"Technology-Driven Learning in Nursing Education: Transforming the Learning Landscape through WhatsApp Groups and Zoom-Based Learning Materials"

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KEY WORDS

ABSTRACT

The purpose of this study is to investigate students' perceptions of using WhatsApp Group and Zoom-based learning materials in nursing education at the National Institute of Child Health College of Nursing and the New Life College of Nursing, Karachi. The application of an applied online learning system by teachers is the primary focus of this study. Data was collected through questionnaires that used a Likert scale to examine students' perceptions of the adopted learning technique. The point system included both recommended and un-recommended points. To capture the students' perspectives and ideas, the data were analyzed descriptively using a percentage scoring table ranging from 1 to 100.

The study's findings shed light on the efficacy of this technology-based learning strategy in the lessons. The installed WhatsApp Group and Zoom-based learning resources were universally regarded as valuable and useful by the pupils. The average impression score of 86, determined from the six components of the learning materials (comfort, content, efficient usage, language, clarity, and entertainment), suggests that students responded positively.

This study demonstrates the value of using WhatsApp Groups and Zoom into nursing education. The findings show that students regard this technology-based learning strategy as effective and helpful. Educators can revolutionize nursing education by utilizing the potential of digital platforms and interactive education, promoting increased engagement, material comprehension, and student happiness. These findings add to the expanding body of research on new instructional approaches in nursing, paving the path for future advances in nursing education.

Introduction

With the incorporation of technology, the field of nursing education has seen substantial transformation in recent years. The use of technology in education has transformed the teaching and learning process, creating new opportunities for both students and educators. While traditional face-to-face teaching methods continue to be effective, technology-based learning applications have emerged as effective instruments for improving learning outcomes and engaging students in the educational process.

In the context of nursing education, it is critical to investigate innovative ways that can improve students' learning experiences. In this sense, the integration of multimedia apps and social media platforms has showed potential. These tools not only make it easier for nursing students to access a variety of learning resources, but they also promote teamwork, knowledge sharing, and professional networking.

The purpose of this study is to explore nursing students' perceptions of the usage of WhatsApp groups and Zoom-based learning materials in nursing education at the National Institute of Child Health College of Nursing and New Life College of Nursing. The study aims to gather insights into the usefulness and potential of these technology-driven learning platforms for enriching the learning experience in nursing education by studying students' perceptions of them.

Literature Review

The rapid advancement of technology has led to the emergence of various technology-based learning tools and social media platforms in education. These tools have been recognized for their potential to alter the teaching and learning process by offering access to massive resources, encouraging student participation, and promoting lifetime learning and professional growth.

Koc (2016) stresses the importance of technology-based learning applications like blogs, podcasts, instant messaging, online social communities, video-sharing platforms, and audio conferencing tools in 21st-century teaching and learning. These tools enable interactive learning, knowledge sharing, and interaction with educational content.

The incorporation of technology-based learning aids into nursing education has grown increasingly crucial. Allen (2019) emphasizes the importance of technology in giving nursing students access to a variety of resources, such as online databases, medical publications, research articles, and training films. Additionally, technology-enabled simulations, virtual patient scenarios, and interactive case studies have been shown to be useful in strengthening critical thinking skills and improving decision-making abilities in a variety of healthcare contexts (Ahmed, 2018).

Social media platforms such as Facebook, YouTube, Twitter, blogs, and wikis have grown in popularity and have become an important part of students' life. Wannapiroon (2012) emphasizes social media's importance in fostering independent learning by allowing students to share ideas, trade materials, and discuss learning subjects.

Tong (2020) adds that social media platforms can be used for collaborative learning and knowledge exchange among nursing students. Students can share their experiences, seek advice, and engage in peer-to-peer learning through online group chats, WhatsApp Groups, or dedicated nursing forums on platforms like Zoom. Nursing students can increase their comprehension of nursing ideas and receive unique perspectives on numerous healthcare

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topics by harnessing their peers' aggregate knowledge.

The incorporation of technology-based learning tools and social media platforms into nursing education corresponds to the increased emphasis on lifelong learning and professional growth. With the constant growth of healthcare practices, nurses must keep their knowledge and skills up to date. According to Curran et al. (2019), technology-enabled platforms make it simple for users to access continuing education materials, webinars, online classes, and virtual conferences. This enables nursing students to improve their skills and keep up with industry trends.

The learning experience can be revolutionized, students may take charge of their education, and institutions can better prepare their students for the dynamic and changing healthcare scene by integrating technology and social media platforms into nursing education. To encourage responsible and efficient use, it is vital to make sure that the integration of these tools is accompanied by the right advice, digital literacy training, and ethical concerns (Hastie et al., 2020).

