Original Article

The Essence of Simulation Laboratory Learning Experiences among Student Nurses in a Higher Educational Institution in the Republic of Korea towards an Enhancement Program

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Abstract

The findings of this descriptive and explorative study determined how the students in one of the private universities in a Department of Nursing in the Republic of Korea perceived the value of Simulation Laboratory experiences using high-fidelity simulation (HFS) as a teaching strategy in terms of their learning acquisition in the three learning domains. A 30-item questionnaire was given to 166 nursing students throughout the two consecutive semesters of the Academic Years 2016-2017 and 2017-2018, to conduct a descriptive-correlative and comparison study using the quantitative method. Their views and suggestions were also investigated. For the qualitative approach, twelve (12) participants provided narrations of their thoughts, feelings, and symbolic representations of the learning experiences in their Simulation Laboratory class. According to the study's findings, the respondents thought that using HFS to help nursing students acquire their cognitive, psychomotor, and affective learning domains was very beneficial. Moreover, there was a significant relationship between the student's perception of effectiveness and importance of HFS used in their Simulation Laboratory course and their year level in the knowledge and affective domains of learning, but not in the domain of skill acquisition. On the other hand, acceptance of the null hypothesis in terms of significant relationship was noted on the gender variable. Similarly, no significant difference existed in students' perception of the effectiveness and importance of HFS used as an instructional strategy for their learning acquisition in the cognitive, psychomotor and affective domains of learning when grouped according to their gender profile, but in terms of the year level classification, a significant difference in the cognitive and affective domains of learning were reflected. Consequently, a specially designed Simulation Laboratory Enhancement Program for university nursing students was conceptualized.

Keywords: The Essence of Learning Experiences, Simulation Laboratory, Perception of Effectiveness and Importance of HFS, Higher Educational Institution, Enhancement Program.

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INTRODUCTION

Health care educational programs and other related courses develop core curricula, employ highly qualified faculty and choose the best learning experiences for students to become competent after graduation. It is primarily the school's responsibility to provide these learning experiences and instructional strategies used in both didactic and clinical elements to develop and enhance new graduates' skill functioning.

However, as a result of the novel coronavirus 2019 pandemic, both healthcare and educational institutions are currently dealing with several issues, such as deteriorating clinical learning placements and student experiences. The majority of the seasoned nurses, administrators, and continuing professional development educators find that many nursing students and recent graduates would be short of beginning professional and critical thinking skills required to work in their complex clinical setting, even though American health care reports about a significant increase in patient safety alarms, high demand for registered and qualified nurses, a maturing manpower resources, and increasing patient acuity [1]. This can generate questions and concerns about health care professionals' competency in terms of assuring the public of safe and quality care. For instance, a growing number of nursing safety concerns among educational institutions can be seen in various clinical-related learning experiences among student nurses. Specifically, related patient safety concerns provide pieces of evidence indicating that there are fewer numbers and available clinical sites, [2, 3, 4] with faculty available and qualified to teach and handle new nurses are also decreasing [3].

With this scenario at hand, most of the students may have difficulty achieving the expected learning competencies with limited clinical activities, exposures, and experiences in place. Reference [4] supported this as it has indicated that learning acquisition for student nurses in their clinical environments can be challenging when a good clinical atmosphere for nursing students relies on the available learning opportunities and the number of patients in their clinical areas of exposure. This may also necessitate engagement among and collaboration between patients, clinical instructors, and other health care team members in their respective clinical placements. In this regard, it is apparent that the simulation teaching platform as a teaching strategy has given its fair share of contributions over other methods in supplementing these gaps in achieving the targeted teaching and learning goals. However, as best practices continue to evolve in the discipline of nursing education, it is also crucial to measure the efficacy of simulation in the learning acquisition of students with fewer qualitative studies which explored learning experiences among nursing students in a Simulation course are available.

Specifically, this study aimed to assess the essence of Simulation Laboratory learning experiences using HFS as a teaching methodology for the acquisition of learning among university nursing students in their third and fourth-year levels. The significant difference and relationships that exist between the variables under study were also established and tested at a 0.01 level of significance. In addition to evaluating the value of HFS in the learning acquisition of nursing students in terms of the three domains of learning, this study further described and explored learning experiences, thoughts, and feelings through these simulation sessions and identified those skills they were best and not so good at which may require areas of improvement. During their interviews, students described how skilled they think and believe they were after completion of this subject and if they will be ready to do the work required of them as future nurses in the Republic of South Korea or abroad. Based on the result of the findings, with views and suggestions of the respondents also explored and gathered, an enhancement program in the department was conceptualized.

METHODOLOGY

1. Study Design

This descriptive, correlative, comparative, and explorative study focused on how the nursing students perceived the effectiveness and importance of HFS as a teaching methodology for their acquired knowledge, skills, and desirable attitudes during their Simulation Laboratory classes in Fall, 2016 and Spring Semester, 2017. When students were grouped according to year level, a significant difference was established in terms of their perception of the effectiveness and importance of Simulation Laboratory experiences using HFS as an instructional methodology. Similarly, the perceived effectiveness and importance of HFS among nursing students were examined and correlated with their profile variables.

On the qualitative part, students' learning experiences, views, and opinions were explored during the Simulation laboratory exposures and debriefing sessions. The researcher utilized face-to-face interviews and story-telling of the participants allowing them to fully describe their experience after completing their Simulation Laboratory course. Each interview session lasted for about 25-45 minutes where students were highly encouraged to speak freely regarding their learning experiences in English and follow-up questions were noted based on the participants' responses. Video recordings of the scenario presentations were reviewed and audio recordings of the interviews among participants were consolidated at the end of the first semester, for the School Year 2017-2018, with three main themes identified after the content analysis. Based on the result of the findings of the study and gathered data from their insights were further analyzed as the basis for an enhancement program.

2. Respondents of the Study and Data Collection

A total of 124 out of 166 Junior & Senior nursing students were randomly chosen among two groups of respondents. Level III as the first group, completed their Simulation Laboratory in the Fall Semester, 2017 whereas the second group of Level IV or senior students Level IV students had it in the Spring Semester of 2016. Student respondents were given 20-30 minutes to answer the questionnaire and were reminded that complete answers would be greatly appreciated and expected.

An official acknowledgment and approval were sought and granted by the Head of the Department and the Institutional Ethics Review Board of the university. Technical and manpower assistance from their respective teacher assistants and assigned faculty members was provided at the time of distribution and retrieval of these forms. The guidelines for using the instrument, as well as any questions that needed to

be addressed or elaborated upon, were offered to the participants.

Additionally, twelve (12) out of 101 graduating students volunteered and have shown willingness to share their insights and simulation learning experiences during the interview sessions. Inclusion criteria are Nursing students, of any age, enrolled and completed the period of the Fall Semester, 2016 and Spring Semester, 2017 in Simulation Laboratory 1 and 2 classes, and those who are willing to share their simulation experiences and can articulate their insights in English. The researcher made use of a digital/electronic voice recorder during each interview session. An introductory question was asked by the researcher and semi-structured interviews until the point of saturation, observations, bracketing, and document analysis were conducted. Reliability and validity were accomplished through inter-coder agreement, audio recording, bracketing, and member checking. Thick descriptions and narrations were captured as methods of data collection in this qualitative part of the research design. Subsequent analysis and interpretation of the learning experiences of the participants were gathered and thematic content analysis was obtained with Colaizzi (1978) serving as the motivation for analysis. Specifically, this study has the objective of exploring the impact of learning experiences on undergraduate nursing students using high-fidelity simulation with training mannequins and related equipment, computer technology, situational analysis, and role-play included as part of their Simulation courses in one of the higher educational institutions in South Korea.

