for their practicum program. This result is a clear indication of the awareness of using WhatsApp during the time of the Covid-19 pandemic.

Table 2: Details of useful posts to the practicum program for each PST

PST Code	Number of Required Useful Post	Number of Extra Useful Posts	Range of Required Useful Posts	No of PSTs	Percentage (%)
PST1	10	0	3 to less than 24 posts	6	23%
PST2	12	0			
PST3	13	0			
PST4	15	0			
PST5	20	0			
PST6	22	0			
PST7	24	0	24 posts to 24	12	46%

PST8	24	0			
PST9	24	0			
PST10	24	0			
PST11	24	0			
PST12	24	0			
PST13	24	0			
PST14	24	0			
PST15	24	0			
PST16	24	0			
PST17	24	0			
PST18	24	0			
PST19	24	36			
PST20	24	48			
PST21	24	49			
PST22	24	58	24 posts and more	8	31%
PST23	24	67			
PST24	24	75			
PST25	24	79			
PST26	24	89			
The total	572	501		26	100%
	1073				

Table 3 compares the number of useful and unusual posts for each PST. The table gives clear evidence that all the 26 PSTs were actively participating in the WhatsApp group. They not only brought up new material and knowledge but rather communicated, commented, and affirmed their peers’ responses, which were seen as un-useful posts according to the study rules. The table also showed that each pre-service teacher individually created a higher number of useful posts compared to the number of un-useful posts, which were generally communications, interactions, confirmations, and inquiries about their peers’ posts without adding any new information.

Table 3: Comparison of Useful and un- Useful posts to the practicum program for each PST

PST Code	No Useful posts	No of Un- Useful posts	Total count of Useful posts	Total count of Un-Useful posts	No of PSTs
PST1	11	9			
PST2	12	11			
PST3	13	12	92	84	6
PST4	15	14			
PST5	20	18			
PST6	21	20			
PST7	24	13			
PST8	24	14			
PST9	24	14			
PST10	24	15			
PST11	24	17			
PST12	24	19	288	224	12
PST13	24	20			
PST14	24	21			
PST15	24	21			
PST16	24	22			
PST17	24	23			
PST18	24	23			
PST19	60 (24 + 36)	38			
PST20	72 (24 + 48)	39			
PST21	73 (24 + 49)	47			
PST22	82 (24 + 58)	47	693	421	8
PST23	91 (24 + 67)	50			
PST24	99 (24 + 75)	58			
PST25	103 (24 + 79)	68			

PST26	113 (24 + 89)	74			
The total	1073(572+501)	729	1073	729	26
			1802		

Findings from the focus group interview answers emerged, common specific themes among the 26 PSTs about WhatsApp use explain their magnitude of participation and responses to the interview questions based on their opinion and experience which confirm their level of awareness. The common themes are given below:

Social and Educational networking:

All preservice teachers mentioned that they used WhatsApp because they found it more than a social network, it was an educational network to communicate and exchange knowledge related to their practicum program during the Covid-19 pandemic. Their responses indicated that WhatsApp helped them to create their community of practice, while social distancing during covid-19 pandemic. It was the main means to communicate with school mentors, university instructors, and peers. Their answers included *“It is a primary and important tool to interact with other peers and teachers effectively, especially at this time that forced us to use distance learning”*. Other PST mentioned that *“With WhatsApp, we are in a sustainable learning environment where some issues related to our practicum program can be raised and discussed at any time and from anywhere”* and other PSTs completed *“Through WhatsApp, we work with our mentors, lecturers, and peers in a far more consistent way”*; *“We had some dialogue around issues related to our teaching practice, and got reinforcement, and some recommendation from our peers and mentors... everyone was response at their own pace.”* and *“we had more time to reflect on, and think of innovative way to improve our teaching practice methods”* More PSTs mentioned that WhatsApp provided them with a collaborative environment to share different kind of content, information, and materials regarding their teaching practice. They indicated: *“I never used WhatsApp for education purposes it’s a new way for me, but I used it during the pandemic time”* Two PSTs stated: *“it’s my first-time joining WhatsApp for the educational purpose, I only used it to be in contact with our classmates, find information, post inquiries about the teaching practice”*. *“Through WhatsApp group we exchange lesson planning, discussing and evaluating our teaching methods, class management, interpersonal skills”* Others mentioned, *“WhatsApp facilitated us to establish our community of practice”*. Other PSTs said *“We feel comfortable asking for an assistant from our classmate”*; *“Questions regarding our lessons plan or some course problems” interrupted PST “Actually, we found that they [their classmate] were always available to help us; thus, we felt more courage to get involved in learning through this collaborative platform,”* Other PSTs said *“ we can share and discuss issues and exchange skills in community-related to our practical program”*; *“WhatsApp offered us a special community where we can provide each other with new ideas on the preparation methods and how to begin the lesson”*. They also found that creating three posts each week to be in touch with their community of practice was not hard to do. some of them said *“I post three posts regularly to stay in touch with my peers; I found myself sending the required number and more extra posts responding to my colleague inquiries”* Others stated, *“I felt obligated to remind my classmates of an important due date; some peers did not participate regularly...thus when they asked same inquires that were already answered, I had to notify them”*.

