

Effect of Blended Learning on Academic Achievements and Attitude of Nursing Students: A Systematic Review

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Abstract

Introduction: Technological advances have revolutionized teaching and learning processes. With the emergence of technologies and need for cost-effective teaching methods have led to the molding of teaching-learning practices. Considering these constant and rapid changes, it is crucial that learners in health care area should be taught with latest knowledge and keep pace with up to date information.

Method: The study design was systematic review and it includes studies from databases of PUBMED, MEDLINE, Cochrane library, SCOPUS, Science direct, and Google scholar (2008-2019). The included studies were focusing on the effectiveness of blended learning on nursing students' knowledge, skills and attitude and the studies that discussed about other methods of teaching and conducted on other specialty students were excluded.

Result: The data was grouped and analyzed in terms of meta-analysis. Total 21 relevant articles were undertaken. Abstracted information is related to study design, population characteristics, intervention and outcomes.

Conclusion: Blended learning as a teaching method is effective in improving the learning outcomes in terms of academic achievements and performance of nursing students regarding various topics/ procedures. Students also possess favorable attitude towards blended learning. Several studies came out with the conclusions that blended learning is beneficial in improving the learning outcomes.

Key words: *Blended learning, nursing students, learning outcomes, attitude*

Introduction

All around the world, the online network is considered to be one of the rapidly flourishing and the most accessed technologies. Internet World Stats has shown a diffusion rate in Asia related to Internet is as high as 51.7% with about 40.9% in India.^[1] *Education in Modern World has been transformed into learning which is, occurring immediately, self-driven and online or it can be said as on the go learning. One of the*

important milestones developed and established in India is E-learning.^[2]

Considering the constant presence of the Internet everywhere and the benefits it provides, it is obvious that educators would want to take advantage of it for educational purposes.^[3] Nursing education is most of the time delivered via the traditional approach of lecture as large number of nurses can be given information at the same time. But Nursing Educators nowadays are becoming much aware about the fact that E-learning is an innovative method for delivering education that is learner centered and interactive.^[4]

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The role of traditional classroom cannot be overlooked in the light of E-learning environment. Thus, a new teaching environment has been suggested by the

researchers named as blended learning to get the best of both worlds of learning, traditional classroom and online learning. Since the advent of blended learning, many institutes have started adopting blended learning so as to provide maximum benefit in the form of best learning environment to the students. [5-7]

Materials and Method

Research design: Systematic Review

Inclusion criteria: It includes the studies related to evaluation of blended learning on nursing students' knowledge, skills, clinical-decision-making and attitude.

Exclusion criteria: The study excludes the studies those discussed about the other teaching interventions on learning outcomes and attitude of nursing students.

This review article was written after doing a systematic review of several studies, journals and articles on web. Ethical issues have been addressed as there is no direct involvement of human subjects in this study. The referred articles and studies have been properly cited in the reference section.

Data Analysis: Relevant articles on the topics of effectiveness of blended learning on knowledge, skills and clinical decision-making and those involving views and perceptions towards e-learning were identified by search of significant articles PubMed/Medline, Science direct, SCOPUS, CINAHL, Elsevier and Google scholar.

Results

A systematic review was done and total of 157 studies were selected for review, out of which 21 were found to be appropriate. Data was divided into two sections:

Literature related to effect of blended learning on students' outcomes

Out of a total of 14 studies, nine (64.29%) were quasi-experimental studies and among these, 66.7% of the studies have concluded that blended learning was effective in improving knowledge, skills, satisfaction and critical thinking among nursing students. [8-10] The results of two (22.2%) studies have reflected that although there was an increase in students' achievement scores when exposed to blended learning, but it was not a significant increase. [11,12] One study (11.1%) reported that there was no significant difference in the scores of

nursing students' when compared blended learning and traditional learning method of teaching. [13] Four (28.6%) out of 14 studies were RCTs or true experimental; results of these studies were in favor of blended learning. Although, three of these studies reported a significant increase in learning outcomes within the group but no statistically significant differences were found between the groups. [14-16] The results of a descriptive survey revealed that both classroom and blended methods of teaching are equally effective in improving the learning outcomes of nursing students. [17]

A quasi experimental research using non-equivalent control group design was conducted with the aim to verify the effects of blended learning on the critical thinking and learning satisfaction of nursing students. The content included watching a simulation video on nursing skills, discussion class and application of nursing examples using standardized patients. Convenience sampling technique was used to select a sample of 79 second-year nursing students, composed of 39 students in the control group and 40 students in the experimental group. The findings revealed that blended learning group had a statistically significant high score for critical thinking ($t=-6.21, p<.001$) and had a high but not statistically significant score for learning satisfaction ($t=-.52, p=.683$). It was therefore concluded that blended learning in nursing education was more effective in improving the critical thinking of nursing students than the existing nursing education curriculum. [10]

