Effectiveness of WhatsApp and Social Media in Learning Among Nursing Students

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Abstract

The rapid advancement of web-based communication technology has transformed learning environments in higher institutions of learning worldwide. This has made interactive, collaborative, and virtual learning beyond the classroom possible. Social media platforms, especially WhatsApp, are easy-to-use, easily accessible, and highly flexible tools for communication, exchange of resources, and peer collaboration. In Zambia, where nursing education involves the integration of theory and practice in the clinical environment, these virtual tools can bridge the gap between classroom training and real application. However, not much empirical data has been used to assess their effectiveness in improving learning experiences among nursing students.

The present research investigated the application of WhatsApp and other social media platforms as learning strategies among nursing students in DMI St. Eugene University in Zambia. Grounded in the Social Constructivist model of learning through cooperation and collaboration, the study involved a quantitative approach. A stratified random sample of 114 nursing students participated in the study. Data were measured using a 30-item standardized questionnaire scored on a four-point Likert scale. Instrument validity was established through expert review, and reliability with a Cronbach's alpha > 0.70. The data analysis used descriptive statistics (mean and standard deviation) and inferential statistics (t-tests) to examine differences by gender, locality of residence, and family type. Outcomes indicated students perceived WhatsApp and social media as extremely effective learning devices (M = 89.05, SD = 8.94), particularly in order to facilitate communication, collaboration, and access to information. There were significant gender differences: male students rated the devices as being more effective (M = 94.86) compared to female students (M = 88.66; t = 3.25, p < 0.01). Similarly, rural students also reported higher effectiveness (M = 94.79) compared to urban students (M = 87.87; t = 4.04, p < 0.01), reflecting higher usage of digital sources in rural areas. No differences were observed for joint and nuclear family students (t = 0.68, p > 0.05). Overall, the study reveals that WhatsApp and social media significantly enhance traditional teaching through their facilitation of active, inclusive learning among Zambian nursing students. Nonetheless, because the study focused on perceptions rather than real academic outcomes, it is recommended that future longitudinal and mixed-method studies be conducted to evaluate long-term learning gains, instructional integration, and ethical considerations in online learning settings.

Keyword: WhatsApp and Social Media Learning, Nursing Students, Effectiveness, Zambia

1. Introduction
1.1 Contextual Background: The rapid expansion of information and communication technology has redefined the manner in which students exchange, access, and engage with learning content. Social media platforms such as Facebook, WhatsApp, and YouTube are no longer exclusive to social applications; they are now essential tools for collaborative learning in higher education (Mistry et al.,

2015) [12]. The platforms enable students to exchange learning materials, ask questions, and maintain interaction with fellow students and instructors beyond traditional classrooms. Of these, WhatsApp has been particularly successful due to its affordability, simplicity and capacity to provide real-time communication and group chats (Bouhnik & Deshen, 2014) [6].

In the context of Zambia, increasing rates of smartphone and internet use have enhanced students' capacity to leverage platforms like WhatsApp in support of scholarly activity. This paradigm has especially been useful for nursing students, whose education entails equal amounts of theory and practice when it comes to skills application. The collaborative and interactive nature of WhatsApp can bridge this two-way requirement, allowing students to exchange academic discourse, peer learning, and clinical discourse outside the classroom (George et al., 2017) [8]. Further, these kinds of platforms can act as virtual support networks for communication throughout clinical placements and for immediate access to peer and instructor support (Bere, 2013) [5].

1.2 Problem Statement
In spite of increasing use of social media in the learning context of students, there is limited empirical research in Zambia to examine its potential to improve learning outcomes, particularly in nursing. Research from other countries suggests that social media use can increase student engagement, group work, and knowledge sharing. These findings might not automatically be applicable in the Zambian higher education context, where infrastructure, access, and pedagogical inclusion are quite variable. Secondly, there exists a gap in the context and research studies regarding how Zambia's nursing students employ WhatsApp and other online platforms for learning purposes and how it impacts their learning outcomes and professional growth.

1.3 Purpose of the Study
The purpose of this study is to investigate how WhatsApp and other social media tools can be used to promote learning among nursing students in Zambia. In the recent decades, virtual spaces have become an integral component of teaching practice, assisting students in conveying messages, working collaboratively, and acquiring multiple sources of knowledge beyond the traditional classroom setting (Alonso & Romero, 2021) [2]. Social media sites—specifically WhatsApp—have been seen to facilitate dynamic, student-centered environments where learners can discuss, exchange information and seek educational and emotional support in real-time (Kumar & Sharma, 2022) [10].