User-friendliness and features:

PSTs indicated that WhatsApp has positive features and it’s a friendly distance learning environment to use for their practicum program during the Covid-19 pandemic. WhatsApp is easy to use due to their familiarity with it, and knowledge of how to operate it well for social and education. PSTs reported *“It was not hard for us to use WhatsApp during the practicum program... we were very familiar with most of the features of this App; we could operate it via different devices; I can use my laptop or tablet to open my WhatsApp with various type of web browsers”* PSTs stated *“we preferred using WhatsApp over another platform such as email and Blackboard because of its accessibility and simplicity”* It is obvious that WhatsApp was more than work-based placement for the PSTs. Other numbers of PSTs said *“We liked the opportunity of having our social and educational messages in one platform rather than more”*. Others stated *“Some of us are very shy and always reluctant to collaborate face to face, but with this easy and quick educational network we can communicate smoothly with our mentors and peers; I had an opportunity to know and interact with everyone in my class more than in face to face....Making more friends; using different types of posts in WhatsApp, allowed me to express my opinion better than direct dialogues; It makes us feel so close to them [peers]... it is an alternative way to face-to-face interactions”*. Some of the PSTs appreciated the privacy settings when utilizing WhatsApp. They would know whether their messages have been received by others and read or not. They also can control if others can see the last time they appeared on WhatsApp or not. They also mentioned that *“ I sometimes mute the other WhatsApp group to focus on my practicum group... I picked tone or vibration; I liked to customize notifications items; I can select a variety of options for sound, vibration, popup, and light”*. In addition, some reported that WhatsApp is a convenient means to share various types of files, media, and documents in a minute at no cost. Most of the PSTs stated that they send more text messages to their peers to respond to their inquiries, reminded them of the due date, gave some suggestions on teaching strategies, advised their peers, and provided each other with what each one knows about teaching aids and technologies. Additionally, PSTs indicated their preferences and some issues related to using some types of posts over others: *“I think writing text is a*

normal way we used to when communicating and sending information to others via WhatsApp; it is easy for me to send text and voice messages; I did not prefer to use voice messages with my classmate....I think it's something related to my privacy; I prefer listening to a voice message and sending it when the piece of information is too long; I found recording voice messages is too easy to explain some ideas related to the teaching practice to share them with my peers quickly; I loved sharing some model of lessons plans in form of documents; it is easy for me to send some photo and document to explain how to write a good lesson plan; It was my first time to use WhatsApp for my learning so I did not know how to send videos or what types would work... I sent more text about some teaching methods; There were many documents related to the teaching practice, but I have no idea how to send a document, so I mostly posted texts and photos.” Moreover, PSTs revealed that WhatsApp features impacted the quality of their teaching practice, they stated: “Some of us presented video clips from model lessons that were shown in the WhatsApp group... we had a discussion about the pros and cons of these videos, and got some reinforcements for our presentation; sometimes I found photo and video related to the teaching methods and share them with my peers to help improve the teaching practice.; we share our lesson plan in the form of documents; we easily send videos and record our lessons to discuss different teaching strategies; with WhatsApp, we can focus on what we are doing and learning during our interaction with peers... that is distracting us...I think I can focus more on discussion; I found it better than in face-to-face interaction; there is no advertisement appearing and distracting us”