3. Study Tools

In the gathering of data and in describing the assessment of high-fidelity simulations used as a teaching strategy in the nursing Simulation Laboratory, a content-validated, 30-item researcher-made questionnaire with a five-point scale was utilized. A cover letter was included in the questionnaire to ensure the respondents of their confidentiality, thus, initiating their further participation. The instrument covered two sections. Initially, the objectives of the study were introduced and explained, with the respondents' profiles concerning year-level classifications and gender variables noted and accomplished in the first part. The succeeding pages showed items in the questionnaire which included 30 behavioral indicators grouped according to the three learning domains. A tabulated format and checklist were used to determine how the nursing students as respondents of the study would rate their perception of the effectiveness and the importance of HFS on the acquisition of their knowledge, skills, and desirable attitudes in the Simulation Laboratory classes. In this section was a questionnaire with a Likert scale which classified respectively twelve (12) items under the thinking (head) taxonomy of learning, and nine (9) items for each of the skills/doing or hand part representation and the feeling (heart) domains of learning.

Views and opinions of the respondents were also explored during the Simulation laboratory exposures and debriefing sessions. An open-ended question about reasons for their recommendations or not, and suggestions were noted in the last part of the questionnaire. As to the result of the study, the researcher was guided by the table that follows as to the assessment of the perception of the effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching strategy for nursing students' learning acquisition.

Table I. Assessment of the Perception of Effectiveness and Importance of Simulation Laboratory Experiences with the use of HFS as a Teaching Strategy for Nursing Students' Learning Acquisition

Weight	**Range of Weighted Mean**	**Assessment**	Verbal Interpretation
5	4.20 - 5.00	Strongly Agree (SA)	Great Extent of Effectiveness & Importance (GEEI)
4	3.40 - 4.19	Agree (A)	Effective and Important (EI)
3	2.60 - 3.39	Uncertain (U)	Moderate Extent of Effectiveness & Importance (MEEI)
2	1.80 - 2.59	Disagree (D)	Low Extent of Effectiveness and Importance (LEEI)
1	1.00 - 1.79	Strongly Disagree (SD)	Not Effective and Important (NEI)

For the qualitative approach, a semi-structured interview was used to identify commonalities among the participants and uncover the true essence and meaning of the participants' learning experiences in a Simulation Laboratory class. An open-ended interview session allowed the

participants to fully describe their experiences with each interview and lasted for 25-45 minutes. An introductory question was asked by the researcher: "Can you describe or share your learning experiences from Simulation Laboratory 1 and 2 last Fall, 2016, and Spring, 2017?" Participants were offered the chance to have a conference in one of the office rooms where there is the provision of privacy and convenience for both parties.

4. Data Analysis

For the statistical treatment of data, the Statistical Package for the Social Sciences (SPSS) software was utilized. The researcher then analyzed, interpreted, and presented the result of these findings for the stated problems of the study. Descriptive statistics were used to show the demographic information of the student respondents. Specifically, a weighted mean was utilized to determine the respondents' perception of the effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching methodology in the learning acquisition of student nurses. T-test for independent samples was the statistical method used to demonstrate significant differences in students' perceptions of the effectiveness and the importance of Simulation Laboratory experiences using HFS in their learning acquisition when categorized according to their profile variables. Lastly, for the stated problem about the significant relationship between student's perception of the effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching strategy and their profile variables, Cramer's V and Pearson's correlation were used to determine a significant relationship in terms of the student's gender and year level classification respectively, with the R-value interpretation as follows:

Table II. Interpretation of the Pearson's Correlation Coefficient R-Value

R-Value	Interpretation
0	No relationship
0.01 – 0.09	Negligible
0.10 – 0.24	Weak
0.25 – 0.49	Moderate
0.50 – 0.74	Strong
0.75 – 0.99	Very Strong
1.0	Perfect

For the qualitative part, content analysis was adopted after identifying and exploring the learned insights and experiences of the Senior nursing students. The narratives of learning experiences of twelve student nurses included one (male) and eleven (11) females, from 20-24 years old, whose key concepts with symbolic representations and effects of simulation on students' learning, future career, barriers to learning and the triadic relationship between students, teachers, and subject offerings were interpreted.

5. Ethical Review

This study was approved with permission given accordingly by the heads and the officers from the institutional research center and the ethical review board. Initially, a letter was given to the Director of the Ethics and Research Board Committee and then the Head of the Department of Nursing. The rules and regulations of the academic institution were religiously observed and the narratives that were gathered were used for academic purposes only. Primarily, informed consent was provided to the participants before conducting the interviews. Participants' withdrawal from participation in the study at any point was stipulated in the consent, as part of their rights. In ensuring the privacy and confidentiality of the respondents of the study, coded letters were assigned to each of the participants.

Results and Discussion

1. Interpretation of the Cramer's V and Pearson's Correlation Coefficient r Value

Table III shows that in the thinking (head) and feeling (heart) taxonomies of learning, a moderately significant relationship were established between the student's perception of the effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching methodology in obtaining learning and their year-level, but there was a weak relationship that existed in the skills/doing (hand) taxonomy of learning. The significant relationship which was classified under the moderate level can be distinctly illustrated in the thinking and feeling domains of learning among the fourth-year nursing students because of their competitive edge with a couple of semesters ahead in their academic and clinical exposures and learning opportunities. They exhibited a higher level of preparedness and readiness in assuming their future roles and responsibilities as a beginning professional nurse with their gained knowledge and desirable attitudes of being a nurse.

On the contrary, there was no significant relationship that existed between the student's perception of the effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching

strategy in learning acquisition and gender variables as correlated using p-value and Cramer's V. Based on the result of the findings of the study, nursing students as respondents of the study have demonstrated an expected performance of skills in response to the provided simulation scenarios in their Simulation Laboratory class. This is highly visible with consistency among health care professionals wherein basic to most complex skills and operational or generic abilities are importantly put into practice to achieve proficiency and expertise in learning and in developing their abilities as future licensed professionals. It clearly shows that simulation, in particular, can be used as an effective educational approach and teaching tool that the members of the faculty can employ to promote learning among students. Consequently, it is crucial to measure the efficacy of simulation in improving the skills of learners and further look into the specific assessment and evaluation that may be considered for determining the learning that has taken place in the thinking, doing skills, and feeling taxonomies of learning.

This result of the findings of the study was supported by a meta-analysis of quantitative studies that illustrated that HFS and standardized patients (SP) received the largest effect sizes in terms of both the feeling (heart) outcome and thinking (head) taxonomies [8]. Reference [17] is also in congruence with study findings wherein senior nursing students who participated in this study gained communication self-confidence and communication clarity after using the standardized simulation-based Situation, Background, Assessment, Recommendation (SBAR) education program [17]. Based on the result of the findings of the study, 82 nursing students demonstrated clarity and self-confidence in inter-medical staff communication after learning about the SBAR education program on the simulation of preoperative and post-surgical cases [17].

Through simulation activities, fourth-year student nurses of this conducted study described their learning experiences in their Simulation Laboratory class as very useful, valuable, and helpful for them as student nurses, and in becoming future professional nurses. It has brought them to facing real-life scenarios related to in-patient management of a patient with myocardial infarction and eventually suffering from cardio-pulmonary arrest, stroke patient, pediatric case of pneumonia and head injury, perioperative and delivery case of normal spontaneous birth and with the post-partum bleeding case. These case scenarios were the topics covered in the two (2) semesters completed by the participants. They described the impact this learning had on their student lives and related clinical practice during their Summer and Winter semesters. Some of these participants stated: *"I think it's a meaningful class & experience to me because it looks like a real situation. I learned how to do the right thing in case of emergency and urgent situation."* In this situation, theoretical knowledge was utilized as retrieved and required from the provided cases as the simulation activities provided them more opportunities to practice and perform those skills they cannot normally do in the hospital like life-saving measures of providing Cardio Pulmonary Cerebral Resuscitation (CPCR). About the clinical areas of assignments for their clinical practice, students also mentioned applying what they have learned and experienced from those commonly encountered diseases and skills in the hospital, they were also able to apply those skills and actively participate in class. These learned insights among senior nursing students are best illustrations from gathered related studies and a series of literature that demonstrated the effectiveness of simulation as a teaching methodology that allows active learning, gaining self-efficacy and self-confidence, improving skills in communication and decision-making, and nurturing synthesis of knowledge [15, 16, 17, 20].

