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WhatsApp platform uses in Teaching and Learning in South African Tertiary Institutions

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Abstract. Over the past decade, there has been a growth in the usage of new technologies, such as WhatsApp applications, for teaching and learning in educational settings. This study investigates how the WhatsApp platform influences teaching and learning in tertiary institutions. It focuses on tertiary institutions where WhatsApp platforms have become essential for online learning. Connectivism learning theory is applied as a conceptual framework to analyse the influence of the WhatsApp platform on teaching and learning at tertiary institutions. Using a qualitative methodology, a scoping analysis was conducted of 13 academic publications published between 2018 and 2023, which focused on the use of the WhatsApp platform as a learning tool. The study found a notable growth in the usage of WhatsApp as a teaching and learning tool in higher institutions. In addition, the study established that no clear policy guides the use of WhatsApp platforms in teaching and learning in tertiary institutions. Nevertheless, adopting WhatsApp in higher education has several advantages, including improved connections between lecturers and students. The study suggests utilising WhatsApp platforms to improve instruction in higher education facilities and a policy must be developed that speaks to the formal use of WhatsApp in teaching and learning. Future studies should concentrate on the effects of further use of new technologies on teaching and learning in tertiary institutions.

Keywords: emerging technologies; teaching and learning; tertiary institutions; whatsapp platform

1. Introduction

Higher education institutions are growing in size without the corresponding increases in their personnel and financial resources. This negatively influences their physical infrastructure and the quality of graduates. According to the Higher

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Education Monitor (2022), every year, about 30,000 students are enrolled at South African higher education institutions. Student-lecturer interaction in the classroom has decreased due to this massification. As a result, WhatsApp is a potential solution to bridge the gap.

Emerging technologies, including Zoom, Microsoft Teams, Moodle, and WhatsApp applications, have been increasingly used in online teaching and learning in educational institutions worldwide over the past decade (Gunawan et al., 2020). Students frequently use Web 2.0 technologies, computers, and smartphones (Naciri et al., 2020). Since smartphones and computers are now a necessary element of Generation Y's daily lives and activities, they are referred to as a technology generation (Chung et al., 2023). Web 2.0 tools like WhatsApp have substantially impacted many facets of teaching and learning in higher education settings (Ujakpa et al., 2018).

When WhatsApp was launched, its primary function was social communication, which included staying in touch with friends and family, exchanging information, and providing entertainment (Singh, 2018). However, higher education academics now use WhatsApp for instructional purposes. Through free and low-cost communication between individuals and groups, WhatsApp makes creating groups, sending unlimited messages, sharing photographs, audio and video communications, and exchanging ideas between users (such as lecturers and students) simple (Haron et al., 2021). Nonetheless, there is a need to evaluate the integration of WhatsApp features into higher education and the influence of these features on student performance.

In a classroom context, using WhatsApp for academic purposes creates a two-way communication channel between academics and students (Gunawan et al., 2020), when both are dispersed across different time zones and geographical locations (Awada, 2016). As students have embraced mobile devices as an essential component of their daily lives, this has driven the application's overwhelmingly widespread acceptance. It is imperative to be aware of this trend, given the remarkable rate at which WhatsApp is adopted by individuals and students in general (Chung et al., 2023). This study contributes to understanding on how the WhatsApp platform is influencing teaching and learning in South African higher education institutions. The paper discusses the study's statement of the problem and significance of the study, research questions literature review, theoretical frameworks, followed by the methodology, literature analysis, and study results. Finally, the study concludes with a section on recommendations, limitations, and future research.

1.1 of the problem and significance of the study

Student-lecturer interaction in the classroom has decreased due to massification, leading to poor throughput rates at higher education institutions in South Africa. Diminished student-lecturer interaction brought on by large classes and massification hurts educational quality (Higher Education Monitor, 2022). A learning environment that fosters beneficial teaching and learning for students must be created to address the issues that higher education institutions in South Africa face. Numerous South African institutions have incorporated WhatsApp

into their curricula. This article investigated how the WhatsApp platform has influenced teaching and learning in South African tertiary institutions.

1.2. Research questions

- How is the WhatsApp platform used in Teaching and Learning in South African tertiary institutions?
- What are the benefits of WhatsApp in Teaching and Learning tertiary institutions in South Africa?
- What policies address the use of WhatsApp in tertiary institutions in South Africa?

