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JOURNAL	International Journal of Innovative Technologies in Social Science
p-ISSN	2544-9338
e-ISSN	2544-9435
PUBLISHER	RS Global Sp. z O.O., Poland
ARTICLE TITLE	USING WHATSAPP AS A TOOL OF LEARNING:A SYSTEMIC LITERATURE REVIEW OF PROSPECTS AND CHALLENGES
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ARTICLE INFO	Oluwatoyin Ayodele Ajani, Nthabiseng B. Khoalenyane. (2023) Using WhatsApp as a Tool of Learning:A Systemic Literature Review of Prospects And Challenges. <i>International Journal of Innovative Technologies in Social Science</i> . 3(39). doi: 10.31435/rsglobal_ijitss/30092023/8025
DOI	https://doi.org/10.31435/rsglobal_ijitss/30092023/8025
RECEIVED	21 June 2023
ACCEPTED	25 July 2023
PUBLISHED	27 July 2023
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USING WHATSAPP AS A TOOL OF LEARNING: A SYSTEMIC LITERATURE REVIEW OF PROSPECTS AND CHALLENGES

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DOI: https://doi.org/10.31435/rsglobal_ijitss/30092023/8025

ARTICLE INFO

Received 21 June 2023

Accepted 25 July 2023

Published 27 July 2023

KEYWORDS

Tool, COVID-19,
Opportunities, Challenges,
Learning, WhatsApp.

ABSTRACT

The COVID-19 pandemic has highlighted the significance of educational technologies in teaching and learning. The global pandemic led to the closure of educational institutions worldwide, prompting the widespread implementation of online learning as a substitute method for delivering curricula. The communication platform is known as WhatsApp has gained widespread adoption and extensive utilisation within the realm of education. The primary aims of this literature review are to examine the utilisation patterns and obstacles linked to the implementation of WhatsApp in the realm of education, assess the advantages and possibilities that students and facilitators can derive from utilising this platform for educational purposes, and comprehend the hindrances and restrictions that arise when employing WhatsApp in an academic environment. The literature was acquired through the utilisation of keywords that are linked to both WhatsApp and education from diverse databases. Having a thorough comprehension of current trends, potential advantages, obstacles, and gains linked to the use of WhatsApp is imperative for lecturers and administrators. Scholarly investigations have revealed a noticeable trend of lecturers and students increasingly utilising WhatsApp as a means of communication and collaboration. The objective of this literature review is to make a noteworthy contribution to the domain of education and technology through an investigation of the potential of WhatsApp as a learning tool. Additionally, this review seeks to offer valuable insights on how to effectively incorporate WhatsApp into pedagogical practices. The article underscores the significance of taking into account privacy and security concerns while utilising WhatsApp for educational objectives and puts forth recommendations for additional investigation.

Citation: Oluwatoyin Ayodele Ajani, Nthabiseng B. Khoalenyane. (2023) Using WhatsApp as a Tool of Learning: A Systemic Literature Review of Prospects And Challenges. *International Journal of Innovative Technologies in Social Science*. 3(39). doi: 10.31435/rsglobal_ijitss/30092023/8025

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Introduction.

The emergence of the COVID-19 pandemic in mid-December 2019, originating from Wuhan, Hubei, China, elicited surprise and apprehension among the global populace (Gamede, Ajani, & Afolabi, 2022). The spread of the pandemic has led to a range of alterations in the field of education, specifically

in terms of pedagogical methodologies. As a result, a significant proportion of countries, including but not limited to India, Chile, Ecuador, Italy, Mexico, Portugal, Poland, Romania, Turkey, China, and Malaysia, have shifted from conventional face-to-face teaching methods to digital education (e-learning), even in higher education. The main aim was to reduce the spread of the COVID-19 virus. Undoubtedly, the adoption of e-learning practices diminishes face-to-face interactions, while simultaneously enhancing the adaptability and availability of students to engage in the educational process from any geographic setting. According to Moore and Diehl, e-learning offers superior advantages compared to face-to-face learning owing to its interactive, multi-modal, effective, convenient, ubiquitous nature, and emphasis on student-centered learning. The adoption of e-learning has faced several obstacles, particularly in many developing nations, despite its potential advantages. This claim can be substantiated considering that the extensive adoption of e-learning is still a comparatively recent occurrence in numerous developing countries, including South Africa (Ajani, 2022b). Numerous developing countries face a dearth of infrastructure and information and communication technology (ICT), which poses a challenge in enabling comprehensive distance education coverage across all regions. African countries are faced with considerable obstacles regarding internet connectivity and accessibility. Nations such as Bangladesh, Pakistan, and Mexico are not immune to facing similar difficulties. Several provinces in Lebanon faced infrastructure challenges, including inadequate electricity and telecommunications services, which hindered the effective execution of e-learning programmes.

Gamede, Ajani, and Afolabi (2022) posit that the incorporation of technology within the realm of education has garnered significant attention in modern times. The domain of educational technology has witnessed a surge in the popularity of instant messaging applications, such as WhatsApp. WhatsApp is a versatile instant messaging platform that enables its users to transmit diverse forms of communication, such as text, voice, and video messages. Furthermore, it offers the functionality of audio and visual communication. According to Bajpai et al. (2022), the instant messaging platform under consideration has garnered extensive worldwide acceptance, with a monthly active user count exceeding 2 billion. In recent years, there has been a notable increase in the use of instant messaging platforms, such as WhatsApp, within the field of education. According to Stevani and Putro (2020), WhatsApp has the potential to serve multiple functions within the realm of education. These functions include acting as a means of communication between lecturers and students, encouraging collaborative efforts among groups for academic assignments, and facilitating the dissemination of educational materials. According to research by Warschauer and Matuchniak (2010), instant messaging is a preferable alternative for both lecturers and students because of its speed and adaptability. Notwithstanding the growing prevalence of WhatsApp in the realm of education, there exists a dearth of scholarly inquiry on this subject matter (Ajani, 2021).