Challenges and concern

The PSTs cited that they had some challenges and concerns regarding the implementation of WhatsApp in their practicum program during the Covid-19 pandemic. The group of 6 PSTs who did not meet the required number of useful posts reported that their lack of experience and skills in the pedagogical use of WhatsApp was a great challenge. They mentioned that they were familiar with using WhatsApp for communicating with others, but they never use WhatsApp for their educational purposes and did not have any formal training that could allow them to fully use the essential benefits of WhatsApp. Thus, they felt incompetent, worried, and uncomfortable with the use of WhatsApp for the practicum program. The following reflects the preservice teacher's overall challenges: “I never used WhatsApp as an education tool within my courses; I just use WhatsApp as a communication platform to stay in touch with my colleagues.... knowing about new events and exchanging information with no commitment; I have WhatsApp group for most of my classes, but I just used it to be in contact with my classmates...and sometimes I shared some documents and materials with them; I use it when I missed a class one day, I ask my classmates to provide me with the topics discussed, materials, assignments, and for any updates... This was my first time participating in a WhatsApp group for education; I felt different because I was required to participate; we lack knowledge and skills on how to operate some of WhatsApp's features... I did not know how to accurately convert PowerPoint or compress videos; I do not know how to send certain types of documents and materials ... You know, if you do not know how to use something, it is sure that you will feel less confident and create a negative attitude towards it; WhatsApp like the other technologies, we need to get skills and knowledge on how to use its features in education by training us on it”. Some PSTs indicated that WhatsApp was not an official platform to be used and there is a lack of policy information about the use of WhatsApp in the university setting. In addition, they were not evaluated or graded when using it and the university instructor did not always exist. They indicated that “The WhatsApp group is just an optional tool to use, it is not an official learning environment in the education system... I felt less obligated and motivated to share; The instructions were very clear and useful, but I quite feel that the instructor's supervision is permanently important in the education milieu; I used to work under my mentors' supervision; I think the instructor should involve us in the discussion ... I believe that the instructor's feedback is imperative to verify information provided by my peers and confirm my responses if they are correct”. PSTs also noted that they faced some technical and health issues, physical stress, time-consuming, as well as negative peer burdens such as low internet connection or network problem, message flooding: “WhatsApp works only when the internet is available...sometimes the internet connection is too slow and takes a long time to upload which affect our communication and learning; some of the PSTs were sending many posts at one time” another said: ...and some students asked questions that were already answered, or provided improper news which distracted our attention from the important information we discuss; I spend a lot of time with my peers via WhatsApp to accomplish my learning tasks more quickly;...I got tired of using WhatsApp group...too much work; I used WhatsApp for my social and educational purposes... I had some pain, fatigue, and headache”

5 Discussions

The present study investigated the extent to which female preservice teachers are aware of using WhatsApp in their practicum program during the Covid-19 pandemic in Saudi Arabian. The findings revealed that PSTs were very aware of using WhatsApp. The cumulative rate of their useful posts created was 60%, with only 77% of the participants (20) creating the maximum individual number of useful posts. This rate is considered high. There was one group of 6 PSTs who did not meet the required number of useful posts and the second and third groups of 12 and 8 PSTs did meet and exceed the required number of useful posts. Findings showed that all of the PSTs used WhatsApp for sharing useful

