IMPACT OF MOBILE APPLICATIONS IN NURSING EDUCATION

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Abstract

Traditional methods of teaching have been altered as a result of the incorporation of mobile applications into nursing education. These applications provide students and teachers with solutions that are adaptable, easily available, and inventive. The purpose of this study is to investigate the influence that mobile applications have on nursing education, with a particular focus on the capacity of these applications to improve information acquisition, clinical decision-making, and skill development. For the purpose of bridging the gap between theoretical learning and practical application, mobile applications offer interactive features such as virtual simulations, quick feedback, and real-time updates. In addition to this, they make it possible to have individualized learning experiences that are tailored to different learning styles and paces. There are, however, ongoing issues that include the digital divide, screen weariness, and the requirement for rigorous examination of the content of mobile applications. In addition to highlighting the potential of mobile applications to revolutionize nursing education, this study also provides recommendations for techniques to solve the constraints that now exist. Through the strategic utilization of technology, nursing educators have the ability to cultivate a learning environment that is more dynamic and student-centered, eventually leading to improved healthcare outcomes.

Keywords: mobile, applications, nursing, education

Introduction

There have been many different fields that have been severely impacted by the fast growth of technology, including education. Mobile applications have developed as strong tools that enhance the learning experience in nursing education. These applications offer new, accessible, and engaging methods of information delivery, which increase the overall learning experience. Nursing students and instructors now have access to a myriad of programs that are meant to promote learning, memory, and application of vital ideas. This is a direct result of the growing reliance on smartphones and mobile devices. In the field of nursing education, mobile applications contain a wide range of features, such as virtual simulations, medical calculators, medication reference guides, anatomy lectures, and real-time case studies. These applications not only augment classroom instruction but also provide students access to material when they are on the move, which enables them to study at their own speed and in a manner that is individualized to their needs. In addition, the use of multimedia components, such as films, quizzes,

and interactive diagrams, streamlines the process of comprehending difficult medical topics. Applications for mobile devices have relevance that goes beyond the realm of theoretical knowledge. The simulation of real-world events and the enhancement of clinical decision-making abilities are two of the most important roles that they play in the process of preparing students for clinical practice. As an additional benefit, mobile applications make it possible for educators to engage in ongoing professional development, which enables them to remain current with the most recent developments and best practices in nursing education. On the other hand, a deployment of mobile applications in nursing education is not without its hurdles, despite the various benefits that these applications offer. There are still important concerns to take into account, such as the requirement for dependable internet connectivity, the need to guarantee the correctness and trustworthiness of app content, and the need to resolve inequities in available technological resources. The purpose of this study is to investigate the influence that mobile applications have had on nursing education, focusing on the advantages, disadvantages, and opportunities that these applications have for influencing the future of nursing education. When stakeholders have a better knowledge of these factors, they are better able to employ mobile technology to create an educational environment that is more engaging and successful.

As the field of nursing education continues to develop, mobile applications are playing an increasingly important role. These applications provide several advantages to both students and teachers. A big benefit is the availability of instructional resources at any time and from any location. This is one of the most significant advantages. Students are able to study material while they are participating in clinical rotations, improve their knowledge while they are commuting, or reinforce what they have learned while they are attending classroom sessions because to this flexibility. As a consequence of this, students are able to interact with instructional resources in a manner that is suitable for their own schedules and choices for how they like learning. Additionally, mobile applications facilitate collaborative learning and communication, both of which are critically important aspects of nursing education. Creating an interactive learning community is made possible by a number of applications that enable users to participate in group projects, peer reviews, and discussion boards. Consequently, not only does this make it easier for students to share their information with one another, but it also helps them build skills in cooperation, which are extremely important in clinical settings. Through the utilization of mobile applications that incorporate virtual simulations and scenario-based learning, students are provided with the opportunity to practice clinical skills in a setting that is free of any potential danger. They have the opportunity to make judgments, carry out evaluations, and assist in patient care scenarios through the use of virtual simulations, which simulate complicated clinical circumstances. This allows them to do so without the immediate demands of real-life repercussions. Through this, one's self-assurance and capacity for decision-making are enhanced, resulting in improved clinical reasoning and judgment. In addition, these programs are able to monitor progress, offer individualized feedback, and modify the level of difficulty based on the performance of each individual student. This ensures that students continue to be challenged while also advancing at their own speed. With the help of mobile applications, teachers have access to sophisticated tools that allow them to monitor the performance of their students and provide timely assessments. The capacity to monitor the progress of students in real time enables quick intervention and help to be provided whenever it is required, therefore guaranteeing that no student falls behind in their studies. Additionally, mobile platforms provide the opportunity to develop dynamic and interesting course content. This content can include multimedia resources, quizzes, and interactive case

