

Original Article

Impact of Educational Environment and Learning Approaches on Academic Outcome of Undergraduate Nursing Students

D'Souza Prima Jenevive Jyothi, MSc Nursing

Assistant Professor, Department of Fundamentals of Nursing, Manipal College of Nursing, Manipal Academy of Higher Education (MAHE), Manipal, Karnataka, India

Nayak Shalini G, MSc, MPhil Nursing

Assistant Professor, Department of Medical Surgical Nursing, Manipal College of Nursing, Manipal, Manipal Academy of Higher Education (MAHE) Manipal, Karnataka, India

Correspondence: Shalini G Nayak, Assistant Professor, Manipal College of Nursing Manipal, Manipal Academy of Higher Education (MAHE) Manipal, Karnataka, India e-mail: shalini.mcon@manipal.edu

Abstract

Background: Educational environment and learning approaches are the important determinants of academic outcome.

Objectives: To assess the perception of the educational environment, learning approaches adopted by the nursing students and its relation to academic outcome.

Methodology: A cross-sectional survey was conducted among undergraduate nursing students. Dundee Ready Educational Environment Measurement was used to assess the students' perception of the academic environment. The learning approaches adopted by the students were measured with 'Approaches and Study Skill Inventory and the academic outcome was assessed from the marks obtained in the University examination. The questionnaires were administered to 252 students selected from the nursing school by proportionate stratified sampling technique.

Results: The overall Dundee Ready Educational Environment Measurement score was 134.7/200 indicating that the nursing students had a positive perception of the educational environment. There was a significant positive correlation between the overall Dundee Ready Educational Environment Measurement score and the academic outcome ($r_s = 0.348$, $p = 0.001$). There was a weak positive relation between deep learning and strategic learning approaches with the academic outcome ($r_s = 0.159$, $p = 0.012$ and $r_s = 0.204$, $p = 0.001$).

Conclusions: Students' perception of the educational environment is greatly influenced by various factors, which may affect their academic outcome. Each student may adopt different learning approach for learning hence understanding the students learning approaches and incorporating appropriate teaching-learning methods may facilitate the academic outcome of the students of undergraduate nursing.

Keywords: educational environment; learning approaches; academic outcome; nursing students.

Introduction

Basic nursing education needs to be of a high standard to prepare nurses to face today's healthcare challenges confidently. To provide high-quality patient care in society, nursing graduates must possess essential knowledge and competencies. Educational institutions play a key role in bringing up such competent nurses who are capable of improving and maintaining the quality

of health care delivery (Niederriter, Eyth, and Thoman, 2017). In an effective curriculum, the educational environment plays equally an important role like that of learning objectives, teaching-learning activities and the assessment (Imanipour *et al.*, 2015). An ideal academic environment prepares the students to take up their profession by contributing to their psychosomatic development (Divaris *et al.*, 2008). The educational environment affects students'

motivation, happiness, achievement and success in life (Gade and Chari, 2013). It has a fundamental role in nurturing learner's independence, healthy competition, satisfaction, critical thinking abilities and learning (Imanipour *et al.*, 2015). Majority of nursing institutions focus on the development of the curriculum, teaching-learning activities, and assessment, whereas the least focus has been given in assessing the influence of these activities on the students' learning (Nahar *et al.*, 2011a). Perception of the educational environment is influenced by various factors such as a change in curriculum, a method of teaching and outcome assessment (Bouhaimed, Thalib and Doi, 2009). Understanding how the students' perceive their educational environment, helps in overcoming the weakness and thereby facilitates better learning outcome (Nahar *et al.*, 2010).

Individual's learning process is greatly affected by his learning approaches (Ghaffari *et al.*, 2013). The term "learning approach" is the ways used by the learner on a particular learning task. The learning approaches of the students vary among different streams of education (Jayawardena *et al.*, 2013). The students engaged in higher studies come from a varied cultural and ethnic background, a multitude of institutions and with different learning styles. The mismatch between the students' learning approaches and the teachers' teaching style can be the major obstacle for learning in the educational environment (Romanelli, Bird and Ryan, 2009).

Studies show that adopting deep and strategic approaches to learning will have a better educational outcome compared to adopting the surface learning approach. Students' approaches to learning and their perception of the educational environment have been studied in various health science institutions (Nahar *et al.*, 2010; Yusoff, Jaa'far, Arzuman, Arifin, & Mat Pa, 2013; Bakhshi, Bakhshialiabad, & Hassanshahi, 2014; Abraham, Ramnarayan, Vinod, & Torke, 2008). Several studies conducted in the nursing schools are limited to countries outside India (Wang, Zang, & Shan, 2009; Wells & Dellinger, 2011; Pimparyon, S. M Caleer, S. Pemba, S, 2000). Among these studies, the objective was to assess the students' perception of the educational environment or learning approaches whereas the studies identifying the relationship between

educational environment, learning approach, and academic outcome are limited. This gave us the scope to undertake the study.

