

Impact of the COVID-19 Pandemic on Nursing Students' Clinical Learning Experiences in British Columbia: The student perspective

Krista Sferrazza

The University of British Columbia, kristasferrazza@gmail.com

Maura MacPhee

The University of British Columbia, maura.macphee@ubc.ca

Farinaz Havaei

The University of British Columbia, farinaz.havaei@ubc.ca

Suzanne Hetzel Campbell

The University of British Columbia, suzanne.campbell@ubc.ca

Follow this and additional works at: <https://qane-afi.casn.ca/journal>



Part of the [Other Nursing Commons](#), and the [Scholarship of Teaching and Learning Commons](#)

Recommended Citation

Sferrazza, Krista; MacPhee, Maura; Havaei, Farinaz; and Campbell, Suzanne Hetzel (2023) "Impact of the COVID-19 Pandemic on Nursing Students' Clinical Learning Experiences in British Columbia: The student perspective," *Quality Advancement in Nursing Education - Avancées en formation infirmière*: Vol. 9: Iss. 1, Article 6.

DOI: <https://doi.org/10.17483/2368-6669.1374>

This Article is brought to you for free and open access by Quality Advancement in Nursing Education - Avancées en formation infirmière. It has been accepted for inclusion in Quality Advancement in Nursing Education - Avancées en formation infirmière by an authorized editor of Quality Advancement in Nursing Education - Avancées en formation infirmière.

Impact of the COVID-19 Pandemic on Nursing Students' Clinical Learning Experiences in British Columbia: The student perspective

Cover Page Footnote

This article is based on the thesis completed by Sferrazza (2021). | Cet article est basé sur le mémoire de Sferrazza (2021).

Introduction

The COVID-19 pandemic disrupted the world beginning in March 2020. The impact of the pandemic was widespread, affecting how many interacted with the health care system, including nursing students. The safety of the traditional clinical learning environment (CLE) for nursing students was questioned as COVID-19 spread quickly, putting staff and nursing students at risk for catching and transmitting the virus (Dewart et al., 2020; Oermann, 2021; O’Flynn-Magee et al., 2020). This study captured a specific time for nursing students and health care institutions in academic and practice arenas. This study investigated nursing students’ perception of the quality of their experiences in the CLE as it changed with the pandemic. To our knowledge, this is the first study conducted on nursing students’ perspectives of their clinical learning experiences during the pandemic in this time frame. The emotional and psychological toll of the COVID-19 pandemic created fear and anxiety for nursing students, and nursing faculty had to reconsider traditional approaches to delivering clinical education within health care settings (Harder, 2020; Leighton et al., 2021). The findings of this study highlight an essential perspective of nursing students, as nursing faculty have ongoing conversations of lessons learned since the beginning of the COVID-19 pandemic.

Background

Experiential learning (Kolb, 1984) is a four-stage learning cycle encompassing theoretical knowledge, hands-on experiences, experimentation, and reflection (Murray, 2018). The experiential learning component of nursing education has remained constant as nursing education transitioned from religious vocational work and hospital boarding programs to academic diploma and degree programs (Baker et al., 2012). Experiential learning opportunities are influenced by theoretical frameworks, including the apprenticeship model of teaching (Pratt & Johnson, 1998), adult learning theory (Knowles, 1984), and Benner’s (1984) novice to expert theory. Experiences provided to students throughout a nursing program aim to “develop safe, competent, compassionate, ethical, and culturally safe entry-level nurses” (Canadian Association of Schools of Nursing [CASN], 2015, p. 13). This experiential learning occurs in the CLE (Flott & Linden, 2016; Fretwell, 1980; Orton, 1981).

The definition of the CLE used in this study was as follows:

The CLE involves any area where nursing students apply theory to practice by conducting actual or simulated patient care to gain experiential knowledge about skills, attitudes and decision-making abilities necessary to become a competent, entry-level nurse. This environment includes the physical space, psychosocial and interaction factors, teaching effectiveness of the instructor, student engagement and organization culture, all of which have an impact on student abilities to meet learning outcomes. (Flott & Linden, 2016, p. 508)

Hooven (2014) categorized CLE attributes into six themes: staff-student relationship, nurse manager involvement, students feeling included, atmosphere, nurse teacher involvement, and feedback. These attributes can enable or constrain the quality of the CLE (Jessee, 2016). In Canada, the traditional CLE is situated in hospital or community settings in which nursing students are paired with a supervising nurse or “buddy nurse” to acquire generalist nursing knowledge and skills. Their learning is facilitated and evaluated by a dedicated clinical instructor, typically an employee of an academic institution.

