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A conjoint analysis of the acute and critical care experiential learning preferences of Baccalaureate student nurses

John Rey B. Macindo[a,b,*], Miguel Paolo B. Danganan[c], Christian Albert F. Soriano[b], Nathalei Sheen R. Kho[d], Maria Victoria V. Bongar[e]

[a] Faculty of Management and Development Studies, University of the Philippines – Open University, Los Baños, Laguna, 4031, Philippines
[b] Nursing Service Division, AMOSUP Seamen's Hospital, Cabildo Street, Intramuros, Manila, 1002, Philippines
[c] College of Medicine, University of the East Ramon Magsaysay Memorial Medical Center, Inc., Quezon City, 1113, Philippines
[d] Faculty of Medicine and Surgery, University of Santo Tomas, España Boulevard, Manila, 1015, Philippines
[e] College of Nursing, University of Santo Tomas, España Boulevard, Manila, 1015, Philippines

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ABSTRACT

With the increasing need for competent nurses specializing in acute and critical care, educators must consider the needs and preferences of students in designing experiential learning programs. This cross-sectional, choice-based conjoint analysis determined the acute and critical care experiential learning preferences of student nurses. From March to July 2016, 213 randomly-selected student nurses from a higher education institution in Manila, Philippines were surveyed and ranked 20 choice bundles with 5 selected attributes of the experiential learning program. Results showed that *duration of unit exposure* (48.73%) and *group structure* (7.46%) were the most and least valued attributes, respectively. Additionally, student nurses prefer an experiential learning program that lasts for 1 week (21 h) per unit (utility = 0.93), has a stay-in instructor (utility = 0.30), encourages full student involvement (utility = 1.08), deploys 2–3 students per group (utility = 0.09), and provides both single program and on-going unit orientation (utility = 0.52). Part-worth utilities of *duration of unit exposure* ($t = 3.65$, $p = 0.0001$) and *group structure* ($t = 3.46$, $p = 0.001$) differed between gender. With a model explaining the acute and critical care experiential learning preferences of student nurses, nursing institutions can restructure their clinical placement to maximize positive learning.

1. Introduction

Experiential learning is a *"philosophy and methodology in which educators purposefully engage with students in direct experience and focused reflection to increase knowledge, develop skills, and clarify values"* (Association for Experiential Learning, 2014). In the simplest form, it is a method of learning through the experience of performing a task or activity (Dale, 1969; Lewis and Williams, 1994). This pedagogical approach helps students integrate knowledge efficiently, gain meaningful learning, continuously pursue knowledge, improve personal qualities, and enhance social consciousness (Fowler, 2008). Experiential learning or clinical placements had been incorporated in the nursing curriculum to bridge the theory-practice gap, a constant issue in nursing (Ajani and Moez, 2011) especially among undergraduate students who have inadequate clinical experience (Scully, 2011). This gap is rooted from two general problems: (1) the unrealistic and too idealistic theories and (2) the ignorance or rigidness of the healthcare system to implement realistic theories (Draper, 1991; Ajani and Moez, 2011; Scully, 2011).

In order to achieve the goal of a positive and nurturing experiential learning program, several aspects of its design and mechanisms must be carefully planned according to the needs of the stakeholders. These characteristics may include the appropriate timeframe, the necessary activities, the availability of resources and manpower, and the expected program deliverables and output to name a few. Chapman et al., (1995) even posited that good experiential learning programs must have a mixture of content and process, lack excessive judgment, encourage purposeful endeavors, nurture the "big picture" perspective, employ reflection, create emotional investment, allow re-examination of values, build meaningful relations, and facilitate learning outside one's comfort zones. Activities in an experiential learning program should also have

* Corresponding author. Faculty of Management and Development Studies, University of the Philippines – Open University, Los Baños, Laguna, 4031, Philippines.
E-mail addresses: johnreymasindo@yahoo.co.uk, janrei.masindo@gmail.com (J.R.B. Macindo), paolo_danganan1122@yahoo.com (M.P.B. Danganan), christianalbertf.soriano@yahoo.com, christianalbertf.soriano@gmail.com (C.A.F. Soriano), sheenkho26@yahoo.com (N.S.R. Kho), mvbongar@ust.edu.ph (M.V.V. Bongar).

