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Clinical education and student satisfaction: An integrative literature review



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ABSTRACT

The clinical component of undergraduate clinical education is a critical area in nursing programs. Faculty shortages have made recruitment of clinical faculty and clinical teaching more challenging. As such, alternate models of clinical faculty assignments are being explored to address faculty shortages. This article contains an extensive literature review conducted to survey models of clinical education and student satisfaction with the clinical environment. The purpose of this paper is to examine student satisfaction in the clinical learning environment using articles employing the Clinical Learning Environment Inventory (CLEI) along with examining the use of alternate clinical staffing models in differing levels of undergraduate nursing students. A literature search focusing on studies published between 2002 and 2015 was conducted from 5 electronic databases. Thirty-five articles were reviewed and 22 were selected for this literature review. The studies reviewed concluded that students favored a more positive and favorable clinical environment than they perceived as being actually present. A supportive clinical learning environment is of paramount importance in securing positive teaching learning outcomes. Nurse educators can apply the results of this review in order to develop and maintain quality clinical teaching and to promote a positive, student-centric, clinical learning environment.

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1. Introduction

Nursing programs have been challenged to hire and retain qualified nursing faculty. This shortage of nursing faculty directly impacts the clinical learning environment. The clinical experience is a crucial aspect of learning nursing practice [1] which enables students to connect theoretical and conceptual knowledge [2]. Several models are currently being utilized by nursing programs to improve the quality of the clinical learning environment such as Collaborative Learning Units (CLU), Dedicated Education Units (DEU), Preceptorship, School-Clinical Agency Partnerships, Faculty Supervised Practicum, and Joint Hospital University Appointments [3–5].

Several factors have been found to contribute to the nursing faculty shortage. These include a lack of compensation as nurses in

clinical settings are compensated at a higher rate, making faculty positions less attractive. Other factors include the aging nursing faculty, limited funding available for tuition, and length of time necessary to complete the advanced degrees necessary to obtain a faculty position [6]. The traditional model of clinical education where on faculty member oversees 6–10 students may not provide the most effective learning environment [7] and has been difficult to staff due to adjunct or part time faculty with other work commitments. A need for more innovative ways to provide clinical education is necessary [7]. The rationale for this review focuses upon a gap that has been identified in the literature related to clinical nursing education. One objective of this work is to provide for the reader an integrative review of the existing literature on clinical nursing education and student satisfaction.

Faculty are defined as a nurse employed by an academic institution to teach nursing [6]. Clinical nursing faculty teach in the clinical area. For the purpose of this study, shared clinical teaching will be defined as two faculty sharing teaching responsibilities for a clinical group. Excellence in clinical teaching can be facilitated by effective clinical faculty [8]. Clinical learning provides nursing

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Table 1
Summary of the studies reviewed.