Another type of CLE is the simulation laboratory. Although simulation has been used as a teaching modality in nursing education in Western Canada for the past 10+ years (Garrett et al., 2011), more recently, simulation has been substituting for clinical placements in response to declining availability (Currie et al., 2015; Hayden et al., 2014; Larue et al., 2017). In addition, staff shortages and increasing patient acuity (Jones & Hegge, 2007) have led to simulation augmenting the traditional CLE in the hospital setting (Harder, 2015). Virtual reality simulation and in-person simulation laboratory learning have been used as additional CLE tools (Smith & Hamilton, 2015) to practise and consolidate student learning and theoretical knowledge (Shorey & Ng, 2021). Simulation also offers standardized, safe learning opportunities, which may not be possible in the traditional CLE (Harder, 2010, 2018; Larue et al., 2015). Some evidence suggests that simulations decrease student anxiety and the potential to cause harm to a patient during the learning process (Jenson & Forsyth, 2012; Oliveira Silva et al., 2022). Simulated learning is associated with improved patient outcomes, improved team performance (Cook et al., 2011; Reeves et al., 2017), and enhanced students' self-confidence and preparedness for clinical practice in traditional CLEs (Larue et al., 2017; Mulyadi et al., 2021; Oliveira Silva et al., 2022).

Evaluation of the quality of the CLE from the nursing student perspective is extensive, dating back to the 1990s (Dunn & Burnett, 1995). Multiple tools, highlighted in Table 1, have been created to assess and evaluate the numerous attributes of the CLE.

Table 1

Tools and Scales to Evaluate the Quality of the CLE

Tool	Acronym	Author (Year)
Clinical Learning Environment Scale	CLE Scale	Dunn and Burnett (1995)
Clinical Learning Environment Inventory	CLEI	Chan (2001, 2003)
Clinical Learning Environment Supervision Scale	CLES Scale	Saarikoski and Leino-Kilpi (2002)
Clinical Learning Environment Supervision and Nurse Teacher Scale	CLES+T Scale	Saarikoski et al. (2008)
Clinical Learning Environment and Diagnostic Inventory	CLEDI	Hosoda (2006)
Student Evaluation of Clinical Education Environment Tool	SECCEE Tool	Sand-Jecklin (2009)
Clinical Learning Environment Instrument	CLE Instrument	Chuan and Barnett (2012)
Modified Clinical Learning Environment Supervision and Nurse Teacher Scale	Modified CLES+T Scale	D'Souza et al. (2015)

A systematic review by Mansutti et al. (2017) evaluated the assessment tools in Table 1 and found that the CLES+T Scale (Saarikoski et al., 2008), used in over 30 countries, is the most widely used psychometrically validated tool. Hooven's (2014) integrative review shared that the CLES+T Scale (Saarikoski et al., 2008) was the only tool that evaluated the six themes of the CLE. An evaluation of the CLE in British Columbia was previously conducted in 2012 by Currie et al.

(2015) using an adapted tool based on the CLES+T Scale. Before our study, the CLES+T Scale had not been used in the Canadian context.

This study will inform nurse educators about how the pandemic influenced student perspectives of their CLE experience before graduating and becoming nurse registrants. The research questions in this study were as follows: Is there a perceived difference in the quality of undergraduate baccalaureate nursing students' experience in the CLE prior to (January 2020–March 15, 2020) and during the COVID-19 pandemic (March 16, 2020–June 2020)? We hypothesized that there would be a perceived difference in the quality of the CLE before and during the COVID-19 pandemic.

Two open-ended questions posed to participants were (a) What were the biggest factors that impacted the quality of the CLE before the COVID-19 pandemic? and (b) What were the biggest factors that impacted the quality of the CLE during the COVID-19 pandemic?

Methods

The study design was retrospective, cross-sectional, and exploratory, using survey methodology. A convenience sample consisted of undergraduate baccalaureate nursing students studying at nine schools of nursing in British Columbia, Canada. The nine schools were geographically situated throughout the province and represented all provincial health authorities. These schools of nursing gave consent to contact their students about the study. Research ethics approval was obtained from the researchers' school and a harmonized ethics panel from the other eight schools (Approval Number: H20-02820). Each school's administration distributed an online survey link via email to nursing students. Survey data were collected using an online survey from January 27, 2021, until February 28, 2021. The online survey was created using the Qualtrics online survey platform. The survey included a consent form, followed by a page for potential participants to self-report their eligibility. Nursing students were eligible to participate in the study if they were enrolled in clinical practice in the CLE before the COVID-19 pandemic (January 2020–March 2020) and during the COVID-19 pandemic (March 2020–June 2020). If potential participants deemed themselves eligible, the survey continued. The online survey remained open for one month for nursing student recruitment. Researchers offered a non-contingent incentive for participants to be entered into a raffle to win one of 20 Amazon e-gift cards worth CAD 25.

The survey consisted of demographic questions, CLES+T Scale questions, and two open-ended questions. The CLES+T Scale (Saarikoski et al., 2008) is a 34-item, 5-point (1–5) Likert scale survey, where 1 indicates *fully disagree* and 5 indicates *fully agree*. A higher score indicates a more positive perceived experience in the CLE. Items are categorized into five domains (subscales). See Table 2.