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carefully structured learning outcomes, briefing sessions, hand-out materials, reflective activities, tasks with direct application of learning, and assessment criteria (Moon, 2004; Cantor, 1995). Claeys et al. (2015) underscored that 5 design-specific characteristics of the program must be considered, specifically the number of weeks, the number of students, the student-mentor ratio, the number of practice tutors, and the head nurse role. Despite these recommendations, there is no clear blueprint in designing such program and requires several iterative steps to achieve the best experiential learning program for a specific population.

According to Cantor (1995) and Chapman et al. (1995), the first step in planning an experiential learning program is considering the characteristics of the learner population. Student nurses are deployed in various settings as part of their experiential learning during which, they are rotated to acute and critical care units such as the emergency department, intensive care units, dialysis units, and post-anesthesia care units. As such, educators must explore the needs and preferences of student nurses to generate a tailor-fit and positive experiential learning program in the acute and critical care units. With the increasing need for competent healthcare professionals specializing in acute and critical care (Angus et al., 2000), nursing educators must identify salient characteristics of the experiential learning program in the acute and critical care units that may need modifications to further improve its design. Furthermore, being true to the nature of evidence-based practice and outcomes-based education, adequate groundwork is paramount in developing pedagogical programs in the nursing curriculum, including the experiential learning program in the acute and critical care units. Nurse educators must also consider unique student characteristics (e.g., gender, learning styles, etc.) which may affect their preferences with the experiential learning.

This study was carried out to explicate the acute and critical care experiential learning preferences of student nurses, and was underpinned on the following questions: *what are the part-worth utilities of the acute and critical care experiential learning preferences of student nurses*; *what is the most important and the least important attribute of the acute and critical care experiential learning preferences of student nurses*; and, *how does the experiential learning preferences of student nurses differ according to gender?*

2. Literature review

2.1. Rational choice theory

This study was theoretically grounded on the rational choice theory by Campbell and Vinci (1983) which posits that all actions are essentially rational by nature and individuals weigh the costs and benefits of each action they make before performing such action. In this study, this theory facilitated exploring the preferences of student nurses with their acute and critical care experiential learning based on program attributes that they need to weigh and trade for other attributes.

2.2. Duration of unit exposure

Studies showed that the duration or length of clinical exposure in a hospital unit is crucial to positive experiential learning. In particular, students desire adequate or sufficient clinical time in a given clinical area (Haraldseid et al., 2015; Lamont et al., 2015). However, there have been varying recommendations on the duration of clinical exposure in a hospital department according to the type of clinical placement.

For instance, Claeys et al. (2015) differentiated three concepts of clinical placement according to the number of weeks, number of students and level of nursing education, number of mentors, function of practice tutor, and function of the head nurse. These concepts are the traditional clinical placement, the dedicated education center, and the workplace learning. In traditional clinical placement, group size varies from 1 to 9 students and normally lasts for approximately 4 weeks. A number of mentors are jointly responsible for the supervision the student nurses. There is no one-to-one supervisor relationship, and the practice tutor visits once a week. In contrast, a dedicated education center is a nursing department where learning and care are the two key processes (Claeys et al., 2015). Students are given intensive one-on-one supervision by mentors, and their clinical placement lasts for about 8 weeks with only 3–4 nursing students. Each student has one mentor, and the practice tutor visits for at least half a day every week and performs a coaching role for the mentors. The workplace learning concept, on the other hand, involves approximately 8–16 student nurses taking full responsibility in a nursing department, and usually lasts for 2–5 weeks under the supervision of 2–4 mentors. The practice tutor visits the students on a daily basis and organizes review sessions which focus on critical reflection of the organization, quality of care, and teamwork (Claeys et al., 2015). Hence, the duration of clinical placement greatly varies according to the concept employed for the program. Lamont et al. (2015) noted that on an average, clinical placements last for approximately 2 weeks and may range from 1 week to 5 weeks.

Despite these variations in the duration of clinical exposure, Claeys et al. (2015) indicated that learning performance increased with greater time in the clinical area. As such, students prefer longer time of exposure in their clinical placements to practice their skills and gain knowledge of necessary procedures (Chuan and Barnett, 2012). To date, there have been no studies that examined the preferences of student nurses regarding the duration of unit experience in the acute and critical care units.

H1. Student nurses prefer an experiential learning program in the acute and critical care units that last for 1 week (21 h) or 2 weeks (42 h) than 1 day (7 h).