It is necessary to take into account research that presents opposing perspectives or potential difficulties regarding the integration of WhatsApp Group and Zoom-based learning resources in education, in addition to the positive elements discussed in the previous literature review. This will provide the subject a fair-minded viewpoint.

For instance, a study by Smith et al. (2018) indicated that a student's social skills may decline if they spend too much time on social media platforms for educational purposes. To guarantee comprehensive development, the researchers emphasised the necessity to create a balance between online and offline interactions.

The possible privacy and security hazards associated with using social media platforms for educational purposes were brought up in a different study by Johnson (2019). In order to reduce these dangers, the study emphasised the significance of putting strong data protection mechanisms in place and teaching pupils safe online conduct.

The bulk of studies in this field supports the incorporation of technology-based learning aids and social media platforms in nursing education, so it is important to take these opposing views into account. The advantages, such as improved teamwork, resource access, and possibilities for professional development, outweigh any potential drawbacks. However, in order to guarantee a secure and productive learning environment, it is crucial to address the worries and put in place suitable measures.

Social media platforms and technology-based learning tools have enormous potential to improve nursing education by enhancing the learning process and fostering students' professional development. The benefits of technology in nursing education have been examined in this literature review, along with the significance of finding a balance between online and offline interactions. The next sections will explore more into nursing students' impressions of the use of WhatsApp Group and Zoom-based learning resources in the classes, evaluating their efficacy and bearing on nursing education.

Research Methodology

Students from the National Institute of Child Health College of Nursing and New Life College of Nursing participated in this study, which was divided into two groups depending on their educational backgrounds: BSN Generic and General Nursing Diploma programmes. Students in the BSN Generic programme have completed 12 years of school, primarily intermediate education, prior to enrolling in the programme. Students in the General Nursing Diploma programme, on the other hand, have

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completed 10 years of education (matriculation) before joining. This difference in educational backgrounds also implies a slight difference in the two groups' ages and preferences for social media and internet usage, which may influence their perceptions and experiences with the integration of WhatsApp Group and Zoom-based learning materials in the classroom.

A questionnaire was given to the students utilizing a Google online form to gauge their opinions of the use of WhatsApp Group and Zoom-based learning resources in nursing classes. The purpose of the questionnaire was to learn more about how the students felt about the instructional resources intended to improve their learning. Six criteria made up the list: ease of use, substance, effectiveness of use, language, clarity, and enjoyment. These indicators

S.NO.	Category	Rating score
1.	Highly recommended	A: (85 -100)
2.	Recommended or Good	B: (65-84)
3.	Low Recommendation or Sufficient	C: (51-64)
4.	Not recommended	D: (0 - 50)

were thoughtfully created to assess how well-suited the built applications were from the perspective of the students.

Sections of the online questionnaire

S.NO.	Category	Rating score
1.	Not recommended	A: (85 -100)
2.	Low Recommendation or Sufficient	B: (65-84)
3.	Recommended or Good	C: (51-64)
4.	Highly recommended	D: (0 - 50)

were also designated for gathering demographic data, such as respondents' ages, educational backgrounds, and knowledge of social media and internet usage. Given their different educational backgrounds and inclinations, this data enabled further research and comparison between the BSN Generic and General Nursing Diploma groups.

The Likert scale was used to analyze the gathered data, including the demographic data and survey replies. The

analysis concentrated on the percentage of replies from 120 students, offering insightful information about how the students felt about the use of Zoom-based learning resources in their online classes with the help of WhatsApp.

Followings two scales were created to access students' perception:

Table:1 Likert Scale (Positive rating score)
Table:2 Likert Scale (Negative rating score)

Findings and Discussion

The integration of WhatsApp Group and Zoom-based learning materials in lessons was determined to be well-suited to the level, needs, and everyday lives of the students, according to the results of the questionnaire. The six indicators utilised in the questionnaire had a satisfactory level of compatibility when these platforms were consistently used with the students, according to the total average score of 86. Below, we discuss the specific results for each indicator.

Table: 3 Students' Perception of Comfort Appropriateness

S. No.	Components	GBSN AS	GND AS	Average Score	Recommendation
1.	The ease of use of online media	90	86	88	Highly recommended
2.	The suitability and trustworthiness of based learning materials	84	80	82	Recommended or Good
3.	The convenience of real-time connectivity	78	64	71	Sufficient

* GBSN A.S = Generic BSN Average Score,
*GND AS= General Nursing Diploma

The results of students' perceptions of the Zoom-based learning materials utilized in nursing education courses are shown in the table. The compatibility and reliability of the materials, the comfort of real-time connectivity, and the simplicity of

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using online media are among the factors that are examined.