Table 2*Five Domains (Subscales) of the CLES+T Scale*

Domain	Description
The supervisory relationship	Speaks to the supervision a staff nurse provides to shadowing nursing students; buddy nurses; preceptors
The pedagogical atmosphere on the ward	The culture of a unit, displaying positive attitudes towards teaching
The role of the nurse teacher	In the Canadian context, the clinical instructor facilitating learning and evaluating nursing students in the CLE
The leadership style of the ward manager	In the Canadian context, the clinical manager or supervisor who oversees operations on a ward or unit
The premise of nursing on the ward	Displays of caring, proper documentation, and communication between nurses and patients

Sources: Saarikoski and Leino-Kilpi (2002) and Saarikoski et al. (2008)

The internal consistency of the CLES+T Scale is adequate to desirable, with subscale Cronbach alpha scores ranging from 0.77 to 0.96 (Saarikoski et al., 2008).

Participants were asked to complete the CLES+T Scale questions twice, at Time 1, reflecting on their experience in the CLE before the COVID-19 pandemic, and at Time 2, reflecting on their experience in the CLE during the COVID-19 pandemic. Data for Time 1 and Time 2 were collected within the same online survey. Open-ended questions were intended to corroborate and contextualize the quantitative survey questions (O’Cathain & Thomas, 2004). A convenience sample of three graduate nursing students piloted the online survey before distribution. The reviewers actively practised in hospitals and had experience clinically precepting undergraduate nursing students in the CLE before and during the pandemic. The purpose of the pilot helped researchers determine word clarity and the navigability of the Qualtrics platform.

Quantitative survey data were exported to SPSS 27 for statistical analysis. Demographic data were analyzed using descriptive statistics. Paired *t*-tests were conducted utilizing Time 1 and Time 2 responses to CLES+T Scale questions in the online survey to answer our primary research question. A sample size of 128 participants was required to minimize the risk of type II error and to provide adequate power (80%) to detect a medium effect size at a significance level (alpha) of 0.05 (Polit & Beck, 2017). Qualitative data were de-identified, keywords were highlighted, and quotes were identified to corroborate survey data (O’Cathain & Thomas, 2004).

Results

One hundred and fifty-eight ($n = 158$) students completed the entirety of the online survey (Times 1 and 2). A response rate could not be calculated as the total number of students recruited for the study was unknown. The online survey was accessed 339 times, indicating a 46% completion rate. Of the 158 participants, 86.7% were female, and 91.2% were age 30 years or younger. The majority (89.2%) of participants were in three- or four-year baccalaureate nursing programs, and 75.5% were in the first or second year of their program during January–June 2020. Most CLEs were located in two of the largest health regions of the province, with the majority of

traditional CLEs being in medical-surgical inpatient settings (70%). There was a greater spread of CLEs during the COVID-19 pandemic. Table 3 describes in more detail the demographic characteristics of study participants. Table 4 provides details of the CLE locations identified by participants before and during the COVID-19 pandemic.

Table 3

Demographic Characteristics (n = 158)

Demographic characteristics	Frequency	%
Gender		
Male	18	11.4
Female	137	86.7
Non-binary	1	0.6
Age in years		
20 and younger	20	12.7
21–25	95	60.1
26–30	29	18.4
31–35	7	4.4
36–40	4	2.5
41 and older	1	0.6
Type of baccalaureate nursing program		
Two-year program	16	10.1
Three-year program	64	40.5
Four-year program	77	48.7
Year of program during winter 2020/spring 2020		
First year	49	31
Second year	70	44.5
Third year	36	22.8
Fourth year	2	1.3

Table 4*Type of CLE (n = 158)*

Type of CLE	Pre-COVID-19		During COVID-19	
	January 2020–March 2020		March 2020–June 2020	
	<i>n</i>	%	<i>n</i>	%
Medical/surgical ward/unit	76	31.7	95	37.7
Pediatrics ^a	21	8.8	21	8.3
Maternity ^b	29	12.1	28	11.1
Critical care ^c	0	0	6	2.4
Long-term care/geriatrics	47	19.6	27	10.7
Community/home/public health	30	12.5	24	9.5
Simulation lab	17	7.1	27	10.7
Mental health	19	7.9	11	4.4
Rehabilitation	1	0.4	1	0.5
Virtual	0	0	7	2.8
No CLE	0	0	5	2

Note. Survey participants could select more than one CLE location. Data missing for pre-COVID-19 question = 1; during COVID-19 question = 5.

^a Pediatric intensive care unit, neonatal intensive care unit, and pediatric units.

^b Labour and delivery and maternity mother–baby units.

^c Operating room, intensive care unit, emergency room, post-anaesthesia care unit.