In nursing education, the use of social media has been seen to fill the gap between learning in the classroom and practicing in the clinic. Studies have shown that platforms such as Facebook and WhatsApp facilitate peer mentoring, reflective conversation, and affirmation of knowledge, thereby spurring critical thinking and professionalism (Mackay et al., 2020; Nkhoma et al., 2022) [11, 15]. However, amidst these global trends, there is very little empirical research on how such sites are being used and viewed by nursing students in Zambia, whose learning and teaching contexts differ significantly from the high-income nations.

This study then tries to investigate the trends of social media usage among nursing students, to the extent how effective they are in learning. Through a focus on students' everyday lives and actual experiences with social media, this study aims to provide context-specific reflections on how digital communication technologies can be best harnessed to create a stronger nursing education in Zambia and similar low-resource settings (Mtega & Benard, 2020; Tayo & Ajayi, 2023) [19, 13].

1.4 Research Questions
The study seeks to address the following research question:
- What is the effectiveness of using WhatsApp and other social media in learning among nursing students in Zambia?
- Is the effectiveness in usage greater or less than the presumed level?

1.5 Hypotheses of the Study
- The level of effectiveness of WhatsApp and other social media in learning among nursing students is at average.
- There is no significant difference between male and female students in the level of effectiveness of WhatsApp and other social media in learning.
- There is no significant difference between rural and urban students in the level of effectiveness of WhatsApp and other social media in learning.
- There is no significant difference between students of joint and nuclear family in the level of effectiveness of WhatsApp and other social media in learning.

1.6 Significance of the Study
This study is significant because it addresses a significant research gap regarding how social media platforms—namely WhatsApp—are enhancing learning among nursing students in Zambia. While numerous international articles have weighed the use of social media in higher education and nurse education (e.g., Mackay et al., 2020; Kumar & Sharma, 2022) [10, 11], empirical evidence from sub-Saharan Africa and Zambia in particular is scarce. Most existing literature is from advanced settings with advanced digital infrastructures, therefore producing a contextual rift on the application of these instruments in resource-poor education systems.

By contributing context-based evidence, this study contributes new information on the application of social media in enhancing nursing training in Zambia—a setting where digitalization of instruction is yet to mature and where learning technology access is disparate. The findings will inform teachers, curriculum developers, and policymakers regarding how best to leverage social media in learning and instructional strategies to support collaboration, engagement, and academic achievement. Besides, the study broadens the global debate on technology-enhanced learning by presenting empirical evidence from the context of a developing country and offering insightful and practical lessons that can guide analogous education reforms in sub-Saharan Africa and other resource-constrained environments (Tayo & Ajayi, 2023; Mtega & Benard, 2020) [19, 13].

2. Literature Review
2.1 Recent Literature
Mutair et al. (2025) [14] focused on the impact of WhatsApp as a learning tool on learning and satisfaction among nursing students. The study involved 65 undergraduate students who were split into traditional and WhatsApp learning groups. Despite there being no academic performance difference, users of WhatsApp demonstrated higher satisfaction and engagement levels. The platform provided for effective learning that is interactive and positive attitudes toward

education. Overall, the study suggests WhatsApp's ability to revolutionize teaching methods in nursing education.

Abdollahi et al. (2024) [1] in a randomized controlled trial assessed the efficacy of an SCT-derived WhatsApp-based educational intervention to induce preventive behaviors for leishmaniosis among 220 Iranian health ambassadors. Participants were randomly assigned to intervention and control groups, with the intervention being delivered over two weeks via WhatsApp. Results showed that the intervention group significantly improved SCT constructs and preventive behaviors compared to the control group (p < 0.001), demonstrating the effective utilization of WhatsApp in transferring theory-based health education interventions. This study stresses the accessibility of WhatsApp as a convenient medium for behavior-focused and interactive learning.

Sarginson and Wendler (2024) [18] conducted a systematic review of 19 studies between 2017 and 2022 to evaluate the effectiveness of social media in nursing education. Social media platforms were seen to support diverse educational activities including supplementing hands-on skills learning, enhancing course activities such as journal clubs, and fostering a sense of community and belonging among the students. Although social media promotes collaboration and can transcend limitations of asynchronous learning management systems, the review also showed that privacy concerns may exist. In general, the study suggests that the adaptive function of social media in promoting engagement and learning in nursing education.