Reference (Author & Year)	Location and year of the study	Study design	Study population	Data selection methods	Aim of study	Summary of Results
Chan. (2003) [9]	South Australia	Cross-sectional simple descriptive survey	160 Preregistration nursing students	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	The aims of the study were to assess discriminant validity of the subscales of the CLEI, to evaluate student's perceptions of the clinical learning environment, and to investigate variances between actual and preferred clinical milieus.	The findings from the study noted that there were significant differences between student perceptions of the actual clinical learning environment and the preferred clinical learning environment. Overall, students preferred a more positive clinical situation than they perceived as being actually present. Open and direct communication and a supportive environment were critical in establishing a constructive learning experience.
Newton et al. (2010) [10]	Two campuses of a university in Victoria, Australia	A principal component analysis (PCA) of the CLEI	Students in year 2 or 3 of a Bachelor of Nursing (BN) degree from two campuses of the university (n = 513)	The actual form of the (CLEI) was delivered to all students, then a principal component analysis was performed	To test the psychometric properties of the CLEI using factor analysis	Factor 1- student centeredness relates to the degree of student centeredness exhibited by the teacher. The cluster describes the attributes of the clinical teacher in engaging with students on an individual level, listening to them and offering additional support to help them meet their goals. For the affordances and engagement factor, the items together seem to relate to the opportunities afforded to students to actively engage in ward activities. The individualization factor relates to students being able to have some control over their clinical experience and to facilitate the achievement of their individual learning needs-essentially 'having a voice' or 'being heard'. For factor 4, fostering workplace learning, which relates to a workplace that fosters learning, where students' assignments are clear, well planned and interesting, and they have the opportunity to express their opinions. Factor 5- valuing nurses' work, is indicative of students recognizing the value of nursing work. For factor 6, innovative and adaptive culture, appears to reflect the way in which students responded compared to the original CLEI. This factor analysis offer alternative scales to the original CLEI. The scales take into account the nuances of workplace learning, in particular the affordance and engagement required to enable the development of a learning practice. Replication of this factor analysis through further research with the CLEI across clinical settings is required.
Chan and Ip. (2007) [11]	Major university in Hong Kong. 2005–2006.	Cross-sectional, simple descriptive survey.	All Year 2 to Year 4 students enrolled in the Bachelor's program in a major university in Hong Kong	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	To evaluate nursing students perceptions of differences in actual and preferred clinical experiences.	Personalization scored the highest mean in both Actual and Preferred versions; and Teaching Innovation reported the lowest mean in both versions of the CLEI. The mean scores for each scale of the Preferred form are comparatively higher than those of the Actual form, suggesting that, in comparison with the actual hospital learning environment experienced, students prefer an environment at higher levels. Students were seen to have a fairly consistent idea of how they would like the clinical learning environment to be. Correlation analyses showed significant associations between Satisfaction and all five scales of the CLEI.
Chan. (2002) [12]	Major university school of nursing in South Australia.	Cross-sectional, simple descriptive survey	All 2 nd -year bachelors of nursing students at a major university school of nursing in South Australia. (n = 108)	Both forms of the Clinical Learning Environment Inventory (CLEI) were given to all participants, then scale reliability and discriminant validity indicators were used to evaluate the reliability and validity of the CLEI.	To estimate the discriminant validity of the subscales of the CLEI, to assess nursing students' perceptions of hospital learning environments during clinical field placement, and to examine the differences between student nurses' perceptions of the actual clinical learning environment and their preferred clinical learning environment.	The statistical analysis confirmed the validity and reliability of the CLEI as a tool for assessing nursing students' perception of the hospital nursing environment. The study found that there were significant differences between students' perceptions of the actual clinical learning environment and their preferred clinical learning environment. In general, students preferred a more positive and favorable clinical environment than they perceived as being actually present.