Overall mean scores of the CLES+T Scale questions and the five subscale mean scores were computed in SPSS (Table 5). Both subscale and overall mean scores skewed more positively, closer to a score of 5. This indicated that nursing students perceived their CLE experiences to be of higher quality. Mean scores were used to conduct a paired *t*-test to answer the primary research question of this study (Table 5). Paired sample *t*-test results for subscale mean and overall mean scores revealed no statistically significant difference in nursing students' perceived quality of their experiences in the CLE before the COVID-19 pandemic and at the beginning of the COVID-19 pandemic from March 2020 until June 2020.

Table 5*Paired t-Tests*

Subscale	Time 1 pre- COVID-19			Time 2 during COVID-19		<i>t</i> -statistic (<i>df</i>)	<i>p</i> -value*
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Supervisory relationship	134	3.93	0.08	3.98	0.08	-0.50 (133)	.62
Pedagogical atmosphere	137	3.57	0.94	3.61	1.04	-0.4 (136)	.69
Role of clinical instructor	158	4.37	0.72	4.34	0.74	0.36 (157)	.72
Leadership style of clinical manager	117	3.94	0.86	3.89	1.02	0.40 (116)	.69
Premise of nursing on ward	135	4.11	0.76	4.02	0.80	1.21 (134)	.23
Overall	158	4.03	0.61	4.03	0.69	-0.04 (157)	.97

$p \geq .05$.

Participants shared rich and detailed responses to open-ended questions, providing context to what they believed to be the most significant factors impacting the quality of their experiences in the CLE. Participants shared that their clinical instructor (CI) was the most influential in impacting the quality of their experiences in the CLE. Before the COVID-19 pandemic, a knowledgeable CI was vital for ensuring a positive experience in the CLE. A CI with a positive attitude and knowledge of the patient population was instrumental. A supportive supervising nurse also significantly contributed to a positively perceived experience in the CLE. Participants shared that the supervising nurses' attitude influenced the unit's atmosphere, which could be both positive and negative, depending on the attitude of the supervising nurse. Supervising nurses who were resistant to teaching students negatively impacted nursing students' learning. As one participant shared:

Two factors that influenced my quality of learning were 1) how organized my clinical instructor was and her familiarity with the unit and 2) the friendliness of the nurse I was shadowing that shift. My clinical instructor was very well organized and communicated to both the students and the staff what we were capable of doing and not doing that shift, and it really made the boundaries clear. Meanwhile, if the nurse I was shadowing had an open and friendly demeanour, then I was more likely to ask questions and be included in the care for the patient.

The COVID-19 pandemic caused a shift in the relationship between nursing students, their CI, and supervising nurses. Participants shared that the pandemic led to enabling and detrimental

experiences with supervising nurses. Some found nurses to be more communicative and empowered. In contrast, others noticed a decline in morale on nursing units, difficulty integrating with the unit, and higher stress levels among nurses, especially around the availability of personal protective equipment and transmission of COVID-19. Some participants shared that they felt their relationship with their CI was strained because of physical distance, disorganization, and lack of communication:

[The] majority of the CLE was conducted online through virtual simulations, case studies, and child actors paid to play certain roles and archetypes... It gave me a variety of different situations to critically analyze and respond to. In other ways, it wasn't realistic. The CI ended up being less of a supportive mentor.

The COVID-19 pandemic has not necessarily influenced the quality of my CLE as much as I thought it would. In fact, my experiences in home health and the hospital since COVID have been some of the best experiences I have had... However, this was not the case for public health—which is telling as they are the practice area which in my experience, has been most heavily impacted and gutted by this pandemic... [I] saw it as a product of them having their resources intensely exhausted.

Fear of transmission was also felt by participants, both fearful of giving COVID-19 to patients and of taking COVID-19 back to their homes. Participants felt like they were missing out on opportunities to learn with families, with a loss of visiting hours. Also, the change in patient population and the number of hospital patients led to less variety in student experiences. One participant explained: “My clinical learning experience was shortened, and we had reduced opportunities for learning. There was additional stress of patients potentially having COVID-19, and we had to reuse PPE.” Another shared this feeling:

COVID-19 has impacted the communication with clients and their families the most. With limited visitation, the amount of family members or primary caregivers usually don't line up when we are in clinical. This prevents us from practicing communication with not only the client but also their family members.

Furthermore, participants shared that time was another factor influencing their CLE quality. Participants shared that missing out on experiences in the CLE during the COVID-19 pandemic left them with fears of becoming incompetent and discouraged by not being able to practise their skills. More time in the CLE allowed students to consolidate their skills and lessened their anxiety. Others were nervous that their limited experiences because of the pandemic would leave them ill-prepared for practice:

Prior to COVID-19, I found having regular and consistent clinical days was truly beneficial to my nursing practice and learning. However, as the COVID-19 pandemic began, my clinical hours reduced significantly, in which I noticed gaps in my learning (ex. lack of practice with skills).