information more than un-useful. The two groups of 12 and 8 PSTs who had the highest frequency of posts created plenty of new information about topics regarding the teaching practice. The third group of 6 PSTs made a great number of inquiries about the information, which encouraged other groups to collaborate and provided responses to inquiries and added additional information to develop their peers' performance. They used some types of posts such as text, video, voice messages, images, and so on more than others, and PSTs were very comfortable with using WhatsApp for their teaching practice. It's helping them to create their social and educational community. Preservice teachers responded that WhatsApp is a social and educational network. It provides them with a convenient learning environment and supports interaction and collaborative learning in various ways among their mentors and peers to enhance lifelong learning, as well as improve their self-regulated learning. The finding concurs with the work of Alubthane and AlYoussef [36] that the use of WhatsApp within an educational milieu helped improve students' critical thinking skills, collaborative learning, and communication skills, and increase learning motivation and participation in activities regarding their practicum program. The finding is also consistent with the study by Kola & Sunday [30] that connectivity via WhatsApp provides a fast way to connect with others and share educational knowledge and experience, practices, active learning, and concerns in pairs and groups. In contrast, it differs from the results from the study by Alasmari [16] and Mfaume [4] which did not find a significant activation of WhatsApp in education and found that most of the students were too obsessed with using the WhatsApp application for socializing and communication with other more than using it for their academic activities. It is evident from the findings that PSTs are aware that WhatsApp can allow them to interact and share information and knowledge without being restricted to areas and time. It provides a viable channel for pre-service teachers, especially during the Covid-19 pandemic, to join their mentors and peers online. It is also supported by the results of research by Bhatia and Haider (2015) indicating that WhatsApp gives PSTs opportunities to improve self-regulated learning and social responsibility and communication skills, as well as enhance life-long learning experiences and skills. It also agrees with Annamalai [23], which indicated that WhatsApp empowers the PSTs to promote creative and innovative ideas for their future teaching activities in the classroom. The PSTs shared useful posts more than un-useful posts as specified in Tables 2 and 3. Thus, if it is fully used, it may foster the professional competencies of huge numbers of teachers across the country, far more than they could achieve by the ordinary in-service practice.

Compared with other online platforms and applications, PSTs indicated that WhatsApp is the most popular application among university students. It is user-friendly and they know how to apply it effectively as an educational tool. This is in line with the results of Adekonojo et al [8], who found that undergraduate students were aware of using WhatsApp and it was not hard for them to operate it well. PSTs also indicated that WhatsApp played an important role in their practicum program during the Covid-19 pandemic as it could be operated directly from web browsers and installed on multiple devices. In addition, they found WhatsApp has free and unique features for sharing information, making friends, and teaching practice. They were more aware of how and when to use a variety of types of posts (text, voice messages, video, photo, and documents) more than others as quantified in Table 1, and how to work with the privacy settings. They use WhatsApp as an alternative to face-to-face interaction to communicate actively with their peers. These findings are in line with the research by Aljaad [20] and Bensalem [21] which pointed out that this application played a vital role in students' academic performance, learning experience and quality, interaction with others, and establishing friendships with learners around the globe. It is also consistent with the results of the study by Della and Jurberg [33] and Waral [5], who exposed that WhatsApp allows its users to send text and audio messages, attach images, and video clips, make voice or video calls, and share documents in various format, with several applications through their internet connection at no cost. About how to use WhatsApp features and privacy settings, research by Damayanti & Sibarani [24] concluded that students' awareness of privacy issues and their full responsibility for what they post on WhatsApp group, helped them to improve their social communication skills and increase their focus on discussion of important issues related to their learning. In contrast, preservice teachers in a study by Bhatia and Haider [14] reported that the use of facilities on WhatsApp improved synchronous and increased mediated interaction with others, but it was not an appropriate interaction environment, and they did not see it as an alternative to face-to-face interaction. They pointed out that they cannot explain everything via WhatsApp and it is better to be in person to express some concepts and strategies. It could be argued that the preservice teachers understanding of how and when to use different types of features and facilities of WhatsApp, was not the only reason that helped to enhance their online learning and increased interaction at their practicum program, which made it an alternative to face-to-face interaction, It also because it was the more familiar application they used to interact with other during the quarantine.

The third result showed that few PSTs had a lack of knowledge and experience in using WhatsApp which affected their self-regulated skills. This result confirmed the finding from the research by Bhatia and Haider [14]. The latter study found that the awareness of using WhatsApp, could enhance the PST self-regulation skills and help peers to learn effectively and reflect their teaching practice during their practicum program. This study indicated that PST's lack of knowledge and skills is a great concern for the potential negative effect on students' performance, is evidence in the present study from the PSTs' participation in WhatsApp groups. In addition, the lack of knowledge causes a negative attitude. This negative attitude made few of the preservice teachers just on other peers to provide them with materials and information related to