The incorporation of instant messaging platforms, such as WhatsApp, within educational contexts has become increasingly pervasive owing to their ubiquitous utilisation in everyday routines. This occurrence is not unexpected. WhatsApp is a versatile instant messaging platform that enables the exchange of text, voice, and video messages, in addition to supporting voice and video communication. Academic researchers have demonstrated a significant interest in comprehending the utilisation trends, possible advantages, and obstacles associated with the integration of WhatsApp as an educational tool, due to its extensive acceptance. There exist multiple justifications for the chosen theme. Initially, WhatsApp is a widely utilized instant messaging platform on a global level, boasting a monthly active user base that exceeds 2 billion. The extensive utilization of WhatsApp has solidified its position as a pervasive instrument for communication and cooperation in diverse fields, such as education (Jailobaev et al., 2021). The incorporation of technology within the realm of education is a subject that is progressively garnering attention. Madge et al. (2019) conducted research indicating that the utilisation of instant messaging platforms, such as WhatsApp, is progressively widespread within the realm of education. Thirdly, it is imperative to comprehend the patterns, prospects, and obstacles linked with the utilisation of WhatsApp in educational environments, along with its influence on student involvement, drive, and scholarly attainment. The growing utilization of WhatsApp in the educational domain underscores the significance of contemplating concerns on confidentiality and safeguarding and formulating efficacious tactics for assimilating it into the pedagogical milieu.

The existing literature exhibits a dearth of a comprehensive analysis of the usage patterns, impediments, and potentialities associated with the utilisation of WhatsApp. According to Nyasulu and Dominic Chawinga's (2019) research, the utilization of WhatsApp among students yields several

advantages such as the swift distribution of scholarly data, heightened engagement with both peers and lecturers and the encouragement of cooperative learning endeavours. The study conducted by Annamalai (2019) examined the efficacy of utilising a WhatsApp chat group as a means of augmenting educational opportunities within a blended learning environment for a limited group of undergraduate students situated in Malaysia. According to Ujakpa et al. (2018), the use of WhatsApp has been found to increase the level of engagement between facilitators and students, as well as among students themselves. Moreover, empirical studies have indicated that the utilisation of WhatsApp holds promise for augmenting the level of intimacy between students and lecturers. According to Gachago et al. (2015), the integration of mobile technology has the potential to enhance promptness and interconnectivity not only in informal learning but also in structured hybrid and remote learning environments. According to the findings of Cetinkaya's (2017) research, it is recommended to encourage the integration of WhatsApp as an extra technological resource in the educational context. The present body of research has yet to yield a comprehensive comprehension of the patterns, obstacles, and possibilities associated with the utilization of WhatsApp as a mechanism for educational purposes. Therefore, it is imperative to research this domain.

The objective of this investigation is to perform a comprehensive analysis of the existing scholarly literature on the utilization of WhatsApp in educational contexts, to acquire insights into contemporary patterns, advantages, and obstacles linked to this digital medium. The objective of this investigation is to conduct a thorough analysis of the subject matter through a rigorous assessment of pertinent academic literature, publications, and research studies. The primary objective of this research is to offer valuable insights and suggestions to scholars, researchers, and decision-makers regarding the efficient utilization of WhatsApp as a tool for education, with a specific focus on pedagogy and the acquisition of knowledge.

Theoretical Framework.

The theoretical framework is a conceptual structure that offers a systematic methodology for comprehending and evaluating a specific phenomenon or issue. A theoretical framework is comprised of a network of interrelated concepts, underlying assumptions, and propositions that serve as a guiding framework for research and facilitate the elucidation of the connections between variables. The theoretical framework holds a crucial position in research design, as it serves as a basis for constructing research queries, suppositions, and methodologies. Academic inquiry frequently draws upon pre-existing theories and research, although it may also be formulated through a systematic process of investigation and evaluation. The application of theoretical frameworks is ubiquitous across diverse academic disciplines, encompassing the social sciences, natural sciences, and humanities. The present investigation employs the Unified Theory of Acceptance and Use of Technology (UTAUT). The Unified Theory of Acceptance and Use of Technology (UTAUT) is a theoretical construct that explores the phenomenon of technology adoption.

The recognition of a particular incident is contingent upon the evaluation of four distinct factors: performance expectancy, effort expectancy, social influence, and facilitating conditions. Numerous scholarly inquiries have examined the possibility of incorporating technology into the domain of education. The Technology Acceptance Model (TAM), which Davis first proposed in 1989, has been the source of variables for numerous investigations. The theory of reasoned action (TRA), which Fishbein and Ajzen first introduced in 1975, serves as the theoretical foundation of the current framework. This study aims to gain a comprehensive understanding of the determinants that impact the adoption of technology by users. Venkatesh and colleagues introduced the Unified Theory of Acceptance and Use of Technology (UTAUT) in 2003 to enhance understanding of the factors that affect the adoption and usage of technology.