According to the average results, it is clear that both BSN Generic (GBSN) and General Nursing Diploma (GND) students had favourable opinions of the Zoom-based learning resources. "Ease of use of online media," which received a score of 88, had the highest average score among the components. This shows that Zoom, a particular online media platform, was simple for students to use and navigate during class. The positive evaluation shows that students felt at ease utilising Zoom as a tool for learning, allowing for easy engagement.

Both student groups indicated positive impressions of the materials' applicability and reliability. This component's average scores were 84 for GBSN and 80 for GND, giving the component an overall average score of 82. These results show that students believed the learning resources to be reliable and acceptable, fulfilling their educational needs and instilling confidence in their academic endeavours.

The component "Convenience of real-time connectivity" obtained an average score of 71 in terms of real-time connectivity. This implies that despite the fact that students understood the value of the real-time communication and connectivity made possible by Zoom, there were some differences in their opinions. With a score of 78 compared to the GND group's score of 64, the GBSN group gave this component a higher rating. These variations may be related to the two groups' different degrees of comfort and familiarity with technology. The overall average score, however, shows that the majority of students thought Zoom's real-time connectivity was adequate.

Table: 4 Students' Perception of the Suitability of Content

S. No.	Components	GBSN AS	GND AS	Average Score	Recommendation
1.	Increased knowledge acquisition	85	90	87.5	Highly recommended
2.	Alignment with students' daily lives	84	60	72	Sufficient
3.	Accurate and reliable material content	80	82	81	Recommended or Good

The results from Table 4 show how the students feel about how appropriate the content is in the WhatsApp and Zoom-based learning resources. The average scores give useful information about three important factors, including greater knowledge acquisition, fit with students' daily life, and the accuracy and dependability of the subject matter.

First and foremost, as evidenced by their average grade of 87.5, the students strongly praised WhatsApp and Zoom-based learning tools for better information acquisition. This shows that the material efficiently improves students' comprehension and learning results, fostering the growth of their general knowledge.

Second, there was a difference in how students perceived alignment with their daily lives between the BSN Generic (GBSN) and General Nursing Diploma (GND) programmes. While BSN Generic students thought the content was appropriate and relevant, GND students thought it was slightly less so, resulting in an average score of 72. More research is needed to better meet the specific needs and experiences of GND students and improve the materials' relevance to their daily life.

Finally, with an average score of 81, both sets of students recognised the Zoom-based learning resources as having accurate and dependable content. This emphasises the significance of preserving the material's integrity and credibility in order to promote a conducive learning environment.

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Table: 5 Students' Perception of the Efficiency and Relevance of Use

S. No.	Components	GBSN AS	GND AS	Average Score	Recommendation
1.	The relevance and timeliness of the materials	90	94	92	Highly recommended
2.	The effectiveness in time management and meeting student needs	70	90	80	Recommended or Good

Table 5 shows how students perceive the efficiency and relevance of using integrated learning materials. The average scores indicate how strongly each component is recommended.

Both groups, GBSN and GND, showed high levels of satisfaction with the materials' relevance and appropriateness. The GBSN students gave it a score of 90, while the GND students gave it a score of 94. The average score of 92 means that the level is highly recommended. This conclusion implies that the integrated learning materials were thought to be up to date and connected with the students' learning needs, which contributed to their engagement and interest in the content.

The GBSN students scored it at 70 for efficacy in time management and addressing student needs, whereas the GND students rated it substantially better at 90. A score of 80 indicates a recommended or good level. This disparity in evaluations can be given to the two groups' different educational backgrounds and tastes. However, the findings show that the integrated learning resources were regarded to be helpful in aiding time management and meeting the demands of the students.

Table: 6 Students' Perception of the Appropriateness of Language

S. No.	Components	GBSN AS	GND AS	Average Score	Recommendation
1.	The clarity of spelling and grammar	90	95	92.5	Highly recommended
2.	The use of clear and impactful language	90	92	91	Highly recommended

The results from Table 6 show how the students judged the language in the integrated learning materials to be appropriate. Both groups gave the first element—the clarity of the spelling and grammar—high marks. The General Nursing Diploma students gave it a slightly higher rating of 95 than the BSN Generic students, who gave it a 90. Overall, this component's average score was 92.5, which shows that students strongly advocate using proper language and spelling. According to this finding, students prefer clear and error-free language since it helps them comprehend and engage with the learning materials.