Table III. Interpretation of the Pearson's Correlation Between Students' Perception about the Extent of High-Fidelity Simulation (HFS) Effectiveness and Importance and their Year Level

Taxonomy of Learning	**Pearson's r Correlation**			
	Pearson's r	***p-value***	***Interpretation***	***Decision on Ho***
Thinking (Head)	0.321	*0.000	Moderate	Rejected
Skills/Doing (Hands)	0.162	0.071	Weak	Accepted
Feeling (Heart)	0.322	*0.000	Moderate	Rejected
Over-all	**0.300**	***0.001**	**Moderate**	**Rejected**

Note: Correlation is significant at a 0.01 level of significance

Table IV. Interpretation of the Cramer's V Correlation Between Students' Perception about the Extent of High-Fidelity Simulation (HFS) Effectiveness and Importance and their Gender Profile

Taxonomy of Learning	**Cramer's V Correlation**			
	Cramer's V	***p-value***	***Interpretation***	***Decision on Ho***
Thinking (Head)	1.108	0.487	Not Significant	Accepted
Skills/Doing (Hands)	0.047	0.874	Not Significant	Accepted
Feeling (Heart)	0.059	0.804	Not Significant	Accepted
Over-all	0.058	0.802	Not Significant	Accepted

Note: Correlation is significant at a 0.01 level of significance

2. Significant Difference among Respondents' Perception of the Extent of Effectiveness and Importance of HFS When Grouped According to their Profile Variables

As gleaned from Table V, no significant difference was established in the respondent's perception of the extent of effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching methodology when respondents were grouped according to gender. This can be seen with an acceptance of the null hypothesis at a t-value of 0.863 and significant at 0.390 results. On the other hand, Table VI results of the findings of the study reflected a significant difference in the perception of effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching platform when the respondents were grouped into their year level. Student respondents differ in the overall p-value of 0.001 resulting in the 0.01 level of significance, with the feeling and thinking learning domains scoring at 0.000, rejecting the null hypothesis.

As what can be depicted from these results of the study, the 4th year level students rated their perceptions about the extent of effectiveness and the importance of HFS higher with an overall mean score of 4.480 compared to the Juniors at 4.121 weighted means. It implies that the higher the level of the category is, the higher degree of their perception of the extent of effectiveness and the importance of Simulation Laboratory experiences using HFS as a teaching platform can be seen among student nurses in the areas of thinking and feeling taxonomies of learning. This finding may also imply the Seniors' competitive advantage from academic and clinical exposures compared to the lower levels of the Junior years. Reference [4] revealed a similar analysis of nursing competence according to the levels of metacognition among the learners. A significant difference was noted in the clinical judgment within each metacognition group but not between the group of respondents. An improvement in the learner's level of metacognition and achievement of learning was noted between the three (3) metacognition groups with nursing simulations were considered an effective key strategy in the achievement of learning [4].

In terms of the psychomotor domain of learning though, findings of this study also revealed both year levels perceived their Simulation Laboratory experiences using HFS as effective and important in acquiring the expected performance of skills of student nurses to learn in this taxonomy. These findings suggested that University student-respondents in the Department of Nursing demonstrated that they have obtained and developed expected skills after completing the assigned cases in their Simulation Laboratory in varied settings. This can also be attributed to the fact that the student nurses give strong dedication to doing their tasks in performing appropriate skills for those simulation scenarios. Nursing students focused intensely on their skills performance as they are considering their future careers regardless of their year levels. This is also supported by a study in a metropolitan university in South Korea where the effect of simulation training with the application of SBAR for college student nurses was significantly increased in the areas of their making decisions in the clinical setting as potential medical personnel [18].

Likewise, narratives of a couple of fourth-year students in this study described that their clinical exposures at the hospitals in South Korea are mostly observational in particular for their related learning experiences (RLE), but during their Simulation Laboratory class, they were given the opportunity of becoming the "real" nurse caring for the patient in need. As lifted from their statements indicating and emphasizing their shared verbalizations namely: "In the hospital, I am only just a student nurse, but in the Sim. Lab., I am the nurse for the patient, so I can give the real care and treatment." Added to this, as quoted: "As a student nurse, you only observe, but here, even if it's a mannequin, we act as a nurse, explain the action, communicate about the other team nurse or talking to the patient, sometimes guardians, or family members and with the physician and the other nurses you are working with."

Based on the participants' symbolic representation of their overall learned insights and learning experiences in Simulation class, the first theme was formulated from four (4) of the student nurses who stated that learning from their simulation class is indeed necessary as it is required of the profession.

It was seen like a stair or stepping stone, an ocean, and a light bulb, with their shared descriptions as follows: "Sim. Lab. is like stairs that we learn step by step. I think it is necessary. I will say this because I remembered, I went to my clinical practice at the real hospital after Simulation Lab., I saw the CPR situation, intubation, and all the stuff, and I could just read and observe the situation. It was good. I'm glad I've learned the stuff from Sim. Lab., otherwise I did not know what they were doing. I could just watch the nurses! I can relate best to what they're doing as if I am part of the team in that situation because I have practiced this. I was just glad that I was able to do it in our schools like simple things like suctioning or simple stuff."; "As future nurses, we need to take it step by step."

Table V. Significant Difference in Respondents' Perception of HFS Extent of Effectiveness and Importance when Grouped According to their Gender Profile

Taxonomy of Learning	**On Significant Difference**						
	Gender	**Mean**	**SD**	**t-value**	**Sig.**	**Decision on Ho**	**Interpretation**
Thinking (Head)	M	4.518	0.478	1.269	0.207	Accept	Not Significant
	F	4.250	0.619				
Skills/Doing (Hands)	M	4.469	0.546	0.445	0.657	Accept	Not Significant
	F	4.347	0.802				
Feeling (Heart)	M	4.468	0.589	0.515	0.607	Accept	Not Significant
	F	4.354	0.645				
Over-all	**M**	**4.488**	**0.497**	**0.863**	**0.390**	**Accept**	**Not Significant**
	F	**4.310**	**0.602**				

*Significant at 0.01 level of significance

Table VI. Significant Difference in Respondents' Perception of HFS Extent of Effectiveness and Importance when Grouped According to their Year-Level Profile

Taxonomy of Learning	**On Significant Difference**						
	Year Level	***Mean***	***SD***	***t-value***	***Sig.***	***Decision on Ho***	***Interpretation***
Thinking (Head)	3rd	4.046	0.658	3.745	*0.000	Reject	*Significant
	4th	4.441	0.517				
Skills/Doing (Hands)	3rd	4. 211	1.018	1.819	0.071	Accept	Not Significant
	4th	4.468	0.522				
Feeling (Heart)	3rd	4.129	0.703	3.747	*0.000	Reject	*Significant
	4th	4.542	0.524				
Over-all	**3rd**	**4.121**	**0.654**	**3.475**	***0.001**	**Reject**	***Significant**
	4th	**4.480**	**0.496**				

*Significant at 0.01 level of significance

3. Analysis of University Nursing Students' Responses and Perception of the Effectiveness and Importance of Simulation Laboratory Experiences using HFS as a Teaching Methodology in their Simulation Learning

Table VII depicted that the student respondents viewed to the greatest extent and have the highest level of perception about the effectiveness and the importance of HFS in their simulation learning, which particularly marked the feeling (heart) taxonomy of learning highest in rank and the knowledge part as the lowest-ranked domain. Based on the findings of this study, HFS is seen as highly effective to the greatest extent in this taxonomy because nursing students at this grade level can get a better understanding and appreciation of the true meaning of their future career in the profession of caring.

