The Mediating Effect of Self-Efficacy on the Clinical Learning Environment and Critical Thinking

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Abstract

Newly graduated nursing students entering the work field are not meeting the standard levels of skills such as critical thinking. The clinical learning environment (CLE) is a crucial part of nursing education that allows nursing students to develop critical thinking skills while dealing with real-life patient scenarios. Moreover, present during clinical exposure is self-efficacy that is vaguely linked to the CLE and critical thinking. Hence, this study aims to identify the relationships between these three variables. This quantitative study purposively sampled 134 nursing students enrolled during the Academic Year 2019-2020. Respondents answered an online survey questionnaire composed of four parts: the demographic profile, CLE, perceived clinical self-efficacy, and critical thinking. The descriptive statistics using SPSS 24 revealed that the respondents perceived their CLE as *good*, they had a *high* level of perceived clinical self-efficacy, and they had a *good* level of perceived critical thinking. Moreover, Structural Equation Modeling (SEM) using AMOS 23 revealed that the model's fit indices are excellent (CMIN = .985; CFI = 1; SRMR = 0.043; RMSEA = 0.00; and PClose = 0.895). Analysis showed that CLE has a *positive direct effect* on perceived clinical self-efficacy but no significant direct effect on perceived critical thinking. Further, perceived clinical self-efficacy has a *positive direct effect* on perceived critical thinking. Lastly, self-efficacy *fully mediates* the positive relationship between the CLE and perceived critical thinking. Evidence reveals that nursing educators could increase students' perceived critical thinking in the clinical area by enhancing self-efficacy. The study recommends replication of the study with larger samples and that CLE instruments should be further validated and developed.

Keywords: self-efficacy, hospital placement, structural equation modeling, critical thinking

INTRODUCTION

The new century placed a spotlight on nursing, naming 2020 the "Year of the Nurse" and emphasizing how they have become the heart of the medical workforce; thus, healthcare is in danger when placed in the hands of incompetent nurses (Bourgault, 2020). Nurses are expected to be ready at all times and make quick appropriate responses to a patient's ever-changing condition through the application of critical thinking (CT); however, this is not always the case creating medical liabilities (Shoulders et al., 2014a). This includes when nurses are inflexible during medical situations and heavily depend on direct instructions or protocols instead of applying critical thinking. Not every healthcare scenario can be covered by protocols; thus, a nurse's inability to analyze and think for him or herself makes them incompetent to care for patients in

critical situations (Shoulders et al., 2014b). Studies in Greece have also claimed that critical thinking skills are one of the most vital assets a nurse can possess because it helps provide quality care that is safe and beneficial to patients (Papathanasiou et al., 2014). It is so important that most hospitals and nursing boards globally expect nursing programs to produce nurses who are already highly competent with this skill. However, not all new graduate nurses have critical thinking skills at the expected level, as seen in the United States and the Philippines (Hooper, 2014, Mejila, 2018). A study conducted in Iran on first and fourth-year nursing students showed that there was no significant difference in their critical thinking level showing that nursing programs are having difficulties in developing critical thinking skills in nursing students (Azizi-Fini, Hajibagheri, & Adib-Hajbaghery, 2015). Another study done in the United States that further emphasizes the scale of this problem is the study of Sarah Newton and Gary Moore (2013), which compared the critical thinking skills of BSN students, with little prior college experience, and accelerated second-degree (ASD) students, who already have a BSN degree, in the same institution. It was discovered that over the curriculum year, there was no significant difference in CT skill from the start and end of the year for all BSN and ASD students (Newton & Moore, 2013). As seen by various researches, the problem can be found in several countries and has also globalized to affect locally too. Moreover, Lender Marquez (2017) also emphasizes concern for this problem in the Philippines. Especially in a country that is highly dependent on its workforce to keep the country afloat, there is an urgency to ensure that the youth not only become competent workers but critical thinkers (Marquez, 2018). Nursing researchers from Manila also concluded that critical thinking is an essential competency for future nurses to create efficient nursing care for clients. However, nurse educators face challenges in producing students with this skill (Mejila, 2018). This implies that, internationally and locally, nursing programs are failing to help nursing students in developing critical thinking skills, which are highly needed in the profession.

One of the influencing factors that have been connected to critical thinking skills is self-efficacy. Self-efficacy is a personal factor that has been researched to positively contribute to a nursing student's level of critical thinking skills (Ghanizadeh, 2017). Many researchers from the United States, Southern Europe, and Asia have noticed that an individual's level of self-efficacy correlates with how well they accomplish a task or how they approach it (DeWitz et al., 2009). Similar connections between self-efficacy and skill development have been proven in the Philippines by Angelo Dullas (2018). Dullas' (2018) research on Filipino students showed that there is a moderate relationship between self-efficacy and academic development. The simple connection has been through standard situations; however, it has been seen to vary under the circumstances (Gurcay & Ferah, 2018). One circumstance considered was the environment in which learning takes place, also known as workplace learning, which self-efficacy has been connected to through the research of Cox and Simpson (2016). Within the nursing practice, the main environment for workplace learning is the clinical learning environment, which has been used to achieve the expected level of critical thinking skills in nursing programs (Desrosiers, 2017). Observation of clinical studies with dentistry students from the United States showed that it is the prime setting for instructors to teach critical thinking and for students to further develop their CT skills through application (Horenstein et al., 2000). Nursing students in Pennsylvania are exposed to patients in the same matter, making the importance and use of the CLE applicable to the discipline and an essential part of nursing programs (Lovecchio et al., 2015). This means that the CLE provides various situations, clinical problems, and stressors for students that may or may not affect their critical thinking process, which leads to moderations in the standard relationship between self-efficacy and critical thinking as found in research done in the Middle East (Dadgaran