2.3. Instructor involvement

As students, the role of the instructor in optimizing positive learning experience cannot be underemphasized. In the clinical skills learning environment framework proposed by Haraldseid et al. (2015), organizational environment, which entails the faculty's facilitation, allocation, and management of work, was a factor to positive learning. Therefore, instructor involvement or the degree of supervision from the mentor or preceptor during experiential learning (Papp et al., 2003; D'Souza et al., 2015; Rebueno et al., 2016) is a key component in integrating theoretical learning into clinical practice. Moreover, satisfactory instructor or faculty supervision increases the chances of graduate nurse recruitment and completion rates (Lamont et al., 2015).

In most clinical placement approaches, student nurses are directly supervised by stay-in instructors or mentors (Claeys et al., 2015). These stay-in mentors are nurse educators who provide complete and direct supervision during the entire clinical rotation, spending three days per week with their students. Stay-in clinical instructors are assigned to 1 student group at a time in a single nursing department. D'Souza et al. (2015) averred that such instructor approach improves student learning and satisfaction. However, in the study of Anarado et al. (2016), students were either completely unsupervised or partially supervised. As a result, students were dissatisfied with the clinical placement and had poorer learning. Therefore, stay-in clinical instructors, who are able to provide complete and direct supervision, are catalyst of positive experiential learning among students.

H2. Student nurses prefer a stay-in clinical instructor during their experiential learning program in the acute and critical care units.

2.4. Student nurse involvement

Literature suggest that the quality of student involvement in patient care is tantamount to positive experiential learning thus, placing emphasis on student-directed learning and participation (Papp et al., 2003;

D'Souza et al., 2015; Lamont et al., 2015; Ford et al., 2015). Student nurses feel more accepted in the unit when given more opportunities to practice their role (Papp et al., 2003; Anarado et al., 2016). Furthermore, involving students in direct patient care facilitates skill and confidence development (Lamont et al., 2015).

Nevertheless, limiting the opportunity for direct patient care can negatively affect clinical experience among student nurses (Henderson et al., 2007; Lamont et al., 2015). The lack of support from staff nurses also hinders the student's participation in patient care, hence limiting their opportunity to render patient care (Ford et al., 2015). McInnes et al. (2015) argued that student nurses gain greater clinical competency and confidence when mutually respected. Studies emphasized that student nurses tend to hesitate providing direct patient care when they feel or perceive that they are unwanted, unwelcomed, or disrespected by the staff nurses (Papp et al., 2003; D'Souza et al., 2015; McInnes et al., 2015; Ford et al., 2015).

H3. Student nurses prefer to have full involvement in patient care during their experiential learning program in the acute and critical care units.

2.5. Group structure

One of the factors that is considered in designing an experiential learning program or clinical placement is the structure of the group to be deployed in hospital units. Claeys et al. (2015) averred that the size of a student group deployed in a unit has certain implications to the learners and greatly varies according to clinical placement approach. In traditional experiential learning programs, students are rotated in groups of 9 while workplace learning approach involves a larger group, composed of approximately 16 students. In a dedicated learning group, however, only 3–4 students are assigned in a group. With a larger student-mentor ratio, represented by the group structure, instructors are burdened to supervise several students at a given timeframe which may negatively impact their learning experience (Haraldseid et al., 2015). Additionally, knowledge and skill acquisition, satisfaction, and learning are greater in smaller student groups than larger clusters (Chuan and Barnett, 2012).

H4. Student nurses prefer a small group structure (2–3 students per group) during their experiential learning program in the acute and critical care units.

2.6. Approach of program orientation

Orienting students for clinical placement plays a positive role in learning and competency development (Haraldseid et al., 2015; Anarado et al., 2016; Rebueno et al., 2016). Comprehensive program orientation involves the provision of adequate, appropriate, and clear information regarding the objectives, expectations, and deliverables during the program. Nonetheless, the appropriate manner of orienting students during their clinical placement is an area that requires further exploration.

According to Staykova et al. (2013), nurse preceptors prefer a scheduled, formal orientation at the start of preceptorship to prepare and guide students for their expected role and responsibilities. Some preceptors, however, also desire on-going orientations, and a selected few favored the combination of single and on-going orientation approaches (Staykova et al., 2013). Yet, from the preponderance of studies in experiential learning, there is paucity of literature investigating the preferred approach of orientation among student nurses.