The utilization of simulation exercises, case studies, and role-playing in the Simulation Laboratory has brought greater impact on the feeling taxonomy of learning for students as it reflected learning in this domain involves a commitment to feelings expressed as showing interest, ideas, thoughts, and beliefs freely, displaying desirable attitudes for the dignity of patients, and participation in activities. This domain of learning included such attitudes that illustrated participation in simulated activities as expected, freely expressing ideas, verbalizing appreciation for the role of the nurse, positively critiquing own performance and that of others, exhibiting respect for the dignity of patients, showing certainty when performing skills.

The narrative material of nursing students' description of learning experiences further

illustrated professional competencies not only of the thinking and doing taxonomies of learning but more of the feeling domains. Likewise, their sense of responsibility was appreciated after debriefing sessions. As they have also indicated with their lessons learned, the Simulation Laboratory activities have allowed them to realize their strengths, and after getting feedback from their professors and peers, and viewing the video recording of their group performance as well. In the discourse of the participant, their reflections have specified improvement in their critical thinking, decision making, and leadership skills in the achievement of the higher form of all the three domains of learning. Their ability to have the presence of mind, desirable attitude, and technical know-how in the given scenario build more confidence, competencies, and commitment to their future roles. When compared to other pedagogical methods, the simulated-teaching platform in this study illustrated productive and meaningful results in terms of student's feeling (heart) domain of learning where the participants have shown their inner self of a caring and compassionate nurse, as lifted in one of the narratives stating: "I want to describe it like an ocean because I learned a lot of information in Simulation Laboratory class. In the ocean, when the weather is bad, the patient's condition fluctuates severely & if the weather is good, it is flat, the ocean is like resting, sleeping, or in the recovery period. The patient's situation is the same as the ocean (it is very deep), we ask about the patient's history, deeper health problem and concern is making this situation worst."

These descriptions and symbolic representations of the Simulation class eventually led to another theme of seeing light for their future with all the inspirations and influence attached to it. Individual illustrations included seeing simulation as attractive as stars that provide light to every team member in the right thing at the right time for a favorable effect on the patient's condition. Similarly, one's knowledge and technical skills coupled with communication and collaboration among team members can result in the desired goal of making a significant difference in the patients' life and respective families. This can be best appreciated with the students' demonstrating it in the form of stars, puzzles, and a light bulb symbolism as they share the following learning experiences: "I think I can think of the stars, because if I encounter urgent situations, then I can do the like AHA moment! There is the Star that is shining and it will do the right thing for them! Then my shining star can affect other team members so they know American Heart Association (AHA) guidelines in that situation. So, I think that the Sim. Lab. makes me a shining star, giving me light. Giving presence of mind where concepts come to me and do the right behavior to somebody. So, the shining star can brighten the surrounding so it will have a very good effect." "It is a puzzle. My acting is only a small part but in doing it together, then victory lies. To complete the entire procedure, one puzzle is being handled by simulation until the patient in this situation is okay. I think communication and collaboration are important."; "I think Simulation Laboratory is light, as it leads how can I go to nursing job, how I can do nursing practice, how I can do it with my patient, so, all of these are learned thru Sim Lab. I think the light leads to people, especially in dark situations, you see it as darkness, with Sim. Lab., light shining all over the place, nurses, doctors see this like AHA moment."; "We have learned from the book. When we learned about nursing, we do not have any chance of applying it but during Simulation, we apply what we have learned so it is very helpful."

This is also reinforced by the collated data from research studies noted within the 11 years-period, as cited by S. De Young, which reported that there was no significant difference between the usefulness and effects in the thinking domain from simulations if differentiated from more instructional strategies but did find significant gains in the feeling domains of learning [5]. Comparably, an array of extensive systematic reviews illustrated that HFS and standardized patients had an immense learning outcome in areas of the thinking (head) and feeling (heart) taxonomies of learning [6]. This is in congruence with the study about the simulation-based SBAR Education Program in one of the universities in South Korea which was seen as a useful foundation for improving not only student's learning acquisition on patient interaction but also interacting with colleagues, and expanding human relationships, coupled with gaining confidence in practice and promoting self-reflections [17]. This method utilizes a combination of high-fidelity simulators, the performance of required nursing skills, problem-solving techniques, and role-playing strategy for the scenario setting and would demonstrate its effectiveness in the three domains of learning with this study.

Similarly, Reference [7] confirmed an improved effect on critical thinking tendencies, communication competency, and professionalism with regards to the effect of simulation practical education among 89 fourth-year University Department of Nursing students in the Republic of

Korea. One-group pre and post-test design experimental design type was utilized in this study and yielded a statistically significant difference and correlation among the stated variables under study. Graduating nursing student's scores were recorded to be significantly and greatly improved in those areas after their respective simulation practices were noted and compared at a t value of 3.41 and p less than 0.001 for communication competency and critical thinking tendency (t=2.75 and p=< 0.007) and for professionalism (t=2.56 and p=< 0.012), respectively.

For the other domains of learning, related research evidence and literature about simulation-based learning in undergraduate nursing education further validated that simulation enhanced the learners' cognitive ability, as reflected in the improvement of scores on students' examinations for both the thinking and doing/skills domains [13]. This study particularly exemplified the benefits that student nurses obtained after their HFS training sessions including increasing their level of confidence and/or critical thinking skills [13].

Table VII. Analysis of the Responses and Perceptions about the Effectiveness and Importance of HFS among Nursing Students' Learning in Simulation Laboratory

Nursing Students' Learning Acquisition	***Weighted Mean***	***Interpretation***	***Rank***
1. Thinking (Head)	4.26	GEEI	3
2. Skills/Doing (Hands)	4.31	GEEI	2
3. Feeling (Heart)	4.36	GEEI	1
Over-All Mean	**4.31**	**GEEI**	

Legend: 4.20-5.00 Great Extent of Effectiveness & Importance (GEEI); 3.40-4.19 Effective & Important (EI); 2.60-3.39 Moderate Extent of Effectiveness & Importance (MEEI); 1.80-2.59 Low Extent of Effectiveness & Importance (LEEI); 1.00-1.79 Not Effective (NE).

4. Respondents' Perception of the Effectiveness and Importance of Simulation Laboratory Experiences Using HFS as a Teaching Strategy in their Thinking (Head) Taxonomy of Learning

The top three highest-ranked behavioral indicators noted in Table VIII belonged to the first level of taxonomy by Benjamin Bloom classified under the thinking domain of learning. Item numbers 1, 2, and 10 included the thinking abilities of student nurses that show assessing clinical manifestations of a certain disease, recalling previously learned concepts and theories in class, and verbalizing complications that may result from a skill that is not performed. On the other hand, the lowest-ranked couple of items represented items number 8 and 11 behavioral indicators, that is, expressing steps in decision-making to solve problems, and inquiring about important and relevant questions, respectively. The latter presented those of the higher levels of Bloom's taxonomy though may be achieved by the respondents and interpreted as effective and important but not to the great extent of effectiveness and importance. The ranking of these behavioral indicators showed a clear distinction on the levels in the thinking domain of learning gains, which may be included in the series of literature and research evidence but not specifically described in various simulation-based learning studies that were previously mentioned.

Based on the narrations of the participants of this conducted study in particular, from the two (2) semesters in their Simulation classes, student nurses believed that they have learned at their best to assess signs and symptoms of a patient with a diseased condition, interpreting diagnostic tests and administering prescribed medications in treating diseases, and doing health teachings to prevent illness and promote health. Most importantly, learning how to save lives is essential not only for health care professionals but also for lay rescuers to have the presence of mind in dealing with this kind of emergency. Participants described it as follows: "I can study interestingly, with most memorable thing is on Myocardial Infarction (MI) and stroke because it is important to watch the patient's pre-symptoms that implied the patient had this disease, & the diagnostic test was also important and the medication was very unique and education is also important because we can prevent those cardiovascular diseases."; "Do different scenarios in a special area, when you are dealing with life, we should be ready, presence of mind is necessary for us to be responding." These participants appreciated what they have learned during these given scenarios and recalled it applying as needed based on the assigned role as part of the resuscitation team. Aside from performing the technical skills expected of them like acting as a medication nurse, or bedside nurse,

they have performed other roles and responsibilities of nurses in explaining the medication side effects, analyzing and explaining patient's laboratory data with accuracy and confidence.