studies. This makes it simpler for teachers to deliver courses in a manner that is both engaging and diverse. Nevertheless, in spite of these improvements, there are a number of obstacles that need to be overcome in order to make mobile applications available in nursing education as effective as possible. A big worry that continues to exist is the digital gap, which is characterized by unequal access to mobile devices and dependable internet connectivity, which might prevent certain pupils from fully benefiting from the technologies that are available. In order to achieve equality in education, it is essential to make certain that mobile apps are accessible and inclusive to all students, irrespective of their socioeconomic status. At the same time, there are issues over the legitimacy and quality of the material that is accessible through mobile applications. It is crucial for educators to carefully analyze the nursing apps they recommend, making certain that the material offered is reliable, evidence-based, and linked with current clinical standards. This is because there is a large number of nursing applications accessible. As a result of the absence of regulation and control in the app creation process, not all applications are able to adequately fulfill the stringent requirements that are necessary for nursing education.

Method

A qualitative research strategy was utilized for the purpose of carrying out this study, which was carried out in the Department of Nursing within the Faculty of Health Sciences at a university situated in India between the dates of May 7, 2019, and May 30, 2019. During the course of the research project, 178 students who were enrolled in the first grade of the nursing program had a mobile application for monitoring blood pressure installed on their individual Android devices. Between March and April of 2019, the pupils were instructed to make use of the mobile application that had been installed on their devices. It was decided to conduct qualitative research in order to conduct an investigation into the thoughts and experiences of pupils who had utilized the mobile application. The research was conducted using a strategy known as purposeful sampling. The intentional sampling technique is a method that is widely used in qualitative research designs. It allows for the collection of information that was not collected via the use of other methods, and it does so without the need to calculate the sample size. Before the information began to be repeated at the saturation stage, the study was finished with a total of 44 students till it reached its conclusion.

Data collection tool

The data for this study were gathered through the use of a semi-structured interview form that was produced by the researchers in line with the purpose of the investigation. There are three questions on the interviewee's age, gender, and graduating school that are included in the initial section of the questionnaire. There are twelve questions that pertain to the students' time spent on the internet, the reason for using mobile phones, the applications that are available for mobile phones, the status of using mobile applications during their previous education, the environments in which they use mobile applications, their thoughts regarding the mobile application that is prepared for nursing education, the frequency with which they use the mobile application, their feelings regarding the mobile application, the problems that they encounter while using the mobile application, their feelings (such as self-confidence, stress, and self-competence) regarding the use of the mobile application while applying skill, thoughts regarding whether or not to use mobile applications in nursing education, and suggestions regarding the development of mobile applications for nursing education were included in the other section.

Implementation of the study

The interviews were carried out during times when the researchers and students were accessible, in a room where only the researchers and students were present, and by employing the approach of focus group interviews through the use of a semi-structured interview form that had been developed in advance. The use of focus group discussions as a method for gathering qualitative data is an important procedure. For the purpose of this approach, the data is collected from individuals who were selected on purpose, as opposed to a larger sample group. Focus group discussion is a qualitative approach that tries to gain information on the psychological and socio-cultural characteristics and behaviors that groups execute semiconsciously or unconsciously, as well as to uncover the underlying causes of these behaviors. After being issued number codes, the participants were instructed to take a seat and refrain from revealing their names prior to attending the interviews. There was a reminder given to the students that the information that was discussed during the interviews would be kept secret. The participants were informed before to the study that the interviews would be taped using a recorder, and that an interviewer would take notes during the interviews.