For four months, I was not able to be in an on-site clinical placement, and I had to do online simulations that were considered my clinicals... When I finally got on a unit for clinical, it was suddenly a race against the clock trying to quickly learn as many skills as I could before potentially getting kicked out of the unit again or before the semester ended.

Discussion

Our study aimed to investigate how the COVID-19 pandemic impacted the student experience in the CLE. Our survey captured a specific moment in time, March–June 2020; however, we know that the COVID-19 pandemic has lasted long after that, and the changes to the CLE continue well past the initial changes made during that time. Decisions made by nursing faculty were reactive in response to external influences. Our results suggest a trend of certain CLEs based on what was occurring in March–June 2020 (for example, a reduction in community settings and long-term-care CLEs) and existing infrastructure.

Our CLES+T Scale scores were similar to the results from the PLACES study (Currie et al., 2015). This could suggest that over the last 10 years, in British Columbia, the quality of clinical learning experiences has continued to be favourable in the eyes of nursing students. A systematic review by Cant et al. (2021) assessed studies using the CLES+T Scale to evaluate nursing student experience in the CLE. Like our results, the quality of CLEs was more positively perceived. However, the subscale mean scores varied between our study and systematic reviews by Cant et al. (2021) and Karaduman et al. (2022). Our results revealed that the highest-rated subscale was the CI, whereas the CI was the lowest-scored subscale in the systematic review (Cant et al., 2021) and the multicentre study by Karaduman et al. (2022). A possible reason for this difference is geographical and cultural differences between the role of the CI in Canada versus Sweden, Saudi Arabia, Turkey, Portugal, and Lithuania, where the other studies took place. Both studies referenced (Cant et al., 2021; Karaduman et al., 2022) took place before the pandemic, which could mean there was a shift in the importance of the CI within the context of the pandemic, which is highlighted in our study.

The importance of the CI was highlighted in two ways in our study. The CI subscale had the highest response rate in the survey. CIs were frequently mentioned in the open-ended responses as the most significant factor in the quality of nursing students' experiences in the CLE. It is affirming that the mean score for this subscale was rated highly in CLE experiences before and during the COVID-19 pandemic. The quality of CIs is one attribute of the traditional CLE that nursing academic institutions can influence. CIs were also the constant in the CLE, no matter the type of environment, traditional or alternative. A knowledgeable and strong CI is an enabler for a positive experience in the CLE (Jessee, 2016). Participants noticed when CIs felt out of their depths or appeared ill-prepared, but participants also appreciated and sympathized that instructors were doing their best given the circumstances. These conflicting sentiments about the CI were echoed in findings by Dziurka and colleagues (2022). Lewandowski et al. (2021) stressed that "if using virtual simulation to replace clinical hours, faculty simulation experts and experienced online faculty need to be available to inexperienced faculty, not only as a resource person but also a mentor" (p. E142).

Our demographic findings indicate that there was more variety of CLEs during the COVID-19 pandemic. In the open-ended responses, many participants discuss transitioning to online and virtual learning. Our results signal a trend in the beginning use of virtual learning, simulation laboratory, and online learning. As more open online CLE resources became available during the pandemic, there is a likelihood that there was an even greater shift to alternative CLEs further into the pandemic, past the timeline of our study, as evident in the study by CASN (Wilson-Keates et al., 2021). The use of virtual simulation during the COVID-19 pandemic increased in 73% of nursing schools surveyed, and virtual simulation was used by 70% of respondents as a replacement

for traditional clinical hours in undergraduate baccalaureate programs because of the COVID-19 pandemic (Wilson-Keates et al., 2021).

Limitations

There are multiple limitations within this study. First, given the retrospective design of our study and participants reflecting on events from January to June 2020, there is the risk of recall bias (Polit & Beck, 2017). Second, since we relied on multiple schools of nursing administration for recruitment, we do not know how representative our sample was of undergraduate baccalaureate nursing students throughout British Columbia. Regarding our statistical interpretation, our study sample was adequate to detect if there was a statistically significant difference of a medium effect size. However, a larger sample would be required to detect a smaller effect size. Last, as researchers, we were unaware of the decisions each school of nursing made in response to the COVID-19 pandemic. Thus, we have limited evidence of the actual changes and relied on the demographic data and answers to open-ended questions provided by participants.

Implications

This study has implications for multiple aspects of nursing education and future research. As nursing education continues to evolve, rigorous research into the ideal CLE, including student outcome performance, is required. Hayden et al. (2014) revealed in their landmark study (National Council of State Boards of Nursing) that up to 50% of traditional clinical placement hours could be replaced with high-quality simulation and still lead to equally competent nursing graduates. More recently, Leighton et al. (2021) performed a systematic review to assess whether learning outcomes set by nursing programs could be attributed to traditional CLEs. The results of their systematic review were empty. We do not know if what we have been doing for decades in our nursing programs is the gold standard (Harder, 2020; Leighton et al., 2021). The pandemic has forced us to consider how we provide nursing education, specifically CLEs, and to test whether alternative options, like virtual reality, open resources, and online learning, provide similar student outcomes.