The present study is aimed at identifying the perception of the educational environment and the learning approaches adopted by the undergraduate nursing students. In addition, the study emphasizes on finding the relationship between the perception of the educational environment and the learning approaches with that of academic outcome.

Methods

Research design

A cross-sectional survey was conducted among 252 undergraduate nursing students studying in a private nursing institution of India.

Study Instruments: The demographic questionnaire was used to collect information on age, gender, and year of study. Dundee Ready Education Environment Measurement (DREEM) inventory was used to measure students' perception of educational environment (Roff, 2005) and Approaches and Study Skills Inventory for Student (ASSIST) (Entwistle, Tait and McCune, 2000) was used to assess the learning approaches adopted by the undergraduate nursing students. The academic outcome was assessed through university marks obtained from the institutional database.

Perception of the educational environment was assessed by DREEM. The response options for the item are: Strongly Agree, Agree, Uncertain, Disagree and Strongly Disagree with the scores of 4, 3, 2, 1, 0 respectively. The higher score indicates a more positive perception of the educational environment in the global range of 0 – 200. Based on the total score of DREEM, it can be interpreted as very poor (0–50), has plenty of problems (51–100), more positive than negative (101–150), and excellent (151–200). The five domains of DREEM are students' perceptions of learning includes 12 items with maximum scores of 48, students' perceptions of teachers with 11 items and maximum score of 44, students' perceptions of the atmosphere has 12 items with a maximum score of 48, students' academic-self perceptions consists of 8 items with maximum score of 32, and students' social-self perceptions with 7 items and a maximum score of 28 (Al-Hazimi, Al-Hyiani, and

Roff, 2004). The DREEM questionnaire has been validated and used in assessing the educational environment in several nursing schools of various countries (Pimpariyon, S. M Caleer, S. Pemba, S, 2000; Hamid, Faroukh, & Mohammadhosein, 2013; E Rochmawati, Rahayu, & Kumara, 2014; El & Abusaad, 2015; Imanipour et al., 2015).

Approaches to learning were assessed using the ASSIST, which has 52 items representing deep, strategic and surface approaches to learning. Items are scored on a five-point Likert scale (5 = agree, 4 = agree somewhat, 3 = unsure, 2 = disagree somewhat and 1 = disagree). The scores for each item were summed up and the mean score for each learning approaches was calculated for an individual respondent. The 16 questions to assess the 'Deep' approach with subdivisions of seeking meaning, relating ideas, use of evidence and interest in ideas. The 'surface' approach was assessed by 16 questions with subdivisions of lack of purpose, unrelated memorizing, syllabus-focused, and fear of failure. The 20 questions assessed the subdivisions of the 'strategic' approach like, organized studying, alertness to assessment demand, time management, achieving and monitoring effectiveness (Entwistle, Tait and McCune, 2000).

Procedure: Undergraduate Nursing students were enrolled for the study by using a proportionate stratified sampling. Students from each academic year were selected by a systematic random sampling using the list of registration numbers of the students (the first year = 75, second year = 69, third year = 62, fourth year = 46). The approval from the Institutional Ethics Committee was obtained for the conduct of the study. Informed consent and subject information sheet were given to the students and the purpose of the study was explained. Questionnaires were administered to those students who were willing to participate in the study. The data collection period was between April to September 2016.

Data analysis: The data analysis of the study was carried out using SPSS version 16. Demographic variables were expressed in frequency and percentage. The mean and the standard deviation were computed to express the students' perception of the academic environment and learning approaches. One way ANOVA was computed to

find the differences between the mean scores of students of various batches. Spearman's correlation was computed due to non-normality of data and a p-value of less than 0.05 was considered as statistically significant to find the relation between the perceived educational environment, learning approaches and the academic outcome.