Lovecchio et al. (2012) [13]	Unstated	Quasi-experimental study using a posttest-only, non-equivalent control group design	Students in junior or senior years assigned to two different community hospitals (experimental group, $n = 40$ students; control group, $n = 35$ students)	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	To assess the implementation of the Clinical Liaison Nurse (CLN) model in an acute care community hospital, explicitly seeking to relate the clinical experiences of the students assigned to the CLN model versus traditional instructor model.	Students assigned to units using the CLN model reported statistically significantly higher Task Orientation, Satisfaction, and Individualization subscales on the CLEI. Effect ranged from 0.73 for Individualization to 1.23 for Task Orientation. Several differences were noted between experimental and control groups with individual items on the CLEI. The authors conclude that the CLN facilitates student clinical learning. Consistent leadership empowered students to attempt new ideas and offer feedback in how the shift was spent, making it more enjoyable, interesting, and organized.
Murphy et al. (2012) [2]	Institute of higher education in Wales, UK between September 2008 and September 2009		Students enrolled in a Bachelor of Nursing, three-year, full time undergraduate program. Of 508 students available, 440 usable responses were obtained.	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	To describe student experiences in hospital and community settings using the CLEI	The students in general were satisfied with their placements. When placements were compared, students were more likely to give a negative rating to: elderly adults, orthopedics and trauma, and health visiting. In the third year, intensive care, high dependency units and cardiology, but not operating theaters, were viewed more positively and these differences in raw scores were statistically significant. Also, healthy visiting placements were associated with negative scores when compared with district nursing and all hospital placements combined. Health visiting consistently scored below district nursing and 'other' community placements. Differences were most marked for 'student satisfaction' and least for 'innovation'. Overall, student satisfaction achieved the highest mean and median score, and individualization and innovation the lowest. In general, it appeared that students were satisfied with their placement experience. It was found that students have marked preferences for certain types of placement areas which in this case were intensive care, cardiology, and district nursing. Using pairwise t-tests, it was determined that the difference between CLEI subscale means for the 'actual' and 'preferred' clinical environments were statistically significant, as well as the six subscales. Large effect sizes were seen for both innovation and individualization. The authors suggest that students commonly preferred a more positive clinical environment than what they perceived as being actually present or what they had experienced to date. The most important domains in this study were personalization (actual) and task orientation (preferred). Significant associations were found between the outcome measure satisfaction subscale and the other five CLEI subscales, with student satisfactions found to be greater in students who highly valued task orientation, student involvement, personalization, and innovation. This study emphasizes the significance on a practice education context that focuses on effective two-way communication between the supervising clinician and the student they are mentoring.
Brown et al. (2011) [14]	Monash University, Melbourne, Victoria, Australia. 2008–2009	Cross-sectional survey using a standardized self-report scale	This study included all students enrolled in the following eight health care-related undergraduate programs who also completed fieldwork placement. Nursing students were not included as part of the sample in this study since another Monash University nursing researcher was investigating other practice education issues with this group.	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	The aim of the paper was to determine how health science students viewed their clinical fieldwork learning environments, including both their 'actual' and 'preferred' perceptions, and assessing the differences between the two perspectives	The results of the study suggest that students generally wish for a more positive environment than what they experienced, especially when it comes to satisfaction, individualization, and innovation. The highest mean score was noted in the scale of "personalization" and "task orientation" for the Actual Clinical Learning Environment section, and highest mean for Preferred Clinical Learning Environment was found to be "personalization," "satisfaction," and "task orientation." The lowest mean score for the Actual Clinical Learning Environment section was found for the scale of "innovation" and "individualization," while, for Preferred Clinical Learning Environment were "individualization" and "involvement."
Papathanasiou et al. (2014) [15]	TEL of Larissa, Greece. Spring semester 2009	Cross-sectional, descriptive type research	Students ($n = 196$) in the Nursing Department. 77 students on their fifth semester, 53 on their seventh semester, and 66 on their eighth (final) semester	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	To assess students' views and perceptions of a Greek nursing program on their clinical environment.	The results of the study suggest that students generally wish for a more positive environment than what they experienced, especially when it comes to satisfaction, individualization, and innovation. The highest mean score was noted in the scale of "personalization" and "task orientation" for the Actual Clinical Learning Environment section, and highest mean for Preferred Clinical Learning Environment was found to be "personalization," "satisfaction," and "task orientation." The lowest mean score for the Actual Clinical Learning Environment section was found for the scale of "innovation" and "individualization," while, for Preferred Clinical Learning Environment were "individualization" and "involvement."

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Table 1 (continued)