Sarginson and Wendler (2024) [18] conducted a systematic review of 19 studies between 2017 and 2022 to examine the use of social media in nursing education. The review found social media sites to facilitate diverse educational activities, including complementing hands-on skill development, supporting course-specific activities such as journal clubs, and facilitating belonging and identity for students. While social media facilitates collaboration and can address the limitations of asynchronous learning systems, it also presents issues related to privacy. The study as a whole highlights social media's multipurpose ability to enhance engagement, collaboration, and experiential learning in nursing education.

Selvan and Kalaiyarasan (2024) [17] conducted a systematic review on the use of WhatsApp in education, examining 10 published studies between 2014 and 2020. The review confirmed that students showed positive attitudes towards learning through WhatsApp groups, appreciating the ease of access to study materials at any time and in any location. While the platform enhances confidence in online learning, problems of misuse of information and academic fraud were noted. The study emphasizes the need for technical and security controls to enhance the utilization of WhatsApp in education and provides conceptual insight into its usage as an education tool.

Erden, Kahraman, and Çiftçi (2023) [7] conducted a randomized controlled trial to investigate the impact of learning facilitated by social media on academic achievement and the application of social media in education for nursing students. The intervention involved sending teaching videos, images, and daily interactive Q&A sessions on Instagram for four weeks along with traditional theoretical and laboratory teaching. Findings indicated that students in the social media-assisted group scored significantly higher on post-test than the control group (p < 0.001), and their social media usage for learning improved. The study confirmed that technology-supported learning can enhance both educational attainment and active engagement in nursing education.

Gause, Mokgaola, and Rakhudu (2022) [9] conducted an integrative review to explore the use of technology in nursing education informed by the synthesis of 19 articles from multiple databases. The review confirmed that technologies such as cloud-based tools like YouTube, Google Apps, Dropbox, and Twitter are more integrated into classroom and clinical teaching to support learning. The major areas identified were the way technology was used, drivers of adoption, benefits (e.g., greater access and participation), and challenges (e.g., low acceptance and e-literacy). The study identifies that even as technology adoption in nursing education is on the rise, there are differences regarding acceptance and long-term use, with a strong need for interventions to bring about sound integration.

Wahila et al. (2018) [21] examined social media in facilitating the learning of students at the University of Zambia. Utilizing WhatsApp and email discussion among 76 students, it was discovered that WhatsApp facilitated more active peer interaction, collaboration, and participation than email. The WhatsApp-using students shared knowledge more actively and had marginally better clinical placements. There were no differences, however, in general learning outcomes between the two groups. The study concluded that WhatsApp can effectively enhance communication and professional learning among nursing students in Zambia.

2.2 Gaps and Inconsistencies
The growing usage of social media platforms, particularly WhatsApp, in nursing education globally has drawn attention due to their potential to enhance engagement, cooperation, and learning. A number of studies account for positive outcomes, yet there are inconsistencies and gaps, especially in Zambia.

Across the literature, various gaps and questions left unanswered are:

- Variable evidence for academic performance: While social media always enhances engagement and satisfaction, evidence suggests variable effects on formal academic outcomes. Very few studies employ robust randomized controlled trials with sound sample sizes in nursing education contexts.
- Insufficient contextual comparability from sub-Saharan Africa: Most studies are from high-income or non-African settings, thus limiting the comparability of results to Zambia or other similar resource-poor settings.
- Theory-informed frameworks are lacking: Very few interventions (e.g., Abdollahi et al., 2024) [1] have theories of learning or behavior change built into them, and most social media use is unstructured.
- Ethics and professionalism guidelines: Privacy, academic integrity, and professional boundaries are largely untouched in practical nursing education environments.

2.3 Conceptual Framework
This study adheres to the Social Constructivist theory, which promotes the idea that learning occurs through interaction, collaboration, and reflection in a social setting (Vygotsky, 1978). WhatsApp and other social media provide a virtual space for collaborative knowledge construction, peer mentoring, and immediate feedback, which is in alignment with this theory.

3. Methodology
3.1 Research Design: A quantitative research design is most appropriate for the present study because it facilitates the

measurement and analysis of WhatsApp/social media use among nursing students in a systematic manner. The main objective of the study is to determine the effectiveness and efficacy of social media–based learning. Quantitative methods allow for the use of structured instruments—such as questionnaires to collect numerical data that can be statistically analyzed, providing objective and generalizable findings.

Secondly, quantitative research allows for comparative and correlational analysis, which aligns with existing literature gaps. Quantitative research has already offered conflicting findings regarding the impact of WhatsApp on academic performance, such as in the studies by Mutair et al. (2025) [14] and Erden et al. (2023). By pursuing a quantitative approach, the researcher can determine whether differences in performance or participation are statistically significant.

