

Educational environment and approaches to learning of undergraduate nursing students in an Indonesian School of Nursing

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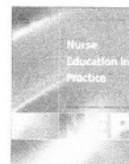
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**1** Learning and teaching in clinical practice**Educational environment and approaches to learning of undergraduate nursing students in an Indonesian School of Nursing**Erna Rochmawati ^{a,*}, Gandes Retno Rahayu ^b, Amitya Kumara ^c^a School of Nursing, Universitas Muhammadiyah Yogyakarta, Indonesia^b Faculty of Medicine, University of Gadjah Mada, Indonesia^c Faculty of Psychology, University of Gadjah Mada, Indonesia

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ABSTRACT

The aims of this study were to assess students' perceptions of their educational environment and approaches to learning, and determine if perceptions of learning environment associates with approaches to learning. A survey was conducted to collect data from a regional private university in Indonesia. A total of 232 nursing students completed two questionnaires that measured their perceptions of educational environment and approaches to learning. The measurement was based on Dundee Ready Education Environment Measurement (DREEM) and Approaches and Study Skills Inventory for Students (ASSIST). Five learning environments dimensions and three learning approaches dimensions from two measures were measured. The overall score of DREEM was 131.03/200 (SD 17.04), it was in the range considered to be favourable. The overall score is different significantly between years of study (p value = 0.01). This study indicated that the majority of undergraduate nursing students' adopt strategic approach ($n = 139$, 59.9%). The finding showed that perceived educational environment significantly associated with approaches to learning. This study implicated the need to maintain conducive learning environment. There is also a need to improve the management of learning activities that reflect the use of student-centered learning.

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Introduction

Higher degree education as well as nursing education requires a higher quality of teaching and learning to achieve the competences of nurses. However, most of nursing schools more focus on the curriculum development, teaching process, and assessment. Little attention has been given to the impact of these activities on the way student learn and designing a conducive educational environment.

Ali and El Sebal (2010) stated that approaches to learning is the way students learn and reasons why they do it. Initial work on approaches to learning was carried out by Marton and Saljo in 1976 who divided student approaches into two categories: deep and surface (Mansouri et al., 2006). Students who adopt deep learning approach aim towards understanding, and try relate new ideas to their prior knowledge and personal experience (Ali and El Sebal, 2010; Mansouri et al., 2006). On the other hand, surface learners tend to remember facts, memorising what they learnt to be succeed

in their examinations (Pimparyon et al., 2000). Entwistle, McCune and Hounsell (2002) add one category in approaches to learning in their inventory, namely strategic approach. The adoption of strategic approach is characterised by effectively using time and space, and may use both of surface and deep approaches, depending the nature of the task (Mansouri et al., 2006; Vanthournout et al., 2013). Approaches to learning are influenced by teaching style, type of student's assessment, curriculum content, and the conduciveness of educational environment (Mansouri et al., 2006; Pimparyon et al., 2000).

Educational environment includes broad aspects in education comprising internal and external parts of sense: student–teacher interaction, physical structures and facilities, and a concern about students' psychosocial and emotional needs (Boothoff et al., 2011; Sari et al., 2009). The educational environment can be measured and changed (Miles and Leinster, 2007). Shehbaz and Sreedharan (2011) argue that educational environment influences students' learning experiences. Therefore, it is clear that curriculum planners and nurse educators have responsibility to create, design and promote learning experiences. They should be able to identify educational environment and understand the way student approach their learning. This will help to facilitate learning and

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planning appropriate curriculum to achieve the expected learning outcomes.

Nursing education in Indonesia include diploma, undergraduate and post graduate level. The curriculum in all nursing program refers to national curriculum. However, the quality of curriculum implementation is not well monitored, causing the quality of teaching institutions varies widely (Lock, 2011). Lock (2011) also stated that nursing in Indonesia is different with other countries in Asian region such Malaysia, Singapore and Thailand in term of regulation of nursing registration. Moreover, the length of education is different. The length of education in higher nursing education in Indonesia is 5 years, including four years in academic setting and one year for clinical placement, while in other Asian countries, is four years. The institution where the study was conducted admitted its first class of undergraduate nursing students in 2001. The program aims to provide professional nurses with high critical thinking capability. Since 2006, the school has implemented modified problem-based learning in the curriculum. Within this period, no studies conducted to investigate on how students perceived their educational environment and participate in the course during their study. Based on these deficiencies, it difficult to discover whether the educational environment is conducive for students, and whether students adopt suggested approaches to learning.