Using Bauman's layered learning model (Bauman et al., 2018) could be a means of incorporating all types of CLEs while capitalizing on the benefits of each medium. Situating alternative CLEs like simulated learning, online case studies, and virtual simulation in a way that supports nursing students' development as they transition from novice to competent (Benner, 1984) allows for appropriate levelling of clinical experiences. Bauman proposes a four-layered approach beginning with didactic learning, such as lectures or readings, followed by interactive applications and games like online modules or virtual simulations (Bauman et al., 2018). The next layer would include applying skills using task trainers or high-fidelity simulators and simulated patients, and the final layer would take place in the real world during clinical placement (Bauman et al., 2018).

An area for future research includes a call for a Canada-wide study to investigate student experiences in the CLE using a standardized scale, such as the CLES+T Scale. Also, the involvement of CLE partner organizations could be beneficial as four of the five subscales of the CLES+T Scale evaluate the environment and nursing employees, which are under the control of hospital and community organizations. Knowledge of CLES+T Scale results could mobilize a shift in teaching culture and showcase both the positive and the hindering actions and behaviours of nursing employees and clinical managers. When we consider the critical role CIs play in shaping nursing students' experience in the CLE, it is imperative to continue investing in faculty

development for CIs. Furthermore, our research highlights the importance of faculty development for CIs, especially in alternative CLE settings like simulation, online, and virtual reality, to promote excellence in all CLE settings. Transferability of these findings exist as nursing faculty learn of similar experiences of their own nursing students.

Conclusion

The COVID-19 pandemic shifted how academic institutions offer experiences for nursing students in the CLE, transitioning from traditional, in-person, in-hospital settings to the addition of or replacement with simulated, online, shortened, and virtual experiences. We captured the initial reaction of nursing students at the beginning of the pandemic in March–June 2020. The results of this study provide reassurance that nursing students perceived their experiences to be of high quality, even during the pandemic. Insight into nursing students' perceptions and feelings provide an opportunity for Canadian nurse educators to take action with more awareness. Transitioning back to traditional in-person CLEs does not mean we should do away with alternative CLEs; instead, integrating varied CLEs in a layered approach will benefit nursing students. It is possible to pivot our perspective from anxiety and FOMO (fear of missing out) to resilience, adaptability, and innovation.

References

- Baker, C., Guest, E., Jorgenson, L., Crosby, K., & Boyd, J. (2012). *Ties that bind: The evolution of education for professional nursing in Canada from the 17th century to the 21st century*. Canadian Association for Schools of Nursing.
- Bauman, E. B., Ralston-Berg, P., & Gilbert, G. E. (2018). Nexus of game development: Curricular integration and faculty development. In R. Gordon & D. McGonigle (Eds.), *Virtual simulation in nursing education* (pp. 113–125). Springer.
- Benner, P. E. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Addison-Wesley.
- Canadian Association of Schools of Nursing. (2015). *Practice domain for baccalaureate nursing education: Guidelines for clinical placements and simulation*.
- Cant, R., Ryan, C., & Cooper, S. (2021). Nursing students' evaluation of clinical practice placements using the clinical learning environment, supervision and nurse teacher scale – A systematic review. *Nurse Education Today*, 104, 104983. <https://doi.org/10.1016/j.nedt.2021.104983>
- Chan, D. (2001). Combining qualitative and quantitative methods in assessing hospital learning environments. *International Journal of Nursing Studies*, 38(4), 447–459. [https://doi.org/10.1016/s0020-7489\(00\)00082-1](https://doi.org/10.1016/s0020-7489(00)00082-1)
- Chan, D. (2003). Validation of the clinical learning environment inventory. *Western Journal of Nursing Research*, 25(5), 519–532. <https://doi.org/10.1177/0193945903253161>
- Chuan, O. L., & Barnett, T. (2012). Student, tutor and staff nurse perceptions of the clinical learning environment. *Nurse Education in Practice*, 12(4), 192–197. <https://doi.org/10.1016/j.nepr.2012.01.003>
- Cook, D. A., Hatala, R., Brydges, R., Zendejas, B., Szostek, J. H., Wang, A. T., Erwin, P. J., & Hamstra, S. J. (2011). Technology-enhanced simulation for health professions education: A systematic review and meta-analysis. *Journal of the American Medical Association*, 306(9), 978–988. <https://doi.org/10.1001/jama.2011.1234>
- Currie, L. M., Wolff, A. C., & Michelson, G. (2015, February 16). *Placements for learners: Assessing capacity and effectiveness of clinical sites: The PLACES study—Final report*. Michael Smith Foundation for Health Research.
- Dewart, G., Corcoran, L., Thirsk, L., & Petrovic, K. (2020). Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse Education Today*, 92, 104471. <https://doi.org/10.1016/j.nedt.2020.104471>
- D'Souza, M. S., Karkada, S. N., Parahoo, K., & Vekatesaperumal, R. (2015). Perception of and satisfaction with the clinical learning environment among nursing students. *Nurse Education Today*, 35(6), 833–840. <https://doi.org/10.1016/j.nedt.2015.02.005>
- Dunn, S. V., & Burnett, P. (1995). The development of a clinical learning environment scale. *Journal of Advanced Nursing*, 22(6), 1166–1173. <https://doi.org/10.1111/j.1365-2648.1995.tb03119.x>

