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Original Article

Pilot study: Nursing students' perceptions of the environment in two different clinical models



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ABSTRACT

Purpose: This pilot study aimed to assess the reliability and validity of a modified Dundee Ready Educational Environment Measure (m-DREEM) tool used to evaluate the effects of different pedagogical approaches in a clinical learning environment on nursing students' learning perceptions.

Methods: A sample consisting of 130 nursing students in two different models of clinical education was surveyed.

Results: This pilot study demonstrated that m-DREEM yields a high internal consistency. This tool can be used to evaluate nursing students' perceptions of their clinical learning environment on the basis of five sub-scales: students' learning perceptions, facilitators, academic self-perception, atmosphere, social self-perception, and mentorship.

Conclusion: A definitive and inferential relationship between sub-scales and clinical models, namely, block and non-block dispersed models, could not be determined because of the small sample size of the block clinical model. Hence, further research should be performed.

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1. Introduction

Clinical experiences are necessary to help nursing students apply theoretical concepts and skills to professional practice [1]. However, effective mechanisms of structuring clinical hours within nursing curricula to maximize learning have yet

to be developed. For instance, Canadian nursing programs rely on two clinical education models: block clinical model (BCM) and non-block dispersed model (non-BCM). In a BCM, clinical hours are scheduled over consecutive days for an extended duration and thus resemble a full-time work schedule. In this model, the primary learning focus is the application of

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knowledge in clinical settings and the improvement of clinical care skills. In a non-BCM, clinical hours are dispersed and interweaved with other coursework throughout the academic term. In this model, the learning focus includes clinical skills and theoretical knowledge development. In contrast to a BCM, a non-BCM is a hybrid of clinic- and classroom-based learning. The primary difference between a BCM and a non-BCM is that the former focuses on clinical experiences and the latter includes facets other than clinical experiences. Although both models have been adopted in undergraduate nursing education programs across western Canada, limited research has been conducted to determine their effects on student learning. We hypothesized that student learning may be affected by the structural placement and timing of clinical hours within a nursing curriculum; we also found and modified a tool to provide additional insights into the students' perceptions of the learning environment [2,3]. The purpose of this pilot study was to assess the reliability and validity of a modified Dundee Ready Educational Environment Measure (m-DREEM) tool in the evaluation of the effect of these pedagogical approaches in clinical learning environments on nursing students' learning perceptions.

2. Literature review

Learning theories reveal the relationship between learning and environment. In experiential learning theory, the environment plays a central role in learning [4,5]. As a learner interacts with the environment, learning occurs. Kolb [6] described learning as the transformation of experience into knowledge. However, the environment is not the only factor influencing learning. Bandura [7] identified three key concepts that affect learning: individual, environment, and behavior. He described a reciprocal relationship among these three concepts, which create learning experiences.

A clinical learning environment can affect students' learning perceptions. Flott and Linden [8] indicated that clinical learning environments are composed of four components: "(1) the physical space; (2) psychosocial and interaction factors; (3) the organizational culture, and (4) teaching and learning components" (p. 501). They also observed that negative clinical experiences influence students' self-confidence and readiness to practice as a nurse. Clinical experiences also affect satisfaction with nursing and nursing retention. Clinical environmental settings, student supervision by clinical instructors and staff nurses, mentoring, peer support, and student satisfaction contribute to students' positive or negative learning perceptions [9]. In a review of literature relevant to learning perceptions in practice environments, understanding staff and student perceptions may change the focus of nursing culture from tasks to innovative critical thinking to improve practice and patient care [10]. The theory-practice gap may also be addressed by understanding students' learning perceptions. Therefore, confusion between learnings in classrooms and practical applications may be openly discussed and potential strategies may be established [9,11].

Various groups of individuals influence student learning. For instance, student peers help develop leadership and clinical skills and promote problem solving and critical thinking

abilities [12,13]. Clinical teachers, interdisciplinary team members, and ward managers influence the determination of positive or negative learning environments for students [14–19]. In particular, the integration of empowering actions into clinical teaching strategies provides meaningful lessons and enhances students' confidence, autonomy, and engagement in clinical decision-making processes [20,21]. Valuable learning is manifested in students who actively participate in patient care but not in passive observers [18,22]. Preceptor teaching, which is a one-to-one teaching and learning relationship technique, results in more effective student learning than group learning [23].

Student learning in clinical learning environments can also be enhanced by establishing mentoring relationships [24]. However, studies have yet to investigate the effects of clinical structural types, namely, BCM or non-BCM, on the development of mentoring relationships with fellow students or staff members. Nursing students involved in mentorships in a clinical area experience a decreased anxiety levels and do not feel isolated; they also exhibit self-confidence and socialization, learning, and critical thinking abilities [12,25–28]. Developing mentoring relationships facilitates collaboration between students and staff, which may affect students' clinical learning perceptions [29,30]. If positive mentoring relationships are developed, students' clinical practice is enhanced and positive patient outcomes are observed.

Block and non-block clinical education structures and their effects on nursing students' learning perceptions have yet to be examined. This pilot study was undertaken to identify variables that influence students' learning perceptions in two clinical education models and to provide insights into this particular research area.