Results

Among the 252 students of undergraduate nursing, 237(94%) were females and were between 18 and 23 years of age. The mean total score of DREEM obtained was 134.7/200 showing that the students had a more positive perception of the educational environment. The findings of the overall DREEM score for all the students showed that 84.5% were in the range of scores between 101 and 150 indicating that they had more positive than negative perception, 12.7% were in the range of 151 – 200 signifying that they perceived the educational environment as excellent and 2.8% had a negative perception of the educational environment, scoring less than 100. When the results were compared with the various batches of students, the percentage for being more positive was 94.66%, 97.10%, 98.37%, and 99.99% from first to the fourth year, respectively. This shows the gradual increase in the positive perception of the educational environment as the students' progress in the academic year. The negative perception of the students from first to the fourth year was 5.33%, 2.89%, 1.61%, and 'zero' percent respectively indicating a gradual fall in the negative perception. Table 1 shows mean and SD of the overall scores and for each domain in the DREEM. Based on the year of study, the first year students scored the least and the final year students scored the highest among all the batches in the overall DREEM score. In the domains of perception of the educational environment, 78.2% of students had a positive 'perception of learning'. Students' 'perception of teachers' showed that 86.5% of students perceived that the teachers moved in the right direction. Students were on the positive side (66.3%) and confident (30.2 %) under the domain of students' 'academic self-perceptions'. Majority of the students (81.3%) had a positive attitude and 13.1% had a good feeling in the 'perception of the atmosphere'. Students' social self-perception was very good for most of the students (99.4%).

Table 1: Mean (SD) DREEM item scores for participants based on the year of study.

Year of study	Students' perception of learning	Students' perception of teachers	Students' academic self-perception	Students' perception of atmosphere	Students' Self-perception	Total
Maximum score	48	44	32	48	26	200
Year 1 (n= 75)	31.37 (4.51)	27.92 (4.10)	21.37 (2.7)	30.97 (5.05)	17.90 (2.44)	129.54 (14.96)
Year 2 (n= 69)	33.34 (4.96)	28.36 (3.73)	22.73 (3.81)	31.91 (4.78)	17.95 (2.95)	134.31 (16.34)
Year 3 (n= 62)	34.64 (3.49)	28.54 (3.51)	24.12 (3.40)	32.67 (4.38)	18.24 (2.57)	138.24 (13.95)
Year 4 (n= 46)	34.08 (3.75)	28.97 (3.66)	24.13 (2.78)	33.10 (3.71)	18.47 (2.33)	138.78 (13.02)
Overall (N= 252)	33.21 (4.45)	28.38 (3.78)	22.92 (4.64)	31.03 (4.64)	18.10 (2.60)	134.64 (15.17)
F score (p Value)	7.56 (0.001)	0.79 (0.001)	10.72 (0.49)	2.58 (0.001)	0.59 (0.054)	5.404 (0.64)

Table 2: The relationship between educational environment and academic outcome.

Domain of Educational environment	Academic achievement	
	r_s value	p value
Students' Perceptions of Learning	0.413	0.001
Students' Perceptions of Teachers	0.156	0.013
Students' Academic Self-Perceptions	0.400	0.001
Students' Perceptions of Atmosphere	0.231	0.001
Students' Social Self Perceptions	0.128	0.042
Overall DREEM score	0.348	0.001

Table 3: Mean and standard deviation of approaches to learning adopted by the nursing students.

Year of study	Approaches to learning			Preferences for different kinds of teaching		
	Deep approach Mean (SD)	Strategic approach Mean (SD)	Surface Apathetic approach Mean (SD)	Supporting, understanding Mean (SD)	Transmitting information Mean (SD)	Preferences for courses and teaching Mean (SD)
1 (n=75)	60.16 (7.00)	60.84 (11.70)	55.64 (9.45)	15.24 (2.25)	15.88 (2.03)	31.12 (3.20)
2 (n=69)	60.53 (7.74)	58.95 (8.54)	55.71 (8.08)	16.17 (2.52)	16.17 (2.43)	32.83 (4.32)
3 (n=62)	62.45 (7.09)	61.30 (8.54)	55.06 (9.17)	16.79 (2.00)	16.04 (2.47)	32.83 (3.75)
4 (n=46)	61.84 (6.32)	60.97 (7.13)	55.84 (7.87)	16.52 (2.24)	16.00 (2.30)	32.52 (3.44)
Overall (n = 252)	61.13 (7.14)	60.46 (9.37)	55.55 (8.70)	16.11 (2.34)	16.02 (2.29)	32.13 (3.75)

Table 4: Correlation between different learning approaches and academic outcome.

Domain	Academic outcome	
	r_s value	p-value
Deep approach	0.159	0.012
Strategic approach	0.204	0.001
Surface Apathetic approach	- 0.210	0.001
Supporting, understanding	0.207	0.001
Transmitting information	0.010	0.869
Preferences for courses and teaching	0.120	0.058

Table 5: The relationship between the educational environment and approaches to learning.