A randomized control trial was carried out to assess the effectiveness of a blended-teaching intervention using Internet-based tutorials coupled with traditional lectures in an introduction to research undergraduate nursing course. The study participants included 112 nursing students selected randomly. The effects of intervention were compared with conventional, face-to-face classroom teaching in terms of knowledge, satisfaction, and self-learning readiness. The results of the study indicated no direct impact on knowledge acquisition, satisfaction, and self-learning readiness among the students in both the groups. However, there was an interaction effect of motivation and teaching method on acquisition of knowledge. The students who were less motivated and received blended learning intervention were able to perform better. The conclusion drawn from the study findings was that the blended teaching method could suit the students according to their degree of motivation and level of self-directed learning readiness. [16]

A descriptive survey was conducted to compare classroom and online student perceptions of learning across the seven affective topics of the course. The study also examined the contribution of various technology-enhanced learning activities to the students' perceptions of learning. Participants were enrolled in a master's of occupational therapy professional program in the Midwestern United States. A sample of 25 students attended classroom teaching while 64 students received teaching by blended learning in groups of two. The results of the study indicated that while both formats increased students' perceived understanding of topics related to affective learning, the blended learning group perceived a significantly greater understanding in four affective topic areas. Furthermore, blended learning students cited reading, online discussions, and unstructured out-of-classroom discussions as contributing to their learning significantly more than the classroom group. The conclusion of the study was that blended learning is an effective method of teaching when coupled with innovative components like discussion forum and availability of offline classes. ^[17]

Literature related to nursing students' perception, views and attitude towards e-learning

Out of seven studies selected, six (85.7%) were descriptive studies highlighting the views and perceptions of nursing students towards e-learning or blended learning. The results showed that students had different views for blended learning based on their learning styles. ^[18] Most of the studies (83.3%) reflected high perception, increased learning satisfaction, positive reactions among students towards e-learning and they also mentioned it to be highly valued. ^[19-23]

A descriptive study was undertaken with the purpose to examine the students' learning styles and their views on blended learning. The study was conducted among thirty-four students at Hacettepe University, Ankara, Turkey. The instruments used for the study were questionnaires to identify students' views on blended learning and Kolb's Learning Style Inventory (LSI) to measure students' learning styles. Additional data were gathered from achievement scores of students; and records demonstrate students' participation to e-learning environment. Results revealed that students' views on blended learning process, such as ease of use of the web environment, evaluation, face to face environment etc., differ according to their learning styles. Results also revealed that the highest mean score corresponds to face

to face aspect of the process when students' evaluation concerning the implementation is taken to consideration. The overall findings showed no significant differences between students' achievement level according to their learning styles. ^[18]

A quantitative cross-sectional survey was conducted to assess the attitudes of undergraduate nursing students towards e-learning at the University of the Western Cape, South Africa. A sample of 249 nursing students was selected by stratified random sampling technique. A questionnaire was used to assess knowledge and skills and a five-point Likert scale was utilized to assess the attitude of students. The findings revealed that learner satisfaction was influenced by perceived ease of use, gender, and study-year level of respondents. The findings also demonstrate a favorable attitude towards e-learning among nursing students. ^[24]

Discussion

A study conducted by **Bloomfield J. et al. (2010)** established a significant increase in Knowledge scores of nursing students. ^[14] Another study conducted by **Hee-Jung J. et al. (2016)** also reported that the students who participated in blended learning had a significantly high score for critical thinking. ^[10]

There were studies that found no significant difference between the scores of nursing students. **Ahmad Al Sai et al. (2011)** where it was found that there was not any significant difference between the different instructions in improvement scores of the students. The findings were also similar to the results given by **Mehrdad N. et al. (2011)** where it was also reported that students' scores in e-learning and lecture method were not having any significant difference. **Zhigang G et al. (2014)** too reported that that there was a non-significant difference in students' performance in academics before and after the administration of blended learning. ^[25-27]

Conclusion

Blended learning in the recent times, has shown a rapid growth and is now being widely used in Nursing education. Several studies in this review came out with a conclusion that blended learning is effective in improving the academic achievement scores and satisfaction of nursing students. Studies also concluded that a positive attitude and views are developed for blended learning among nursing students. Thus, it is recommended to

carry out more extensive research in this area so as to provide maximum benefits to the nursing students which in turn will favor provision of quality patient care as well.

Conflict of Interest- There is no conflict of interest between authors.

Funding- This research received no grant from any funding agency.

Ethical Clearance- Ethical consideration for conducting the study was obtained from the institutional ethical committee (ECR/296/Indt/PB/2019/ISFCP/40).

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