Nurse Educator

Evaluation of Instruments Developed to Measure the Clinical Learning Environment
An Integrative Review

Katie Hooven, MSN, RN, MBA

The nature of the clinical learning environment has a huge impact on student learning. This article reviews current methods available for evaluating the clinical learning environment. Five instruments were identified that measure the clinical learning environment. All of these instruments focus solely on the student perspective of the clinical learning environment. Although gaining student input is important, there are other perspectives that offer valuable insights on the nature of the clinical learning environment. The findings from this integrative review indicate the need for future development and testing of an instrument to evaluate the clinical learning environment from the staff nurse and nurse faculty perspective.

Keywords: clinical education; clinical learning environment; instruments; integrative review; nursing education

Clinical education is an integral part of under-graduate nursing education and facilitates theory-practice integration.[1] The clinical experience is where students can apply clinical reasoning learned in the classroom to enhance their learning. The concept of clinical learning environment and the impact it has on student learning have been of major concern for decades. The clinical environment needs to be altered in a way that supports student learning.[2] Most of the learning that happens in the clinical environment cannot be replicated because of the fact that the clinical setting is not controlled specifically for teaching nursing students.[3] A significant portion of student learning happens in the clinical setting and is an essential component of professional nursing education.[4-6]

Integrative reviews (IRs) are used to summarize and synthesize available literature pertaining to a specific topic of interest. The goal is to provide a more comprehensive understanding of the concept, present the state of science, and have an impact on practice and policy.[7] The method used for conducting this IR follows the format and 5 steps proposed by Whittemore and Knalf.[7] These steps include problem identification, literature search, data evaluation, data analysis, and presentation to display the findings.

Author Affiliation: Clinical Coordinator, Department of Nursing, The College of New Jersey, Ewing; PhD Student in Nursing, Department of Nursing, Villanova University, Pennsylvania.
The author declares no conflicts of interest.
Correspondence: Ms Hooven, The College of New Jersey, Department of Nursing, 2000 Pennington Rd, Ewing, NJ 08628 (hoovenk@tcnj.edu).

Problem Identification

Clinical education takes place in a complex social context with an interactive network of forces and is a vital component of nursing education. It is important to understand that the social climate can have a positive impact on student learning and can affect behavior, feelings, and growth. Nursing is a practice-based profession, and the integration of clinical learning within the curriculum allows students to combine psychomotor, cognitive, and affective skills, which enable them to function as a practicing clinician. The concept of the learning climate also includes the importance of mutual trust and interpersonal and human properties.[8] The notion that student outcomes may be improved by adjusting the clinical environment has implications for further research.[9]

Current issues with clinical nursing education include the following: Students are not being followed closely enough by the clinical teacher or staff nurse, clinical teachers and staff work without regard to one another to assist students, and the assignment of patients often does not take into account the nurses assigned to each patient and if they have any desire to be involved with nursing students. The literature also suggests that collaboration between nursing faculty members and staff nurses is a key ingredient in successful clinical experiences.[10-15]

Along with the issues of controlling the environment, clinical placements for nursing students are becoming increasingly difficult to find and maintain. The staff has limited availability to support nursing students, with the current problems of patient acuity levels, nursing shortages, and decreased reimbursement. Because of the necessity of clinical experiences, nursing programs are in competition to secure these sites. Research also has suggested that working with students during the clinical rotation seems as a burden to some staff nurses.[16]

There are many reasons why qualified applicants are being turned away from admission to nursing programs.

The nurse faculty shortage is 1 of those reasons, which will worsen in coming years with the aging nurse faculty population.[17] Other reasons include insufficient number of clinical sites and teachers. A more recent push has been to reenvision the way we are educating nurses to keep up with the future demands for healthcare. Benner et al[2] suggest using clinical sites and the experts they contain to increase capacity in nursing schools. The ability to evaluate the clinical environment is necessary before the implementation of any change.

Currently, there are a variety of teaching methods used to provide clinical education for nursing students, including the faculty-supervised practicum, still the most common; the preceptorship model; and dedicated education unit, where the staff nurse and the faculty member share responsibility for the student. There are positives and negatives to each type of instruction that have been documented.[18] More research needs to be done specifically on the benefits to students with each type of clinical education method.

Findings from the literature suggest that the responsibility of educating future nurses needs to happen in a myriad of ways within the clinical setting. Contributions to student learning are equally important from both the nursing faculty member and staff nurse. Each professional possesses a body of knowledge that is essential in student learning. The ability of the staff nurse and faculty member to work collaboratively is necessary. All endeavors to promote student learning in the clinical setting are dependent on the collaboration between clinical and teaching staff.[13,19]

Aim

The aim of this IR was to explore the current quantitative instruments available to measure the clinical learning environment to gain a better understanding of the nature of this environment.