et al., 2012). This situation has also been seen in nursing schools in the Philippines, where research shows that students are frequently using critical thinking throughout all aspects of the clinical field. The Liceo de Cagayan nursing school completed a study that showed frequent exposure in the clinical learning environment might help with the development of skills amongst nursing students (Acain et al., 2009). It appears that the literature is consistent that self-efficacy has a significant connection with critical thinking skills. However, there is a dearth of studies that explored the role of CLE in the relationship of self-efficacy and critical thinking skills, considering that CLE is the platform to which the two later factors interact. Hence, the examination of the plausibility of a mediation model derived from literature is warranted.

METHODOLOGY

Research Design

The descriptive cross-sectional mediation study was used to determine if there is a relationship between nursing students' self-efficacy and critical thinking in the clinical learning environment. A cross-sectional study is a research design that allows the researcher to measure the outcomes and exposure of the study participants at the same time commonly used in population-based surveys (Setia, 2016). This type of design also utilizes participants that fit a certain criterion according to the study in order to obtain relevant data (Setia, 2016). The study also used a descriptive research design, in which the extent of the variable was compared according to gender and year level (Creswell, 2014). Lastly, this study used Structure Equation Modeling, specifically a mediation study design, in order to see if there is an effect of the CLE on the relationship of self-efficacy and critical thinking. Mediation study designs investigate the stimulus and reaction relationship between the variables (MacKinnon et al., 2007). A variable is considered a mediating variable if it causes a causal sequence in the relationship between self-efficacy and critical thinking (MacKinnon et al., 2007).

Population and Sampling Technique

The target population of the study was the nursing students in the nursing schools at the Adventist University of the Philippines in Silang, Cavite, and the Manila Adventist College in Manila. The study included nursing students who were in the clinical division in either their second, third, or fourth year and were enrolled during the 2019-2020 class year, regardless of age, gender, and nationality. The total number of participants was 134 students from the Adventist University of the Philippines and Manila Adventist College. Of the 134 participants, there were 121 participants from the Adventist University of the Philippines and 13 participants from Manila Adventist College. The researchers looked into all males and females in the nursing colleges in the second, third, and fourth year levels. The researchers will utilize purposive sampling as a method of gathering data. This method is mainly used in quantitative research for "the identification and selection of information-rich cases for the most effective use of limited resources" (Palinkas et al., 2015). This strategy ensures that the participants of the research are knowledgeable or experienced in the phenomenon to be studied (Valerio et al., 2016). However, a disadvantage of this sampling method requires time to identify participants who fall under the specific research characteristics (Valerio et al., 2016). The target respondents consisted of all 134 students who were selected due to reaching the qualifications of the research. Going below the number of respondents would cause the collected data to be reliable (Tongco, 2007). The researchers allowed the respondents to answer the questions when they were available via online questionnaires on google forms.

Instrumentation

The researchers used a questionnaire made up of four parts. Demographic Profile. The first part is the demographic profile of the respondent, such as age, gender, year level, and most recent clinical rotation in private hospitals. Clinical Learning Environment Scale, the second part evaluated how the respondent perceives the clinical learning environment from their most recent clinical duty in a private hospital. There are four dimensions making up the CLE which are the physical space, psychological and interactions, organizational culture, and teaching and/or learning components (Flott & Linden, 2016). The questionnaire consisted of 34 adapted questions that were separated into four dimensions. Questions 1 to 9 pertained to the physical facility/space, questions 10 to 15 about psychosocial and interaction, questions 16 to 20 about the student and staff nurses, questions 21 to 26 about organizational culture, and questions 27 to 34 about teaching and learning components. Each item used a 5-point Likert scale rated between "Strongly Disagree" (1 point) and "Strongly Agree" (5 points). The scale items will be scored between 1-5 points, as seen in *Table 3*. The Clinical Self-Efficacy Scale is the third part that evaluated the extent of how the respondents perceived their clinical self-efficacy during the nursing process. It is broken up into five parts corresponding to the five steps of the nursing process. The questionnaire consisted of 24 adapted questions divided into the following dimensions: 1 to 4 under assessment, 5 to 9 under diagnosis, 10 to 12 under planning, 13 to 19 under intervention, and 21 to 24 under evaluation. Each item uses a 5-point Likert scale rated between "Cannot Do" (1 point) and "Highly Can Do" (5 points). The scale items were scored between 1-5 points. The questionnaires for Clinical Learning Environment and Clinical Self-Efficacy were both adopted from a previous study done in 2018, entitled "Clinical Learning Environment and Perceived Stress as Predictors to Self-Efficacy Among Clinical Nursing Students." Lastly, the Critical Thinking Scale, the fourth part of the questionnaire, evaluated the respondent's perception of their critical thinking abilities. It consists of 18 adapted questions from the study of Salizar Ludin (2018) entitled "Does Good Critical Thinking Equal Effective Decision-Making Among Critical Care Nurses? A Cross-Sectional Survey," which was translated into English from the original that was created by Miaofen Yen and her colleagues from their study "A Critical Thinking Disposition Scale for Nurses: Short Form" in 2010. The questionnaire is broken down into three parts; questions 1 to 5 pertain to systemic analysis, questions 6 to 13 pertain to thinking within the box, and questions 14 to 18 pertain to thinking outside of the box. Each item uses a 5-point Likert scale rated between "Completely Disagree" (1 point) and "Completely Agree" (5 points). The scale items were scored between 1-5 points, as seen in Table 5.