Reference (Author & Year)	Location and year of the study	Study design	Study population	Data selection methods	Aim of study	Summary of Results
Newton, Jolly et al. (2012) [16]	Two campuses of a university in Victoria, Australia. 2006–2008.	Longitudinal project.	Students in year 2 or 3 in a baccalaureate program from two campuses of a university in Victoria, Australia.	Modified CLEI to include an additional ten parallel items with the word 'preceptor' in place of 'clinical teacher'. The parallel preceptor items were excluded from the analysis so that all items were identical to those included in the original inventory.	To test psychometric properties of the CLEI using factor analysis.	The data were explored using principle component analysis (PCA) and was conducted in which the PCA was reduced to six factors as the original CLEI contained six scales. This 40-item 6-factor solution explained 51% of the variance seen. The six factor solutions corresponded to, in decreasing explanation of the variance: student-centeredness, affordances and engagement, individualization, fostering workplace learning, valuing nurses' work, and innovative and adaptive culture. This factor analysis offers some alternative scales to the original CLEI that take into account the distinctions of workplace.
Ali et al. (2015) [17]	Shaqra University, Saudi Arabia	Cross sectional research design	Students affiliated to the nursing department of ALDawadmi Faculty of Applied Medical Sciences, female branch, Shaqra University, Saudi Arabia (n = 75). Pilot study was carried out beforehand with 10 nursing students.	The authors used the Clinical Learning Environment Inventory (CLEI) as previously described with no changes.	To describe and compare the actual and preferred characteristics of effective clinical environment as perceived by nursing students	On both the actual and preferred forms of the CLEI, the satisfaction domain was the most important domain (84%) as perceived by undergraduate nursing students and the individualization subscale was the least important domain (74%), though the difference between the two was not large.
Hardy et al. (2015) [18]	Unstated location. September 2010 –December 2012	Model evaluation	60 student nurses and 8 professional nurses	A modified version of the Clinical Learning Environment Inventory (CLEI) was used which contained 40 items on a 4-point Likert scale.	To discuss the implementation process and outcomes related to a previously constructed clinical pedagogy model created through an academic partnership between a major urban hospital, a university school of nursing, and a diploma school of nursing where professional staff nurses become actively involved in clinical teaching.	Focus group meetings with the professional nurses revealed five themes: 1) attitude of the instructors, 2) communication is essential, 3) satisfaction by professional nurses, 4) personal benefits in working with students, and 5) positive experience. The attitude of the instructor was seen to impact the interaction between the professional nurse and the students. The students' participation in the hospital unit activities allowed them to put effort into what they did on the unit, with the majority of students looking forward to coming to this unit for their clinical learning. The pedagogy model showed encouraging social interactions between students and professional staff and this collaborative work environment has been seen to attract nursing students to seek employment on the nursing unit upon completion of their program.
Henderson, Cooke et al. (2012) [19]	Unstated.	Literature review	Six studies from three different countries that used the Clinical Learning Environment Inventory (CLEI)	A CINAHL search using the terms 'clinical learning environment inventory' and 'nursing' yielded 56 manuscripts from the last decade, of which six provided data that could be collated about actual clinical learning environments as reported by students.	To identify predominant features of clinical learning environments from students' perspectives	There were four major findings of this literature review: 1) didactic teaching of skills and practices still dominates learning environments, 2) students report that they largely affiliate or 'fit in' with the team, 3) students are not actively engaged to question the effectiveness of existing practices, and 4) students perceive that learning environments are not conducive to initiating innovation.
Salamonson et al. (2015) [20]	Four universities in Australia. 2010 –2012	Mixed methods approach	Students enrolled in the Bachelor of Nursing (BN) program within four Australian universities. (n = 213)	The 19-item Clinical Learning Environment Inventory (CLEI-19), derived from the 42-item CLEI, that explores students' perceptions of their experience and are comprised of 7	To determine how satisfied nursing students are with their clinical placement, what aspects they find most satisfying, most challenging, and socio-demographic group differences in nursing students' feedback of their clinical	In general, the students were satisfied with their clinical placements. Students with English as an additional language (EAL) were less satisfied with the clinical learning environment, though qualitatively, native English speakers provided more negative responses regarding their placement. This discrepancy was attributed by the authors to either the clinical facilitators being less prepared to accommodate the specific learning needs of EAL students, or that EAL students lacked sufficient

				items from the satisfaction domain, 7 items from the personalization domain, and 5 items related to the clinical facilitator.	facilitators and the clinical facility.	confidence to provide written data in response to the open-ended questions. The authors conclude that further research utilizing individual or focus group interviews to gain an understanding of the reasons for student dissatisfaction.
Niederhauser et al. (2012) [7]	Spring 2010 semester, Hawaii.	Seven pilot projects	15 health care and educational organizations made of more than 500 people including RN's, healthcare personnel, and nursing students.		To compile an innovative framework for clinical education with potential to improve effectiveness and efficiency of clinical education, and provide a description of the application of the framework used to create new models through academic-practice partnerships.	To lead innovation, a project was launched that to change frameworks to ascertain and test new models of clinical, with the goals of increasing clinical capacity, lowering costs, and creating more targeted and inventive learning activities for students. In order to create urgency and develop a guided team, presentations were held at several health care organizations throughout Hawaii. To begin the process of developing innovative models of clinical nursing education, team of high-profile nurses from various settings, referred to as the Clinical Education Redesign Team (CERT), was created to guide the process. In order to make this process happen, there must be effective communication. The CERT developed a process for requests for proposals to fund the pilot projects distributed to nursing leaders and educators throughout Hawaii.
Delunas, L.R. and Rooka, L.A. (2009) [5]	Two unspecified community healthcare systems	Pilot project report	Four baccalaureate-prepared staff nurses, each assigned 8 and 10 junior baccalaureate students finishing a medical-surgical rotation	During pre- and post-conference meetings, students evaluated the model of clinical instruction using a five-point Likert scale to respond to 10 questions of which 6 questions focused on the new clinical model	To report on a partnership between a university and healthcare organization designed for the clinical education of undergraduate nursing students.	The pilot project was implemented and the evaluation of the program on a 5-point scale and a ten question- questionnaire indicated that the program was evaluated high, with a mean of 4.4. A reoccurring answer to an open-ended question stated, "someone was always available." Overall, this study promotes this model and the partnerships of organizations because of the shared responsibility for student education which could one day be the resolution to nursing shortage.
Girija, K.M. (2012) [8]	Sultan Qaboos University,	Commentary	N/A	N/A	To provide a summary of the effective clinical instructor characteristics towards leading to excellence in clinical teaching.	The three key roles of clinical instruction highlighted were: being a role model, clinical supervisory, and instructional leader/scholar. Clinical instructors should serve as mentors and role models to students and demonstrate the knowledge skills, attitudes and ethical behaviors that students should acquire. The article suggests that an efficient clinical supervisor is systematic, objective, creative, and able to motivate students to utilize the available clinical resources to the best towards achievement of effective clinical learning. The article also suggests that there are three components of instructional leadership: curriculum development, the evaluation with improvement of teaching, and educational research.
D'Souza, Venkatesaperumal et al. (2013) [21]	N/A	Literature review	Unstated	The authors fail to state which articles were reviewed and their selection criteria.	To explore student engagement in the new clinical learning milieu using diverse experiences, shared learning opportunities, student-faculty interaction and active learning.	The authors conclude that the role of the educator in engaging students occurs through use of various learning styles using cognitive, behavioral and emotional dimensions of critical thinking. The use of active learning, shared learning opportunities, faculty-student interaction and diverse experiences through methods of teaching involves student centered learning. The Kolb learning cycle was introduced in this article which links concrete experience such as clinical with abstract learning processes through reflection and planning, which was shown to be effective. The authors state that clinical learning practices that help are ones that: encourage student-faculty contact, develop reciprocity and cooperation among students, encourage active learning, provide students with prompt feedback, emphasize time on task, communicate high expectations and respect diverse talents and ways of knowing. . Not surprisingly, the quality learning is closely linked to the