the practicum program. They even did not try to look up them, which negatively affected their interaction and participation in WhatsApp group for the practicum program it appears in tables (2,3). In this regard, studies Boyd and Ellison [29] and Waral [5] argued that when using social networks some students may become academically smart because of the information they exchange with other, while other become academically very poor, because they completely depended on any materials and information they got from social network. The findings also showed that although most of the PSTs were aware of using WhatsApp and they believed that they are the focus of learning and have a control on their learning process after they were provided with a clear set of instructions for participation, few of the PSTs believed the instruction was not helpful to develop their participations' quality without instructors' presence regularly. They still considered the instructor as the focus of learning whereas they were supposed to apply the minimum possible effect on their learning environment. It is clear that they were dependent on their instructor and cannot control their own learning. Moreover, had some concern that WhatsApp is still not officially approved by the university system, and they need the instructor to direct them to appropriate use of WhatsApp. This in contrast with the finding of Almogheerah [22], which revealed that most students clearly understand their role and know more about the application policy and how to use it appropriately. This leads students to have a great control over their learning and improve self-sufficiency through the collaboration with their colleagues. Consequently, the role of the instructor shifted from a teacher to a mentor, providing students with guidance. Notably, there were certain concerns described by PSTs including low speed internet connection, physical stress, sending too many posts at a time, numerous repeated questions and information. All these concerns lead PSTs to spend more time on WhatsApp finding information and responding to other inquiries and posts, drawing them away from the important information, and confusing them as well as affecting their academic achievement. This claim supported studies done by [34, 38], which found that the intense use of the social network application such as WhatsApp could be a key factor that drives the learner to experience mental and physical pressure that to undesirable results on the personal and academic performance. Similarly, WhatsApp has the potential negative effect, if it is used improperly and unwisely, on creativity, thinking skills, and reducing the time devoted to studying, which reduces students' academic fulfillment. Additionally, WhatsApp users may spend hours looking at their phone screen, staying up late which causes headache and physical fatigue. However, PSTs in the present study pointed to the great improvement on the quality of their education specifically on the practicum program through using WhatsApp group as a means for communication and exchanging knowledge and information.

6 Conclusion

The present study sought to explore preservice teachers' Awareness of using WhatsApp as a pedagogical tool during Covid-19 pandemic for the practicum program. For this purpose, community of practice (CoP) theory was combined to analyze preservice teachers' interactivity and awareness of WhatsApp as a pedagogical tool. It has revealed that preservice teachers were fully aware of how and when to operate the different features and facilities of WhatsApp well. They were very knowledgeable of the educational worth of WhatsApp. Despite high awareness, few PSTs do not fully utilize WhatsApp for academic activities. Lack of knowledge about WhatsApp, official use, teacher attendance, time consuming, message flooding, technical and health issues, and low motivation are some of the challenges.

Regarding these findings, some practical recommendations were advanced for educators, stakeholders, administrations and institutions which are interested in emerging and applying WhatsApp or other social networks in the future. First, WhatsApp continues to be popular among learners of all ages in Saudi Arabia and it is an effective tool to facilitate the role of instructor in teaching. Thus, researchers need to investigate more variables and factors that could help enhance preservice teachers teaching and learning. Second, Instructors must be ready to experiment and embrace such a change to enable their students to be more engaged and motivated, and reach their full potential. Additionally, instructors should support their learners to build a meaningful learning community among themselves and their instructors using different social networking sites, train them how to take control over their learning via WhatsApp, and provide students with greater opportunities for autonomous and peer learning. This could be done through incorporating social networks sites into their lectures, and introducing the students how to operate the social networking sites that facilitate academic work and research. This may help students understand how to take full responsibility over their learning as well as stop relying on their instructors and peers. Third, universities administration system should allow their teachers to use modern technology and train the educators and students on pedagogical use of WhatsApp and social networks in general. The study findings may be support improving and implementing of modern teaching methods to organize teacher programs, that foster the construction of essential proficiencies, such as self-regulated skills.

The potential limitations of the study included the small sample size from one university, which could not be generalized to other populations. Another was that the study focused on female preservice teachers, no male. Further research may explore both male and female, and faculty members, which may yield different results according to the larger sample size and included sample type.

Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

References

- [1] Azli, W. W., Shah, P.M., & Mohamad, M. (2018). Perception on the usage Mobile Assisted Language Learning (MALL) in English as a second language (ESL) learning among vocational college students. *Creative Education*, 9, 84-89.
- [2] Dewi, S. R. (2019). Utilizing WhatsApp application for teaching integrated English (A case study at University of Technology Yogyakarta). *Journal Ilmiah Kependidikan*, 9(2), 164-171.
- [3] Clement, J. (2020). Most popular global mobile messenger apps as of October 2020, based on number of monthly active users. <https://www.statista.com/statistics/258749/most-popular-global-mobilemessenger-apps>.
- [4] Mfaume, H. (2019). Awareness and use of a mobile phone as a potential pedagogical tool among secondary school teachers in Tanzania. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 15(2), 154-170.
- [5] Waral, N. (2018). Awareness and use of social networking sites among the post Graduates of goa university: a case study. *Journal of Research in Humanities and Social Science*, 6(10), 95-100.
- [6] Alshammari, R., Parkes, M., & Adlington, R. (2017). Using WhatsApp in EFL Instruction with Saudi Arabian University Students. *Arab World English Journal*, 8 (4). DOI: <https://dx.doi.org/10.24093/awej/vol8no4.5>
- [7] Fattah, S. F. E. S. A. (2015). The effectiveness of using WhatsApp messenger as one of the mobile learning techniques to develop students' writing skills. *Journal of Education and Practice*, 6(32), 115-127.
- [8] Adekonojo, O., Ajiboye, B., & Adekonojo, T. (2019). Awareness and Usage of Social Media by Undergraduates in Selected Universities in Ogun State. *IAFOR Journal of Arts & Humanities*. 6. 49-53. 10.22492/ijah.6.2.05.
- [9] Moodley, M. (2019). WhatsApp: Creating a virtual teacher community for supporting and monitoring after a professional development program. *South African Journal of Education*, 39(2).
- [10] Abed, L. (2021). Motivation for WhatsApp use among Students at the University of Jeddah. *Journal of Art, Literature, Humanities, and Social Sciences*. (64), 309-324.
- [11] Alshahrani, A., Siddiqui, A., Khalil, S., Farag, S., Alshahrani, N., Alsabaani, A., & Korairi, H. (2021). WhatsApp-based intervention for promoting physical activity among female college students, Saudi Arabia: a randomized controlled trial. *Eastern Mediterranean health journal*, 27(8), 782-789. <https://doi.org/10.26719/emhj.21.012>
- [12] Damayanti, I., & Sibarani, B. (2020). WhatsApp with preservice teacher learning experiences in the midst of covid-19 pandemic (Ed.). *Language, Education, and Policy for The Changing Society: Contemporary Theory and Research*. (pp.413-429). UPI PRESS.
- [13] Reeves, J. A., Alkhalaf, S., & Amasha, A. M. (2019). WhatsApp as an Educational Support Tool in a Saudi University. *International Journal of Advanced Computer Science and Applications(IJACSA)*, 10(8), 349-401. <http://dx.doi.org/10.14569/IJACSA.2019.0100853>
- [14] Bhatia, H., & Haider, A. (Eds.). (2015). *International Education Conference 2015 Learning Technologies in Education*. Pre Service Teachers' Perception towards Use of WhatsApp (Mobile Learning Application) in School Experience Programme.
- [15] Munir, S., Erlinda, R., & Afrinursalim, H. (2021). Students Views on the Use of WhatsApp during Covid-19 Pandemic: A Study at IAIN Batusangkar. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 5(2), 323-334
- [16] Alasmari, N. (2019). The use of WhatsApp in collaborative learning to improve the reading skill among university students: a case study of Saudi students of English at the University of Jeddah. *International Research in Higher Education*.4(4), 36-51 <https://doi.org/10.5430/irhe.v4n4p36>
- [17] Alenazi, A. (2017). Students of Educational Technology Department's Awareness at The College of Basic Education in The Public Authority of Applied Education Of Using Social Media at The Educational Process (WhatsApp as a Model). *Journal of Education Science*.25(3).