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a comprehensive model that has been developed through a rigorous analysis of eight prominent theories and models, including the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TRA). The research outlines four discrete independent variables, specifically performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FS), alongside several moderators, including age, gender, experience, and voluntariness of use. The variables are employed to forecast the user's inclination to embrace and employ technology. Empirical evidence has been gathered in recent research endeavours to substantiate the Unified Theory of Acceptance and Use of Technology (UTAUT).

Abbad (2021) conducted a study that utilized the Unified Theory of Acceptance and Use of Technology (UTAUT) to investigate the behavioural intentions and practical usage of an e-learning system among students in Jordan. The study by Alghazi et al. (2021) used an expanded version of the Unified Theory of Acceptance and Use of Technology (UTAUT) model to forecast how likely Saudi Arabian students would be to embrace mobile learning.

The correlation between performance expectancy and the inclination to embrace online learning.

The term "Performance Expectancy" (PE) pertains to an individual's subjective evaluation of the extent to which the adoption and application of a particular technology will enhance their work-related performance. As highlighted in previous studies by Vahdat et al. (2020) and Wang et al. (2021), the perception of ease of use (PE) among users is a critical determinant in the adoption of a system. According to the recent research conducted by Erjavec and Manfreda (2022), the adoption of online shopping is predominantly influenced by perceived ease of use (PE), which is the most substantial factor that affects individuals' behavioral intentions. The extent to which individuals perceive technology as advantageous is a crucial determinant in their decision to adopt and utilize it. The integration of physical education (PE) has a positive influence on students' propensity to adopt online learning.

The correlation between the perceived ease of use and the likelihood of embracing web-based education.

Venkatesh et al. (2012) introduced the notion of EE, which concerns the degree of usability of a given system. The abbreviation EE, within the realm of post-secondary education, refers to the attitudes and perceptions that students possess concerning the effectiveness of technology-based learning and its ability to enhance their academic endeavours. Recent research conducted by Bailey et al. (2022) and Talukder et al. (2022) has demonstrated the importance of environmental education (EE) in shaping user attitudes towards the adoption of emerging technologies. The study conducted by Bower et al. (2020) aimed to investigate the integration of immersive virtual reality (IVR) technology in the realm of education, with a particular focus on its acceptance and utilization by lecturers and students at an urban university located in Australia. The findings of the research exhibit a significant association between the construct of emotional intelligence (EI) and the inclination to embrace Interactive Voice Response (IVR) technology in the context of education. Chao (2019) found that the benefits of integrating and employing digital technology are dependent on the degree of simplicity and convenience associated with its utilization.

The association between social influence and the propensity to adopt online learning.

This study aims to investigate the correlation between social influence and the inclination to embrace online learning. According to Venkatesh et al. (2003), the concept of social influence (SI) pertains to an individual's perception of the extent to which others expect them to adopt a specific technology. The concept of social influence (SI) refers to the extent to which an individual's behaviour is altered when using technology in the company of others. Numerous academic inquiries (Giua et al., 2022; Joe et al., 2022; Ulhaq et al., 2022; Younus et al., 2022) have explored the influence of social factors on the development of individuals' proclivities towards adopting innovative technologies. Empirical studies have indicated that people tend to perceive specific behaviours as rational when they witness others performing them. As people rely on these elements to increase their motivation, social structures and relationships frequently have an impact on the integration of technology.

The relationship between facilitating conditions and the intention to adopt online learning.

The present study examines the relationship between facilitating conditions and the propensity to adopt online learning. The concept of FC, as described by Venkatesh et al. (2003), refers to an individual's personal belief in the sufficiency of the organizational and technical infrastructure of a system. Enabling factors play a crucial role in enhancing an individual's capacity to adapt to the evolving technological paradigm. Rahi et al. (2018) posit that the existence of facilitating conditions, including but not limited to Internet accessibility, technological assistance, and institutional backing, significantly influences the propensity of users to embrace novel technologies. The impact of facilitating conditions on technology adoption is deemed to be more substantial than that of other variables that may exert a

comparable influence. According to Bervell and Umar (2017), the availability of numerous resources, technical support, and instructional support has a significant impact on the level of student engagement in online learning. The abbreviation "PS" denotes how individuals perceive security risks and their capacity to exert authority over their data in an internet environment.

The potential moderating effect of openness to change.

Schwartz (1992) posits that Openness to Change (OC) is a crucial value that propels individuals to venture into uncharted territories in their cognitive and affective pursuits (p. 43). Kruse et al. (2018) posited that individuals who possess a combination of open-mindedness, creativity, and a willingness to take risks and experiment can be classified as exhibiting the OC trait. Schwartz (2003) posited that the conceptualization of organisational culture (OC) comprises the dimensions of stimulation, hedonism, and self-direction. Schuitema et al. (2013) posit that individuals who prioritise originality and creativity tend to derive contentment from being early adopters of innovative and pioneering solutions. Steg et al. (2014) posited that individuals who place a high value on hedonistic pursuits may perceive emerging phenomena as a source of novelty and ethical validation. Prior studies have suggested that OC exerts a noteworthy influence on consumers' inclination to acquire non-traditional and inventive merchandise (e.g., Tewari et al., 2022). Moreover, prior research has employed the notion of organisational culture (OC) as a moderator. The study conducted by Kushwah et al. (2019) provides further empirical evidence to support the notion that values play a moderating role in shaping individuals' behaviours and predispositions towards certain actions.