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Table 1 (continued)

Reference (Author & Year)	Location and year of the study	Study design	Study population	Data selection methods	Aim of study	Summary of Results
Okoronko et al. (2013) [22]	University of Nigeria, Enugu state, Nigeria	Non-experimental quantitative descriptive study	All 400 level undergraduate nursing students completing a six month clinical experience (n = 101)	A questionnaire divided into parts. Part 1 contained background information, Part 2 included eight items (teaching skills) for determining effective clinical teaching, while Part 3 consisted of 15 items (teacher behavior) for clinical teacher effectiveness with a four point rating scale ranging from strongly agree to strongly disagree.	To explore teaching skills considered by undergraduate student nurses as effective in the clinical settings. Specifically to ascertain the views of undergraduate students on effective teaching skills; identify most important characteristics, and compare views of DE and UME students in regard to teaching skills and teacher behaviors that would promote effective clinical learning.	quality of the teaching and practicum. Knowledge of how students cope with practicum stresses helps inform teacher education programs of the best ways to support them. The success of clinical learning largely depends on the CLE and providing an effective CLE to nursing students is crucial in improving quality-based Both clinical and teaching knowledge were viewed as the most important teaching skill for effective clinical teaching. It can be deduced from previous findings from other studies that without clinical and teaching knowledge, no clinical educator can be truly effective. The inference is that a clinical instructor must have both theoretical and practical knowledge in addition to teaching experience to prepare competent student nurses. Both DE and UME students indicated that the five most important teacher behaviors should include honesty, motivation to teach, listening and good communication skills, good supervision and good role model in that order. There was significant difference in the perception of the two groups of students in providing constructive and timely feedback with DE students being more likely to cite it than UME students. This may be attributed to the fact that DE students are already trained and registered nurses with experience and understand the importance of timely feedback to avert costly mistakes on patient's life.
Lamont et al. (2015) [23]	A 550 bed tertiary referral metropolitan hospital in Sydney between 2010 and 2012	Cross-sectional survey of undergraduate nursing students' placement experience	Of a total of 2072 student placements recorded at the hospital during the study period, 768 returned completed surveys.	A self-administered seven item anonymous survey. Question one sought whether expectations have been fully met, partially, or not at all; questions two through six asked a five point satisfaction rating; and question seven sought five point ratings as well.	To explore undergraduate nursing students' satisfaction with clinical placement experience and the relationship this has with future employment intention at a metropolitan hospital.	500 students reported having their expectations fully met, with 244 having them partly met, and 24 reporting that their expectations not being met related to the perceived attitudes of unit staff, the lack of support offered to students, and a desire to have been placed in a different specialty. Statistically significant differences were found when comparing expectations being met with welcomed received; attitude of the ward staff; clinical support received; participation in patient care; university facilitator support; and hospital as a future employer. In general, when asked about their expectations of their clinical placements, prominent responses including: understanding the role of the nurse; increasing nursing skills; gaining knowledge; and to experience a positive workplace. Further results indicate that 579 responses indicated that students were either likely or extremely likely to consider the hospital as a future employer, the remainder was either extremely unlikely, unlikely or somewhat likely to consider the hospital for future employment.
Ironside et al. (2014) [1]	Three schools in the East, Midwest, and Northwest regions of the US: a major research university; a large, private not-for-profit research-intensive university; and a smaller not-for-profit university	Descriptive qualitative, multi-method design, including direct observation and individual interviews. The study was guided by cognitive task analysis methods	Ten students and two faculty members in the clinical component of the first general medical-surgical course in the curriculum from each school. Total of 30 students and 6 faculty members.	The investigators collected demographic data to describe the nursing program, clinical sites, and participants at each site. The directly observed and recorded individual student and faculty activities during clinical experiences and after observations, the investigators interviewed the participant using	To understand the nature of contemporary clinical education by describing the experiences of students and faculty at three geographically diverse universities in the United States	The results of the study indicated no overall differences in clinical activities or interactions observed between faculty and students. It was observed that faculty and student interactions focused on medication knowledge, laboratory values, and time management, rather than an overall understanding of a patient's condition, preferences, or expectations, the implications for nursing care, or interventions. The complexity of the healthcare system demands that nurses are better prepared for the workforce in ways that reflect full scope of practice by rethinking nursing education and its application into the real world. Study suggests that what actually occurs during clinical experiences may not be what faculty intended. The findings in this study challenge faculty members' assumptions about if, what, and how students are learning in clinical settings and how clinical resources are used.