This study aimed to determine undergraduate nursing students perception of educational environment and approaches to learning. The study also aimed to determine if students' perception of learning environment was associated with approaches to learning. Results from this study will assist the school to create conducive educational environment, and quality teaching-learning process. This will enable to foster recommended approaches to learning that will enhance quality of nursing education.

Literature review

Interest in examining student approaches to learning and perception of educational environment in medical school has been increasing in the recent years (Miles and Leister, 2007). The awareness to explore these topics also increases in nursing. Various studies have reported nursing students' perceptions on their educational environment (Callaghan, 2011; Johansson et al., 2010; Newton et al., 2012; Said et al., 2009; Skarvuk et al., 2011). However, most of these studies focused on clinical educational environment and conducted in a Western population. Literature search found only two studies which investigated educational environment in academic setting and in Asian population (Said et al., 2009; Wang et al., 2009). Said et al. (2009) conducted a survey to measure educational environment among undergraduate nursing students across four years ($n = 105$) at a Faculty of Nursing in Malaysia. The study found that students' perceptions of their educational environment were positive. Limited study about educational environment in academic setting highlighted the importance to do a study to add evidence in this topic.

Several studies identified undergraduate nursing students' approaches to learning approaches (Ali and El Sebai, 2010; D'Avonir et al., 2012; El-Gilany and Abusaad, 2013; Fleming et al., 2011; Mansouri et al., 2006; Tiwari et al., 2006). Both Tiwari et al. (2006) and Ali and El Sebai (2010) did experiments to investigate whether problem-based learning (PBL) influence students' learning approaches. The findings were similar that PBL encourage students to adopt deep learning approaches. Four of these studies were surveys. Studies using ASSIST from Mansouri et al. (2006) and D'Avonir et al. (2012) found that majority of nursing students preferred thinking deeply. Moreover, two other studies which utilized different instruments found that students adopted converger

where they preferred to do observations for taking appropriate conclusion (Fleming et al., 2011) and preferred to think and practice to see whether their ideas can work (El-Gilany and Abusaad, 2013). It is clear that findings from previous studies varied. Therefore, studies to fill this knowledge gap are essential.

Literature search found only one study investigates how undergraduate nursing students' approaches to learning relate to perceived educational environment (Pimpayon et al., 2006). The study was conducted in a Nursing College at Thailand involving 265 nursing students. Findings of the study: students adopted recommended reproducing orientation (students utilised deep thinking), students were satisfied with their educational environment, and students who were satisfied with their educational environment adopt recommended approaches to learning. Limited studies on these topics highlight the importance to do further studies.

Methods

Research design

This study was a cross-sectional survey design with data collected from undergraduate nursing students through completion of the instrument, Dundee Ready Educational Environment (DREEM) and Approaches and Study Skills Inventory (ASSIST).

Study instruments

The demographic questionnaire sought information about participants, especially gender and level of academic years. The study utilised two instruments: Dundee Ready Educational Environment (DREE) to measure students' perception of educational environment (Roff, 2003), and Approaches and Study Skills Inventory (ASSIST) to identify students' approaches to learning (Entwistle et al., 2002).

DREEM was used to students' perceptions of their educational environment. The response options for items on the DREEM inventory are: 4 for Strongly Agree (SA), 3 for Agree (A), 2 for Uncertain (U), 1 for Disagree (D), and 0 for Strongly Disagree (SD). The range of global score is 0–200, which higher score indicate more positive perceptions of educational environment (Wang et al., 2009). DREEM consists of five domains:

1. student perceptions of learning (12 items, maximum scores = 48)
2. student perception of teaching (11 items, maximum score = 44)
3. student academic self-perception (8 items, maximum score = 32)
4. student perception of atmosphere (12 items, maximum score = 48)
5. student social self-perception (7 items, maximum score = 28)

The DREEM inventory has been translated, validated and administered in several countries: in India (Mayya and Roff, 2004), Saudi Arabia (Al-Hazimi and Roff, 2004a; Bouharned et al., 2008), in Trinidad (Bassaw et al., 2003), Greek (Kossoni et al., 2012). The application of DREEM in nursing is very limited, like in Thailand (Pimpayon et al., 2006), and Malaysia (Said et al., 2009). DREEM was adapted into Bahasa Indonesia. The translated DREEM was tested to 356 medical students, resulted of alpha reliability 0.88 in a previous study conducted by Soemantri and Roff (2008).