H5. Student nurses prefer a combination of single program orientation and on-going unit orientation during their experiential learning program in the acute and critical care units.

3. Methods

3.1. Research design

Choice-based conjoint analysis was utilized to explicate the acute and critical care experiential learning preferences of student nurses. Choice-based conjoint analysis, or trade-off analysis, elucidates the effect of selected attributes on the preference of a population by exploring how individuals consider jointly the selected attributes (Hobbs, 1996). In essence, conjoint analysis explores the combination of attributes and their corresponding levels that maximize the preference. This approach is commonly utilized in marketing research (Hobbs, 1996), transport economics, and environmental economics (Ryan and Farrar, 2000).

Notably, conjoint analysis has been widely used in the medical and allied health fields, including nursing, to determine the preferences of stakeholders such as treatment preferences, resource allocation, and willingness to pay (Ryan and Farrar, 2000; Mele, 2008). Similarly, conjoint analysis has gained popularity in nursing education, specifically in determining the need for new instructional strategies (Mele, 2008). Cognizant that this study aims to determine the preference of student nurses in their acute and critical care clinical placement, an understanding which can be used in improving existing instructional strategies, choice-based conjoint analysis was the most appropriate design. In designing this conjoint analysis, the proposed steps of Rao (2013) were followed: (1) selection of attributes and levels, (2) preparation of conjoint questionnaire and choice bundles, (3) administration of survey and profile scenario, and (4) data analysis.

3.2. Sample and study site

Employing a cross-sectional design of choice-based conjoint analysis, this study was conducted in a private higher education institution (HEI) in Manila, Philippines that offers a 4-year Bachelor of Science in Nursing (BSN) education. This nursing school is an accredited higher education institution with approximately 400 new graduate nurses annually. As part of the Philippine nursing curriculum, nursing students are rotated to acute and critical care units (intensive care unit, post-anesthesia care unit, dialysis unit, and emergency department) for approximately 4–8 h per unit and are monitored by one instructor.

From 300 eligible respondents, 213 randomly-selected student nurses who met the following criteria were recruited: regular, undergraduate students of the institution and have completed their clinical placement in the acute and critical care units. This study did not impose any exclusion criteria to gather as rich data on the preferences of student nurses.

3.3. Data measures

The attributes of experiential learning and their respective levels were selected after extensive literature and theoretical review (Papp et al., 2003; Chuan and Barnett, 2012; Staykova et al., 2013; Claeys et al., 2015; D'Souza et al., 2015; Ford et al., 2015; Haraldseid et al., 2015; Lamont et al., 2015; McInnes et al., 2015; Anarado et al., 2016). The experiences of the nurse educator in the team, who supervised student nurses in the acute and critical care units, were also considered in attribute and level selection. From the plethora of characteristics that promote positive learning, five modifiable attributes were selected (Table 1).

From the 5 attributes and their levels, 72 profiles or choice bundles ($2^3 \times 3^2$) can be generated. A fractional factorial design was used to minimize burden and to maximize information from the respondents (Rao, 2013). Utilizing IBM SPSS, 16 choice bundles were generated and 4 additional profiles were included as holdout cases for reliability purposes, giving a total of 20 profiles. These profiles were prepared as orthogonal cards using cardboard cut-outs with pictures and large fonts to illustrate each level of the 5 attributes.

Table 1
Attributes and levels of experiential learning in the acute and critical care units.

Attributes	Definition	Levels
Duration of Unit Exposure	This attribute refers to the duration of clinical exposure for each acute and critical care unit.	1 Day (7 Hours) per Unit 1 Week (21 Hours) per Unit 2 Weeks (42 Hours) per Unit
Instructor Involvement	This attribute refers to the type of clinical instructor involvement in the unit.	Roving Clinical Instructor Stay-in Clinical Instructor
Student Nurse Involvement	This attribute refers to the degree of participation of student nurses in the acute and critical care units.	Full Student Involvement Partial Student Involvement
Group Structure	This attribute refers to the size of student groups deployed in the acute and critical care units.	2–3 Student Nurses per Group 4–6 Student Nurses per Group
Approach of Program Orientation	This attribute refers to the type or approach of orientation for the experiential learning program in the acute and critical care units.	Single Program Orientation On-going Unit Orientation Combined Single Program and On-going Unit Orientation

Table 2
Demographic profile (N = 213).