The participants further viewed their learning experiences in the Simulation class as they developed their thinking domain of learning as student nurses. They were able to recall key concepts and utilized higher forms in learning in practical application. They were more confident communicating with co-students as peers in the health care team in the Intensive Care Unit (ICU), prioritizing nursing diagnosis and caring in an emergency, and utilizing critical thinking skills, and team teamwork. As mentioned by the participants: "I am more confident. I can respond to the patient's condition."; "The professors gave the data and we analyze data and with classmates, we analyze and discuss how we care for patients. Do Glasgow Coma assessment, and ask why you should not inject drugs causing cerebral edema."; "Yeah, I have the confidence and we were ready because I cannot believe that other University nursing students do not have Sim. Lab., when they talk and show some signs and symptoms. It helped me to think and it's like real in my brain. So, I'm more confident than those people who do not have the Sim. Lab. in their class."; "In the hospital, when I become a registered nurse, I think I am better than my other colleague nurse. First, I am good at communication, Next is the priority nursing diagnosis, and third is in case of an emergency, I have critical thinking about that. I have the presence of mind, knows how to prioritize, and work with the team."; "Particularly I did a case study in the ER, so I could respond to stroke patient in the hospital. So, I observed stroke protocol, and TPA injection so I applied this to simulation. In the case of CPR, I carried out the role of being a Team Leader, & analyze ECG. I think I did well and good. After that, I assisted in intubation of tube, auscultation, what causes H's and T's, thinking like a doctor, and leadership skills."

Other systematic reviews stipulated and reinforced the abovementioned narrations and descriptions that simulation-based learning enhanced learning, skills of objective analysis, confidence levels, clinical judgment, and the capability to interact and communicate with colleagues and expand human relationships [4, 13, 17]. Reference [9] further contributed to the simulation works of literature that achieved targeted goals with HFS in Portugal. This study noted competencies and cognitive abilities among students' ability to recognize signs and symptoms, summarize and synthesize learned knowledge, do a critical appraisal, clinical reasoning, reflection, and objective analysis of patients' condition before considering any decision for patient care. In another study that compared the use of HFS to video at a public university in Oman, it was reported that nursing students appraised high extent of their level of achievement and confidence in a safe and controlled setting in the critical care unit, with enhanced ability to think and skills of performing in using the HFS than video [11]. The findings of P. Jeffries' study additionally stated that simulation pertains to activities that imitate the actuality of a clinical setting and that are drafted for use in establishing the process and encouraging making decisions and objective analysis [12].

Moreover, a quasi-experimental study displayed that HFS is an advantageous and successful instructional methodology and can be utilized in preference to half of the long-established patient-contact experiences in the field of maternal and child care, intensive care, and psychiatric nursing [10]. It further illustrated that combinations of simulations and traditional clinical practices yielded significantly better and improved scores on the students' preliminary final examination before graduation than conventional hospital practices exclusively [10].

In this regard, educators have a great role in developing and transforming students with the use of effective teaching methodologies beyond what the traditional boundaries of health care can probably offer. This is essentially necessary to close one of the gaps previously mentioned regarding creating a safe healthcare environment, or an imbalance between the lack of qualified faculty, the lack of clinical learning opportunities, the rise in student enrollment in nursing programs, and the projected shortfall of licensed nurses in the United States of America [1], [2], [3], [4].

Table VIII. Respondents' Perception of Effectiveness and Importance of Simulation Laboratory Experiences with the Use of HFS as Teaching Strategy for Nursing Students' Learning Acquisition in the Thinking (Head) Taxonomy

Behavioral Indicators of Nursing Students' Learning	***Weighted Mean***	***Interpretation***	***Rank***
1. Remember previously learned concepts and theories that provide the basis for skill performance	4.33	GEEI	1.5
2. Assess and identify clinical manifestations	4.36	GEEI	1
3. Explain and analyze assessment and diagnostic data	4.17	EI	11
4. Determine cause and effect in the performance of skills	4.31	GEEI	4
5. Explain the rationale for the performance of skills	4.25	GEEI	7
6. Describe indication for performing the skills	4.28	GEEI	6
7. Plan solutions to problems	4.23	GEEI	9.5
8. Identify steps in decision-making to solve problems	4.15	EI	12
9. Give priority to problems and actions	4.30	GEEI	5
10. State complications resulting from skill not being performed	4.33	GEEI	1.5
11. Inquire about important and relevant questions	4.23	GEEI	9.5
12. Compare and contrast ideal conditions from actual situations	4.24	GEEI	8
Overall Weighted Mean Score	**4.26**	**GEEI**	

Legend: 4.20-5.00 Great Extent of Effectiveness & Importance (GEEI); 3.40-4.19 Effective & Important (EI); 2.60-3.39 Moderate Extent of Effectiveness & Importance (MEEI); 1.80-2.59 Low Extent of Effectiveness & Importance (LEEI); 1.00-1.79 Not Effective (NE).

5. Respondents' Perception of the Effectiveness and Importance of Simulation Laboratory Experiences Using HFS as a Teaching Strategy in their Skills/Doing (Hands) Taxonomy of Learning

As can be gleaned from Table IX, the top three highest-ranked behavioral indicators, represent the capabilities and readiness of nursing students to respond promptly, safely, and appropriately to various simulation cases while communicating effectively with other health care team members. This is reinforced by a meta-analysis of forty (40) quantitative studies which revealed that simulation-based nursing educational interventions provided powerful, effective, and compelling effects on the skills performance of student nurses [6]. In particular, the learning obtained among students in this taxonomy include techniques on problem-solving, efficient and effective communication skills with colleagues and other health care providers, and working with the team and as a team [6, 15]. Similar findings of enhanced communication and decision-making skills were reported among 91 fourth-year student nurses in a College of Nursing in one of the universities in the Republic of Korea [18]. It also illustrated the effect of combining simulation practices and SBAR training in which programs were started and used to effectively, briefly, and properly relay valuable information with accuracy and clarity to the medical personnel about emergencies related to mothers and newborn cases [18]. Self-confidence in communication and communication clarity was measured after the capacity simulation programs applying SBAR-applied simulation training and was found statistically significantly increased with students' improvement in having problems conveying and transferring concise details and particulars to medical staff during the shift or endorsement [18].

Moreover, Reference [17] supported this study on university student nurses' communication clarity and self-confidence in the use of communication techniques and efficient responses to pre-operative and post-surgical situations by directly and repeatedly practicing SBAR communication techniques with physicians and nursing colleagues in their simulation classes with urgent and complex case scenarios. The structural components of SBAR had shown significant improvement in the respondent's relaying of information and developed self-confidence in the process of learning while providing the opportunity to practice the expected nursing skills. As each team performed during these simulation activities, they were able to prioritize nursing care and analyze the specific scenario given to them, with reflective learning noted while watching a video of their group and individual performances [17]. Reference [9] also reported learning experiences that enhanced students' level of confidence, on being aware of their abilities and capabilities and appreciation of how to communicate with the patient as an aspect of care [9]. With the provided simulation-based clinical cases, inexperienced nurses like graduating nursing students had reduced anxiety and tension during those emergencies occurring before surgical interventions, wherein inter-medical staff communication was enhanced [17].

Similarly, senior nursing students connected with this series of literature and research evidence with their shared feelings and viewpoints on simulation-

based learning experiences stated: “Here in Korea, it is better to know another language to communicate best with the foreign patient, because when we do simulation about Spanish-speaking patient, on that situation I cannot communicate with that patient. Also, a patient has incorrect information about medication, so with that medicine or birth control pills, the patient said those were vitamins. So, I explained the information about proper medications. You would be better if you know other languages. I learned Chinese & English here in school. Other students have Arabic, Japanese, and Russian. Here in Korea, a lot of foreigners are admitted, a lot of Japanese or Asians.”; “If students are not good in English, so they have a problem, will have troubles, or probably shy, some students don’t know how to ask questions or in composing sentence, express their opinions, they have some misunderstandings. But in the hospital, it will be to your advantage, because in school, you are taught because of the very diverse culture here in Korea.”; “I think with collaboration skill, and when working with other students, we can do more practice communication even with Korean language, verbal communication and also in writing.”