Analysis of Data

This study will use SPSS version 23.0 software to analyze data. The descriptive statistics, mean and standard deviation, were used to determine the degree of self-efficacy, critical thinking skills, and perceived CLE of the respondents. The Pearson correlation coefficient was used to determine if there is a significant relationship between the independent and dependent variables. The ANOVA (Analysis of Variance) and t-test will be used to determine the difference in self-efficacy and critical thinking skills of the respondents in terms of gender and year level. After correlation was tested, structural equation modeling using the AMOS version 24 will be done to test whether self-efficacy mediates the relationship between CLE and CT. This research also utilizes the bootstrapping method due to the small number of respondents and the uneven distribution of respondents throughout gender groups and year levels. The Bootstrap method does not assume a normal distribution but generates the distribution of Z directly from the data (Cheung & Lau,

2008). Through this method, the researchers will be able to use structural equation modeling to analyze the data.

Ethical Consideration

This study was subjected to Ethics by the Ethics Review Board (ERB) of the Adventist University of the Philippines. As part of the ethical consideration of the study, informed consent was secured to participate in the study voluntarily. The respondents had not been forced to participate in the study. They had the right to accept or withdraw from participating in the study. Before the study was conducted, a complete explanation of the purpose and nature of the study had been given to the respondents. Informed consent had also been given to respondents, indicating that all data collected had been kept in confidentiality, specifically by removing the names of the respondents. Confidentiality in dealing with the data that was collected was also observed.

RESULTS AND DISCUSSION

Extent of Perceived CLE Among Respondents

Table 6 presents the extent of perceived CLE among respondents. The result showed that CLE had an overall mean score of 4.06 (SD=0.42), which was interpreted as *Good*. As indicated in Table 1, it showed that the statement "I am oriented about the hospital setup during my first exposure" had the highest mean score of 4.51 (SD= 0.60). It was followed by the statement, "My CI is a positive role model in delivering nursing care," with a mean score of 4.51(SD=0.57). The third highest statement was "My Clinical Instructor (CI) gives the students a chance to talk," with a mean score of 4.48(SD=0.62).

Table 6: Extent of Perceived CLE Among Respondents

	Clinical Learning Environment	Mean	SD	Scaled Response	Interpretation
32	I was oriented about the hospital setup during my first exposure.	4.51	.60	Strongly Agree	Very Good
27	My CI is a positive role model in delivering nursing care.	4.51	.57	Strongly Agree	Very Good
10	My Clinical Instructor (CI) gives the students chance to talk.	4.48	.62	Agree	Good
12	My CI is patient to listen to my concerns during duty.	4.47	.70	Agree	Good
15	My CI encourages me to ask questions.	4.47	.67	Agree	Good
14	My CI is able to communicate well with both the local and international…	4.45	.66	Agree	Good
11	I feel comfortable asking my CI questions.	4.43	.75	Agree	Good
13	Open communication exists between me and my CI.	4.41	.67	Agree	Good
29	My CI takes the extra mile to provide the best clinical information.	4.41	.71	Agree	Good
34	Discussion about the patient's case with my CI is meaningful.	4.41	.69	Agree	Good
31	My CI sees to it that I develop different skills in the ward.	4.40	.61	Agree	Good
33	My CI facilitates the application of theory in my related learning experiences.	4.38	.59	Agree	Good
25	I am encouraged to perform actual nursing care and procedures.	4.35	.71	Agree	Good
28	My CI gives feedback right after skill performance.	4.34	.66	Agree	Good
30	My CI assigned me to interesting cases in the ward.	4.32	.68	Agree	Good

26	The quality of care that I render in the hospital unit/ward is in accordance.	4.23	.70	Agree	Good
5	The medical equipment in the hospital unit/ward is functional.	4.16	.71	Agree	Good
9	Supplies and equipment for nursing care are accessible.	4.12	.76	Agree	Good
22	The nurse-in-charge works with our CI to enhance student learning in the ward.	4.12	.76	Agree	Good
21	The nurse-In-charge expects me to give quality nursing care to my patient.	4.11	.76	Agree	Good
19	The staff nurses are willing to assist me in performing skills in the ward.	4.07	.68	Agree	Good
16	The staff nurses are friendly.	4.05	.71	Agree	Good
6	The hospital unit/ward is complete with medical equipment.	3.95	.88	Agree	Good
8	There is a diversity of clinical cases in the hospital unit/ward.	3.90	.92	Agree	Good
20	The staff nurse treats me as a part of the health care team.	3.89	.84	Agree	Good
23	The nurse-in-charge gives advice on how I can improve a particular skill.	3.82	.924	Agree	Good
2	The student's area is well lighted.	3.76	.88	Agree	Good
7	There are sufficient facilities promoting patients' privacy during care.	3.73	1.09	Agree	Good
17	I find the staff nurses "unwelcoming" or "cold."	3.71	.92	Agree	Good
18	The staff nurse asks me for updates about my patient's condition.	3.67	.88	Agree	Good
3	The student's area is well ventilated.	3.34	1.10	Neutral	Fair
1	The place designated for students is spacious.	3.16	1.09	Neutral	Fair
4	The student's area is furnished with enough chairs, a table, and a board.	2.86	1.10	Neutral	Fair
24	Our exposure in the ward is limited only to the observation of the skills.	2.56	1.08	Neutral	Fair
	Clinical Learning Environment	**4.06**	**.42**	**Agree**	**Good**