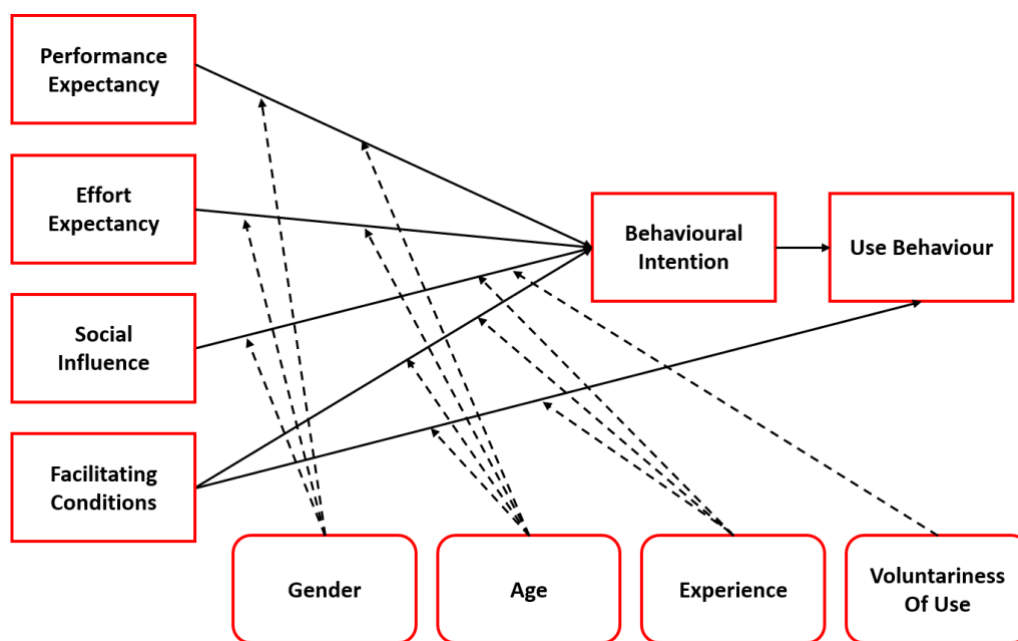


Fig 1: Constructs in UTAUT’s model (Venkatesh et al., 2012).

Methodology.

The objective of this research is to conduct a thorough examination of pertinent literature, encompassing articles, research studies, and other sources (Garritty et al., 2021), to explore the utilisation of WhatsApp in academic contexts. The inquiry will be conducted by employing a variety of databases, such as JSTOR, ProQuest, Google Scholar, and ERIC. The current investigation will utilise a predetermined list of keywords, including "WhatsApp," "education," "learning," "teaching," "classroom," "trends," "benefits," "challenges," "opportunities," and "integration," to systematically explore articles and studies that have been published from 2015 to 2021. The objective is to furnish a contemporary and all-encompassing comprehension of the present patterns and investigations in this domain. To identify prevailing patterns, recurring motifs, and research areas that need more investigation, the proposed study will involve a thorough analysis of the chosen literature along with a critical evaluation. The aforementioned statement shall function as a means of enhancing the existing

literature review.

The methodology section of this literature review will involve a thorough exploration and examination of relevant literature, articles, and research studies on the application of WhatsApp in educational settings. To guarantee the contemporaneity and pertinence of the literature review, the scope of the search will be limited to articles that have been published within the last five years. The literature's inclusion criteria will encompass studies and articles that focus on the utilisation of WhatsApp in academic environments, particularly in K-12 and post-secondary educational institutions. The study will not impose limitations on the incorporation of research based on the selected methodology, be it qualitative, quantitative, or a combination of both, provided that it offers substantial contributions to the topic under investigation. The method of thematic analysis, which is commonly used in literature reviews, will be applied to examine the literature and detect significant themes and patterns in the studies.

Presentation and discussion of findings.

This section encompasses the results of the investigation and their corresponding analysis.

An area of interest pertains to the examination and evaluation of patterns over time. The current literature review's trends section will offer a synopsis of the prevailing patterns detected in the utilisation of WhatsApp within educational contexts. This study aims to provide a thorough overview of the diverse applications of WhatsApp in the realm of education. These applications encompass the utilisation of WhatsApp as a medium of communication between lecturers and students, a channel for disseminating educational resources and tasks, and a mechanism for promoting virtual collaborative work and discourse. According to a 2019 study by Urien et al., many people have noticed the use of WhatsApp as a communication tool in educational settings, particularly in higher education institutions. As per the authors' research, WhatsApp serves a diverse range of purposes, encompassing but not limited to the distribution of notifications, the provision of prompts, and the provision of students with evaluations.

According to Warschauer and Matuchniak's (2010) study, lecturers frequently use WhatsApp for student communication, the distribution of educational resources, and the provision of feedback. As per the authors' findings, WhatsApp functions as a mechanism to facilitate group deliberations and cooperative educational endeavours amongst pupils. In addition to its primary purpose as a communication platform, WhatsApp is increasingly being employed as a means of facilitating remote and virtual education. The utilisation of WhatsApp as a platform for providing synchronous and asynchronous instruction, as well as facilitating communication between students and facilitators, has been observed in a recent study conducted by Wut and Xu (2021). The study further demonstrated that WhatsApp is employed to enhance student engagement and motivation, while also offering support for both formative and summative assessments. A further phenomenon that has been noted in the utilisation of WhatsApp in academic settings is the utilisation of WhatsApp groups as a strategy to promote collaborative learning. Jailobaev et al. (2021) conducted a recent study that found that WhatsApp groups are commonly employed to facilitate team projects, group discussions, and peer feedback. As per the authors' assertion, WhatsApp groups serve as a tool for enhancing language acquisition, whereby students utilise the platform to refine their abilities in oral and written communication in a language that is not their native tongue.