Characteristics	Frequency (*f*)	Percentage (%)	Mean (SD)
Age			20.44 (± 1.28)
Gender			
Male	88	41.30%	
Female	125	58.70%	
Semester of Critical Care Experiential Learning			
First Semester	126	59.20%	
Second Semester	87	40.80%	

The conjoint questionnaire was composed of two sections. The first section was the *robotfoto*, a Dutch term signifying the cartographic sketch of an individual (Kelchterman and Ballet, 2002), which profiled the respondents' age, gender, and semester of completing the experiential learning. The second section of the questionnaire involved the respondent's rankings of all 20 orthogonal cards. The conjoint questionnaire and the orthogonal cards were initially pretested to refine the words and survey instructions.

3.4. Administration of survey and profile scenario

Ethical clearance was sought from the UST College of Nursing Ethic Review Committee (USTCON-2016-FR05). The team requested for the number of students per class to determine the proportionate number of students to be invited. Each class were visited during their free time and using an electronic number randomizer, respondents were randomly-selected based on their class numbers.

Respondents were accompanied to a private room within the institution where the task, the different attributes, and their corresponding levels were introduced to expedite understanding. Written informed consent was secured after providing full disclosure. Respondents who refused to participate were respectfully requested to leave the room. Consenting respondents were asked to rank the 20 orthogonal cards from the most preferred (rank 1) to the least preferred (rank 20) combination. Since all respondents had completed their acute and critical care clinical placement, questions were phrased in a first-person verbiage ("*Kindly rank the following program design of your acute and critical care experiential learning from the most preferred (rank 1) to the least preferred (rank 20) design*"). Data collection forms used coded numbers instead of personal identifiers and were completed within 20–30 min. Data collection was conducted from March to August 2016. Data were encoded in an encrypted computer accessible only to the researchers.

3.5. Data analysis

Statistical analyses were performed using IBM version 20.0 (Armonk, NY: IBM Corp). A p-value ≤ 0.05 was considered statistically significant. Descriptive statistics summarized the respondent's demographic profile. Conjoint analysis transformed rankings into part-worth utilities or the relative preference of a specific level in a given attribute. Higher utilities indicate greater preference for the attribute level. The contribution of each attribute to the overall ranking using importance values or the relative ranges of the part-worth utilities across the different attributes was also estimated. Pearson's correlation and Kendall's tau measured the correlation between the predicted and actual preferences and determined model fit. Independent t-test was also used for pairwise comparison of part-worth utilities according gender.

4. Results

4.1. Demographic profile

It can be gleaned from Table 2 that most respondents were females (58.70%) and completed their acute and critical care experiential learning during the first semester (59.20%). The mean age of the respondents was 20.44 (± 1.28).

4.2. Acute and critical care experiential learning preferences

Results of conjoint analysis showed acceptable model fit (Table 3). The *duration of unit exposure* (48.71%) was the most important attribute, followed by *student nurse involvement* (20.41%), *approach of program orientation* (12.14%), and *instructor involvement* (11.29%). *Group structure* was the least important attribute (7.44%) (see Table 4).

Part-worth utilities show that respondents prefer an experiential learning program that last for at least 1 week or 21 h (utility = 0.93), has a stay-in clinical instructor (utility = 0.30), encourages full student involvement (utility = 1.08), deploys small student groups (utility = 0.09), and provides both single program and on-going unit orientation (utility = 0.52).

4.3. Comparison of preferences according to gender

Duration of unit exposure remained the most important attribute for both gender. However, utilities were significantly different in all three levels: 1 day (7 h) exposure ($t = 4.39$, $p = 0.0001$), 1 week (21 h) exposure ($t = 3.65$, $p = 0.0001$), 2 weeks (42 h) exposure ($t = -7.22$, $p = 0.0001$). Likewise, preference for the *group structure* attribute was significantly different between gender ($t = 3.46$, $p = 0.001$).

5. Discussion

This study provides insight on the acute and critical care experiential learning preferences of student nurses which can be utilized by educators in refining their clinical placement design. With a model

Table 3
Acute and critical care experiential learning preferences of student nurses (N = 213).