- [18] Alenazi, A. (2018). WhatsApp Messenger as a Learning Tool: An Investigation of Pre-service Teachers' Learning without Instructor Presence. *Journal of Education and Training Studies*.6(1). <https://doi.org/10.11114/jets.v6i1.2684>
- [19] Cetinkaya, L. (2017). The impact of WhatsApp use on success in education process. *International Review of Research in Open and Distributed Learning*, 18(7), 59–74.
- [20] Aljaad, N. H. (2017). Whatsapp for educational purposes for female students at college of education-king saud University. *Education*, 137(3), 344–366.
- [21] Bensalem, E. (2018). The impact of WhatsApp on EFL students' vocabulary learning. *Arab World English Journal*, 9(1), 23–38.
- [22] Almogheerah, A. (2020). Exploring the Effect of Using WhatsApp on Saudi Female EFL Students' Idiom-Learning. *Arab World English Journal*, 11 (4) 328-350. DOI: <https://dx.doi.org/10.24093/awej/vol11no4.22>
- [23] Annamalai, N. (2018). How do we know what is happening in WhatsApp: a case study investigating pre-service teachers' online activity. *Malaysian Journal of Learning and Instruction*, 15(2), 207-225.
- [24] Dyavarishetty, P., & Patil, D. (2017). An interventional study to assess the effectiveness of 'WhatsApp' as a teaching-learning tool in community medicine. *International Journal Of Community Medicine And Public Health*, 4(7), 2564-2569. doi: <http://dx.doi.org/10.18203/2394-6040.ijcmph20172860>
- [25] Papoola, M. (2014). New Media Usage for Communication and Self Concept among Journalism and Mass Communication Students in Oyo State, Nigeria. *New Media and Mass Communication*, 26, 22-34.
- [26] Salihu, A., Latiff, N., & Ismail, N. (2015, October 10-11). *Awareness and Usage of Social Media: A Study of Mass Communication Students of Kano State Polytechnic [Paper presentation]*. International Conference on Language, Kuala Lumpur, Malaysia. <https://10times.com/international-conference-on-languages>
- [27] Fodah, O., & Alajlan, H. (2015, March). A work-in-progress survey on mobile learning in higher education in Saudi Arabia. Paper presented at the Society for Information Technology & Teacher Education International Conference 2015, Las Vegas, NV, United States.
- [28] Gasaymeh, A. M. (2017). University students' use of WhatsApp and their perception regarding its possible integration into their education. *Global Journal of Computer Science and Technology*. 17(1).
- [29] Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210-230. <https://academic.oup.com/jcmc/article/13/1/210/4583062>
- [30] Kola, A., & Sunday, O. (2018). Mobile-learning (m-learning) through WhatsApp messaging, Facebook, and Youtube, Nigeria. *It's International Technology and Science*. 1(3). 11- 121.
- [31] Statista Inc. (2017). Share of population in selected countries who are active WhatsApp users as of the 4th quarter. Retrieved from <https://www.statista.com/statistics/291540/mobile-internet-user-WhatsApp/>
- [32] Global Media Insight. (2021). Saudi Arabia social media statistics 2021. <https://www.globalmediainsight.com/blog/saudi-arabia-social-media-statistics/>
- [33] Della Líbera, B., & Jurberg, C. (2020). Communities of practice on WhatsApp: A tool for promoting citizenship among students with visual impairments. *British Journal of Visual Impairment*, 38(1), 58–78. <https://doi.org/10.1177/0264619619874836>
- [34] Appiah, M. K. (2016). Influence of WhatsApp on study habit of university students in Ghana. *International Journal of Research in Economics and Social Sciences*, 6(3), 280-292.
- [35] Malik, A., Dhir, A., Kaur, P., & Johri, A. (2020). Correlates of social media fatigue and academic performance decrement. *Information Technology & People*. 34(2).
- [36] Alubthani, F., & Alyossef, I. (2021). Pre-Service teachers' view about Effective use of the Whatsapp application in online classroom. *The Turkish Online Journal of Education Technology*, 20(20), 44-52.
- [37] Nirgude, M., & Naik, A. (2017). WhatsApp application: An effective tool for out-of-class activity. *Journal of Engineering Education Transformations: Special Issue*.1-5. Retrieved from <https://journaleet.in/articles/whatsapp-application--an-effective-tool-for-out-of--class-activity>
- [38] Hsiao, K. L., Shu, Y., & Huang, T. C. (2017). Exploring the effect of compulsive social app usage on technostress and academic performance: Perspectives from personality traits. *Telematics and Informatics*, 34(2), 679-690.

-
- [39] Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*, 3rd Ed. Sage Publications. Thousand Oaks, CA 91320.
- [40] Davison, T. L. (2013). The effect of the recession of 2007-2009 in the community bank environment. *International Journal of Business and Social Science*.4(14). Retrieved December 12, 2013 from: <http://www.ijbssnet.com>
- [41] Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.