Arifani's (2019) study uncovered that WhatsApp is employed to facilitate the execution of the flipped classroom approach. The pedagogical strategy entails students engaging with video lectures and engaging in discourse and exercises on WhatsApp in advance of attending in-person sessions. Broadbent and Lodge (2021) conducted a study that found that WhatsApp can be utilised to promote self-directed and self-regulated learning among students. The reason for this phenomenon is that students can access educational materials and obtain evaluations at their own convenience and preferred speed. In brief, the dominant trends observed in the utilisation of WhatsApp in educational settings include its use for purposes of communication, remote and virtual instruction, collaborative learning, and the implementation of flipped classroom pedagogy. The messaging application, WhatsApp is being employed to promote and enhance student involvement, drive, and autonomous acquisition of knowledge. According to research, the use of WhatsApp in educational settings is becoming increasingly common and is considered a valuable tool for enhancing communication, collaboration, and teaching methods.

The utilisation of WhatsApp in the field of education has experienced a growing trend in recent

times (Ajani, 2022a, 2022b). The integration of technology in the field of education has led to the extensive adoption of instant messaging applications, such as WhatsApp, for educational purposes. As per Anderson's (2016) findings, WhatsApp is a multifaceted instant messaging platform that facilitates the transmission of text, voice, and video messages, along with the provision of voice and video call services across various platforms (Ajani, 2021). WhatsApp has attained a substantial worldwide reach as a highly utilised instant messaging platform, boasting a monthly active user population that surpasses 2 billion. The academic literature suggests that WhatsApp is being employed in diverse ways in educational settings, such as for communication, distance and online learning, collaborative learning, and flipped classroom instruction. WhatsApp is employed as a tool for facilitating prompt communication and the exchange of files among lecturers and students within the realm of communication. Mulyono et al. (2021) posit that WhatsApp can function as a tool for enabling virtual and remote learning in the realm of distance and online education.

WhatsApp is employed as a tool for facilitating group collaboration and discourse within the realm of education. The utilisation of WhatsApp can be deemed a beneficial instrument in promoting pre-class readiness and post-class contemplation within the framework of flipped classroom pedagogy. Additionally, scholarly investigations have demonstrated that WhatsApp possesses the capability to enhance student involvement, drive, and autonomous learning. The utilisation of WhatsApp has the potential to enhance student engagement by providing a platform for prompt communication and feedback. Additionally, WhatsApp possesses the capability to augment student motivation by cultivating a sense of community and furnishing assistance, while also enabling self-directed learning prospects.

Using WhatsApp as a tool for further development or improvement.

The incorporation of WhatsApp in educational settings offers numerous benefits and opportunities for lecturers and students alike. The utilisation of WhatsApp has been observed to promote improved communication and collaboration between students and lecturers, which may lead to increased levels of student engagement and academic achievement (Andujar & Franco Rodriguez, 2019; Motaung & Dube, 2020). Additionally, as per the findings of Soria et al. (2020), WhatsApp can function as a tool for providing feedback and support to students, ultimately augmenting their educational experiences. According to the research conducted by Bouhnik and Deshen in 2014, the incorporation of WhatsApp in the field of education offers the additional benefit of promoting the development of modern competencies, such as critical thinking, problem-solving, and collaboration. Furthermore, Subramaniam and Muniandy (2019) have posited that WhatsApp possesses the capability to enable the execution of flipped classroom pedagogies, which can lead to an augmentation in student engagement and scholastic achievement.

Moreover, WhatsApp possesses the capacity to enable mobile learning, thereby augmenting the flexibility and accessibility of educational prospects for students. Furthermore, the utilisation of WhatsApp holds promise for enabling blended learning, which can lead to increased student engagement and improved academic outcomes (Subramaniam & Muniandy, 2019). According to Cansoy (2017), WhatsApp has been recognised as a platform that has the potential to support the establishment and maintenance of virtual communities of practice among lecturers. This, in turn, can promote their professional development and improve their teaching methodologies. Furthermore, as per the findings of Díaz-Ramírez's (2020) research, WhatsApp can function as a tool to aid in the integration of gamification within educational environments. This methodology possesses the capacity to augment student engagement and scholastic achievement. The utilisation of WhatsApp in educational settings presents a wide range of benefits and opportunities for both lecturers and students. The advantages include improved collaboration and communication, strengthened feedback and student learning, the development of modern skills, and the integration of mobile and blended learning.

According to Tulgar's (2019) research, the incorporation of WhatsApp into academic environments has the potential to produce a range of beneficial results. An advantage of this technology is its ability to facilitate communication and collaboration between students and facilitators. The WhatsApp platform enables swift and uncomplicated communication, providing benefits in the realm of collaborative group efforts and discourse. Moreover, WhatsApp possesses the capability to facilitate the propagation of educational resources and materials, encompassing a wide range of materials such as readings, videos, and assignments, thereby augmenting student learning and promoting active participation. The utilisation of WhatsApp as a communication tool can enhance student engagement

and surmount obstacles, particularly for students who exhibit introverted or timid tendencies. Pimmer et al. (2019) posit that the informal and efficient messaging format of WhatsApp can foster a more comfortable environment for students to pose questions, share ideas, and participate in academic discussions. Furthermore, WhatsApp possesses the capability to enable the establishment of virtual learning communities, thereby cultivating a sense of fellowship and inspiration among students, ultimately resulting in increased levels of student drive and involvement. Furthermore, WhatsApp can function as an evaluative tool, allowing lecturers to monitor the progress of their students and provide timely feedback.