ASSIST was developed by Entwistle et al. (2002) to measure student's approaches to learning. The ASSIST has 52 questions which are grouped into three factors: 16 items represent the deep approach, 20 items represent the strategic approach, and 16 items represent surface approach. The responses for the questions are: 1

(disagree), 2 (disagree somewhat), 3 (unsure), 4 (agree somewhat), and 5 (agree). ASSIST inventory was utilised to identify undergraduate nursing students' approaches to learning. The responses to the 52 items in the ASSIST were categorized into: deep, strategic or surface approached. Based on the guidelines supplied with the inventory, those who achieved the highest score in 16 particular items were using deep approach. Students who achieved the highest score in another 16 items were adopting surface approaches, and students who obtained the highest score in the remaining 20 items were considered adopting strategic approach. This instrument was translated into Bahasa Indonesia. The reliability score for the adopted ASSIST inventory was 0.912.

Procedure

The study took place at a private School of Nursing, Indonesia. All undergraduate nursing students from year one to year four ($n = 553$) were eligible to participate in this study, and the required sample size was 232. Proportionate stratified sampling was used, and there were 232 respondents representing students from all academic years. Questionnaires were administered in class for the practical accomplishment of the study. Accidental sampling was utilized to recruit respondents, where students were approach to be involved in the study, and this activity continued until the required number of respondents was achieved. The instruments were administered to 250 students (year one = 72, year two = 66, year three = 66, and year four = 46). However, the valid response was 232, because eight of surveys were set aside due to incomplete data. All the respondents were graduated from high schools. From 232 undergraduate nursing students who participated in the study, 162 (69.1%) were female, and 70 (30.9%) were male.

Ethical consideration

Approval to conduct the study was granted by the institutional Research Ethics Committee. Study material included a participant information sheet, a consent form and questionnaires were distributed to each student. Students received an explanation of the purpose of that data would be used for quality assurance and research purposes. Students were asked to read and sign informed consent form before completing the questionnaire. It was emphasized to the students that participation was on voluntary basis that any withdrawal and rejection in the study would not affect to their academic results. The students were promised that the answer would remain confidential. To assure confidentiality and anonymity, a coding number was recorded on each instrument. The researcher who is the lecturer in the school of nursing was not present in the classroom during data collection.

Data analysis

Statistical analysis was carried out using Statistical Package for the Social Sciences (SPSS) was utilized the data in this study. Data were coded, entered, and checked for data entry errors. Data analysis utilizes descriptive and inferential analysis. Demographic variables were expressed in frequencies. Students' perceptions of educational environment were expressed in mean, and standard deviation. The rate of adopting particular learning approaches was presented in frequency and percentage. To examine the relation between perceived educational environment and approaches to learning, chi-square and Pearson correlation were used. To determine the differences between mean scores of students in different years, ANOVA was used. In this study $p < 0.05$ was considered statistically significant.

Result

Table 1 shows the overall scores, and total mean scores for each domain in the DREEM inventory. The mean total score of DREEM was 131.03/200 (SD 17.04). Overall score of DREEM between 101 and 150 indicates that students had positive perception of their educational environment (McAleer and Roff, 2013). Moreover, the total score was significantly different between years of study. Based on year of study, Year Four students has the highest overall score, while the lowest average score was from Year Two students. The total scores of DREEM decrease from the Year One students to the Year Two students, while it increases in Year Three and Year Four students.

For domain students' perception to learning the total mean score was 32.73 out of 48 (SD 4.92). The year four students have the highest score, while the lowest score was from the year two. The student perception to learning subscale score was significantly different between years of study, being lower in year 2. The overall score for this domain represent a positive perception of learning process (McAleer and Roff, 2013).

The total mean score for domain students' perceptions of teacher indicated that students perceive the performance of teaches move towards a good direction (McAleer and Roff, 2013). Score of subscale in perception of teacher was significantly different between years of study, being lower in year two. Scores on domain student academic self-perception, suggest that students felt relatively satisfied with their academic achievement (McAleer and Roff, 2013). The score on this domain was not significantly different between years of study. Scores on this domain suggest that students felt relatively satisfied with their academic achievement.

For domain perception of atmosphere the total score reveal positive perceptions of the atmosphere (McAleer and Roff, 2013). The score of this subscale was significantly different between years of study. The total score of last domain, social self – perception implies that students were able to tolerate their social environment and incorporate with their learning activities in the university (McAleer and Roff, 2013). The score of this subscale was also not significantly different over years of study.