These nursing students also believed that they have improved their communication skills in both verbal and non-verbal forms. This includes expressing themselves in English at the level of the pediatric or adult patients and other significant family members. It also covered providing health teaching to patients and guardians, talking with each other as peers, documenting and referring to patients’ conditions, and interacting with their peers and superiors like doctors and head nurses. Similarly, they have recognized the need of learning other foreign languages besides Hangeul and other languages that they have learned in this higher educational institution in the Republic of Korea. They have embraced the fact that South Korea is becoming a multi-culturally diverse society, hence, putting them into competitive advantage among nurses in the local market and developing them into more a caring, competent, and globally competitive nurse.

In comparison, the ones in the lowest-ranked behavioral indicators with the verbal interpretation showing a great extent of effectiveness and the importance depicted areas that may have to do with student nurses performing expected skills with some degree of showing independence, confidence & certainty, and with proper sequencing. These results may be due to a lesser patient exposure of the respondents in their clinical assignments in various hospital affiliations. This will bring them to the realities of depending on the richness and level of learning opportunities, student activities, and patient and health care team involvement that will be available for their related learning experiences during their clinical duties. Likewise, the presence of available materials, equipment, and resources in the University Simulation Laboratory, which is considered state-of-the-art technology in the Republic of Korea, as seen in the hospital setting may limit their area of resourcefulness and being creative in those situations as needed [14].

Although these groups of students were provided with various opportunities that foster active participation and increased their level of confidence, a couple of participants have seen that the use of training mannequins was unfavorable and ineffective when providing care. They probably would prefer an actual human theater that is highly trained to respond like patients in clinical practice. In addition, the participants suggested that the allotted time may be revisited to maximize learning opportunities for each of the student’s appreciation of other tasks assigned to them. As the participants have described it, they have seen best the learning experience only on those roles assigned to them, but cannot relate well if not portrayed in the given case scenario.

The researcher lifted relevant and related narratives namely: “First, I think it was really difficult. Before the class, I can’t read the EKG but I’m more confident now and skillful. We can practice thru SL, to give more and better care. Given more time, we can practice how to administer meds and also CPR.”; “Actually it’s not a real situation with simulation, that Sim-man is not real human so we did a more strength to him, but if the real patient, there’s a lot more like age (like not enough to do for grandma, child/babies or adult man to do CPR). I think my skill is better than before, but to improve.”; “I heard from my friends, that is different from what I learned in school, so maybe it’s really helpful for my future career as a nurse.”; “Some hospitals have CPR teams so I think they divide the roles so, if I experience the CPR situation, so I only do one role, so we don’t have much time to exchange the roles. If I don’t have interest in it, so I don’t know about that, like a compression manager. Team Leader needs high intelligence. They should know every protocol. So, I can be skillful in just 1 role but I should know all the protocol.”; “Giving of medication needs improvement because I don’t have any chance of giving medication. Every team member had their role. I was not given the chance to give meds. We are usually assigned our roles at random. During the simulation, we just learned about nursing but

we don't know how to deal with patients or guardians. Professor taught us how to face with it, unexpected questions from patients/guardians."

The significance and effectiveness that simulation provides for most undergraduate nursing students underpin the health care industry and the nursing education educational programs in particular. Reference [16] stressed that simulation has been concluded to be a safe and efficient method in teaching which involves active learning. They emphasized that simulation allows students to correlate theory to practice and vice versa. It can be an efficient learning approach if students actively participate. Hence, the key is to identify how to capture the students' enthusiasm. This will encourage them to actively participate in experiencing simulations. In this study, the student learners also engaged in performing skills and responding to close to real situations that require necessary patient care management. Various simulation techniques which were accompanied by hypothetical scenarios or patient situations that approximately mimic reality using static mannequins and varied equipment and supplies created opportunities for a higher level of learning through clinical simulations were noted.

Table IX. Respondents' Perception of Effectiveness and Importance of Simulation Laboratory Experiences with the Use of HFS as a Teaching Strategy for Nursing Students' Learning in the Skills/Doing (Hands) Taxonomy

Behavioral Indicators of Nursing Students' Learning	***Weighted Mean***	***Interpretation***	***Rank***
1. Return demonstrate in proper sequence	4.31	GEEI	5.5
2. Carry out skills with independence	4.24	GEEI	9
3. Demonstrate skills in proper order	4.27	GEEI	7
4. Execute skills on time	4.36	GEEI	1.5
5. Perform skills carefully and with safety	4.36	GEEI	1.5
6. Do skills together with social & communication skills	4.39	GEEI	1
7. Take part in activities as anticipated	4.34	GEEI	4
8. Perform a definite alternative for doing the skill with accuracy	4.31	GEEI	5.5
9. Accomplish a high level of confidence and without any doubts when performing a skill	4.25	GEEI	8
Overall Weighted Mean Score	**4.31**	**GEEI**	

Legend: 4.20-5.00 Great Extent of Effectiveness & Importance (GEEI); 3.40-4.19 Effective & Important (EI); 2.60-3.39 Moderate Extent of Effectiveness & Importance (MEEI); 1.80-2.59 Low Extent of Effectiveness & Importance (LEEI); 1.00-1.79 Not Effective (NE).

6. Respondents' Perception of the Effectiveness and Importance of Simulation Laboratory Experiences Using HFS as a Teaching Strategy in their Feeling (Heart) Taxonomy of Learning

In Table X, learning aspects included in this taxonomy illustrated the highest weighted mean scores can be attributed to the fact that Nursing as a profession deal with caring for a person as a unique human being. In so doing, nursing students were able to appreciate their future roles as professional nurses.

A meta-analysis of forty (40) quantitative studies demonstrated that both HFS and standardized patients brought the greatest effect sizes in the feeling and thinking taxonomies of learning areas [6]. In the provision and delivery of health care services, students were given the best learning opportunities to further refine their behaviors and desirable attitudes through HFS as a platform, that eventually lead and draw them closer to the standards, roles, responsibilities, and values fundamentally integral to the profession [9]. Through this process of self-reflection, respondents revealed that simulation using HFS encouraged them to analyze their performance and in the decision-making process as indicated, it gave them a better understanding and enhanced knowledge of properly managing any unforeseen situations [9]. It also conforms with the graduating students' experiences working as a team of nurses as they engaged in reflective learning while watching a video of their performance in the team-based simulation-based SBAR education program after team activities were completed [17].

This is further strengthened by the respondents of this study in one of the higher private educational institutions here in South Korea when they shared and described their learning experiences in Simulation Laboratory as follows: “I think this Simulation Laboratory is very helpful. I’ve mastered CPR, so it’s very good. I review my knowledge and practice also.” “Very good experience because in Korea, I don’t have to say it in English. I think, if I go abroad, it’s a very good experience, it made me a high asset. So, it’s very good for me, so the first time I go to a Korean professor, I don’t have to find an English book. I don’t have to study but with the International Program, I can upgrade my experience. Then, we prepare and speak in English.”

Furthermore, students specified their thoughts and feelings namely: “I learned a lot from the Sim. Lab., especially recently, I had a job interview. They asked me about which medication to use in a CPR situation. I have learned CPR 2 times so it helped me a lot! I have seen the real situation in this Hospital’s Medical Center too, so they asked me about this hospital’s CPR situation. I commented that there are a lot of people during CPR-about 20-25 people. So, I think adequate people should remain in the hospital environment. So, they said that was fine, but I think it was overcrowded.” I was assigned to Pediatrics-Cardio. So, CPR helped me with my job application. “Aside from communication skills enhanced, what I learned the most is CPR and assessment. When I got interviewed in the hospital, they asked about it. When you see the EKG line flat, what do you do? Other applicants say we should check the vital signs but I say check the lead first, then do CPR as needed. The best tool is Simulation Laboratory.”; “CPR was very good! CPR is very impressive and important! I remembered it the most! I heard about the news just the other day, it saved a life. She saved a boy’s life! Nowadays, CPR is more highlighted, not only in the hospital, even normal people should know about it.”