Data analysis

During the course of this investigation, the content of the records was recorded, examined using observational notes, and decrypted following each personal interview. During the process of assessing the data, the content analysis approach was utilized. It is the purpose of the content analysis to discover concepts and relationships that can provide an explanation for the data that has been gathered, to define the data, and to uncover the truth that may be concealed within the data. For the goal of assessing the analytical process, the texts of the interviews, codes, and replicated categories were assessed and certified by an expert who had expertise in qualitative research through the process of expertization. This was done in order to ensure that the qualitative study had internal validity. The information that was gathered was presented in the form of figures and percentages. After reading the data that was acquired from the participants, significant words or statements were highlighted, and data was categorized by splitting the information into portions that were significant. In the following step, six themes were developed by categorizing the codes that had the same meaning. The findings of the study led to the identification of several primary themes, which were categorized under the following headings: opinions regarding the mobile application; the purpose of using the mobile application; the feelings that students experienced during the process of using the mobile application; the challenges that were encountered during the mobile application process; the advantages of using the mobile application in nursing education; and the utilization of the mobile application in nursing education.

Results

Table 1: Age and Gender Distribution of Participants

Age Group	Number of Students	Percentage (%)	Gender	Number of Students	Percentage (%)
18 - 20 years	20	45.5	Female	35	79.5
21 - 23 years	14	31.8	Male	9	20.5
24 - 26 years	8	18.2			
27 years and above	2	4.5			

Nearly half of the individuals who took part in the study were between the ages of 18 and 20, and another third included those who were between the ages of 21 and 23. 79.5 percent of the sample was comprised of females, which is a disproportionately big percentage.

Table 2: Opinions Regarding the Mobile Application

Opinion Category	Number of Students	Percentage (%)
Positive Feedback	35	79.5
Neutral Feedback	7	15.9
Negative Feedback	2	4.5

In fact, 79.5% of users said that the app assisted them in gaining a better understanding of blood pressure monitoring. The majority of students had positive things to say about the application.

Table 3: Purpose of Using the Mobile Application

Purpose	Number of Students	Percentage (%)
Personal Health Monitoring	30	68.2
Reinforcing Theoretical Knowledge	25	56.8
Practicing Clinical Skills	20	45.5
Other	4	9.1

Although over half of the students used the app to study theoretical concepts related to blood pressure, nearly two-thirds of the students utilised it for the purpose of self-monitoring their blood pressure.

Table 4: Feelings during the Usage of the Mobile Application

Feeling	Number of Students	Percentage (%)
Empowered / Confident	28	63.6
Stress / Frustration	12	27.3
Neutral	4	9.1

Despite the fact that 63.6% of students reported feeling empowered and confident when using the app, 27.3% reported feeling anxious and dissatisfied, mostly due to challenges related to technology.

Table 5: Challenges Encountered During the Usage Process

Challenge	Number of Students	Percentage (%)
Installation Issues	15	34.1
Syncing Data Problems	18	40.9
Connectivity Issues	12	27.3
Limited Device Storage	5	11.4

A total of 27.3% of customers reported experiencing connectivity issues, with data synchronisation (40.9%) and installation issues (34.1%) coming in second and third, respectively. A tiny minority of students, 11.4%, also said that there was a limited amount of storage space available on their devices.

Table 6: Advantages of Using the Mobile Application in Nursing Education

Advantage	Number of Students	Percentage (%)
Improved Practical Skills	32	72.7
Reinforced Theoretical Knowledge	28	63.6
Convenience / Easy Access	25	56.8
Better Understanding of Patient Care	22	50.0

In terms of advantages, the ones that were stated the most often were the increase of practical skills (72.7%) and the reinforcement of theoretical knowledge (63.6% of benefits). The accessibility and simplicity of use of the program was another one of the application's major benefits, which garnered 56.8 percent of the vote.

Table 7: Utilization of Mobile Applications in Nursing Education

Utilization Idea	Number of Students	Percentage (%)
Use for Monitoring Other Vital Signs	30	68.2
Expand to Include Learning Modules	28	63.6
Integration with Other Educational Tools	22	50.0
Use in Clinical Practice	20	45.5

Sixty-eight percent of the students gave their opinion that mobile apps may be used for the monitoring of other vital signs, and sixty-three percent of them advised that the software be expanded to incorporate learning modules. In addition, the notion of integrating the app with several additional instructional tools was seen to be advantageous.