Table 2 shows the trend that scores for deep and strategic approaches were relatively high and those for surface approach low across years of study. There was a slight trend towards a rise in percentage for surface approach over fourth year students. The majority of students across various years of the nursing program ($n = 133, 59.9\%$) adopt strategic approach as their learning approach. ($n = 33, 14.2\%$). The use of approaches to learning has a positive correlation with years of study. Based on academic years, deep approach was mostly adopted by Year One. Year three students were the largest cohort adopted strategic approach. There was not much difference of number in the adoption of surface approach across years. Unfortunately, there is a tendency of increasing in average score of surface apathetic approach in line with the increasing of level of academic years.

Table 3 shows the relationship between students' perceptions of educational environment and approaches to learning. Chi-square analysis reveals a statistically significant positive relationship between educational environment and approaches to learning. Pearson correlation reveal a positive moderate relationship ($r = 0.444$). When we look in detail, three subscale of education environment: perception of learning, perception of teaching, and learning atmosphere are statistically significant to all three types of learning approach. Moreover, these subscales have moderate relationship. The other two subscales of education environment: self-perception of learning and social self-perception are not significantly associated with surface approach. Pearson correlation reveals that these two domains have a positive weak relationship to learning approaches.

Table 1
Mean (SD) DREEM item scores for participants per academic year.

DREEM	Perception of learning	Perception of teaching	Academic self-perception	Perception of atmosphere	Social self-perception	Total score
Maximum possible score	48	44	32	48	26	200
Year 1 (n = 70)	32.14 ± 5.04	27.59 ± 3.86	21.92 ± 3.49	30.47 ± 4.33	18.47 ± 3.23	130.07 ± 17.74
Year 2 (n = 57)	32.07 ± 4.09	27.09 ± 4.12	21.61 ± 3.99	29.37 ± 3.99	18.35 ± 2.46	126.65 ± 13.69
Year 3 (n = 64)	32.66 ± 5.05	28.45 ± 4.02	21.89 ± 3.68	30.97 ± 4.73	18.28 ± 3.43	131.47 ± 16.85
Year 4 (n = 41)	34.76 ± 5.23	29.49 ± 4.53	23.29 ± 3.40	32.07 ± 5.00	19.78 ± 3.67	138.09 ± 18.58
All (n = 232)	32.73 ± 4.92	28.05 ± 4.15	22.08 ± 3.42	30.62 ± 4.55	18.62 ± 3.23	138.09 ± 18.58
P value	0.027	0.017	0.085	0.025	0.088	0.010

Data presented as means (SD where indicated).

Table 2
Approaches to learning based on level of academic years.

Year	Approaches to learning		
	Deep	Strategic	Surface apathetic
Year 1 (n = 70)	23 (32.9)	38 (54.3)	9 (12.9)
Year 2 (n = 57)	14 (24.6)	36 (63.2)	7 (12.3)
Year 3 (n = 64)	13 (20.3)	43 (67.2)	8 (12.5)
Year 4 (n = 41)	10 (24.4)	22 (53.7)	9 (22.0)
Total	60 (25.9)	139 (59.9)	33 (14.2)
P value	0.14	0.021	0.00

The values in parenthesis are in percentages.

Discussion

The overall mean score of DREEM suggest that our school has achieve a positive status, which is just a level below the highest category of attainable scores. Although several schools also achieve positive status on their educational environment (Mayya and Al-Hazimi, 2004; Said et al., 2009), the score in our school is quite higher. This is possibly because our school has implemented student-centered curricula since 2006, when we utilized modified problem-based learning, while neither of these schools implements problem-based learning. Al-Hazimi et al. (2004a, b) found that a more student-centered curriculum tend to achieve higher DREEM scores. The use of problem-based learning will ease students to integrate and utilize available learning resources effectively.

A trend of fluctuating overall mean of DREEM is still inconsistent. Two previous studies showed that score increase in the senior years (Prinparayan et al., 2008; Roiff et al., 2001), while other studies show a trend for reduced scores in the senior years (Kossoni et al., 2012; Said et al., 2009). This study notes a trend for increased scores in the senior students for domain student perception of learning. The decrease-increase trend was also found in the study conducted by Prinparayan et al. (2008). The trend for increase scores in the senior students is possibly because senior students have more capability to adapt various teaching methods such as lectures, tutorials and laboratory practicum. The lowest score in the Year One in this study might be caused that junior students are still in the

Table 3
The relationship between learning environment and approaches to learning.