Literature Search

A systematic literature search was conducted using bibliographic databases, academic journals, ancestry searching, and networking with authors via e-mail on further publications. The following bibliographic databases were used: PubMed, Cumulative Index to Nursing and Allied Health Literature, EBSCO, and Dissertations and Theses full link (ProQuest). Additional sources of information were found on the American Association of Colleges of Nursing and American Organization Nurse Executives Taskforce on Academic Practice Partnerships database. The search also included using the reference lists of pertinent articles. Search terms included *clinical learning environment, learning environment, clinical placement, instrumentation development, nurse education, collaboration, clinical nursing education, clinical teaching, dedicated education unit, evaluation of clinical, practice education models, education-nursing, methods, practice education, clinical education,* and *hospital learning environments.*

The IR focused on the actual instruments used to measure the clinical learning environment, and therefore, the only articles reviewed were related to the development, psychometric testing, and utilization of the instrument. Inclusion criteria were full text available, written in English, and published between 1994 and 2014. The article had to describe a quantitative measurement instrument that assessed the clinical learning environment and provide information on reliability and validity of the instrument.

After reviewing abstracts for possible consideration in the review, a total of 15 articles were relevant and fit the inclusion criteria. Using ancestry searching via the reference lists of these articles, 3 more articles were found. The total number of articles included in the review was 18. The focus of this IR was specifically on the 5 instruments that were found to measure the clinical learning environment. The 18 articles found supported the development, reliability, and validity of the 5 instruments.

Data Evaluation

All of the instruments were developed and validated to measure the nature of the clinical learning environment. The Clinical Learning Environment Inventory (CLEI) was developed and validated by Chan[20,21] and was evaluated in 6 published articles. The survey assesses the clinical learning environment and perceptions of the social climate and how it impacts student learning outcomes. The theoretical framework associated with the CLEI is derived from the outcomes that Fraser and Fisher[22] identified, which state that student outcomes can be improved if the clinical environment is altered. The instrument contains 35 items, with 7 items relating to each of the 5 subscales: personalization, student involvement, task orientation, innovation, and individualism. This survey has 2 forms, 1 that measures the actual clinical environment and 1 that measures the preferred clinical environment. The instrument was developed to gain student input.[9,20,21,23-25]

Dunn and Burnett developed the Clinical Learning Environment (CLE) Scale based on Orton's 1981 ward learning climate survey. Information was updated to contain terms that were clinically relevant 15 years later. Three articles were found to support the development and testing of the instrument. In developing the CLE Scale, the authors identified the importance of evaluating the network of forces that can have an impact on student learning in the clinical environment. The CLE Scale contains 23 items that represent 5 subscales: staff-student relationships, nurse manager commitment, patient relationships, interpersonal relationships, and student satisfaction. The survey was developed to be completed by students.[11,26,27]

The Student Evaluation of Clinical Education Environment (SECEE) was developed and validated by Sand-Jecklin[28] and was intended to provide information about the quality of clinical nursing education. Three publications were found to support the instrument. This tool is based on the theoretical framework of cognitive apprenticeship, which states that students apply tools of conceptual knowledge in an actual environment while being guided by expert practitioners. There have been 3 versions of the SECEE tool that have evolved over time. The current version, SECEE version 3, has a total of 32 items that are based on a 5-step Likert scale. The questionnaire contains 3 inventory subscales: instructor facilitation of learning scale, preceptor facilitation of learning scale, and learning opportunities scale. The survey was designed to be completed by students.[28-30]

An additional instrument developed by Saarikoski and Leino-Kilpi is the Clinical Learning Environment and Supervision Instrument (CLES). Five published articles were reviewed that contained information on the development of this scale. Motivators to develop this tool included the need

for a way of describing student perceptions of the clinical environment related to supervision and the overall atmosphere. The scale consists of 27 statements that the student answers with a 5-step Likert scale; the questionnaire is subdivided into 5 themes that include ward atmosphere, leadership style of the ward manager, premises of nursing care on the ward, premises of learning on the ward, and supervisory relationship. The scale has been modified since its original version to include a subscale on the role of the nurse teacher.[31-33] The new scale, titled Clinical Learning Environment, Supervision, and Nurse Teacher (CLES-T) Scale, was validated by Saarikoski et al[34] in 2008. Reasoning for the newest subscale was to emphasize and define the importance of the nurse teacher in the clinical setting.[34,35]