Similar to the first component, which stresses the use of effective language, the second component also obtained high marks. With ratings of 90 and 92, respectively, the BSN Generic and General Nursing Diploma both gave it good marks. The average score for this component was 91, which strongly suggests that using language that is understandable and has an influence on the pupils is optimal. This result implies that students value the use of language that effectively informs them and grabs their interest.

Table: 7 Students' Perception of the Appropriateness of Clarity and Enjoyment

S. No.	Components	GBSN AS	GND AS	Average Score	Recommendation
1.	The clarity of materials	88	92	90	Highly recommended
2.	The consistency in text and questions	80	92	86	Highly recommended
3.	The incorporation of engaging elements in the learning materials	74	90	82	Recommended or Good
4.	The promotion of collaborative learning among students	95	96	95.5	Highly recommended

Table 7 shows students' assessments of the appropriateness of clarity and enjoyment in learning materials. The first component, material clarity, garnered great marks from both groups. The BSN Generic students gave it an 88, while the General Nursing Diploma students gave it a 92. In terms of clarity, the average score of 90 shows that the materials were highly recommended. This shows that the resources provided clear and simple information,

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allowing students to quickly grasp the material.

Similarly, both groups gave high marks to the second component, consistency in text and questions. BSN Generic students gave it an 80, while General Nursing Diploma students gave it a 92. In terms of consistency, the average score of 86 shows that the materials were highly recommended. This implies that the learning materials maintained a consistent structure and logical flow, allowing students to effectively follow along and absorb the subject.

Moving on to the third component, the inclusion of engaging aspects in the learning materials, both groups thought it was a good idea. It received a 74 from BSN Generic students and a 90 from General Nursing Diploma students. The average score of 82 shows that the items were recommended or deemed to be of high quality in terms of engaging elements. This suggests that the learning materials contained engaging and stimulating components that enhanced the students' learning experience.

The encouragement of student collaboration in learning received excellent scores from both groups as the last component. The General Nursing Diploma students gave it a slightly higher rating of 96 than the BSN Generic students, who gave it a 95. The materials were highly recommended in terms of encouraging collaborative learning, as evidenced by the average score of 95.5. This implies that the teaching tools promoted student contact and cooperation, encouraging a sense of teamwork and knowledge sharing.

Overall, the results show that students thought the instructional materials were suitable in terms of their clarity, consistency, engagement, and collaboration. These favourable opinions suggest that the learning process was effectively supported by the resources, which included clear and consistent information, interesting aspects, and encouraged student collaboration. These results underline how crucial it is to develop learning resources that improve coherence, engagement, clarity, and collaboration in order to foster a productive learning environment.

Conclusion

Based on the responses received from the research, it concluded that the students strongly agreed to use WhatsApp Groups and Zoom-based learning in their nursing education. The results of the students' perceptions show a generally optimistic outlook. The students were pleased with the simplicity of using online media, demonstrating their comfort and skill in navigating the Zoom platform throughout their nursing sessions. The materials were judged appropriate and trustworthy, assisting pupils in their study and instilling confidence in their educational journey. While there were some differences in perceptions of real-time connectivity, with the GBSN group scoring it higher than the GND group, the majority of students regarded it to be convenient.

These findings highlight the potential of Zoom and WhatsApp as effective learning tools in nursing education, emphasising the importance of integrating technology, such as WhatsApp Groups and Zoom-based learning, to enhance the learning experience across various nursing curriculum subjects.

Recommendations

The following suggestions can be made in light of the findings and the move towards campus-based programmes for nursing students:

1. Blend online and offline learning: Take into account Zoom and WhatsApp-based learning's

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advantages by incorporating it into classroom settings. Use these platforms for supplementary materials, asynchronous conversations, and collaborative activities to give students access to the platforms' user-friendliness, usefulness, and encouragement of collaborative learning.

2. Implement interactive teaching strategies that include students throughout campus classes to improve interactive learning. Maintain the level of engagement and collaboration experienced during the online learning time by include activities that promote student participation, group work, and discussion.

3. Encourage student-centered learning: In campus classes, encourage a student-centered approach by allowing students more authority and responsibility for their learning. Incorporate collaborative projects, case studies, and hands-on activities that enhance engagement and deeper understanding to encourage active involvement, critical thinking, and problem-solving abilities.

By incorporating these recommendations into the transition to on-campus classrooms, instructors can reap the benefits of online learning tools while providing nursing students with an enriched and participatory learning experience.

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