Learning environment	Approaches to learning		
	Deep	Strategic	Surface
Student perception to learning	0.424 (0.00)	0.409 (0.00)	0.167 (0.011)
Student perception to teacher	0.445 (0.00)	0.407 (0.00)	0.203 (0.00)
Student academic self-perception	0.430 (0.00)	0.383 (0.00)	0.086 (0.190)
Student perception to learning atmosphere	0.437 (0.00)	0.382 (0.00)	0.238 (0.00)
Student social self-perception	0.292 (0.00)	0.294 (0.00)	0.030 (0.50)
Student's perception of learning environment (DREEM)	0.453 (0.00)	0.408 (0.00)	0.203 (0.002)

The values in parenthesis are the significance.

process of transition from previous teaching-learning experiences from teacher-centered toward student centered learning. Roiff et al. (2001) found that lower score of the first year-students comparing to the second-year students is especially in regard to student-centered learning.

The low score for academic self-perception in Year one is possibly due to changes in teaching methods from high school into university. Low scores related changes in learning methods is also found in a previous study (Noelhaime et al., 2008). The study found a curriculum change from conventional to problem-based learning was associated with the declining of academic abilities. This is because students are no longer able to apply previous learning methods and have to change it to suit with the new learning method. The increasing scores of academic self-perception in line with level of academic years, was similar with the result of previous study, where scores from Year Three were higher than from Year Two (Soemantri and Roiff, 2008). The increasing score of academic self-perceptions in the third and fourth-year students indicates that higher years of study makes students more confident with their academic abilities.

The role of PBL in the adoption of learning approach has been subject of debate in previous studies. A study found that PBL change student approaches to learning in different way (Satasooriya et al., 2010), while another study found that PBL students prefer to adopt deep and strategic approach. However it was shown in this study (Suzek, 2009). The present study shows that there were high scores for strategic and deep approach which may be due to the implementation of PBL. Saelygrove (2004) reported similar findings that most of nurse students adopt strategic approach. However, the study did not clearly discuss type of teaching method that utilized. It was stated that students who adopt strategic approach were motivated to be passed in courses rather than obtaining meaningful understanding of the courses. However, Ward (2011) argues that strategic approach may offer advantages to students who adopt it. The adoption of strategic approach is characterized by using time and space effectively, employing either deep or surface approach based on demands of task, and better study performance (Vandenberg et al., 2013; Wilding and Andrews, 2006). Although the adoption of strategic approach leads to better achievement, it may indicate that students have inadequate time to study (Ansouri et al., 2006). The inadequacy of time to study among undergraduate nursing students in our school is quite visible. As the institution implements modified problem-based learning, students have to attend tutorials, clinical skills and biomedical practicum, and lecturers for six days in a week.

The trend of increasing surface approach adoption among Year One was also found in previous study. Wilding and Andrews (2006) found that there is a trend that the study approach became more surface-oriented over study period. The use of surface approaches must be discouraged particularly among senior students, as the society will require the majority of graduates who can do the job (Wilding and Andrews, 2006). Students approaches to learning are

influenced by content curriculum, teaching methods which encourage student – centred learning, and type of assessment (Mansouri et al., 2006; Kovic et al., 2012). Type of assessment might also shift student's approaches to learning, which authentic form of assessment encourages a more deep learning (Gulikers et al., 2006). Moreover, although our school has utilized multiple choice questions for student assessment but there is no evaluation regarding quality of student assessment. This situation might shift the adoption of learning approaches.

This study shows the relationship of educational environment with approaches to learning. It extends the evidence that educational environment has an influence on the way students' approaches their learning. However, this current finding is different with previous studies (Pimpay et al., 2000; Shehnaaz and Sreedharan, 2011; Stewart, 2006), that perceived satisfaction with educational environment can encourage the use of deep learning. The present study shows that students are satisfied with their educational environment while mainly of these students were indulging in a strategic approach to learning.

Limitations

This present study has provided useful information on student perceptions of their educational environment and their approaches to learning. Results of this study might extend the existing evidence undergraduate nursing students' approaches to learning and perceived educational environment. However, these results must be interpreted within the context of the limitations. In the present study, students were not randomly selected from a population of undergraduate nursing students. The setting was limited to one school of nursing. These factors limit the generalizability of the study findings. Further studies could improve the generalizability by conducting bigger studies and involving multiple centres.

Conclusion

Since educational environment and approaches to learning in PBL context shares many important features with other institutions, the students' perception of educational environment and approaches in our study may have considerable international relevance. This study showed that educational environment has significant association with approaches to learning. Result of this study may extend the existing evidence of previous similar studies. The recommendations arising from the present study include the need to maintain conducive educational environment. The implementation of student-centered learning could improve in the use of deep and strategic approaches. The study also implicated to improve the management of learning activities that enables students to have adequacy for studying.

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