Lastly, the quantitative approach is justified by the need for empirical evidence in the Zambian context, where research on technology-enhanced learning in nurse education is scarce. By collecting and analyzing data from a representative sample of students, the study can come up with quantifiable results generalizable to similar institutions. The approach ensures reliability, replicability, and validity of results—ingredients critical for policy direction, refinement of pedagogical strategies, and addressing contextual and methodological gaps in current research.

3.2 Population and Sampling
The sample for this study was DMI St. Eugene University nursing students in Zambia. This is because they are most directly members of the target group undertaking technology-enhanced learning, namely through social media such as WhatsApp. Nursing students use both theoretical and practical laboratory exercises continuously, and they are thus most appropriate participants for examining the effect of WhatsApp-based interaction.

The sample was drawn from this population by a stratified random sampling technique to ensure representation across different levels of academic study (e.g., first-year, second-year, and third-year students). Participants were sampled randomly within each stratum to minimize bias and enhance the external validity of the results. The technique facilitated balanced representation of students with varying exposure to digital learning environments. In this study a total of 114 students was considered as sample.

3.3 Data Collection Instruments
Data were collected for the study through a standardized survey questionnaire with the objective of collecting quantitative information on the use of WhatsApp and other social media by nursing students in the educational environment. The survey consisted of close-ended questions asked on a four-point scale (ranging from "Strongly Disagree" to "Strongly Agree"). The questionnaire had a total of 30 items. The scoring was strongly agree – 4, agree – 3, disagree – 2 and strongly disagree – 1. The highest score one can get is 120 and the lowest is 30. The higher the score, the better the effectiveness of WhatsApp and other social media. The questionnaire was divided into two major categories:

- Demographic Information –collection of information like gender, location and family type.
- The effectiveness of WhatsApp and other social media questionnaire.

3.4 Validity and Reliability

Validity: To ensure the credibility and quality of the study findings, actions were taken to attain validity and reliability of the research instruments. Content validity was ensured by designing the survey from available instruments used in the same kind of research on social media and learning (e.g., Mutair et al., 2025; Erden et al., 2023) [14]. The questionnaire was reviewed by experts in educational research and nursing education to determine whether the items were unambiguous, relevant, and aligned with the study objectives.

Reliability: The internal consistency of the reliability of the survey instrument was ascertained using Cronbach's alpha coefficient. Any figure of 0.70 and above was accepted, that is, the survey items reliably measured the constructs of interest. In order to achieve reliability in data collection, standard procedures were followed while administering the questionnaires. The instructions and time were standardized for all the subjects for the purpose of consistency.

3.5 Interpretation of the Score

Level	Score	Interpretation
Low	30 – 60	Low Effectiveness
Moderate	61 – 90	Moderate Effectiveness
High	91 - 120	High Effectiveness

3.6 Data Analysis Strategies
Quantitative data collected were analyzed with descriptive statistics such as means, and standard deviations were computed to summarize participants' demographic information and responses. Inferential statistical tests such as t-tests were applied to determine differences between groups.

3.7 Ethical Concerns
Ethical approval for conducting this research was obtained from the DMI St. Eugene University Research Ethics Committee prior to data collection. Permission to conduct the research was also obtained from the relevant institutional authorities. All the participants were fully informed of the purpose, procedures and advantages of the study.

Voluntary participation was observed and the respondents were assured of their right to withdraw at any time without penalty. Informed consent was obtained from each participant before administering the questionnaire. Confidentiality and anonymity were strictly maintained by not keeping identifying details. The collected data were purely for academic reasons and stored in a safe way to prevent unauthorized access.

4. Results

Table 1: The Effectiveness of WhatsApp and Social Media in Learning of whole group

Variable	Number	Mean	SD
Effectiveness of WhatsApp and Social Media in Learning	114	89.05	8.94

The resulting mean score of 89.05 lies on the upper side of the "Moderate" level, bordering the "High" level. This suggests that WhatsApp and social media were seen by students as strongly to moderately effective tools for learning. These media were reported to help improve communication, foster collaboration, and provide greater access to study materials.

The standard deviation (SD = 8.94) indicates moderate variation in responses, which means that even though most

of the students had similar positive views, differences did exist in personal observations.

The mean score of 89.05 (at the higher end of moderation range) suggests that students find WhatsApp and social media highly effective learning tools, biased towards being highly effective, with moderate variation across participants. Therefore, the null hypothesis that 'the effectiveness level of WhatsApp and other social media in learning among nursing students is at average' is rejected.