WhatsApp offers a platform for lecturers to conduct formative assessments, such as quizzes and questions, which allows for expeditious evaluation of student comprehension and provision of instantaneous feedback. Moreover, it has been noted that WhatsApp possesses the capacity to enable the formation of surveys that can assist in assessing the degree of understanding and engagement of pupils during academic discussions within the classroom (Gamede et al., 2022). In summary, the utilisation of WhatsApp in educational settings has the potential to offer several benefits, such as improving communication and collaboration between lecturers and students, increasing student engagement, and providing timely feedback. The advantages mentioned above possess the capacity to enhance student's learning and engagement and enhance the overall effectiveness of teaching methods. The integration of WhatsApp in academic settings can enhance communication and cooperation among lecturers and students through diverse channels. The principal benefit of utilizing WhatsApp in the field of education lies in its ability to facilitate prompt communication and collaboration, particularly in the context of group-oriented assignments and discussions. According to the study by Jabbar et al. (2021), the use of WhatsApp in a project-based learning environment in higher education improved student collaboration and communication. Based on the findings of the study, the incorporation of WhatsApp in academic settings led to an increase in student participation and enthusiasm toward classroom discourse, along with an elevated sense of interpersonal bonding among classmates.

The incorporation of WhatsApp in academic settings has the potential to enhance collaboration and communication among lecturers and students through diverse channels, including real-time messaging, asynchronous messaging, and coordination of group assignments. The incorporation of WhatsApp in the domain of education possesses the capability to enhance communication and cooperation among lecturers and students. The rationale behind this is that WhatsApp offers the capability of instantaneous messaging, group communication, and file sharing, which can be efficiently employed to facilitate discussions and cooperative endeavours. WhatsApp has the potential to function as a platform for the establishment of study groups, thereby enabling the exchange of educational materials and the collaborative resolution of academic inquiries among students. Alubthane and Alyoussef (2021) contend that WhatsApp holds promise in enabling the creation of virtual classrooms, which can serve as a platform for lecturers to distribute instructional materials, assignments, and evaluations to their students. Ajani (2021) argues that the implementation of this mode of communication holds the promise of promoting a feeling of fellowship and motivation among students and facilitators alike, while concurrently augmenting the accessibility of academic materials and educational opportunities.

In addition to its role in enabling communication and collaboration, WhatsApp has the potential to function as a mechanism for augmenting student engagement and motivation. The utilisation of WhatsApp can enable the creation of interactive quizzes and games that can be employed by students, thereby augmenting their levels of engagement and motivation during classroom instruction. Young and Jerome (2020) posit that WhatsApp possesses the capacity to enable the creation of customised feedback loops for pupils. This facilitates facilitators to offer individualised feedback and support to students according to their distinct needs and progressions. The act of providing feedback can increase student motivation and engagement by providing them with a clear sense of direction and purpose in their academic pursuits. Moreover, WhatsApp possesses the capability to facilitate student-centered learning by empowering students to take charge of their own learning by establishing and leading their own discussion groups and projects. Enabling a perception of self-governance and self-determination in the process of acquiring knowledge has the potential to augment student drive and involvement.

Challenges of using WhatsApp as a tool for learning.

The incorporation of WhatsApp within educational environments may pose certain challenges. One of the primary concerns is the potential for students to become distracted and engage in procrastination. As per the findings of Azizur Rahman et al. (2020), WhatsApp can be categorised as a social media platform that has the potential to divert the attention of students during class hours, resulting in their involvement in non-educational activities or utilizing it as a means of procrastination instead of prioritising their academic endeavours. Moreover, concerns may arise regarding the digital divide, as some students may lack access to smartphones or internet services, which could hinder their participation in educational activities centred around WhatsApp. Another challenge concerns ensuring the confidentiality and safeguarding of students' personal information. Aizenkot and Kashy-Rosenbaum (2021) have asserted that the utilization of WhatsApp, an online platform, may present a plausible risk of cyberbullying and the proliferation of inappropriate content among student populations.

Lecturers must exercise caution in monitoring the usage of WhatsApp by their pupils, guaranteeing that it is being utilized appropriately and safely. The academic literature indicates that there is a lack of formal training opportunities for lecturers to effectively utilize WhatsApp in the educational setting (Morsidi et al., 2021). The inadequate provision of training and support could hinder the ability of lecturers to efficiently integrate WhatsApp into their teaching methods, thus constraining their capability to fully harness its potential benefits. It is important to acknowledge that while WhatsApp can be a powerful tool for communication and collaboration, it may present a difficulty for facilitators in monitoring and managing multiple group chats and discussions occurring simultaneously (Naghdipour & Manca, 2022). The situation described above has the potential to lead to burnout among lecturers and reduced effectiveness in using WhatsApp as a tool for teaching and learning.

The employment of WhatsApp as an educational tool comes with specific obstacles.

Most research conducted during the pandemic has identified challenges in using WhatsApp as a means of educational instruction and acquisition. WhatsApp faces technical limitations such as sluggish internet connectivity (Fujiono et al., 2021; Yulianawati et al., 2021), prolonged loading periods, and ambiguous educational resources (Md Yunus et al., 2021). These factors impede the platform's functionality. Ubaedillah and Pratiwi (2021) identified technical limitations such as the unavailability of smartphones, and signal towers, and the financial burden of purchasing data plans. According to Lukas and Md Yunus (2021), students hailing from low-income family backgrounds present a considerable challenge to the process of online learning. Furthermore, Gon and Rawekar (2017) have drawn attention to the problem of ocular fatigue that arises from prolonged utilization of technological gadgets such as laptops and smartphones. The findings of Gupta et al.'s (2021) study indicate a noteworthy association between age group and the probability of school-aged children exhibiting an elevated computer vision syndrome (CVS) score.

