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Educare App: Mobile application for clinical duties of nursing students and nurse educators☆

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Abstract
Objectives: To Design, Develop, and to Test the Educare Application by determining its acceptability and usability as means for improving the quality and delivery nursing education and instruction in the clinical area.
Methods: This study utilized the ADDIE which includes the Analysis phase in which the researchers identified and analyzed the gaps and areas to improve in the clinical classroom by integrating personal experience and reading of literature as well as existing studies. In the Design phase, the researchers produced the low-fidelity prototype of the application after discussions and planning with the developer based on the proposed hardware and software requirements and a high-fidelity profile prototype followed reviewing and analyzing and then the application was developed. Implementation and Evaluation then followed by determining the usability and the acceptability. The usability questionnaire was derived from the System Usability Scale of Jakob Nielsen, was revised and tested for reliability using Cronbach's Alpha (0.985). The acceptability questionnaire was derived from the Bakuna App Version 2.0 and was revised and tested for reliability using Cronbach's Alpha (0.950).
Results: Out of 23 nurse educators, 21 of them approved of the usability of the application and they agreed that the application is easy to use without the help of a technical person. 18 of them have high acceptability ratings of the application. They agreed that the app helped them in the dissemination of learning materials, instructions, announcements and schedules. They also said that it helped them in updating and preparing the materials needed for the lessons efficiently. According to the nurse educators, the app improved and enhanced clinical performance of the students. Out of 88 student respondents, 85 approved of the usability of the application they also felt confident in using the application and that the app had a bright, clean, uncluttered screen design while 3 of the student respondents were neutral. In the acceptability of the application, 85 student respondents found the app highly acceptable and they agreed that the application helped them in following the time budget given by the nurse educator and helped in enhancing student learning and 3 were neutral.

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Conclusion: With all the results, the researchers can conclude that the developed application is both acceptable and usable to both nurse educators and student nurses and is therefore an effective tool in improving and enhancing the delivery and quality of Nursing Education and instruction in the clinical classroom.

Introduction

The nursing profession has progressed in terms of both education and practice, and mobile technology has played a significant role in the way nursing students approach patient care.[1] The most significant role attributable to mobile technology is in support learning that is situated in a more specific aspect and can create and use real time contents. Indeed, the Internet is now ubiquitously present in our daily lives and has been a huge help to teachers and students alike in going beyond textbook learnings.[2]

In MSU-IIT College of Nursing, nursing education is still mostly rudimentary and paper-based. In the attempt of nursing students to provide quality nursing care, one of the most important resource, time, is spent more on student nurse-nurse educator and it causes an imbalance of the student nurse- patient interaction.

This study focuses on the need of nursing students to access accurate information by improving its availability. This study values enhancing nursing student's clinical contextual knowledge, student-faculty interactions, and innovation. Smartphone apps may be a means for nursing students to use resources for patient safety and evidence-based care, and for nursing educators to share learning resources to the students.[3]

This application, which is referred to as ''Educare'', can provide tools for nurse educators to send learning materials to students and for students to have easy access to learning materials. It can also enable the Nurse educator to monitor the students during clinical duties. On top of this, educators will be able to add or create duty schedules and invite students to join their respective clinical duty schedules. Students can also send FDAR (Focus, Data, Action, Response) documentation for checking and revising to the instructor, who can then comment on the student's work real-time through the same app allowing rapid feedback.[4] Nurse educators can also check the paraphernalia of each student, monitor the vital signs of the patients that the students are handling as well as improved conscious adherence to the clinical duty schedule by setting alarms according the planned time and motion.[5]

The researchers used Android as the platform in the development of the app due to the wide support of smartphone manufacturers for Android and as the researchers observed, there are more student nurses and nurse educators who use Android than any other smartphone operating system.[6] Before the researchers came up with the decision to use Android for the application, a poll was conducted among the level 4 year and level 3 students in MSU-IIT College of Nursing.[7]

This study therefore proposed an application designed to help nurse educators and student nurses in carrying out their activities during clinical duties which would possibly help in promoting high quality care to patients.[8] Moreover, this application could also help reduce environmental impact regarding paper usage and waste as it utilizes a paperless environment.[9] This study identified the need for a useful tool that can be accessible in the clinical setting and provides accurate information to the users.[10] This study utilized technology through the development of a mobile application to fill this gap therefore improving the delivery and instruction of Nursing education.[11]

Method

Research design

This study's research design is descriptive to determine the demographic profile of the respondents with regards to age, sex, and user's category and to evaluate the acceptability and usability of the mobile application. In the development of the mobile application, the ADDIE model.[12] The analysis, design, and develop phases used a low fidelity to a high-fidelity prototype after discussions with the developer regarding the goals, tools, resources and established plans.[13] In the Implementation and Evaluation, the appropriateness of the mobile application was assessed utilizing alpha and beta testing.[14]

Population and study setting

The analysis, design and development of the mobile application was done in Mindanao State University-Iligan Institute of Technology College of Nursing and College of Computer Science, Iligan City due to availability of resources tools and laboratories. The implementation and evaluation of the mobile application was done at Gregorio T. Lluch Memorial Hospital, Adventist Medical Center in Iligan City as these institutions are affiliated with the College of Nursing for the students to have their clinical duties and exposure. There is a total of twenty-three (23) nurse educators and eighty-eight (88) student nurses were purposively chosen as respondents for this study and the study was done in a span of five (5) months. (January–May 2019) Fig. 1.