- Dziurka, M., Machul, M., Ozdoba, P., Obuchowska, A., Kotowski, M., Grzegorzczak, A., Pydys, A., & Dobrowolska, B. (2022). Clinical training during the COVID-19 pandemic: Experiences of nursing students and implications for education. *International Journal of Environmental Research and Public Health*, *19*, 6352. <https://doi.org/10.3390/ijerph19106352>
- Flott, E. A., & Linden, L. (2016). The clinical learning environment in nursing education: A concept analysis. *Journal of Advanced Nursing*, *27*(3), 501–513. <https://doi.org/10.1111/jan.12861>
- Fretwell, J. (1980). An enquiry into the ward learning environment. *Nursing Times Occasional Papers*, *76*, 69–75.
- Garrett, B., MacPhee, M., & Jackson, C. (2011). Implementing high-fidelity simulation in Canada: Reflections on 3 years of practice. *Nurse Education Today*, *31*, 671–676. <https://doi.org/10.1016/j.nedt.2010.10.028>
- Harder, N. (2010). Use of simulation in teaching and learning in health sciences: A systematic View. *Journal of Nursing Education*, *49*(1), 23–28. <https://doi.org/10.3928/01484834-20090828-08>
- Harder, N. (2015). Editorial: Replace is not a four-letter word. *Clinical Simulation in Nursing*, *11*, 435–536. <https://doi.org/10.1016/j.ecns.2015.07.001>
- Harder, N. (2018). Editorial: The value of simulation in health care: The obvious, the tangential, and the obscure. *Clinical Simulation in Nursing*, *15*, 73–74. <https://doi.org/10.1016/j.ecns.2017.12.004>
- Harder, N. (2020). Editorial: Simulation amid the COVID-19 pandemic. *Clinical Simulation in Nursing*, *43*, 1–2. <https://doi.org/10.1016/j.ecns.2020.03.010>
- Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation*, *5*(2), S4–S41. [https://doi.org/10.1016/s2155-8256\(15\)30062-4](https://doi.org/10.1016/s2155-8256(15)30062-4)
- Hooven, K. (2014). Evaluation of instruments developed to measure the clinical learning environment: An integrative review. *Nurse Educator*, *39*(6), 316–320. <https://doi.org/10.1097/NNE.000000000000076>
- Hosoda, Y. (2006). Development and testing of a clinical learning environment diagnostic inventory for baccalaureate nursing students. *Journal of Advanced Nursing*, *56*(5), 480–490. <https://doi.org/10.1111/j.1365-2648.2006.04048.x>
- Jenson, C. E., & Forsyth, D. M. (2012). Virtual reality simulation: Using three-dimensional technology to teach nursing students. *Computers, Informatics, Nursing*, *30*(6), 312–318. <https://doi.org/10.1097/NXN.0b013e31824af6ae>
- Jessee, M. A. (2016). Influences of sociocultural factors within the clinical learning environment on students' perceptions of learning: An integrative review. *Journal of Professional Nursing*, *32*(6), 463–486. <https://dx.doi.org/10.1016/j.profnurs.2016.03.006>
- Jones, A., & Hegge, M. (2007). Faculty comfort levels with simulation. *Clinical Simulation in Nursing*, *3*(1), e15–e19. <https://doi.org/10.1016/j.ecns.2009.05.034>