*Legend: 4.50-5.00 strongly agree (**very good**), 3.50-4.49 agree (**good**), 2.50-3.49 neutral (**fair**),1.50-2.49 disagree (**poor**), 1.00-1.49 strongly disagree (**very poor**).*

On the other hand, the statement "Our exposure in the ward is limited only to the observation of the skills." had the lowest mean score of 2.56 (SD= 1.08), which was interpreted as *Fair*. The second to the lowest statement was, "The student's area is furnished with enough chair, table, and board…" with a mean score of 2.86(SD=1.10). The statement that ranks third to the lowest stated, "The place designated for students is spacious..." with a mean score of 3.16 (SD=1.09). Although items 1, 4, and 24 were considered as the lowest, they were still interpreted as "*Fair.*" Nabors (2012) emphasizes the importance of how learning takes place, meaning the learning environment and methods are vital aspects of education and can enhance learning. For nursing students, this correlates to the clinical learning environment, which can be broken down into five factors; physical facility/space, student and clinical instructor, student, and staff nurses, organizational culture, and teaching and learning component. According to the results, the respondents perceive their clinical learning environment as a positive contributor to their nursing education. This is consistent with the studies of Purvis (2009), who state that the clinical learning environment is important because it aids students in applying nursing skills, knowledge, and experience social relationships in a caregiving situation. The results also show that the respondents take into consideration all aspects of the clinical learning environment, which is consistent with the study done by Tomieto, Saarikoski & Tuomikoski (2018). They state that the clinical learning environment is an overall interaction of individual characteristics, motivation factors, student

satisfaction, team attitudes, and teachers, which can all be found in the CLE five factors (Tomieto, Saarikoski & Tuomikoski (2018). Two out of the three highest-ranked items pertain to the student and clinical instructor, meaning that nursing students depend greatly on their clinical instructors in their clinical duty. This is consistent with the study of Ekstedt (2019) that states that the "student-teacher relationship is crucial to learning." This implies that teachers and clinical instructors can heavily influence the clinical learning experience and can also enhance a student's perception of it to improve clinical learning. Overall, Table 2 implies that, together, improvements in all items about the clinical learning environment can effectively enhance nursing education.

Extent of Perceived Clinical Self-Efficacy Among Respondents

Table 7 shows the extent of perceived clinical self-efficacy among respondents. The results show that self-efficacy had an overall mean score of 4.01 (SD=0.54), which was interpreted as *High.* As referred from Table 2, the statement "completely document my patient's condition, nursing action and patient's response," which ranks highest, has a mean of 4.23 (SD=0.69), which is interpreted as *high.* The second highest statement, "perform nursing interventions that are safe for the patient," is interpreted as *high* with a mean of 4.18 (SD=0.69). The third highest rank statement, "Objectively document my patient's condition, nursing action, and patient's response," has a mean of 4.18 (SD=0.71).

Table 7: Extent of Perceived Clinical Self-Efficacy Among Respondents

	Clinical Self-Efficacy	Mean	SD	Scaled Response	Interpretation
19	Completely document my patient's condition, nursing action, and patient's response.	4.23	.695	Can do a lot	High
14	Perform nursing interventions that are safe for the patient.	4.18	.695	Can do a lot	High
18	Objectively document my patient's condition, nursing action, and patient's response.	4.18	.716	Can do a lot	High
1	Formulate client centered goals	4.11	.732	Can do a lot	High
16	Do appropriate health education to my patient.	4.09	.764	Can do a lot	High
2	Systematically collect data from secondary sources (e.g., laboratory and diagnostic results)	4.07	.819	Can do a lot	High
15	Deliver timely nursing actions.	4.05	.733	Can do a lot	High
20	Assess whether nursing outcomes were met.	4.03	.789	Can do a lot	High
7	Prioritizes the problems identified	4.02	.703	Can do a lot	High
23	Identify reasons why goals were not met.	4.02	.750	Can do a lot	High
24	Present evidences to support my met goal/s.	4.01	.785	Can do a lot	High
13	Perform nursing interventions that are appropriate to resolve the problem identified.	4.01	.745	Can do a lot	High
4	Organize and cluster data collected	4.00	.730	Can do a lot	High
9	Look for appropriate rationale to support my nursing diagnosis	4.00	.750	Can do a lot	High
21	Assess if the interventions done were effective.	4.00	.794	Can do a lot	High
10	Formulate goals that are specific, measurable, attainable, realistic, and time-bound (SMART)	4.00	.704	Can do a lot	High
3	Collect relevant data from physical assessment	3.99	.789	Can do a lot	High
17	Do appropriate health education to my patient's family.	3.99	.750	Can do a lot	High
22	Assess if the interventions done were adequate.	3.97	.774	Can do a lot	High
1	Systematically collect data from interview	3.96	.779	Can do a lot	High
12	Involve patient in formulating goals	3.91	.823	Can do a lot	High

				Scaled Response	Interpretation
6	Identify potential problems based on data collected	3.88	.752	Can do a lot	High
8	Formulate nursing diagnosis appropriate to the problem identified	3.85	.727	Can do a lot	High
5	Identify actual problems based on data collected	3.79	.792	Can do a lot	High
	Clinical Self-Efficacy	**4.01**	**.54**	**Can do a lot**	**High**