Variables

In the Analysis phase, the researchers identified and analyzed the problem that they wanted to solve through reading

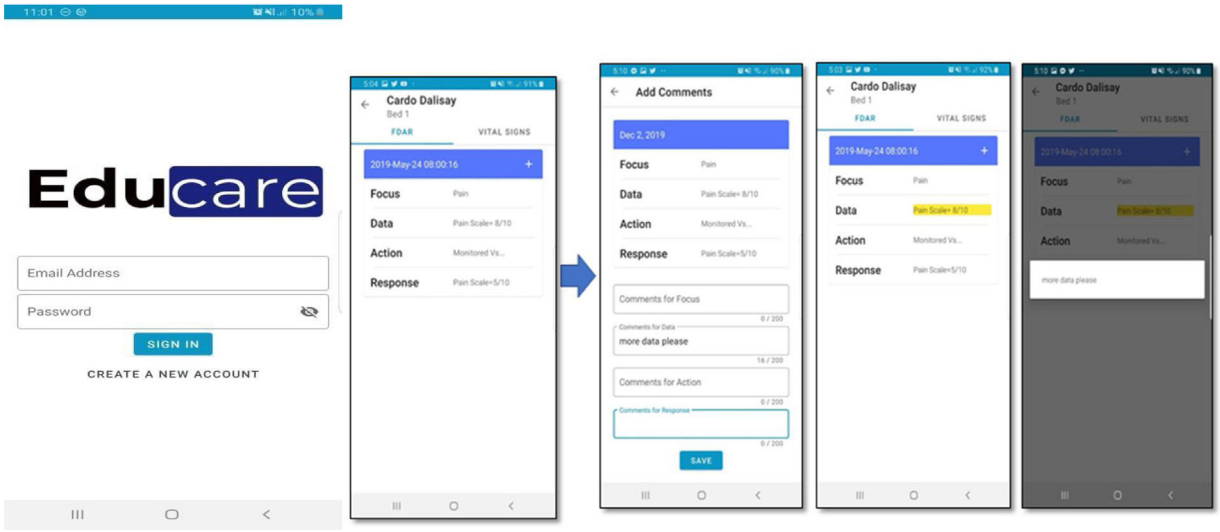

Figure 1 Sample user interface of the mobile application.

literatures and existing studies related to this study. This is to map the necessary functionalities for the mobile application. The researchers analyzed the gathered data based on the interviews.

In determining the acceptability and usability of the mobile application, there are a total of twenty-three (23) nurse educators and eighty-eight (88) student nurses were purposively chosen as respondents for this study.

Data collection

These are the phases for data collection: orientation and demonstration, return demonstration, and evaluation.[15]

Data analysis

This study has two (2) research instruments namely, the usability and acceptability questionnaires. The usability questionnaire was derived from the System Usability Scale of Jakob Nielsen and tested for reliability using Cronbach's Alpha (0.985) which was revised after considering the design and the goals of the mobile application.[16] The questionnaire was composed of three sections. The first section of the questionnaire consisted of the demographic profile of the respondent in terms of age, gender, year level, address and the type of user and followed by the first set of questions to measure the usability of the application. The acceptability questionnaire was derived from the Bakuna App Version 2.0 and was revised and tested for reliability using Cronbach's Alpha (0.950). Percentage was then used to determine how student nurses in MSU-IIT, and nursing educators think about the app when it comes to usability and acceptability.[17]

Ethical aspects

The following of ethical protocols were prioritized by the researchers prior and during the data gathering process. A request for approval of the implementation of the study was communicated to the College Research and Ethics Committee (CREC) of the MSU-IIT College of Nursing. An informed consent was also utilized in order to observe ethical considerations from the participants and was form given during the orientation phase. Data privacy is also assured to all participants and they were assured that the data being managed and utilized will be used only to the sole purpose of conducting the study.[18]

Results

The study from Table 1 shows that out of 23 nurse educator respondents, 21 of them and Out of 88 students, 85 of them also agreed that the application is easy to use without the

Table 1 The mobile application in terms of usability for nurse educators and nursing students.

	Usability			
	Nurse educators		Nursing students	
	Frequency	Percentage	Frequency	Percentage
Agree	21	91	85	97
Neutral	2	9	3	3
Disagree	0	0	0	0
Total	23	100	88	100

Table 2 The mobile application in terms of acceptability for nurse educators and nursing students.

	Acceptability			
	Nurse educators		Nursing students	
	Frequency	Percentage	Frequency	Percentage
Agree	17	74	85	97
Neutral	5	22	3	3
Disagree	1	4	0	0
Total	23	100	88	100

help of a technical person. The results show that they are confident in using the app and that the app had a bright, clean, uncluttered screen design.

Table 2 shows the results in terms of acceptability that out of 23 nurse educators, 17 agreed that the app helped them in the easy dissemination of learning materials, instructions, announcements and schedules.

Discussion

In summary, the researchers conceptualized the mobile application Educare, and a Developer developed the application.[1] The app was subjected to alpha testing which was done by the developer and beta testing which was accomplished by the researchers. Questionnaires were subjected to pilot testing and checked using Cronbach's Alpha to prove its reliability.[14] With all the results, the researchers can conclude that the developed application is an acceptable and an effective tool that can be used by nurse educators and student nurses.

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Conflict of interests

The authors declare no conflict of interest.

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