2. Literature Review

As smartphones become more widely used, WhatsApp's popularity as a medium for students to communicate is growing. Bouhnik and Deshen (2014) confirmed the adoption of WhatsApp usage by academics and their students in tertiary institutions. The instant messaging feature on WhatsApp allows learners and academics to stay in touch and have more opportunities for interaction in a controlled setting. Ghailan (2016) stated that by utilising WhatsApp, academics facilitate informal learning outside of the classroom to show students that lecturers are concerned about them and are there for them. Furthermore, WhatsApp facilitated learning activities assist students in learning, solving learning problems, quickly building and sharing knowledge, and encouraging research into pertinent material for learning (Barhoumi, 2015). Bouhnik et al. (2014) examined the benefits of WhatsApp groups for learners and educators, focusing on educational benefits. The authors noted that WhatsApp facilitates a pleasant atmosphere, a sense of belonging to the group, sharing of materials, enhanced lecturer availability, continuous access to learning, immediate correction of mistakes, and a secure environment.

A study by Dawood and Van Wyk (2021) found that WhatsApp provides teachers and students with the tools they need to carry out teaching and learning activities, known as pedagogical affordances. These allow students to ask their friends or teachers to clarify challenging course material. They also involve posting text messages and placing audio and video conversations (Madge et al., 2019). These options further improve communication, teamwork, and adaptable learning. The choice of WhatsApp for this study was influenced by the affordances and efficiency of WhatsApp for educational usage, as well as WhatsApp's popularity with students in higher education (Rambe et al., 2020; Venturino et al., 2022)

A study by Kee (2020) noted that students can use WhatsApp to collaborate on projects, debate concepts, and share information. This is especially helpful for students who cannot meet in person due to distance or scheduling issues. This was supported by Jere et al. (2019), who stated that students will have seamless cooperation and improve teamwork, no matter where they are physically. As WhatsApp is a new application that has gained popularity in teaching and learning in recent years, investigations into the best ways to use WhatsApp as a teaching tool are necessary.

3. Theoretical Framework

The study made use of the connectivism learning theory. According to Siemens (2005) and Downes (2010), the digital age explains the connectivism learning theory (CLT). The study used the CLT framework to analyse WhatsApp's effects on teaching and learning in South African tertiary institutions. The CLT asserts that the development of networks for information exchange, assisted by technological advancements like WhatsApp, is becoming increasingly important (Darrow, 2009). The theory contends that knowledge is dispersed across an information network and can be stored in various digital formats. Due to its explanation of the influence of technological advancements, the CLT is suitable to apply to the dynamic character of teaching and learning in tertiary institutions.

According to Khoza et al. (2021), the CLT views learning primarily as a network phenomenon affected by technology and socialisation. Concerning the incorporation of WhatsApp applications into learning processes in South African higher education, the CLT offers a roadmap to help lecturers and students uphold teaching and learning norms while using digitally enabled devices (Khoza et al., 2021).

4. Research Methodology

A qualitative research methodology was employed in this study. The data was gathered using a systematic literature review, in line with the principles of the hermeneutic framework. The framework was chosen because it provides several iterations of data synthesis for data sources to better analyse and identify all important information for the study. It is commonly used to undertake qualitative data synthesis. The three steps of searching, analysing, and interpreting the literature are merged into one process that can be repeated until the researcher is satisfied with the findings or until the iterations produce no new material. According to the framework, understanding literature requires going through the hermeneutic cycle numerous times (Boell & Cecez-Kecmanovic, 2014). The methodology breaks down the literature review process into seven iterative steps: searching, sorting, selecting, acquiring, reading, identifying, and refining. As they apply to the study, these steps are described in detail in the Table 1 below.

Table 1: Activity description and application of the seven steps

	Activity	Description and application
1	Searching	Searching is the process of locating pertinent publications across many databases. The search was more precise using search operators, database dependence, search logging, and field search.
2	Sorting	The search results were arranged in accordance with factors like relevance, citations, and publication. With a special reference number, the results were recorded in an Excel spreadsheet.
3	Selecting	Articles from the list of sorted articles were carefully chosen for reading. The decision was made after reading the abstract and conducting a keyword search within the article.
4	Acquiring	Selected articles are acquired for reading.