The participants’ meaningful learning experiences in the Simulation class resulted in making them more confident, competent, and compassionate student nurses, particularly in dealing with emergencies, particularly when given immediate feedback. “It was very helpful to us. I can learn many things I didn’t learn in other classes. After Simulation Lab., it was really good to hear good/immediate feedback from our professors too, so we prepare better things and our problems during Simulation so we can do better next time.”

On the contrary, those behavioral indicators in the list of this taxonomy that were in the lowest three ranks may be due to having some restrictions on respondents’ clinical exposures in the clinical setting. Reference [2] indicated this area of limitations for students’ learning may be existing in their related clinical learning experiences where patients’ conditions and those of the family members and patients themselves may not allow the best chance for learning to take place among learners. For students engaged in nursing programs, new simulation methodologies may be used. Students participate in clinical situations in which they might not be permitted to do so with actual patients, like doing emergency and resuscitative efforts in case of cardiopulmonary arrest or cases like a cardiovascular collapse in the emergency department, or critical care units, through simulation of any kind, from low-fidelity role-play to high-fidelity approach with the use of computer-operated models [12].

Table X. Respondents' Perception of Effectiveness and Importance of Simulation Laboratory Experiences with the Use of HFS as Teaching Strategy for Nursing Students' Learning in the Feeling (Heart) Taxonomy

Behavioral Indicators of Nursing Students' Learning	***Weighted Mean***	***Interpretation***	***Rank***
1. Show respect for the dignity of patients	4.31	GEEI	8
2. Express appreciation for the role of the nurse	4.49	GEEI	1.5
3. Realize own strengths and limitations	4.49	GEEI	1.5
4. Perform his/her share in group activities	4.37	GEEI	4.5
5. Assess positively own performance	4.33	GEEI	6
6. Evaluate positively others' performance	4.37	GEEI	4.5
7. Recognize feedback on performance in a positive manner	4.40	GEEI	3
8. Display resourcefulness & creativity in skill performance	4.30	GEEI	9
9. Share ideas, thoughts, and beliefs freely	4.32	GEEI	7
Overall Weighted Mean Score	**4.36**	**GEEI**	

Legend: 4.20-5.00 Great Extent of Effectiveness & Importance (GEEI); 3.40-4.19 Effective & Important (EI); 2.60-3.39 Moderate Extent of Effectiveness & Importance (MEEI); 1.80-2.59 Low Extent of Effectiveness & Importance (LEEI); 1.00-1.79 Not Effective (NE).

7. Analysis of General Information of Nursing Students

As gleaned from the findings of this study, nursing remains to be a female-dominated profession where the majority of the respondents were female. Primarily, this can be associated with a steady increase in the number of student nurses who takes up Bachelor of Science in Nursing courses as caring is best related to the attributes of naturally being a woman.

Table XI. Demographic Profiling of Nursing Students' Gender and Year Level

Profile	***Frequency***	***Percentage (%)***
Year Level		
Third Year	54	43.5
Fourth Year	70	56.5
Gender		
Male	9	7.3
Female	115	92.7
Total	**124**	**100.0**

8. Summary of Analysis of Student's Recommendations and Non-Recommendations of HFS

Based on the respondent's reasons for recommendations or non-recommending of using HFS as a teaching platform in their Simulation Laboratory, which is noted in the last part of the survey questionnaire, nursing students have written brief and multiple responses as they have evaluated the entire simulation activities.

As seen in Table XII, student nurses felt that the overall Simulation Laboratory course mostly helped them feel less anxious and more confident. In dealing with real-life scenarios during their Simulation Laboratory sessions, enhanced critical thinking skills and further noted the worth of their time, and facilitated learning faster and quicker. The respondents specifically stated that it facilitated learning and it was associated with easier return-demonstration of their nursing skills which appeared for them to be performing naturally in a given scenario.

On the other hand, the stated reasons for not recommending this course are primarily due to limited time utilized in their class for scenario analysis, guided practice, and actual graded presentation, hence, seen as not effective. The respondents also believed that not all students will learn and there is still limited time to learn and have mastery of skills from what is expected of them. Some students indicated that more or additional technological resources may be requested from the department to conduct HFS in varied clinical settings and areas of assignments. Others viewed that they needed a more technologically advanced simulator than what the school can provide for their practice sessions as well. The final two arguments each

student evaluated for not endorsing this simulation technology are that there are better choices for instructing nursing students and that it can provide uneven learning opportunities for students.

The abovementioned qualitative accounts gathered from the respondents of the study further supported previously cited literature related to effectiveness, usage, and limitations of simulation in the teaching and learning pedagogies. Numerous simulation training centers and nursing schools utilized these varied simulation methods. This ranges from low-fidelity task trainers like an intravenous insertion arm, a CPR mannequin, or computer-based models with static models and no learner engagement to medium-fidelity (MFS) and high-fidelity patient simulations (HFPS) [6, 7, 8, 9, 10, 11]. A medium fidelity simulation (MFS) utilizes manikin or task trainers which are usually full-body simulated patient mannequins that can provide varying sounds of the respiratory, circulatory, and gastrointestinal systems or simulated blood but do not provide a realistic environment [7]. High-fidelity patient simulation (HFPS) pertains to the utilization of computer-generated models and dummies that can initiate and imitate actual and practical situations, such as Laerdal's Sim Man and Virtual Reality. This is coupled with a near-to-reality hospital setting that can allow learners to obtain and enhance thinking and analyzing objectively and further improve skills in making decisions without compromising patient's safety [7, 8, 14, 17, 18, 19].

The abovementioned conducted studies illustrated simulation usage has increased among nursing and related programs. Reference [3] emphasized that simulation-based learning is not merely an "add-on" in education but should be integrated throughout the entire curriculum. In this article, the author reported on the effectiveness of simulation in nursing and further tabulated instructional methodologies to improve its effectiveness [3]. References [17, 18] further indicated the effectiveness of simulation-based educational training programs with the use of SBAR in the improvement of senior nursing students' ability to communicate, building a higher level of confidence when communicating, and developing skills in making decisions in the clinical areas of assignments. This study utilized varied and challenging simulation scenarios, and SBAR training programs where nursing students developed competence and confidence in dealing with emergency and critical situations related to caring for mothers, and newborns during pre and post-surgical settings [17, 18]. Those student respondents who completed simulation-based educational training programs using SBAR have manifested an increased level of relaying precise information to medical personnel during the transition [18]. They also developed the competency of analyzing patient situations accurately and communicating confidently even during complex emergencies, wherein communication, coordination, and teamwork affect patient safety and the delivery of quality nursing care [17]. Additionally, a Virtual Reality (VR) educational resource was added to help nursing students learn how to care for or nurse multiple trauma patients using the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model's five-stage development process [19]. This resource was added to help nursing students learn how to handle multiple trauma situations with a visual limit on the available simulation learning. It also assessed the possibility and effects of VR education first in Korea [19].

In connection with this, based on the analysis of the highest and lowest ranked behavioral items in the three domains of learning, coupled with student's suggestions and reasons for recommendations to further enhance their Skills Laboratory experiences, a skills "fair" enhancement program was conceptualized for the university students of the department. This will serve as a supplemental training opportunity and a capstone activity for students to engage in more interesting simulation-based activities that focus on advanced cognitive and psychomotor skills. This may be similar to a job or career fair where students are required to perform professionally and competently to their possible employers who will be represented by their assigned professors for this program. With these various scenarios, students will be able to demonstrate their beginning competencies and readiness to assume career progression from beginning to complex skills to becoming a beginning professional nurse in the clinical practice.