Another instrument developed by Hosada[36] is the Clinical Learning Environment Diagnostic Inventory (CLEDI). There was 1 comprehensive article that contained the information on the scale. The theoretical basis for the CLEDI development was based on Kolb's[37] 1984 theory on experiential learning. Kolb's theory emphasizes that the learning process occurs only after the student is able to integrate concrete emotional experiences with cognitive processes.[37] The CLEDI is a student survey that contains 35 items and has 5 subscales. The subscales include affective, behavioral, symbolic, reflective, and perceptual CLE.[36]

A summary of the 5 scales can be found in the Table, Supplemental Digital Content 1, http://links.lww.com/NE/A162. This information was compiled from all 18 articles. Some information was not published on specific scales and therefore was not included in the table.

Data Analysis

Research on what constitutes an effective learning environment for nursing students has occurred since the late 1970s. Fretwell's[38] and Orton's[39] studies were a few of the early studies to evaluate the factors and characteristics that are involved in the learning environment and were instrumental in defining and attempting to quantify these variables. The instruments developed since them included these pertinent factors and have been further defined and evaluated the clinical learning environment.

Overall, the scales had similar themes. The wording of the actual items was different, likely because of the instruments being developed in various countries and the language and style of the learning environment varying slightly depending on the country. The 6 themes found include staff-student relationships, nurse manager commitment, the student feeling "included," atmosphere, nurse teacher involvement, and feedback. Themes associated with each instrument are indicated in Table.

The theme of staff-student relationship was found in each instrument with a variety of statements to measure the concept. The CLEI measured the concept of staff-student relationships with the subscale of personalization; emphasis was placed on the student's ability to interact and personal welfare.[20,21] The CLE had the most emphasis placed on relationships, with 3 of 5 subscales measuring the concept (14/23 statements addressing relationship issues). The CLE specifically measured staff-student relationships, interpersonal relationships, and patient relationships.[26] The SECEE evaluated staff-student relationships via the preceptor facilitation of learning subscale. Statements within this subscale included the preceptor's willingness to inform and guide the student during the clinical experience.[30] The CLES-T includes a subscale titled supervisory relationships, with 8 of 34 items directly related to the concept of staff-student relationships.[34] The CLEDI included the concept of staff-student relationships under the subscales labeled affective and behavioral CLE. Items pertaining to relationships include items related to respect, exchange of opinions, and care provision via team approach.[36]

Nurse manager involvement was included on the CLE scale as its own subscale titled nurse manager commitment and included items pertaining to communication and expectations of students from the nurse manager perspective.[26] The CLES-T quantified nurse manager involvement under the subscale leadership style of the ward manager. Items related to the nurse manager included responsiveness and whether the nurse manager was a team player.[34]

Another major theme identified in all 5 instruments was the student's feeling of inclusiveness and being part of the nursing team. The CLEI has 2 subscales that fit with this concept, titled involvement and personalization. Items included under these subscales describe the opportunities available to the students during the clinical experience and the ability of students to express their opinions.[20,21] The CLE has the concept of the student feeling included throughout 5 subscales; items related to feeling part of the team and feeling like a student instead of a worker encompass the concept of inclusiveness.[26] The SECEE also has items throughout

Table. Themes Associated With Instruments

| Instrument | Themes | | | | | |
	Staff-Student Relationships	Nurse Manager Involvement	Student Feeling "Included"	Atmosphere	Nurse Teacher Involvement	Feedback
CLEI	×		×	×	×	
CLE	×	×	×	×		×
SECEE	×		×	×	×	×
CLES-T	×	×	×	×	×	×
CLEDI	×		×	×		×

the scale that measure the concept of student inclusiveness; informing the student of opportunities, receiving guidance from staff, and having the ability to perform "hands-on" care provide information about the concept of the student's feeling of inclusion.[30] The CLES-T did not have a specific subscale that quantified student inclusiveness but had many items related to this concept. Equality and promotion of learning, taking part in discussions, and knowing personal names are all examples of items that demonstrate the concept of student inclusiveness.[34] The CLEDI included a subscale titled symbolic CLE that had items such as trial of student ideas and the ability of the student to use previous learned experiences.[36]