5	Reading	The researcher should become familiar with the selected papers through the preliminary reading, and they should discover references to more pertinent articles. All of the articles received were thoroughly read.
6	Identifying	Further search terms and articles may be discovered using the previous stage's information. Afterwards, citation monitoring, journals, and conferences were used to find further articles.
7	Refining	Through the use of search techniques, the newly discovered search words were refined. The search terms were subsequently improved by utilising succeeding fractions, structural elements, or later citations from other works.

Source: (Boell & Cecez-Kecmanovic, 2014)

Science Direct, Google Scholar, the Association for Computing Machinery (ACM), and Research Gate were the sources of the study literature. If an article discussed utilising new technologies in tertiary institutions, it was included in the review. Each relevant article which met the inclusion requirements was found after thoroughly searching the carefully chosen sources. Regardless of the kind of study they were based on, the search included all papers that satisfied the inclusion requirements.

Due to the quick pace of technological progress and the need to provide pertinent information, the publication years of the assessed and used articles were limited to between 2018 and 2023. The study employed a backward and forward search approach to ensure that the review included pertinent references. A database of keywords was developed to describe the many keywords used and why they were chosen in the search process.

Table 2 lists the search terms used to locate the pertinent articles in the database. Two researchers separately examined the full papers after extracting them from various databases. After comparing the findings, the researchers then chose the publications that were pertinent to the study.

Table 2: Keywords database extract

Search phrase	Reason for modifying
WhatsApp	The original term applied to all database searches.
WhatsApp + teaching and learning	Used to limit the search results just to show publications that discuss the usage of WhatsApp for education and learning
WhatsApp + teaching and learning + higher education	Used to limit the search results just to show content that focuses on using WhatsApp for teaching and learning in higher education
WhatsApp + teaching and learning + higher education + Africa	Used to locate research exclusively done in Africa

WhatsApp + teaching and learning + higher education + SADC	Used to locate research exclusively done in Southern Africa
WhatsApp + teaching and learning + higher education + South Africa	Used to locate research done specifically in South Africa

Source: Study synthesis

A thematic analysis of all the gathered articles was done to find recurrent themes in the articles. Based on the themes identified in the preceding step, the findings gathered from the articles were categorised. It was challenging to extract data using a specialised tool because the publications under analysis were based on various studies. As a result, the data were manually removed and tabulated individually by the authors before being compared and combined. Using the reciprocal translation process, the findings from each group were combined to produce information that was most pertinent to the current investigation. In the reciprocal technique, until all articles had been synthesised, the results of one study were compared to those of another, similarities were noted, and the synthesised result was then compared to yet another study. The literature review outcomes were divided into three categories supported by the theoretical background.

Figure 1 represents the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) model employed in this study. It illustrates every step completed during the data collection process.

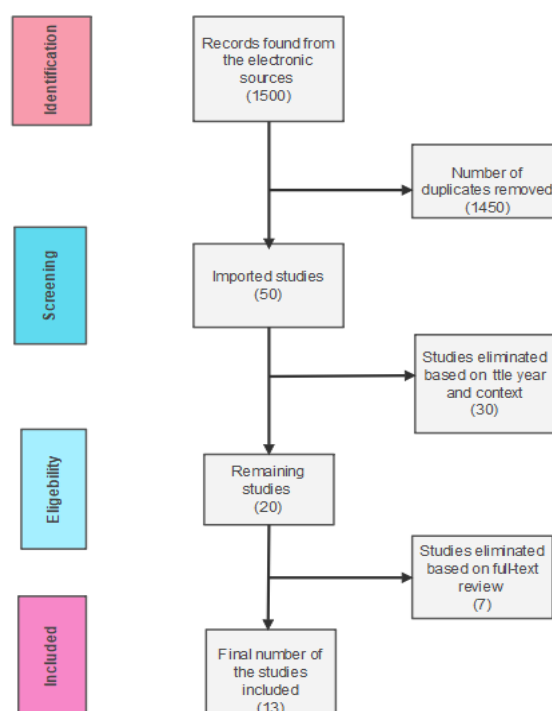


Figure 1: PRISMA model (Boell & Cecez-Kecmanovic, 2014)

For a study to be included, WhatsApp platforms had to be used in the context of teaching and learning at higher institutions. The review procedure was open to a large number of studies. All the databases were searched, and 1500 research publications, including journal articles and conference papers, were found. The included results, however, contained inaccurate and undefined data. Various techniques, including range and geographical filtering and search engine filtering were applied to filter the results until 50 articles remained. These publications were reviewed and rescreened to confirm if they were published between 2018 and 2023 and addressed WhatsApp platform usage in teaching and learning in higher institutions. 20 articles were then selected after the complete texts of these articles were read. A further seven articles were eliminated from the selection because they did not mention that the WhatsApp platform was utilised for teaching and learning in South African higher institutions. A final total of 13 articles were acquired. The list of articles is included in Appendix 1, along with the themes that emerged from the thematic analysis.