B.T.S. Simulation Laboratory for University Nursing Students is the name of this facility. It is an academic, instructional-focused augmentation software for simulation laboratories that attempts to give students a variety of adult and pediatric situations broken down into six distinct stations. This will be guided by a set of learning objectives/outcomes for areas of basic skills to more complex areas of specialization in nursing like Emergency, Disaster and Intensive Care Nursing, Adult Nursing, Community Health Nursing, Psychiatric Nursing, and Pediatric Care.

For purposes of better recall and providing a more student-friendly approach, the name B.T.S. was conceptualized, not in any form to be associated with the globally popular seven-member Korean boy band group name, but somehow suggests a more fun in providing learning activities for the students enrolled in

the program. With study findings, the cognitive and affective domains of learning were the areas that have shown significant relationships and differences in the year-level categories. Similar reasons for not recommending this enhancement program were considered to give students equal learning chances and ample time to devote to their educational pursuits.

It primarily stands for **B** - in Basic Skills, **T** - for tube management, and **S** - for special areas skills. Specifically, the basic skills of taking vital signs & blood sugar testing, intradermal injections, and giving oral medications may appear too basic procedures for student nurses to perform, but these will be given some challenging scenarios for students to role-play like giving oral medications to a patient with left-or right-sided paralysis or having taken anti-histamine drugs prior intradermal injections. T pertains to tube management like procedures of administering blood transfusion, nasogastric tube feeding & insertion of intravenous fluids. Lastly, S refers to special areas skills that include operating room (OR) gowning & gloving, emergency room (ER)- Basic Life Support with airway management - oxygen therapy, Advanced Cardiac Life Support (ACLS), the provision of drugs, defibrillation with basic ECG reading and interpretation. Community or Psychiatric Nursing will likewise be incorporated through the application of therapeutic communication in dealing with a disastrous situation or handling mentally challenged individuals in a mass casualty incident.

Thru this enhancement program, nursing students will be given an equal learning opportunity in the six different stations for them to further hone their cognitive (knowledge-head part), psychomotor (skills-hands part), and affective (attitude-heart) domains of learning expected of them as the best nurses fitted for upholding and providing the quality nursing care to their clients. To assist students in completing this capstone project before graduation, a Simulation Laboratory Enhancement Manual will be created. This comprises evaluation tools as a checklist for their assigned professors grading performance as pass or fails in a skill performed. It will provide an equal opportunity for students to be rotated in these stations and additional enhancement sessions may be required for those who cannot satisfactorily demonstrate skills required of as future professionals. This will also serve as a review session for students to test their ability to answer computer-based generated questions related to these topics on the last station of their rotation.

Table XII. Students' Reasons for Recommending HFS (N=124) Multiple Responses

Evaluation Items	***f***	***%***
Worth of time	18	14.5
Increased confidence	40	32.2
Decreased anxiety	57	45.9
Enhanced critical thinking	29	23.3

Table XIII. Students' Reasons for Not Recommending HFS (N=124) Multiple Responses

Evaluation Items	***f***	***%***
Time-consuming and not effective	14	11.2
High resource demand	6	4.8
Much better other options	1	0.08
Not all students will learn	13	10.4
Limited time to learn	13	10.4
Not technological advanced simulators	4	3.2
Unequal opportunity for learning among students	1	0.08

CONCLUSION

Simulation as a teaching platform in a Department of Nursing, South Korea was utilized to provide learning experiences and strategies that would enhance the acquisition of nursing skills, knowledge, and desirable attitudes as a future professional. The use of high-fidelity simulation (HFS) with computer technology and mannequin, case analysis, and presentation for simulation-based learning was integrated into the undergraduate nursing curriculum. Specifically, the study aimed to assess and explore University Nursing students' learning experiences in their Simulation Laboratory class as they learn the nursing concepts taught in English and Hangeul during the Fall Sem. 2016 and Spring, Semester 2017. Preparing and managing simulation training programs are labor intensive on the part of the faculty members and other staff and administrators of the department, coupled with large capital investment and maintenance on the part of the academic institution

providing it for their primary stakeholders. On top of it all, the benefits that students will be getting from it in preparation for their future careers as professional health care providers is an important issue to consider as well.

As drawn from the abovementioned and presented data, major representatives of the respondents of the study in a Department of Nursing belonged to female graduating student nurses. Students rated their perception of the use of HFS as a teaching methodology in their Simulation Laboratory class with high effectiveness and importance to a great extent in achieving each of the taxonomies of learning. Of the three classifications, the feeling (heart) taxonomy was categorized highest in rank and the thinking (head) taxonomy as the lowest ranked based on the respondent's perception of the effectiveness and the importance of Simulation Laboratory experience using HFS as an instructional methodology in acquiring learning.

A moderately significant relationship was established between the student's perception of effectiveness and the importance of Simulation Laboratory experiences using high-fidelity simulation as a teaching strategy and their grade level in the thinking (head) taxonomy and the feeling (heart) taxonomy, but not noted in the skills/doing (hands) taxonomy of learning. On the other hand, the null hypothesis was accepted with a significant relationship between the student's perception of effectiveness and the importance of Simulation Laboratory experiences using high-fidelity simulation in obtaining learning on the three taxonomies of learning and their gender profile.

On significant difference was established between the respondents' perception of effectiveness and the importance of Simulation Laboratory experiences using high-fidelity simulation and their year level of the thinking (head) and feeling (heart) taxonomies, but not established in the skills/doing (hands) taxonomy of learning. However, about the gender variable, there existed no significant difference in the student's perceived effectiveness and the importance of HFS in their achieving learning, hence, acceptance of the null hypothesis. Specifically, nursing students on both levels performed equally competent and confident in a timely and safe manner. They have also performed skills concurrent with interpersonal and communication skills and participated in activities as expected.

For the qualitative approach, this study explored the learning experiences of twelve (12) University Nursing students in the Republic of Korea. The participant's narrations described their thoughts, feelings, and symbolic representations of learning experiences in Simulation classes conducted in that period indicated. The participants strongly believed that this Simulation Laboratory course using HFS as a teaching strategy was indeed very useful in the acquisition of the thinking (head), the skills/doing (hands), and the feeling (heart) taxonomy of learning, as they learned these specific topics of adult and pediatric, maternal, and emergency care taught in both the English and Hangeul languages during this class. Specifically, three main themes, a light of direction, a light from challenges, and a light of continual learning for the future were identified in the study.

The participants believed that the learning experiences in the Simulation class were generally useful in learning as a student nurse. It directed them into acquiring the expected skills in saving the lives of a patient in the Adult and Pediatric Intensive Care Unit (ICU) and Operating Room/Delivery Room. It was further emphasized that it positively created favorable job opportunities with their job interviews and application in hospitals in Korea. They also elaborated that the following skills they were noted best at include assessing signs and symptoms, prioritizing the needs of patients, and dealing with emergencies, hence, improving self-confidence, communication, and teamwork. On the other hand, they have seen areas of improvement in how to effectively deal with patients' fears and discomforts, and concerns posted by the significant members of the family. It brought great challenges with them particularly if this would entail communicating with the patients or relatives in a foreign language, aside from English as the spoken language during the actual examination.

The participants also mentioned that the high-fidelity training mannequin and sophisticated laboratory rooms and equipment added value to their learning experiences but there were certain limitations in their provision of nursing care to their respective clients. In this light, professors should continually evaluate the effectiveness and the importance of simulation and other nursing subjects and coordinate with other key faculty and the administrators of the department at the program design, implementation, and evaluation stages of curriculum development to better address needs and facilitate the delivery of high-quality services and education for students. Future studies may also explore the other levels of Simulation classes offered in this University with more participants and focus on the respective impact of the Human Patient Simulator and High-Fidelity Simulation on students' performance in clinical settings in terms of the three taxonomies of learning.

Based on the results of the findings of the study, a "B.T.S." Simulation Laboratory Enhancement Program for University Nursing Students was specially designed and developed.

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