- Karaduman, G. S., Kubat-Bakir, G., Sim-Sim, M. M. S. F., Basak, T., Skarbaliene, A., Brasaitė-Abrome, I., & Jose Lopes, M. (2022). Nursing students' perceptions on clinical learning environment and mental health: A multicenter study. *Rev. Latino-Am. Enfermagem*, 30, e3528. <https://doi.org/10.1590/1518-8245.5577.3528>
- Knowles, M. (1984). *Andragogy in action: Applying modern principles of adult learning*. Jossey-Bass.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.
- Larue, C., Pepin, J., & Allard, E. (2015). Simulation in preparation or substitution for clinical placement: A systematic review of the literature. *Journal of Nursing Education and Practice*, 5(9), 132–140. <https://doi.org/10.5430/jnep.v5n9p132>
- Leighton, K., Kardong-Edgren, S., McNelis, A. M., Foisly-Doll, C., & Sullo, E. (2021). Traditional clinical outcomes in prelicensure nursing education: An empty systematic review. *Journal of Nursing Education*, 60(3), 136–142. <https://doi.org/10.3928.01484834-20210222-03>
- Lewandowski, S., Landry, K., & Prieto, V. (2021). Rising to the COVID-19 nursing education challenges and transitioning to online clinical practice. *Nurse Educator*, 46(6), E141–E142. <https://doi.org/NNE.0000000000001113>
- Mansutti, I., Saiani, L., Grasseti, L., & Palese, A. (2017). Instruments evaluating the quality of the clinical learning environment in nursing education: A systematic review of psychometric properties. *International Journal of Nursing Studies*, 68, 60–72. <https://doi.org/10.1016/j.ijnurstu.2017.01.001>
- Mulyadi, M., Tonapa, S. I., Rompas, S. S. J., Wang, R.-H., & Lee, B.-O. (2021). Effects of simulation technology-based learning on nursing students' learning outcomes: A systematic review and meta-analysis of experimental studies. *Nurse Education Today*, 107, 105127. <https://doi.org/10.1016/j.nedt.2021.105127>
- Murray, R. (2018). An overview of experiential learning in nursing education. *Advances in Social Sciences Research Journal*, 5(1), 1–6. <https://doi.org/10.14738/assrj.51.4102>
- O’Cathain, A., & Thomas, K. J. (2004). “Any other comments?” Open questions on questionnaires – a bane or a bonus to research? *BMC Medical Research Methodology*, 4(25), 1-7. <https://doi.org/10.1186/1471-2288-4-25>
- Oermann, M. H. (2021). COVID-19 disruptions to clinical education. *Nurse Educator*, 46(1). <https://doi.org/10.1097/NNE.0000000000000947>
- O’Flynn-Magee, K., Hall, W. A., Segaric, C., & Peart, J. (2020). Guest editorial: The impact of COVID-19 on clinical practice hours in pre-licensure registered nurse programs. *Teaching and Learning in Nursing*, 16(1). <https://doi.org/10.1016/j.teln.2020.07.007>
- Oliveira Silva, G., Oliveira, F. S. e., Coelho, A. S. G., Cavalcante, A. M. R. Z., Vieira, F. V. M., Fonseca, L. M. M., Campbell, S. H., & Aredes, N. D. A. (2022). Effect of simulation on stress, anxiety, and self-confidence in nursing students: Systematic review with meta-analysis and meta-regression. *International journal of nursing studies*, 133, 104282. <https://doi.org/10.1016/j.ijnurstu.2022.104282>

- Orton, H. (1981). Ward learning climate. *Nursing Times Occasional Papers*, 77, 65–68.
- Polit, D., & Beck, C. (2017). *Essentials of nursing research: Appraising evidence for nursing practice* (9th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.
- Pratt, D., & Johnson, J. (1998). The apprenticeship perspective: Modelling ways of being. In D. Pratt (Ed.), *Five perspectives on teaching in adult and higher education*. Krieger.
- Reeves, S., Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 6(6), Article CD000072.
- Saarikoski, M., & Leino-Kilpi, H. (2002). The clinical learning environment and supervision by staff nurses: Developing the instrument. *International Journal of Nursing Studies*, 39(3), 259–267. [https://doi.org/10.1016/s0020-7489\(01\)00031-1](https://doi.org/10.1016/s0020-7489(01)00031-1)
- Saarikoski, M., Isoaho, H., Warne, T., & Leino-Kilpi, H. (2008). The nurse teacher in clinical practice: Developing the new sub-dimension to the Clinical Learning Environment and Supervision (CLEs) Scale. *International Journal of Nursing Studies*, 45(8), 1233–1237. <https://doi.org/10.1016/j.ijnurstu.2007.07.009>
- Sand-Jecklin, K. (2009). Assessing nursing student perceptions of the clinical learning environment: Refinement and testing of the SECEE inventory. *Journal of Nursing Measurement*, 17(3), 232–246. <https://doi.org/10.1891/1061-3749.17.3.232>
- Shorey, S., & Ng, E. D. (2021). The use of virtual reality simulation among nursing students and registered nurses: A systematic review. *Nurse Education Today*, 98, 104662. <https://doi.org/10.1016/j.nedt.2020.104662>
- Smith, P. C., & Hamilton, B. K. (2015). The effects of virtual reality simulation as a teaching strategy for skills preparation in nursing students. *Clinical Simulation in Nursing*, 11(1), 52–58. <https://doi.org/10.1016/j.ecns.2014.10.001>
- Wilson-Keates, B., Goldsworthy, S., Baker, C., & Crosby, K. (2021, June 10). *Virtual simulation in nursing education: A national survey report* [PowerPoint Slides]. Canadian Association of Schools of Nursing. https://www.casn.ca/wp-content/uploads/2021/05/VSim-Survey-Report_Barb-and-Sandra.pdf