5. Results

Benefits of WhatsApp in Teaching and Learning

WhatsApp is a helpful tool that allows students to rate one another and create an engaged community of practice (Scherer & Wiberg, 2018; Yeboah & Nyagorme, 2022). Using WhatsApp in the classroom boosts student engagement, teaches students how to communicate successfully with one another, helps students develop their critical thinking skills, and gives students more access to information (Baishya & Maheshwari, 2020; Yu & Motlhabane, 2022).

Increased Engagement

According to Barhoumi (2020), student engagement refers to how much time students spend participating in activities that higher education research has proven to be linked to effective learning outcomes. The usage of WhatsApp in teaching and learning boosts student participation in higher education (Udenze & Oshonebo, 2020). Student involvement is the level of effort that students put forth in pedagogically valuable activities that directly advance desired outcomes (Kee, 2020; Omodan, 2021).

With the use of the WhatsApp application tool, students can create virtual communities where they have similar interests to their classmates (Gon & Rawekar, 2017; Yeboah & Nyagorme, 2022). However, issues like time and energy can impact students' involvement in virtual communities. Koomson (2018) stated that student engagement involves each student's time and effort to communicate with others. WhatsApp increases student and classroom engagement when appropriately used in the classroom (Dawood & Van Wyk, 2021; van den Berg & Mudau, 2022). Hence, some higher education institutions in South Africa have incorporated it into teaching and learning curricula (Hlavisio, 2021; Mpungose, 2020). This may be because it is perceived as quite useful in enhancing engagement to accomplish learning objectives.

Enhanced Communication among Students and Lecturers

Higher education institutions in South Africa have adopted WhatsApp to enhance effective and informative contact between students and academics. Despite their geographical separation, students can connect more with their academics and

peers when WhatsApp technologies are incorporated into teaching and learning (Cetinkaya, 2017; Dawood & Van Wyk, 2021). Through WhatsApp applications, students can communicate and interact, which improves their knowledge (Mabaso & Meda, 2019; Rahaded, 2020). Furthermore, WhatsApp offers students who are hesitant to participate in class an alternative secure environment to do so. According to Robles (2019), students' interest in a course increases on the WhatsApp platform as instructors and fellow students use humour to make studying and teaching enjoyable.

Wider Access to Information

Before the advent of technology, students were required to visit departmental notice boards to find information. With the use of the WhatsApp app, students can receive and gather information right away (Barhoumi, 2020; Kutu & Kutu, 2022). Students can access educational resources from anywhere in South Africa and the world. They merely require a smartphone with internet access to get current information to boost their academic endeavours (Udenze & Oshonebo, 2020).

Using WhatsApp to Support Teaching and Learning

WhatsApp is used by more than half of students in higher education to help with their academic endeavours (Madge et al., 2019; Rambe et al., 2020). Evidence reveals that students use WhatsApp as a bridging access tool to learning resources (Jere et al., 2019; Kee, 2020). Consequently, barriers to accessing learning materials and instructions from the lecturers are overcome (Venturino et al., 2022).

Students and academics use WhatsApp groups to communicate on various matters, to discuss the availability of lecturers, and to convey concerns about schoolwork. According to Fauzi (2019), WhatsApp's group function allows for two-way communication between students and academics. A learner can listen to or read a voice message on WhatsApp several times and understand it exactly as intended (Venturino et al., 2022; Moodley, 2019). WhatsApp can offer creative approaches to facilitate collaborative learning, boost effective communication, enable meaningful feedback, and offer formal and informal learning opportunities.