Attributes and Levels	Part-Worth Utility Values	Standard Error	Importance Values (%)
Duration of Unit Exposure			48.71%
1 Day *(7 Hours) per Unit*	−2.69	0.10	
1 Week (21 Hours) per Unit	1.76	0.12	
2 Weeks (42 Hours) per Unit	0.93	0.12	
Instructor Involvement			11.29%
Roving Clinical Instructor	−0.30	0.08	
Stay-in Clinical Instructor	0.30	0.08	
Student Nurse Involvement			20.41%
Partial Student Involvement	−1.08	0.08	
Full Student Involvement	1.08	0.08	
Group Structure			7.44%
2–3 Student Nurses per Group	0.09	0.08	
4–6 Student Nurses per Group	−0.09	0.08	
Approach of Program Orientation			12.14%
Single Program Orientation	−0.31	0.10	
On-going Unit Orientation	−0.20	0.12	
Combined Single Program and On-going Unit Orientation	0.52	0.12	

Pearson's $r = 0.996$, $p = 0.0001$.
Kendall's Tau = 0.946, $p = 0.0001$.
Kendall's Tau for Holdouts = 1.00, $p = 0.021$.

showing the program attributes most important to student nurses, experiential learning program developers can restructure their existing model and emphasize on these identified features to maximize positive learning. Results may also help address the issues of quality and marketing in nursing education by tailoring experiential learning to the preferences of student nurses.

Results indicated that the *duration of unit exposure* and *group structure* were the most and least important attributes, respectively. Longer unit exposure, at least a week (21 h), was preferred for it gives students more time to apply theoretical knowledge, to practice clinical skills, and to improve professional values and attitudes (Ford et al., 2015; Haraldseid et al., 2015). Not only is longer clinical exposure a trait of a positive learning environment, but also a significant feature that bridges the theory-practice gap (Ajani and Moez, 2011; Anarado et al., 2016). Claeys et al. (2015) suggested that institutions should consider the dedicated education center or the workplace learning approaches of clinical placement among final year nursing students to further actualize their roles as healthcare professionals.

There is, however, a significant difference in the preferred duration between genders. Males prefer 1 week (21 h) while females prefer at least 2 weeks (42 h). This variation can be explained by the neurobiological differences between sexes, particularly in terms of visuospatial perception and abilities. In general, males perform better in visual, spatial, and mechanical learning as they activate a larger volume of their visual cortex (Thies and Travers, 2001; Upadhayay and Guragain, 2014). Considering experiential learning is the application of theoretical knowledge, males learn faster through practice rather than discussions in class. This biological difference may give males ease in learning in the clinical environment and prefer shorter durations to proceed to the succeeding units. Further, due to various social factors, females are more perfectionists than most males (Iranzo-Tatay et al., 2015) thus, requiring more time to master and perfect their skills in an assigned unit.

Student nurses also value their involvement in the acute and critical care units. Giving student nurses the opportunity to participate in unit activities facilitate positive learning (D'Souza et al., 2015; Ford et al., 2015). This notion is supported by Dale's Cone of Experience (1969) which posits that information is retained more through practice. As such, students learn more by practically doing a task, especially when they feel accepted as team members and are given adequate opportunity to participate (Ford et al., 2015; McInnes et al., 2015). In addition, as stipulated in Albert Bandura's Self-Efficacy Theory, confidence is built mostly through first-hand experience (Bandura, 1994) thus, giving students the opportunity to fully participate in ward activities fosters development of confidence and consequently, competence (Ford et al.,

Table 4
Acute and critical care experiential learning preferences according to gender of student nurses (N = 213).

Attributes and Levels	Importance Values (%)		Part-Worth Utilities		*t*-value	*p*-value
	Male (n = 88)	Female (n = 125)	Male (n = 88)	Female (n = 125)		
Duration of Unit Exposure	43.41%	52.45%				
1 Day *(7 Hours) per Unit*			−1.73	−3.36	4.39†	0.0001
1 Week (21 Hours) per Unit			2.39	1.31	3.65†	0.0001
2 Weeks (42 Hours) per Unit			−0.66	2.05	−7.22†	0.0001
Instructor Involvement	11.46%	11.17%				
Roving Clinical Instructor			−0.33	−0.27	−0.29	0.769
Stay-in Clinical Instructor			0.33	0.27	0.29	0.769
Student Nurse Involvement	25.97%	16.50%				
Partial Student Involvement			−1.20	−0.99	−0.82	0.415
Full Student Involvement			1.20	0.99	0.82	0.415
Group Structure	7.50%	7.40%				
2–3 Student Nurses per Group			0.29	−0.05	3.46†	0.001
4–6 Student Nurses per Group			−0.29	0.05	−3.46†	0.001
Approach of Program Orientation	11.66%	12.48%				
Single Program Orientation			−0.21	−0.39	1.44	0.152
On-going Unit Orientation			−0.15	−0.24	0.78	0.430
Combined Single Program and On-going Unit Orientation			0.36	0.63	−1.96	0.051