Table 2: Mean, SD and 't' value for the Effectiveness of WhatsApp and Social Media in Learning based on gender

Effectiveness of WhatsApp and Social Media in Learning	Male (N-30)		Female (N-84)		't'	Significant Level
	Mean	SD	Mean	SD		
	94.86	9.29	88.66	8.83	3.25	Significant (0.01)

The results show that male students (Mean = 94.86, SD = 9.29) scored higher on the effectiveness of WhatsApp and social media in learning compared to female students (Mean = 88.66, SD = 8.83). The derived t-value of 3.25 is significant at the 0.01 level, indicating that the difference between male and female students is statistically significant and not due to chance.

This can be interpreted as male students seeing WhatsApp and social media as stronger learning tools than the female students. The significant difference can be a reflection of differences in how the two groups interact with technology, ease of use in using social media for learning, or online learning interaction preferences.

The difference in perception of effectiveness of WhatsApp and social media for learning between the male and female students is statistically significant at 0.01 level (t = 3.25). This indicates that the perception of male students is significantly greater than female students. Therefore, the null hypothesis stating that 'there is no significant difference between male and female students in level of effectiveness of WhatsApp and other social media in learning' is rejected.

Table 3: Mean, SD and 't' value for the Effectiveness of WhatsApp and Social Media in Learning based on locale

Effectiveness of WhatsApp and Social Media in Learning	Rural (N-34)		Urban (N-80)		't'	Significant Level
	Mean	SD	Mean	SD		
	94.79	6.91	87.87	8.89	4.04	Significant (0.01)

Table 3 illustrates the mean, standard deviation, and t-value of WhatsApp and Social Media effectiveness in learning between locale (rural and urban students). The mean score for rural students is higher than that for urban students (Mean = 94.79, SD = 6.91 for rural and Mean = 87.87, SD = 8.89 for urban). The t-value obtained is 4.04, which is significant at the 0.01 level.

This indicates that there is a statistically significant difference in urban and rural students on the effectiveness of WhatsApp and social media in learning. More specifically, rural students consider WhatsApp and social media more effective in learning than their urban peers. Thus, the null hypothesis that 'there is no significant difference between rural and urban students in the effectiveness of WhatsApp and other social media in learning' is rejected.

Table 4: Mean, SD and 't' value for the Effectiveness of WhatsApp and Social Media in Learning based on family type

Effectiveness of WhatsApp and Social Media in Learning	Joint Family (N-33)		Nuclear Family (N-81)		't'	Significant Level
	Mean	SD	Mean	SD		
	88.16	9.16	89.42	8.89	0.68	Not significant

Table 4 illustrates the mean, standard deviation, and t-value for the effectiveness of WhatsApp and Social Media in learning by family type. The mean score of students from joint families (Mean = 88.16, SD = 9.16) is slightly lower than that of students from nuclear families (Mean = 89.42, SD = 8.89). The t-value obtained is 0.68, which is insignificant, indicating that the difference between the two groups is statistically not significant.

That is, family type has no significant role to play to make social media and WhatsApp effective in learning. Joint and nuclear family students both use these online resources equally effective to help them learn. Thus, the null hypothesis 'there is no significant difference between students of joint and nuclear family in the level of effectiveness of WhatsApp and other social media in learning' is accepted.

5. Conclusion
The present research found that nursing students evaluated WhatsApp and social media as moderately to highly effective for learning (M = 89.05, SD = 8.94), similar to systematic reviews that have highlighted the ability of social media to enable participation and support micro learning in higher education and nursing (Perez et al., 2023; Almutairi, 2022) [3]. Male students reported significantly higher perceived effectiveness compared to female students (t = 3.25, p < .01; Cohen's d ≈ 0.69), and differences in gender for digital engagement or self-perceived efficacy may impact perceptions of learning (Alnjadat et al., 2019). Similarly, rural students reported WhatsApp and social media as being more effective than urban students (t = 4.04, p < .01; Cohen's d ≈ 0.83), possibly suggesting greater relative advantages for rural learners leveraging messaging apps to access otherwise constrained educational resources (Jafar et al., 2023). Family type, however, was not found to be a significant predictor of perceived effectiveness. These findings need to be interpreted cautiously since the study was measuring perceived rather than actual learning attainment, and unmeasured variables like frequency of use, technical expertise, and integration by teachers might have contributed to the outcomes.

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