Conclusion

Mobile applications have emerged as tools that have the potential to alter nursing education. These applications provide options that have never been seen before to improve the learning experience for education professionals as well as students. Students are able to engage with information at their own speed and from any place thanks to these applications, which enable learning environments that are accessible, flexible, and engaging. These apps appeal to a variety of learning styles. A further strengthening of the development of critical nursing abilities, such as clinical decision-making, problem-solving, and patient care, is provided by the capability to simulate real-world clinical scenarios and track progress in real-time. The use of mobile applications has not only brought about a transformation in the

manner in which nursing students gain and apply information, but it has also encouraged cooperation and communication among members of the learning community. They make the teaching process more efficient and dynamic by providing teachers with useful tools that allow them to track the progress of their students, offer feedback that is tailored to each individual student, and provide compelling course materials. The incorporation of mobile technology into nursing education, on the other hand, is not without its difficulties. In order to guarantee that all students are able to reap the full benefits of these technological breakthroughs, it is necessary to address issues such as uneven access to technology, screen fatigue, and the requirement for app material that is dependable and supported by evidence. For the purpose of ensuring that mobile applications are up to the required educational standards, it is essential for educational institutions to conduct an in-depth analysis of the quality and trustworthiness of these applications. As the field of nursing education continues to develop, mobile applications provide a significant opportunity to close knowledge gaps, enhance learning outcomes, and better prepare students for the challenges of contemporary healthcare. In the future, mobile applications have the potential to play a vital role in influencing the future of nursing education and improving the quality of patient care. This potential may be realized via sustained investments in technology, intelligent implementation, and attention to equality.

References

[1] Cheraghi R, Jasemi M, Namadi F (2019) Effectiveness of the clinical teaching associate model in clinical nursing education. Nursing and Midwifery Studies 8: 132-136.

[2] Haraldseid C, Friberg F, Aase K (2016) How can students contribute? A qualitative study of active student involvement in development of technological learning material for clinical skills training. BMC Nurs 15: 2.

[3] Mackay BJ, Anderson J, Harding T (2017) Mobile technology in clinical teaching. Nurse Educ Pract 22: 1-6.

[4] Oermann MH, Muckler VC, Morgan B (2016) Framework for teaching psychomotor and procedural skills in nursing. J Contin Educ Nurs 47: 278-282.

[5] Barisone M, Bagnasco A, Aleo G, Catania G, Bona M, et al. (2019) The effectiveness of web-based learning in supporting the development of nursing students' practical skills during clinical placements: A qualitative study. Nurse Educ Pract 37: 56-61.

[6] Forehand JW, Miller B, Cart er H (2017) Integrating mobile devices into the nursing classroom. Teaching and Learning in Nursing 12: 50-52.

[7] Cho S, Lee E (2016) Distraction by smartphone use during clinical practice and opinions about smartphone restriction policies: A cross-sectional descriptive study of nursing students. Nurse Educ Today 40: 128-133.

[8] Alsayed S, Bano N, Alnajjar H (2019) Evaluating practice of smartphone use among university students in undergraduate nursing education. Health Professions Education.

[9] O'Connor S, Andrews T (2016) Nursing students' opinion on the use of smartphone applications (Apps) in clinical education and training: A study protocol. Stud Health Tehnol Inform 225: 1024-1025.

[10] O'Connor S, Andrews T (2018) Smartphones and mobile applications (apps) in clinical nursing education: A student perspective. Nurse Educ Today 69: 172-178.

[11] Risling T (2017) Educating the nurses of 2025: Technology trends of the next decade. Nurse Educ Pract 22: 89-92.

[12] Kim HJ, Park H (2019) Effects of smartphone-based mobile learning in nursing education: A systematic review and meta-analysis. Asian Nurs Res (Korean Soc Nurs Sci) 13: 20-29.

[13] Phillippi JC, Wyatt TH (2011) Smartphones in nursing education. Comput Inform Nurs 29: 449-454.

[14] Li C, He J, Yuan C, Chen B, Sun Z (2019) The effects of blended learning on knowledge, skills, and satisfaction in nursing students: A meta-analysis. Nurse Education Today 82: 51-57.