*Legend: 4.50-5.00 Highly Certain Can do (**Very High**), 3.50-4.49 Can do a lot (**High**), 2.50-3.49 moderately can do (**Fair**),1.50-2.49 Can do a little (**Low**), 1.00-1.49 Cannot do (**Very Low**).*

On the other hand, the statement which had the lowest mean score of 3.79 (SD=0.79) states, "identify actual problems based on data collected." The second-lowest statement states, "formulate nursing diagnosis appropriate to the problem identifies," and has a mean score of 3.85 (SD=0.72). The third to the lowest rank statement, "Identify potential problems based on data collected," with a mean score of 3.88 (SD=0.75). The lowest rank items, 5, 8, and 6, have mean scores below 3.90, but they are still interpreted as *high.*

Albert Bandura defined self-efficacy as one's belief in their ability to succeed in specific situations (1995). These results imply that the respondents acknowledge that they have a high level of self-efficacy during clinical duty, specifically when documenting a patient's condition, performing safe nursing interventions to the patient, and recording responses. This is consistent with the study done by Cox and Simpson (2016) that recognizes self-efficacy as an important factor in a student's degree of confidence to take on challenges and improve situations. This can be clearly seen in the clinical environment as nursing students are faced with various and numerous tasks. Self-efficacy is also recognized as a vital factor in student motivation and learning, which leads to a greater degree of confidence in accomplishing academic challenges (Ancel, 2016). These results also imply that the respondents are able to meet the expectations of the nursing program, in terms of learning and skill performance, that are necessary to become registered nurses (Harvey and McMuray, 1994). Overall, these results along with the established literature, mean that the respondents are more likely to be successful when performing nursing activities in each of the five dimensions of the nursing process.

Extent of Perceived Critical Thinking Among Respondents

Table 8 presents the result of the study on the extent of perceived critical thinking skills among respondents. The results show that critical thinking skills had an overall mean score of 3.84 (SD=0.46), which was interpreted as *good.* As indicated in Table 1, it showed that the highest rank statement, "I like to know how things work out," has a mean score of 4.50 (SD=0.74), which is interpreted as *excellent*. The next statement, "I have a desire for knowledge," has a mean score of 4.37 (SD=0.74), which is interpreted as *good.* The third highest rank statement, "I expect to face the challenge of patient care," has a mean score of 4.29 (SD=0.74), which is interpreted as *good.*

Table 8: Extent of Perceived Critical Thinking Among Respondents

	Critical Thinking Skills	**Mean**	**SD**	**Scaled Response**	**Interpretation**
18	I like to know how things work out.	4.50	.743	Completely Agree	Excellent
14	I have a desire for knowledge.	4.37	.742	Agree	Good
16	I expect to face the challenge of patient care	4.29	.746	Agree	Good

11	Continuing education activities are a waste of time	4.17	1.024	Agree	Good
17	It is interesting to solve tough problems	4.14	.808	Agree	Good
15	I am satisfied that I can understand other's ideas	4.14	.790	Agree	Good
1	I am a person with logical thinking	3.85	.805	Agree	Good
2	I am good at solving problems	3.83	.757	Agree	Good
12	If possible, I try to avoid reading	3.78	1.099	Agree	Good
4	I appreciate myself as a person who has comprehensive and precise thought	3.76	.848	Agree	Good
3	I can easily organize my thoughts	3.73	.840	Agree	Good
10	I pretend to be a logical person, although I'm not	3.71	1.066	Agree	Good
8	During the team discussion, if someone's argument had been denied by others, the person would not have a right to express their argument.	3.70	1.076	Agree	Good
5	While facing a problem, my. Peers are used to asking for my opinion in their decision-making because I can objectively analyze the problem.	3.67	.924	Agree	Good
7	I am afraid of discovering the truth in many issues.	3.59	.926	Agree	Good
6	I only look for the truths which would support m opinions rather than those that would reflect my opinions	3.50	.947	Agree	Good
13	Decisions made by authority are always right	3.43	.976	Agree	Good
9	Everyone has the right to address their opinions, but I don't bother with what they say	2.95	1.219	Agree	Good
	Critical Thinking Skills	**3.84**	**.46**	**Agree**	**Good**

*Legend: 4.50-5.00 Completely agree (**Excellent**), 3.50-4.49 Agree (**Good**), 2.50-3.49 Neutral (**Fair**),1.50-2.49 Disagree (**Poor**), 1.00-1.49 Completely disagree (**Bad**).*

The statement, "Everyone has the right to address their opinions, but I don't bother with what they say," has the lowest mean score of 2.95 (SD=1.21), which is interpreted as *good*. The second to the lowest rank statement, "Decisions made by authority are always right," has a mean score of 3.43 (SD=0.97), which is interpreted as *good*. The statement, "I only look for the truths which would support m opinions rather than those that would reflect my opinions," ranks third to the lowest with a mean score of 3.40 (SD=0.94). Despite the rank, items 9, 13, and 6 have mean scores that are still interpreted as *good*.

Critical thinking takes place throughout the entirety of clinical exposure, and successful outcomes can benefit the student. The data results indicate that respondents have a good development of their critical thinking skills in the CLE. This is consistent with the study of Jaffe et al. (2019) state that the clinical learning experience is imperative to promoting critical thinking. Generally, the level of critical thinking skills of the respondents as represented by the data imply that the respondents are able to deal with complex situations in the CLE. They are also more likely to take in information, analyze them, create solutions, and evaluate their performance in clinical settings (Purvis, 2009). They are also more likely to continue to further develop critical thinking skills as they continue their nursing education and start professionally (Papathanasiou et al., 2014).