With the increasing number of viewers and their prolonged engagement with visual media, individuals may encounter complex ocular and visual problems such as difficulties in focusing, ocular discomfort, headaches, and reduced distant visual acuity. Furthermore, the challenges presented by a curriculum that is burdened with a multitude of courses to concurrently manage, in conjunction with the manual retrieval of prior messages, have resulted in the utilization of WhatsApp being a demanding endeavour (Mwakapina et al., 2016). Considering the anticipated obligation for facilitators to be accessible outside of their prescribed working hours, the process of evaluating and furnishing feedback to each pupil may prove to be a burdensome undertaking for lecturers (Gon & Rawekar, 2017). The significance of facilitators in establishing a connection with their pupils, whether in synchronous or asynchronous environments, is pivotal, alongside their provision of feedback. Rapanta et al. (2020) have identified three fundamental types of facilitator presence in virtual learning settings. The initial aspect pertains to cognitive presence, which encompasses the facilitator's contemplation of the students' readiness and eagerness to engage in virtual coursework. The second aspect under consideration is social presence, which concerns the exchange of information between facilitators and students. The third form pertains to facilitatory presence, which encompasses the resources and activities that facilitators provide to facilitate the process of learning.

In addition, the most challenging aspect of transitioning from conventional classroom teaching to mobile learning relates to the complexities of assessing student achievement. According to Rapanta et al. (2020), the adoption of a continuous assessment framework is imperative in the current educational

landscape to mitigate the risk of lecturer burnout stemming from prolonged engagement with students. The study conducted by Maslan and Mohd Nor (2020) provides evidence that Pentaksiran Bilik Darjah (PBD), which is a form of classroom-based assessment, can be conducted by lecturers in a different district in Malaysia during the Movement Control Order (MCO), despite its moderate practicality. Amin and Sundari's (2021) study revealed that the digital learning platforms, specifically Cisco WebEx Meeting, Google Classroom, and WhatsApp, had a comparatively limited influence on group participants. This implies that conventional in-person education is still preferred over entirely virtual and computerised educational platforms. According to Darkwa and Antwi's (2021) assertion, the effectiveness of facilitators' pedagogical expertise is more pronounced in conventional classroom environments compared to online settings. Darkwa and Antwi (2021) assert that the role of facilitators is paramount in promoting students' profound cognitive engagement. Rahmadi (2020) has observed that although students are frequent users of WhatsApp in their personal lives, their level of engagement with the platform is comparatively lower in academic contexts.

The subjects under consideration demonstrate a passive disposition and are deficient in the requisite readiness to participate in dynamic, collaborative, and self-directed learning via the WhatsApp platform. A subset of students participated in the perusal of assigned materials before class and the subsequent review of such materials after class. A significant proportion of individuals in the WhatsApp group abstain from both initiating queries and providing responses. Akyıldız and Çelik (2021) observed that despite students' inclination towards individual activities, they frequently encounter a dearth of opportunities for collaborative learning with their peers. The level of engagement of academically successful students in WhatsApp discussions is more prominent in comparison to their less successful peers, who tend towards being more reserved. The use of WhatsApp groups in educational contexts has been observed to present several challenges, including but not limited to the diversion of students' attention, a proclivity towards plagiarism through the replication of peers' work, and limited time for lesson delivery due to mobile fatigue (Niah, 2021). Wahyuni et al. (2020) have reported that inadequate clarity and brevity in the explanations provided by facilitators can present difficulty for students in their understanding of the course content. Some students demonstrate a proclivity towards auditory learning as opposed to visual learning, as they perceive it to be a more efficacious method of comprehending academic content through listening rather than reading. Furthermore, extant scholarly literature has demonstrated that a certain level of confusion arises when choosing suitable verb tenses and vocabulary when answering questions related to reading comprehension (Susanti, 2020).

Verheijen and Spooren (2021) have identified lexical diversity, spelling errors, and non-standard orthographic features as areas of concern. Furthermore, scholarly investigations indicate that the motivation and concentration of students tend to diminish after a few weeks of participating in online learning, leading to decreased productivity and academic achievement in the context of English as a Second Language (ESL) reading instruction (Yulianawati et al., 2021). The findings of the research indicate that a significant proportion of students tended to utilize lower-order thinking skills (LOTS) in their responses to reading prompts, which primarily involved expressing personal opinions. In contrast, the employment of higher-order thinking skills (HOTS), such as providing specific examples or offering detailed elaboration on particular concepts, was relatively infrequent among the participants. During the COVID-19 pandemic, WhatsApp has been utilized as a platform for conducting English as a Second Language (ESL) classes. The instructional process can be challenging for lecturers due to differences in language proficiency among students (Asmara, 2020) and variations in age (Verheijen & Spooren, 2021).