Educational environment	Approaches to learning		
	Deep r_s (p value)	Strategic r_s (p value)	Surface r_s (p value)
Students' Perceptions of Learning	0.296 (0.001)	0.402(0.001)	- 0.105(0.097)
Students' Perceptions of Teachers	0.127 (0.044)	0.218 (0.001)	- 0.139 (0.027)
Students' Academic Self-Perceptions	0.336(0.001)	0.500(0.001)	- 0.103(0.102)
Students' Perceptions of Atmosphere	0.208(0.001)	0.381(0.001)	- 0.133(0.034)
Student's perception of educational environment	0.250(0.001)	0.356(0.001)	- 0.030(0.634)
Overall DEERM score	0.316(0.001)	0.480(0.001)	- 0.139(0.028)

There was a significant difference among the students of each academic year in the domains of Students' perception of learning, Students' perception of teachers, and Students' perception of the academic atmosphere ($p = 0.001$). There was a significant positive correlation between the overall DREEM score and the academic outcome ($r_s = 0.348$, $p = 0.001$). The relation between the domain score and the academic outcome is presented in Table 2.

Table 3 shows the scores for approaches to learning and preferences for different kinds of teaching. There was a slight increase in the scores for deep learning approach among the third and fourth-year students compared to the first and the second year. However, all the batches scored similarly for the surface learning approach.

In the domain of deep approach the subdivisions 'seeking meaning' and 'use of evidence' had a maximum mean and SD score of 16.03 (± 2.03) and 15.73 (± 2.0), respectively. The final year students had mean and SD 15.93 (± 2.02) for 'relating idea' which was maximumly compared to the other groups. Participants predominantly had a strategic learning approach with the maximum mean score (77.53) and SD (± 10.11) among the

third-year students. Spearman's correlation was computed to find the relationship between the different types of learning approaches adopted by the students and the academic outcome. The relation between the approaches to learning and the academic outcome is presented in Table 4 shows that there is a weak positive correlation with the deep approach, strategic approach and academic outcome and a negative relation between the surface apathetic approach and the academic outcome.

Findings on the relation between the perception of the educational environment and the approaches to learning in Table 5 shows that deep and strategic approach of learning is positively correlated with the domains of the learning environment and negatively correlated with the surface learning approach.

Discussion

The overall DREEM score in the present study was 134.7/200, which indicates that the Nursing students had a positive perception of their educational environment. The various studies conducted among the Nursing schools also obtained the higher scores of 131.03 (Erna

Rochmawati, Rahayu, and Kumara, 2014), 114.3(Hamid, Faroukh and Mohammadhosein, 2013) 115 and 110 (El and Abusaad, 2015). Various studies conducted in other institutes of health sciences showed the scores of 110.44 (Nahar *et al.*, 2010) 105 (Bouhaimed, Thalib, and Doi, 2009), 119 for the first year and 110 for the clinical batch (Abraham *et al.*, 2008) and had a positive perception although the scores obtained were lower than the present study.

While comparing the mean DREEM scores across the year of study, found that the scores increased in the third and the fourth year indicating a positive perception of the educational environment as the students advanced in their year of study. This is supported by the studies conducted earlier showing an increase in the scores in the third and the fourth year (Erna Rochmawati, Rahayu and Kumara, 2014). However, there can be a decrease in the perception scores due to various factors as the student progresses in the institutions(Kohli & Dhaliwal, 2013; Kossioni, Varela, Ekonomu, Lyrakos, & Dimoliatis, 2012).

In the domains of perception of learning, there was a trend of variation of scores among the batches and this difference was statistically significant for the students' perception of learning, students' academic self-perception, students' perception of atmosphere and overall DREEM scores across the year of study (A.-H. El-Gilany and Abusaad, 2013). Similar findings were reported in various other studies conducted among Nursing and Medical schools (Okoye, Ezisi, & Ezepue, 2017; Okoye *et al.*, 2017; A. H. El-Gilany & Abusaad, 2013).

Approaches to learning showed that there was a slight increase in the mean score of the third and the fourth-year students compared to the first and the second year in deep approach whereas the mean scores of the surface approach remained similar for all the batches of all four years. A study conducted in comparison with Medical, Dental and Nursing students showed that the Medical students had higher scores in deep learning approach compared to Dental and Nursing. Approaches of first-year Medical students towards deep learning were higher than the second year Medical students(Shah *et al.*, 2016). This indicates that students will adopt different learning approaches.

The present study observed that there was a significant positive correlation between the deep learning approach, strategic learning approach and the academic outcome of the students, and a negative correlation between the surface approach and the academic outcome, which indicates that those who adopt deep learning approach will be the higher achievers. This is supported by the earlier study (Shah *et al.*, 2016).

Conclusion

The educational environment and the learning approaches adopted by the students have a significant relationship with the academic outcome of the students. In this regard the nursing institutions should ensure of providing a conducive learning environment, adopting innovative methods of teaching and learning and incorporating the inputs from the experts and student to focus on the student-centered curriculum implementation.

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