Extent of the Respondents' Self-Efficacy When Gender was Considered

Table 9 presents the difference in the clinical self-efficacy considering gender with the *p*-value of (*p*=.353). The data gathered revealed that there were 55 male students and 79 female students;

thus, the hypothesis that stated there was no significant difference in the clinical self-efficacy considering gender was accepted.

Table 9: Difference in Clinical Self-Efficacy Considering Gender

Gender	N	Mean	Standard Deviation	F	p-values	Verbal Interpretation
Male	55	3.96	0.07	.869	.353	Not Significant
Female	79	4.05	0.05			

According to Relo (2005), females express greater self-efficacy in their actions and have more confidence in their abilities. The studies of Demiroren, Turan, Oztuna (2016) agree with Relo that females have higher levels of self-efficacy and emphasize the difference between males and females when working in the clinical learning environment. They believe that females are more responsible about their learning and performance skills. However, the results show that differences in gender do not affect one's level of perceived self-efficacy. This is consistent with the study of Huang (2013) that acknowledges that females may have higher self-efficacy, but in the clinical setting, it is not a significant difference. Thus, males and females perform similarly in the clinical setting in terms of self-efficacy (Huang, 2013). Goudemans et al. (2013) consider that males and females excel in different areas that cancel each other out in the clinical area, making neither gender have a higher level of perceived self-efficacy. The study discusses that females have higher learning accomplishments, but males have more developed brains and complex thinking capabilities (Goudemans et al., 2013). As mentioned in the literature, self-efficacy can be developed through many channels, and this can explain why gender has no effect on the perceived level of self-efficacy. Overall, this means that all the respondents have a high level of perceived self-efficacy.

Extent of the Respondents' Self-Efficacy When Year Level Was Considered

Table 10 presents the difference in the clinical self-efficacy considering year level with the *p*-value of (*p*=.043). The data shows that there were 46 2nd year students, 49 3rd year students, and 39 4th year students; thus, the hypothesis was not accepted.

Table 10: Difference in Clinical Self-Efficacy Considering Year Level

Year Level	N	Mean	Standard Deviation	F	p-values	Verbal Interpretation
2nd Year	46	3.97	.55	3.23	.043	Significant
3rd Year	49	3.90	.52			
4th Year	39	8. 19	.57			

Table 11: Comparison of Clinical Self-Efficacy Across Respondents Year Level

(I) Year Level	(J) Year Level	Mean Difference (I-J)	Std. Error	p-values
2nd Year	3rd year	.06968	.10932	.800

	4th year	. -.21319	.11591	.161
3rd Year	2nd Year	-.06968	.10932	.800
	4th Year	-. 28287[*]	.11427	.039
4th Year	2nd Year	.21319	.11591	.161
	3rd Year	.28287[*]	.11427	.039

*. The mean difference is significant at the 0.05 level

The assumption of homogeneity of variances was tested and satisfied via Levene's *F* test $F(134) = .936$, $p = .395$. Table 5 showed that there was a significant difference in the clinical self-efficacy between year levels as demonstrated by one-way ANOVA $F(3, 134) = 3.23$, $p = .043$. A Tukey post hoc test in Table 11 revealed that 4th year nursing students have significantly higher perceived clinical self-efficacy than the 3rd year nursing students ($p = .039$). On the other hand, there was no statistically significant difference in the perceived self-efficacy between the 2nd year and 3rd year ($p = .80$) or between the 2nd year and 4th year ($p = .161$). The results are consistent with the various previous literature reviewed. DeWitz (2009) believed that self-efficacy was malleable and could change over time depending on an individual's perceived success or failure. On one side of the spectrum, the study of Kassem (2015) says that younger level students have lower levels of self-efficacy than those in higher levels. This is true when comparing the mean scores of 2nd year, 3.97, and 3rd year, 3.90, to the means score of 4th years, 8.19. This is also supported in Table 11 as 4th year nursing students have significantly higher perceived clinical self-efficacy than 3rd year nursing students ($p = .039$). This result is believed to occur because younger levels have less experience, education, and opportunities to develop self-efficacy. Then on the other side of the spectrum, Mahmood (2016) explains the Dunning-Kruger effect that states lower leveled individuals overestimate their abilities while higher leveled individuals underestimate their skills. This can be seen when comparing the mean score of 2nd year, 3.97, to 3rd year, 3.90. Overall, the results are consistent with the study of Bonne (2019) that states self-efficacy can grow, decrease, or stay the same throughout time. From the results, it can be seen that year level has an effect on the perceived level of self-efficacy that a nursing student perceives but may not always be statistically significant.

Extent of Respondents' Perceived Critical Thinking Considering Gender

Table 12 presents the difference in the critical thinking considering gender with the *p*-value of ($p=.748$), and thus, the hypothesis that stated there was no significant difference in the perceived critical thinking considering gender was accepted.

Table 12: Difference in Perceived Critical Thinking Considering Gender

Gender	N	Mean	Standard Deviation	F	p-values	Verbal Interpretation
Male	55	3.83	0.06	.104	.748	Not Significant
Female	79	3.86	0.05			

The results of Table 12 are consistent with the literature in which gender does not matter in critical thinking and does not play a role in one's perceived critical thinking skills (Salahshoor, 2016). Shubina (2019) explains this result by stating critical thinking is developed through individual experience irrelevant of gender. Experiences that lead to a decrease or increase in one's perceived critical thinking can occur to anyone, and it depends on that individual on how it affects their level of critical thinking. This implies that all respondents are equally matched when it comes to determining their perceived critical thinking skill level. This also means that both genders can experience the same clinical situations and gain the same benefits.