*Significant at 0.05.
†Significant at 0.01.

2015; Levett-Jones et al., 2015; McInnes et al., 2015) as they practice the theoretical knowledge they have learned in actual patient scenarios.

The third most important attribute was the *approach of program orientation*, particularly a combination of single program and on-going unit orientation. Although student nurses receive the necessary didactics in acute and critical care nursing, deploying them into these units builds tension and anxiety (Levett-Jones et al., 2015). It is, therefore, important that appropriate orientation be given iteratively (Levett-Jones et al., 2015) to promote positive learning (Ford et al., 2015). Theoretically, providing a single program orientation primes student nurses on the expected activities, possible scenarios, and necessary program requirements (Haraldseid et al., 2015; Anarado et al., 2016). Providing on-going unit orientation, however, facilitates clarifications and discussions that relieve apprehension and misconceptions. Bearing in mind that only 50% of information is retained until applied into practice (Dale, 1969), delivering a brief re-orientation in each unit refreshes the concepts needed in the unit.

It is also notable that the part-worth utilities of *instructor involvement* indicated preference for a stay-in instructor. In certain instances, untoward experiences occur within a unit (Ford et al., 2015; Levett-Jones et al., 2015) thus, a stay-in instructor is tantamount to positive learning. The stay-in instructor does only provide direct supervision and guidance during the clinical placement, but also provides necessary debriefing and support (McInnes et al., 2015). These stay-in instructors, who must have specialization in acute and critical care nursing, also maximize learning and facilitate bridging the gap between theory and practice. To be true to the characteristic of experiential learning, integration of learning is amplified by the same instructor (Claeys et al., 2015) through reflective activities and discussion.

Finally, although *group structure* was the least important attribute, part-worth utilities showed preference for a small student group (2–3 students per group). This result is supported by McInnes et al. (2015) positing that a smaller group of students in a clinical area facilitates learning and builds a trusting relationship. Smaller groups entail more opportunity to handle patients with varied medical cases, facilitating assimilation of knowledge and skills. Nurse educators and experiential learning program developers must then consider clinical placement alternatives, such as the dedication education learning approach, to increase the student's opportunities to provide patient care and to maximize their learning (Claeys et al., 2015). Nonetheless, comparative analysis showed different preferences between genders: males prefer smaller groups (2–3 students per group) while females prefer a larger group (4–6 students per groups). Females are more socially-inclined and motivated to function in larger groups due to higher oxytocin levels (Campbell, 2008). Furthermore, females use socio-affective strategies in learning making them more cooperative and less competitive than males when working in groups (Zeynali, 2012).

Albeit the current results, this study has certain limitations. Since the study was conducted in a single nursing institution, the current findings have limited generalizability. Further study must also be conducted to elucidate the preferences of student nurses with their experiential learning in the acute and critical care units considering curricular variations across institutions.

6. Conclusion

This study explicated the acute and critical care experiential learning preferences of student nurses. Remarkably, results indicated that the *duration of unit exposure*, specifically 1 week (21 h) exposure, was the most important attribute and the most preferred attribute level, while *group structure* was least important. By and large, student nurses prefer an experiential learning program that lasts for at least 1 week (21 h) per unit, has a stay-in clinical instructor, encourages full student involvement, deploys small student groups, and provides a combination of single program and on-going unit orientation.

The results of this study are significant on both theoretical and applied levels. On a theoretical level, it contributes to the nursing knowledge, particularly on the preferences of student nurses with their acute and critical care experiential learning. On an applied level, these findings may be utilized by educators and administrators in refining and improving their experiential learning program in the acute and critical care units. Institutions may restructure their acute and critical care experiential learning program to ensure adequate exposure in these units while considering student preferences and national and institutional by-laws. A stay-in instructor with specialization in acute and critical care may also be assigned. Educators may also maximize student participation in unit activities by modifying group dynamics such as deploying smaller student groups. Finally, instructors may consider providing a combination of single program and on-going unit orientations throughout the program.