D'Souza, Karkada et al. (2015) [24]	Sultanate of Oman. 2011.	Cross-sectional, descriptive design.	310 undergraduate nursing students in a public school of nursing in Oman.	cognitive task analysis interview techniques to elicit rich descriptions of the participant's experience. A modified Clinical Learning Environment Supervision Teaching (CLEST) scale and instrument. This was determined to be feasible after conducting a pilot study with 30 students.	To assess the satisfaction with and effectiveness of the clinical learning environment among nursing students in Oman.	Most of the nursing students agreed that they were satisfied with the CLE sub-dimensions (49.35%–66.45%). Higher age, higher GPA, and increased number of clinical courses were significant in the satisfaction with the clinical learning environment. The students valued positive supervision, interpersonal relationships and interactions with clinical teachers and staff nurses as a positive clinical learning environment. Feedback on their clinical performance and satisfaction was essential for their effective premises of learning in the clinical placements.
Callaghan et al. (2009) [3]	Four Bachelors of Science in Nursing programs in Canada	Retrospective, cross-sectional study followed by thematic analysis of the data	37 graduates from four schools, of which 22 engaged in both collaborative learning units and preceptorship	Follow up questionnaires were sent to graduates one year following completion of the nursing program.	To explore the perceptions of nurses one year after graduation who experiences CLU and preceptorship placements during their years three and four of their nursing program	Two major themes with three sub-themes emerged from both CLU and preceptor data. The emergent themes were similar but not readily comparable. One theme was working with many (learning from different practices, working with a team, and working independently) and making practice their own. The importance of working with one (modeling the reality of nursing practice, trust, and consistent feedback) and consolidation of practice emerged from the data as two major preceptorship themes. The participant responses were congruent with the CLU and preceptorship models offering different yet complementary paths for learning. It was reminded that each model enhances professional development and practice competence. Although differences were revealed, both practice education models offer students learning outcomes that build on previous learning which are relevant and indispensable to accomplish the proficiencies of current nursing practice.

students with the opportunities to practice and become proficient in the knowledge and skills essential for professional practice [9]. The evaluation of the clinical learning environment is crucial to determine if the clinical experience provides essential learning opportunities as well as a supportive environment [9]. This work also aims to evaluate the Clinical Learning Environment Inventory (CLEI) as a method of assessing alternate clinical faculty assignments. An appropriate method of assessment will be critical for future works aiming to address the nursing faculty shortage. The CLEI will be utilized in this review as it assesses perceptions of the hospital learning environment, as well as the differences between the actual and preferred learning environment.