The overall atmosphere of the clinical learning environment, or ward, was another concept that was seen throughout all 5 instruments. Atmosphere is a broad concept, and therefore, the scales had varying ways to measure it. The CLEI had items pertaining to the atmosphere throughout the 6 subscales; the items were related to the way students were treated, enjoyment of the clinical placement, and organization of the overall environment.[20,21] The CLE had a few items related to the overall ward as well, to the ward being a "good" learning environment, and the extent to which the ward staff were "happy."[26] The SECEE had a subscale titled learning opportunities scale that included items concerning the opportunities available to the student with tasks and communication as well as "no negative impact" because of multiple students.[30] The CLES-T contained a subscale titled pedagogical atmosphere on the ward, which has 9 of the 34 items directly related to the atmosphere. The comfort students felt, degree of positivity, and the extent to which the ward could be considered "good" were all specified.[34] The CLEDI had items related to the atmosphere throughout all the subscales. Items contained phrases related to friendly atmosphere, support for learning, and opportunities available to students.[36]

A theme less common with the instruments was the role of the nurse teacher with regard to the clinical learning environment. The CLEI measured this concept slightly under the subscale of personalization, mentioning the opportunities for the student to interact with the teacher.[20,21] The SECEE included an entire subscale titled instructor facilitation of learning, which has 11 of the 32 items. Facilitating independence, role modeling, and encouragement were a few of the teaching behaviors the scale measured.[30] The CLES-T was the scale that had been revised, validated, and published in 2008; the new subscale was titled the role of the nurse teacher. The reason for development of the subscale specifically related to the role of the nurse teacher being poorly defined. Items addressed with the new subscale included integrating theory, operationalizing goals, being a team player, and having support for learning.[34]

Feedback was the final theme found across multiple instruments; feedback was viewed from the student perspective and could be from the nurse teacher or staff nurse. The CLE contained 1 item that mentioned student satisfaction with regard to questions being answered.[26] The SECEE had items relating to feedback throughout 3 subscales—the availability to answer questions, assist, and provide constructive feedback was evaluated in relation to the nurse teacher and staff nurse.[30] The CLES-T had the concept of feedback across a few subscales; information related to feedback from the staff nurse, nurse teacher, and nurse manager were all included.[34] The

CLEDI included feedback in the reflective CLE subscale. The items addressed the issues of feedback with decision making and clarification of learning outcomes.[36]

Conclusion

It is already well established in the literature that the clinical learning environment is essential to student learning. The skills, knowledge, and confidence that students acquire through clinical cannot be replaced by nursing school laboratories.[23,26,40]

Opportunities for students to be exposed to and care for real people in unpredictable situations are essential to learning. MacIntyre et al[41] emphasized the need to use the clinical setting more efficiently. For example, they suggested restructuring the staff-student relationship to involve the staff nurse more effectively, which would allow students to become more involved. A second recommendation was to reconceptualize the clinical faculty role to perform higher-level reasoning rather than only physical supervision of daily nursing tasks. Stronger, more collegial relationships between students and staff nurses will provide a culture of safety for students.[41]

Recognizing that staff nurses and nursing faculty have an impact on both the clinical environment and student learning, it is critical to gain their insights into the nature of the clinical learning environment. Being able to survey the staff nurses and clinical teachers about the clinical learning environment would allow for a different perspective.

The IR provided a clearer picture of the critical elements needed in the clinical learning environment. Five instruments have been created and validated to quantify the phenomena of the learning environment so positive changes can be made if needed. However, all of the scales were developed solely for students to complete. While acknowledging the student as a stakeholder in the clinical learning environment, this review confirms the need for an instrument that captures the perspective of the nursing faculty member teaching in the clinical learning environment and staff nurses. The knowledge gained from faculty and staff will be valuable for reenvisioning clinical education, as it is vital to have a comprehensive understanding of student learning before moving forward.

With regard to the available tools presented in the IR, the CLES-T included all 6 themes that were found throughout the 5 scales. In relation to the literature, the CLEI and CLE seem to be the most widely used. Before the administration of any validated tool, nurse educators need to evaluate each instrument to confirm that the essential elements of the specific learning environment will be evaluated with the instrument.

Recommendations for Nurse Educators

The clinical learning environment will continue to be an important part of nursing education for the foreseeable future. Of importance is for nursing faculty and staff nurses to recognize the vulnerability and level of uncertainty that students often feel while in the clinical setting. Administering a validated instrument to gain student input would allow educators to measure factors related to student learning. Common themes found among all 5 instruments include staff-student relationships, the student feeling included, and atmosphere. These 3 themes are related to human factors and interpersonal relationships: Students want to feel involved and part

of the team and to have positive relationships while they are learning. The nursing faculty member should create a clinical environment conducive to student learning. Effective collaboration between clinical teachers and staff nurses promotes student learning during the clinical rotation.

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