Whilst WhatsApp presents a plethora of potential benefits within the educational sphere, it is imperative to recognise and confront the diverse obstacles that may manifest. One of the main challenges concerns the possible deficiency in accessibility or proficiency with technology among specific students. According to Udem et al. (2020), there may also be issues with the privacy and security of personal data shared within WhatsApp groups. Therefore, lecturers must consider these challenges and develop strategies to overcome them, such as providing guidance and support to students who are not proficient in using WhatsApp (Nyasulu & Dominic Chawinga, 2019). It is crucial to consider the privacy and security implications that arise from the use of WhatsApp in an educational setting. WhatsApp is a messaging platform that is privately owned and functions as an external application, thereby providing the parent company with the possibility of accessing the data that is conveyed through the platform. Furthermore, the effectiveness of WhatsApp's end-to-end encryption in protecting the data shared

among WhatsApp groups have been scrutinised by Reis et al. (2020), who have detected exploitable weaknesses. Therefore, lecturers need to be aware of these issues and take steps to protect the confidentiality of students' data.

The formulation of a set of protocols that delineate the acceptable and unacceptable content for dissemination on WhatsApp groups can facilitate the attainment of this objective. However, it is crucial to consider various potential hindrances that could emerge while employing WhatsApp for educational objectives. One of the foremost challenges pertains to ensuring the confidentiality and safeguarding of information related to students and facilitators. WhatsApp, the messaging platform, has garnered extensive usage and acceptance among its users. When utilizing this platform for information exchange, it is crucial to consider the protection of student data. This pertains to the information that is transmitted via the application, along with any data that is stored on WhatsApp's servers or other third-party services that are utilized in conjunction with WhatsApp.

Thus, the integration of WhatsApp in education has become increasingly prevalent in recent years due to its perceived benefits in facilitating communication, collaboration, and instruction. However, the utilization of WhatsApp in educational settings poses certain challenges. One of the foremost challenges is the potential for student distractions and procrastination. The social networking platform, WhatsApp, has the potential to distract students from academic pursuits during class hours or serve as a tool for procrastination. The aforementioned situation possesses the capability to reduce the effectiveness of WhatsApp as a pedagogical tool. The digital divide presents a significant obstacle, as certain students may encounter difficulties in accessing smartphones or internet connectivity, which may hinder their capacity to participate in educational activities facilitated via WhatsApp (Bishai, 2022). Furthermore, it is crucial to ensure the confidentiality and safeguarding of students' personal information in light of the possible risks of cyberbullying and the proliferation of inappropriate content on the WhatsApp application.

Lecturers must exercise careful observation in supervising the usage of the platform by students, to guarantee that it is being utilized responsibly and securely. Oyewole et al. (2020) have observed a dearth in the availability of structured instructional courses for lecturers to develop their competencies in effectively utilizing WhatsApp as a pedagogical instrument in the academic setting. The inadequate provision of training and support may hinder the proficiency of lecturers in integrating WhatsApp into their teaching methodologies, thereby restricting their ability to fully leverage its potential benefits. For the successful integration of WhatsApp in the education sector, lecturers and administrators must have a thorough comprehension of the patterns, possibilities, and obstacles linked with the use of this medium for educational objectives.

In light of the results obtained from this investigation, it can be deduced that there exists a noteworthy correlation between the variables under scrutiny. The findings indicate that additional investigation is required to comprehensively comprehend the intricate interplay among these factors. The results suggest that policymakers and practitioners should consider the potential influence of these variables when formulating decisions. Moreover, it is recommended that forthcoming studies should prioritise investigating the fundamental mechanisms that propel the noted associations. This may offer significant perspectives on how to efficiently tackle the concerns identified in this investigation.

The analysis of the literature indicates that the utilization of WhatsApp in academic environments is an emerging practice that provides numerous advantages. The literature has identified a notable trend of rising employment of WhatsApp as a means of communication and collaboration between facilitators and students. Research has indicated that the utilization of WhatsApp can augment communication and collaboration through the provision of a platform for immediate messaging and sharing of documents. f technology in the classroom to enhance student learning outcomes.

The incorporation of WhatsApp in an academic setting requires meticulous contemplation of potential hindrances, particularly concerning apprehensions regarding privacy and security. Establishing a set of principles and optimal approaches is imperative for the successful implementation of the task at hand. The scholarly literature posits that WhatsApp has the potential to serve as a valuable instrument for lecturers. However, it is imperative to exercise prudence and accountability when utilizing this platform. The literature review provides evidence of the growing utilization of WhatsApp as a tool for communication and collaboration in educational environments. The utilization of this technology possesses the capability to augment communication and cooperation between pupils and facilitators, foster student involvement and drive, and provide a practical and economical approach to dispensing

educational material. However, it is imperative to consider potential obstacles associated with utilising WhatsApp in the realm of education, including apprehensions regarding privacy and security.

Recommendations.

Several scholarly investigations have identified and underscored the benefits of employing WhatsApp as an instructional instrument for higher education. Nevertheless, certain obstacles and restrictions have also been recognised. According to the authors, it is recommended that systematic research be carried out to improve WhatsApp as a means of facilitating more efficient teaching and learning in the classroom. Moreover, it is advisable to establish guidelines or ground rules to foster optimal practices in utilising WhatsApp for educational objectives. It is recommended that students receive guidance on how to effectively utilise WhatsApp to enhance their educational outcomes. The utilisation of suitable language as a means of pedagogy has the potential to aid in the accomplishment of educational goals. Furthermore, it is imperative to foster student motivation and promote active engagement in educational instruction and learning experiences. Additional investigation is required to fully comprehend the privacy and security implications that are linked to the utilisation of WhatsApp within educational environments. Further research is necessary to explore the enduring impacts of WhatsApp utilisation on the communication and collaboration proficiencies of both students and facilitators.

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