2. Materials and methods

A review of the literature was undertaken through a search of the following electronic databases: EBSCHO Host, CINAHL, ProQuest, Sage Journals Online, and Science Direct. Key words used in the literature search were: co-teaching, shared teaching, collaborative teaching, clinical models, clinical education, faculty shortage, preceptors, dedicated education units, clinical evaluation tools, clinical learning environment, student satisfaction, and CLEI. The search was limited to material available in English. Thirty-five articles were identified after the initial search. After eliminating 13 articles that were not current and did not address the purposes of this review, 22 articles were ultimately included for the scope and breadth of this literature review. Articles reviews in this literature review were published between 2002 and 2015. The seminal works related to the development of the CLEI were published between 2002 and 2007, while the articles that used the CLEI as an evaluative tool were published after 2009. The literature review focused primarily on student satisfaction with the clinical environment and studies which used the CLEI. Literature was analyzed by two independent researchers using an iterative process to primarily identify and evaluate the manners in which the CLEI was used to evaluate clinical learning environments.

3. Results and discussion

A summary of the main characteristics of the studies reviewed is provided in [Table 1](#).

Overall, this review included the differences in student perception of the actual learning environment and the preferred learning environment. Factors such as student satisfaction and clinical learning environment were included in this integrative review. All of the articles presented utilized the CLEI and all evaluated baccalaureate nursing programs. The CLEI includes 42-items with 7-items assessing each of the six subscales: personalization, student involvement, task orientation, innovation, individualization, and satisfaction.

The studies reviewed generally concluded that students preferred a more positive and favorable clinical environment than they perceived as being actually present. Further, significant differences exist between actual and preferred clinical learning environments. Additionally, a supportive clinical learning environment is of paramount important in securing positive teaching learning outcomes. Finally, students generally wish for a more positive environment than they have experienced.

4. Conclusions

A number of conclusions have been drawn as a result of this review. Overall, students prefer a more positive, supportive clinical learning environment and they often perceive differences in the actual learning environment and the preferred learning

environment. These factors are important for nurse educators in planning clinical assignments and hiring and assigning clinical faculty. The most important domains in faculty attributes include: fostering a student-centric environment, listening to students, offering additional support, providing constructive feedback and clear, well-planned assignments, facilitating the meeting of individual learning needs, innovation, and promoting student voice.

There are several implications for nursing as a result of this review. Nursing curricula and clinical experiences should be designed and/or enhanced to promote student satisfaction with clinical environment. Further, as a result of this review, improved entry level nursing practice can be fostered through more positive student experiences. Finally, future research in nursing education on this topic is encouraged to continue to promote innovative high quality clinical nursing experiences for baccalaureate students.

Overall the six subscales of CLEI, personalization, student involvement, task orientation, innovation, individualization and satisfaction are important elements for nurse educators to consider in designing clinical experiences. More specifically, this review indicates that student satisfaction in the clinical environment place a key role in attaining student learning outcomes. Areas for concern related to the common themes identified include: individualization and teaching innovation. This review indicated that these two factors negatively impacted student satisfaction with the clinical learning environment.

After a review of the literature, the CLEI has been found to be an appropriate assessment method for evaluating the clinical learning environment with respect to curriculum planning. However, some suggestions for its proper use will be put forth. Some studies reviewed only use one of the two CLEI forms to evaluate their program, but this excludes a major aspect of the student's perception of clinical teaching. Future studies should use both the actual and preferred CLEI forms to provide a more complete evaluation of the clinical learning environment. Other suggestions include replication, using larger sample sizes, including diverse clinical settings, comparing varying types of nursing programs, and comparing differing levels of student experience.

In conclusion, nurse educators can apply the results of this review in order to develop and maintain quality clinical teaching and to provide a positive, student-centric, clinical environment. The CLEI can be appropriately used to evaluate the need for any curricular changes to better prepare the students for professional nursing practice. The attitude of the clinical faculty does make a difference in the teaching learning outcomes of clinical nursing courses. Nurse educators must strive to promote positive relationships with nurse preceptors and other members of the health care team and it is imperative that student learning outcomes build on previous learning and are relevant for competency in nursing practice.

Author contributions

All authors contributed to the development of this manuscript. All authors reviewed and approved final manuscript prior to submission.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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Appendix A. Supplementary data

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