3. Pilot study

m-DREEM is a composite survey tool that includes (a) student demographics, (b) the Dundee Ready Educational Environment Measure (DREEM), (c) a mentorship component, (d) open-ended questions on clinical model preferences, and (d) Kolb LSI 3.1. Our pilot study aimed to determine the effects of block and non-block clinical models on students' learning perceptions. What are the effects of block and non-block clinical models on students' learning perceptions?

3.1. Measures

DREEM is a self-report questionnaire that provides environmental, non-culturally specific, quality assurance-based comparisons among and within various courses in health profession education [31–33]. It consists of 50 items divided into five domains: learning perceptions, facilitator's perceptions, academic self-perception, atmospheric perceptions, and social self-perceptions [34,35]. The DREEM inventory has been widely and successfully used as a valid and reliable tool, with Cronbach's α of approximately 0.9 [36,37]. In health care education, including clinical and non-clinical settings, DREEM internal consistency scores range from 0.91 to 0.93 [38,39].

In our m-DREEM, the core components of DREEM were retained but were modified to align with our specific interests and to reflect regional and professional vernaculars. For

example, “course organizers” and “registrants” were changed to “clinical instructors” and “students,” respectively. The course was described as “clinical.” Verb tense was changed from present to past. Five statements pertaining to mentorship were added to the survey.

Learning Styles Inventory (LSI) is applied to assess individual learning styles within the context of four different learning styles: diverging, assimilating, converging, and accommodating [40,41]. In LSI, individual learning approaches and mastery techniques to achieve learning goals within an educational program are identified. Therefore, various learning approaches should be used to maximize student learning [5,42].

In addition to m-DREEM and LSI 3.1, a short demographic questionnaire and two open-ended questions were included in this study to collect data, such as participant's gender, age group, course, and context-specific information relevant to the study. The open-ended questions were: (a) What three things would you like to change in this clinical educational experience? and (b) Which would you prefer: block clinical course or non-block clinical course?

3.2. Methodology

In our pilot study, a convergent mixed-method approach [43] was used to evaluate the effectiveness of our research instrument and to identify preliminary results. Our m-DREEM survey tool was utilized to assess students' perceptions of their learning environment on the basis of measures obtained from the self-report questionnaire and responses to open-ended questions, which provided rich qualitative data on students' perceptions of their clinical environment. Data obtained from the m-DREEM were evaluated in terms of reliability and internal consistency. Data from the open-ended questions were coded and examined to determine whether the questions yielded useful data contributing to those obtained from the tool.

3.3. Participants and procedures

Second-year undergraduate nursing students who were enrolled in a medical/surgical or maternal/child clinical course at Saskatchewan Polytechnic were invited to participate in the study. Potential participants were recruited through in-class sessions or clinical post-conference sessions within the last week of their course.

Ethical, organizational, and faculty approvals were obtained. Research associates not affiliated with the school approached the potential participants to provide an overview of the pilot study and distribute and collect questionnaires. Participation was completely voluntary without negative consequences when students did not participate in this study. Consent was provided when the participants returned the completed survey form.

4. Results

The pilot study achieved a participant response rate of 84.4%. A total of 130 questionnaires were completed, and data were analyzed using SPSS version 22. Respondents were generally

considered representative of the nursing student population because most of the respondents (a) were female (96.9%, $n = 126$); (b) identified their clinical placement as non-BCM (83.1%, $n = 73$); (c) were younger than 25 years (63.8%, $n = 83$); (d) reported taking some post-secondary education or obtaining a university degree (61.5%, $n = 80$); and (e) believed they had or were going to obtain an average or higher grade in the clinical course (97.7%, $n = 127$). These results were consistent with our expectations.

Our results indicated that preferred learning styles may not significantly influence students' learning perceptions. The participants noted that LSI 3.1 was overly time consuming when it is combined with the m-DREEM. Therefore, we removed LSI 3.1. LSI may or may not reveal learning styles. However, this tool is time consuming, which does not suit our research objectives.

4.1. m-DREEM scale

The overall mean score of the m-DREEM scale was 149.38, with a range of 0–220. The m-DREEM is also a highly reliable tool with Cronbach's α of 0.958 for 55 items [44]. The subscale data are listed in Table 1. For the subscales, low scores corresponded to negative learning perceptions (see Table 2).

On the basis of the results shown in Table 1, we found that the m-DREEM is a reliable and valid instrument to assess the perceptions of the learning environment in all subscales except SPoM. SPoM should be enhanced to increase reliability.

4.2. Effect of age on students' learning perceptions

The learning perceptions of students aged 25 years did not significantly differ from those of students aged below or above 26 years in any of the sub-scales or in the total scale. On average, older students ($M = 152.57$, $SE = 4.29$) perceived more positive learning perceptions than younger students did ($M = 147.58$, $SE = 3.30$).

4.3. Effect of previous education on students' learning perceptions

Students with previous post-secondary education were significantly different from those whose highest educational attainment was grade 12.