Extent of Respondents' Perceived Critical Thinking Considering Year Level

Table 13 presents the difference in the critical thinking considering gender with the *p*-value of (*p*=.703), and thus, the hypothesis that stated there was no significant difference in the perceived critical thinking considering year level was accepted.

Table 13: Difference in Perceived Critical Thinking Considering Year Level

Year Level	N	Mean	Standard Deviation	F	p values	Verbal Interpretation
2nd Year	46	3.81	.06			
3rd Year	49	3.83	.07	.354	.703	Not Significant
4th Year	39	3.89	.09			

According to Azizi-Fini, Hajibagheri, & Adib (2015), there is no significant difference in critical thinking among different year levels. In their study, the mean CT scores of freshmen and senior students were compared and were roughly the same. This is consistent with the results from Table 13. Despite not being a statistically significant difference, there are small increments in the mean scores starting from 2nd year to 4th year, indicating that lower years have lower perceived critical thinking scores than upper years. This is consistent with the studies of Ralston and Bays (2015) state that critical thinking can increase as a student progresses through a program. Lower levels with lower scores can be explained by the study of Kassem (2003) that justifies lower scores to less experience, education, and adaption to newer environments. Typically, 4th-year students have more clinical exposure and are likely to have higher perceived scores. However, there is still no significant difference which can imply levels of perceived critical thinking is harder to develop or do not at all depend on the experience of an individual.

Model Fitting

Model fitting was done, and variables like social support were removed because it was not significant, and arrows were removed to satisfy the model. The final model has a fit index of: CMIN= 1.7; CFI = 0.997; SRMR= 0.023; RMSEA=0.049; and PClose= 0.348 which are interpreted as excellent model fit. Model fitting was also done, and the arrow from CLE to critical thinking was removed to satisfy the model. The final model has a fit index of: CMIN= 39.65; CFI = 1.00; GFI= 0.948; RMSEA=0.000; and PClose= 0.91 which are interpreted as excellent model fit.

Figure 1: Mediation model

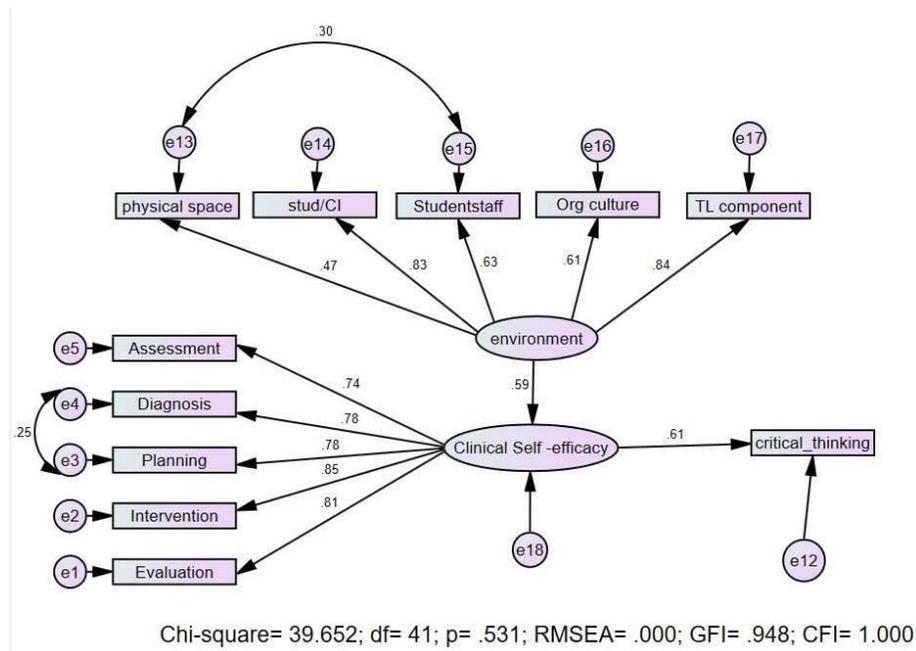Chi-square= 39.652; df= 41; p= .531; RMSEA= .000; GFI= .948; CFI= 1.000

Figure 1 shows the results of the study on the mediating effect of clinical self-efficacy on the relationship between CLE and critical thinking. As seen in Figure 1, the clinical learning environment has a direct effect on clinical self-efficacy. However, CLE does not have a direct effect on critical thinking. On the other hand, clinical self-efficacy has a direct effect on critical thinking. This means that in order for the CLE to influence critical thinking, it must go through clinical self-efficacy. This implies that a positive CLE alone cannot improve critical thinking but must be coupled with good clinical self-efficacy in order to influence critical thinking positively. These relationships result in a full mediation.

Table 14: Direct Effects

Id	Independent (a)	Dependent (b)	Estimates	S.E.	CR.	Sig.	Interpretation
1	Self-efficacy	Critical thinking	.61	.09	5.44	***	Significant
2	CLE	Clinical Self-efficacy	.59	.26	4.28	***	Significant
3	CLE	Critical Thinking	.05	.16	.52	.60	Not Significant

Legend: SE or standard error and CR for construct reliability.

*Significance Indicator:*** p < 0.001*

Relationship of clinical self-efficacy and critical thinking

Table 14 showed that clinical self-efficacy has a positive direct effect on critical thinking with a regression weight of 0.61 (*p*< 0.001). Meaning that in every unit increase of clinical self-efficacy,

there is an increase of 0.61 in critical thinking. This result is consistent with hypothesis 5, and clinical self-efficacy positively influences perceived critical thinking.