Students can read and re-listen to the teacher's material via WhatsApp; however, academics cannot monitor whether students go through the information posted on WhatsApp. Even if students repeat material independently, there are questions students will still ask outside of class hours (Kgomotlokoa, 2020; Mabaso & Meda, 2019). Including WhatsApp to lessons is preferable because some students who would have missed the lecture will not be left behind. Student collaboration in the classroom is made possible using WhatsApp. The usage of this tool can encourage group learning. By piquing their attention and fostering student contact, Rambe et al. (2020) and other researchers concur that WhatsApp is essential for helping slow learners. According to Ujakpa et al. (2018), WhatsApp is a useful social media platform that supporting teaching and learning.

6. Recommendations

Academics should utilise WhatsApp but not as their primary platform for communication and teaching because this could exclude students who do not have or cannot afford data. If implemented, the platform should rather serve as a

prompt or reminder for students to interact on module sites on learning management systems like Blackboard or Moodle, which contains the course instructions, study materials, and assessments.

Academics should clearly state the goal of utilising WhatsApp to the students, and decide whether they want students to be able to post on the groups or if only they should be able to. If students are allowed to post, academics need to lay out precise netiquette for what students should and should not post on the group.

Currently, no formal policy has been developed to regulate the interaction between lecturers and students on WhatsApp platforms integrate in tertiary institutions. Therefore, there is a need to develop policy that speaks to the formal use of WhatsApp in teaching and learning (Venturino et al., 2022). The WhatsApp application can be used to pursue blended learning activities. In addition, since WhatsApp is a good learning tool, academics and students can regularly interact on the platform for accessibility purposes, as posted material can immediately be accessed by both the lecturers and students working from campus or home.

7. Limitations and future research

A sample of studies from South Africa were used; hence, the findings largely apply to this country. Future research studies should focus on the impact of other emerging technologies on teaching and learning in tertiary institutions, investigate the effects of using the WhatsApp platform on teaching and learning in higher education in South Africa using quantitative methodology and include higher institutions in Southern Africa.

8. Conclusion

There are various benefits to using the WhatsApp application as a learning tool in South African higher education institutions. Most higher education lecturers and students use WhatsApp to connect and communicate. It is an application that is easy to use in online learning. It also improves the interaction between students. Furthermore, WhatsApp increases teaching and learning intimacy between academics and students. There is a need to develop policy that speaks to the formal use of WhatsApp in teaching and learning.

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Appendix 1

No:	Author	Title	Year
1.	Jere, N. R. Jona, W. & Lukose, J. M.	Effectiveness of Using WhatsApp for Grade 12 Learners in Teaching Mathematics in South Africa	2019
2.	van den Berg, G., & Mudau, P. K.	Postgraduate students' views on the use of WhatsApp groups as an online communication tool to support teaching and learning during COVID-19	2022
3.	Hlaviso, M,	Use of WhatsApp in Higher Education for Teaching and Learning	2021
4.	Omodan, B. I	Deconstructing the Challenges of COVID-19 on First-Year Rural University Students in South Africa	2021
5.	Yu, & Motlhabane, M. G.	WhatsApp's potential to broaden online teaching and learning: Perceptions of undergraduate students from one South African university.	2022
6.	Dawood, Q. . and Van Wyk, B.	Postgraduate Research during COVID-19 in a South African Higher Education Institution: Inequality, Ethics, and Requirements for a Reimagined Future	2021
7.	Venturino, Marielle & Hsu, Yu-Chang	Using WhatsApp to Enhance International Distance Education at the University of South Africa	2022
8.	Yeboah D & Nyagorme P	Students' acceptance of WhatsApp as teaching and learning tool in distance higher education in sub-Saharan Africa	2022
9.	Kutu, J.O and Kutu, F I.	The use of social media for academic purposes by postgraduate information studies students: a case of University of KwaZulu-Natal South Africa	2022
10.	Rambe, P., Chipunza, C. & Ng'ambi, D.,	Using WhatsApp for co-creation of learning resources: A case of a South African university'	2020
11.	Mabaso N & Meda, L	WhatsApp utilisation at an initial teacher preparation programme at a university of technology in South Africa	2019
12.	Kgomotlokoa T, N.	The Influence of WhatsApp Usage on Collaborative Pedagogy and Social Networking during Teaching Practice at a Rural University in South Africa	2020
13.	Moodley, M.	WhatsApp: Creating a virtual teacher community for supporting and monitoring after a professional development programme	2019