Table 1 – m-DREEM subscale statistics.

Subscale	Low	High	Mean	Cronbach alpha
Students' Perceptions of Learning (SPoL)	0	48	33.01	.886
Students' Perceptions of Facilitators (SPoF)	0	44	30.71	.889
Students' Academic Self Perceptions (SASP)	0	32	22.63	.710
Students' Perception of Atmosphere (SPoA)	0	48	33.41	.873
Students' Social Self-Perceptions (SSSP)	0	28	17.00	.659
Students' Perceptions of Mentorship (SPoM)	0	20	12.63	.497

Table 2 – Examples of questionnaire items on major scales.**Students' learning perceptions**

The teaching helped develop my competence.
I understand the learning objectives of the clinical study.
The teaching was too instructor centered.

Students' perceptions of clinical instructors

The clinical instructors were good at providing feedback to students.
The clinical instructors were knowledgeable.
The clinical instructors were authoritarian.

Students' academic self-perception

Learning strategies, which were previously effective, remain effective. I am confident that I am going to pass this year.
In this clinical study, my problem solving skills have been well developed.

Students' perceptions of learning environment

I felt socially comfortable in pre- and post-conference sessions. The atmosphere was relaxed during post-conferences.
I found this clinical experience disappointing.

Students' social self-perceptions

A good support system was provided for students who experienced stressful situations.

I was too tired to enjoy this clinical study.

I was rarely bored during this clinical study.

Students' perception of mentorship

I would consider at least one of my student peers as a mentor.
I could develop mentoring relationships with the staff in the unit.
I felt like I had insufficient time to be a mentor to my student peers.

Students with post-secondary education perceived less mentorship support ($t = 2.62, p = .01$). On the basis of group means, we observed that students with some post-secondary education viewed their clinical learning environment more negatively in all of the scales and in the total m-DREEM scale (grade 12 $M = 152.86, SE = 4.201$; post-secondary education $M = 147.21, SE = 147.21$).

4.4. Effect of clinical type on students' learning perceptions

The learning perceptions of students in a BCM did not significantly differ from those of students in a non-BCM. Therefore, students in a BCM experienced more positive learning perceptions ($M = 152.09, SE = 7.892$) than those in a non-BCM did ($M = 148.83, SE = 148.83$).

4.5. Effect of clinical success expectations on learning perceptions

Students who expected to receive an above-average grade in their current clinical course were significantly more likely to have higher academic self-perceptions (on the Students' Academic Self-Perceptions sub-scale) than students who believed they would receive an average grade ($t = -2.681, p = .008$). The group means of the overall scale and the sub-scales indicated that students who expected to receive an above-average grade in their current clinical course were more likely to have more positive learning perceptions than those who expected to have an average grade.

5. Discussion

In this pilot study, the m-DREEM was evaluated and limitations, which require further investigation, were identified. The sample size of a single nursing education program that employed a predominantly non-BCM was limited. The low alpha coefficient of the mentorship sub-scale may indicate the small number of items within the sub-scale [44]. In response to this finding, five additional items, providing a maximum score of 40, will be added to the m-DREEM survey tool in the next study phase.

The data collected from this pilot study indicated that students perceived their clinical learning environment positively. This finding was supported by all five subscale scores. However, improvements should be implemented to reach the maximum m-DREEM overall score of 220, which corresponds to an excellent clinical learning environment. Previous studies [45–48] revealed that a positive learning environment affects students' experiences within a clinical setting. A more positive learning environment helps students focus on learning rather than on being accepted.

The pilot data showed slight differences between students' perception of learning environment and BCM versus non-BCM clinical education. However, these differences were not statistically significant. The lack of a statistically significant difference between clinical models and students' perceptions of their learning environment may indicate that nursing education administrators and curriculum developers can be flexible in their use of BCM and non-BCM without adversely affecting student learning. Nevertheless, this indication should be validated with data from a larger and more representative sample. The capability of the m-DREEM to resolve education programming and curriculum design decision was also remarkable.

In summary, this pilot study demonstrated that m-DREEM can be used to evaluate nursing students' perceptions of their clinical learning environment on the basis of five sub-scales: students' learning perceptions, facilitators, academic self-perception, atmosphere, social self-perception, and mentorship.

Considering the design of nursing education curriculum, we may observe changes in the structure of required clinical practice education hours within nursing curricula without a complete understanding of the effects of different aspects of clinical learning environments on students' learning perceptions and clinical model types. Nursing educators must be cognizant of their clinical education practices and the implications of different clinical models on students' learning perceptions [49]. If we understand the relevant factors contributing to students' learning, we can effectively implement strategies that enrich learning [49]. Our research is performed in response to Chan's [46] call for nursing instructors to understand the students' perspectives on high-quality clinical education experience. Chan [46] indicated that the perceptions of nursing students can be considered an essential basis for nursing curriculum management. With current changes in nursing education in Saskatchewan, this research is very timely. Our research addresses the importance of maximizing the learning experience within a limited but valuable clinical time. Nevertheless, proper time allotment should be further investigated.

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