The study of Gurcay and Ferah (2018) states that the level of an individual's self-efficacy correlates to the likelihood of using critical thinking skills such as analyzing and questioning, which is consistent with the results from Table 14. Bandura (1993) further explains this relationship by discussing how self-efficacy is needed to utilize cognitive skills such as critical thinking. Critical thinking involves personal factors such as an individual's curiosity, confidence, and perseverance are taken into consideration when developing CT skills in clinical settings because CT is a mental process, and these factors can disrupt the process (Carvalho et al., 2017). Thus, it can be understood when a student has positive clinical self-efficacy, their mental process will be least likely to be disrupted, and they will experience a positive effect on their perceived CT.

Relationship between CLE, clinical self-efficacy, and critical thinking

Although CLE has no significant direct effects on critical thinking (z=.05, p=.60), as revealed in Table 14, it was found that CLE has positive direct effects on clinical self-efficacy with a regression weight of 0.59 (*p*< 0.001).   Meaning that in every unit increase of CLE, there is an increase of 0.59 in critical thinking. Moreover, the result on the relationship between CLE and critical thinking is not consistent with hypothesis 6b; CLE positively influences perceived critical thinking. These results are consistent with the idea that in order to apply critical thinking, an individual should develop self-efficacy through exposure in the CLE (Jaffe et al., 2019). This implies that the respondents have not been able to develop CT skills through their CLE but are able to affect CT indirectly.

On the other hand, the findings on the relationship between CLE and clinical self-efficacy support hypothesis 6a; CLE positively influences clinical self-efficacy. The CLE can enhance the learning taking place as it boosts students' self-concepts as learners and allows them to construct positive feelings about themselves (Haraldseid et al., 2015). This is consistent with the research of Lorsback and Jinks (1999), in which they established that self-efficacy and one's learning environment have a significantly positive relationship. This may be because self-efficacy is how confident a person is in themselves to complete tasks, and higher levels influence how likely that person will follow through successfully (Huang, 2019). Thus, it can be implied from the results that higher levels of self-efficacy will lead to higher levels of perceived CT as the student now believes that they are capable of accomplishing CT tasks.

Mediating Effect

Table 15: Mediating effect of clinical self-efficacy

Independent Variable	Dependent Variable	Mediator	Type	PC	p-value
CLE	Critical Thinking	Clinical Self-efficacy	Full Mediation	0.36	p=≤.001

Legend: PC for path coefficient

Hypothesis 7 posits the mediating role of clinical self-efficacy between CLE and critical thinking. Table 15 shows that the indirect effects of CLE on critical thinking were significantly mediated by clinical self-efficacy (p < 0.001). As shown in Figure 1, clinical self-efficacy fully

mediated the positive relationship between CLE and critical thinking with an estimate of 0.36. This means that an increase of one unit in CLE if it goes through clinical-self efficacy, there is an increase by 0.36 in critical thinking. It implies that a positive outlook on the clinical learning environment results in an increase in clinical self-efficacy, which in turn improves critical thinking. However, a positive perception of the clinical learning environment does not influence critical thinking without clinical self-efficacy. Hence, the result of the mediation analysis is consistent with hypothesis 7 in full mediation.

The direct relationships from Figure 1 are consistent with the studies of Hooper (2014) and Dislen Daggol (2019). The study of Daggol (2019) explains that an influential learning space can lead to positive outcomes that further enhance a student's progress. Coupled with the theory that self-efficacy increases through the experience of successful outcomes, it can be understood that a positive learning space increases self-efficacy. In nursing, the most important learning space is the CLE, and in it, students face many problems and complex situations. However, if a student's experience is positive, then it leads to positive growth on their self-concepts which means an increase in their self-efficacy. The theory of Hooper suggests that clinical competence is dependent on the nursing student's confidence to apply CT in clinical situations. Thus, it can be understood that a positive perception of self-efficacy can lead to a positive influence on perceived CT. Overall the full mediation supports the theoretical framework based on the study done by Overly (2001) in which the chain of influence starts from situational context, the CLE, which affects the person, clinical self-efficacy, and leads to the critical thinking process, perceived CT. From the results, it can be assumed that the respondents are more likely to have higher levels of perceived CT since they perceive their CLE as good, which leads to high clinical self-efficacy and already have a good perceived CT.

CONCLUSION AND RECOMMENDATION

The researchers aimed to identify the mediating effect of perceived clinical self-efficacy on the relationship between the clinical learning environment and perceived critical thinking. These three variables may seem simple, but the relationships between them present promising data that could be beneficial to the future of nursing education. The researchers were pleased to find that the study resulted in an excellent model fit. Based on this finding, it is concluded that a positive or negative change in the level of a student's perceived clinical self-efficacy can directly affect how well students perceive their critical thinking skills during their clinical experience. The level of perceived critical thinking will not be affected by gender or year level. Perceived clinical self-efficacy will not be affected by gender; however, it will be affected by year level. Therefore, a student's level of perceived self-efficacy has the potential of increasing without additional help from teachers.

These findings also mean that nursing teachers could increase students' perceived critical thinking by providing positive reinforcement and encouragement instead of extra lectures. Overall, this study proposes different ways to influence the growth of perceived critical thinking skills and raise the competency levels of student nurses. For future studies, the researchers recommend conducting a study to examine further the development of critical thinking skills and their relationship to clinical judgment and evaluation.

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