Conflicts of interest

The authors declare no conflict of interest.

Ethical approval

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Appendix A. Supplementary data

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References

Ajani, K., Moez, S., 2011. Gap between knowledge and practice in nursing. Procedia – Social and Behavioral Sciences 15, 3927–3931.
Anarado, A.N., Agu, G.U., Nwonu, E.I., 2016. Factors hindering clinical training of students in selected nursing educational institutions in Southeastern Nigeria. Nurse Educ. Today 40, 140–145.
Angus, D.C., Kelley, M.A., Schmitz, R.J., White, A., Popovich, J., 2000. Current and projected workforce requirement for care of critically ill and patients with pulmonary disease: can we meet the requirements of an aging population? J. Am. Med. Assoc. 284 (21), 2762–2770.
Association for Experiential Education, 2014. What is experiential education? Available. http://www.aee.org/, Accessed date: 15 April 2016.
Bandura, A., 1994. Self-efficacy. In: Ramachaudran, V.S. (Ed.), Encyclopedia of Human Behavior. Academic Press, New York, pp. 71–81.
Campbell, A., 2008. Attachment, aggression and affiliation: the role of oxytocin in female social behavior. Biol. Psychol. 77 (1), 1–10.
Campbell, R., Vinci, T., 1983. Novel confirmation. Br. J. Philos. Sci. 34, 315–341.
Cantor, J.A., 1995. Experiential Learning in Higher Education. ASHEERIC Higher Education, Washington, DC Report No. 7.
Chapman, S., McPhee, P., Proudman, B., 1995. What is experiential education? In: Warren, K. (Ed.), The Theory of Experiential Education. Kendall/HuntPublishing Company, Dubuque, pp. 235–248.
Chuan, O.L., Barnett, T., 2012. Student, tutor and staff nurse perceptions of the clinical learning environment. Nurse Educ. Pract. 12, 192–197.
Claeys, M., Deplaecie, M., Vanderplancke, T., Delbaere, I., Myny, D., Beeckman, D., Verhaeghe, S., 2015. The difference in learning culture and learning performance between a traditional clinical placement, a dedicated education unit and work-based learning. Nurse Educ. Today 35, e70–e77.
D'Souza, M., Karkada, S.N., Parahoo, K., Venkatesaperumal, R., 2015. Perception of and satisfaction with the clinical learning environment among nursing students. Nurse Educ. Today 35, 833–840.
Dale, E., 1969. Audio-visual Methods in Teaching, third ed. Holt, Rinehart & Winston, New York.
Draper, P., 1991. The idea and the real: some thoughts on theoretical developments in British nursing. Nurse Educ. Today 11, 292–294.
Ford, K., Courtney-Pratt, H., Marlow, A., Cooper, J., Williams, D., Mason, R., 2015. Quality clinical placements: the perspectives of undergraduate nursing students and their supervising nurses. Nurse Educ. Today 37, 97–102.
Fowler, J., 2008. Experiential learning and its facilitation. Nurse Educ. Today 28 (4), 427–433.

Haraldseid, C., Friberg, F., Aase, K., 2015. Nursing students' perceptions of factors influencing their learning environment in a clinical skills laboratory: a qualitative study. Nurse Educ. Today 35, e1–e6.
Henderson, S., Happell, B., Martin, T., 2007. So what is so good about clinical experience? a mental health nursing perspective. Nurse Educ. Pract. 7 (3), 164–172.
Hobbs, J., 1996. A transaction cost analysis of quality, traceability and animal welfare issues in UK beef retailing. Br. Food J. 98 (6), 16–26.
Iranzo-Tatay, C., Gimeno-Clemente, N., Barbera-Fons, M., Rodriguez-Campayo, M.A., Rojo-Bofill, L., Livianos-Aldana, L., Beato-Fernandez, L., Vaz-Leal, F., Rojo-Moreno, L., 2015. Genetic and environmental contributions to perfectionism and its common factors. Psychiatr. Res. 230, 932–939.
Kelchterman, G., Ballet, K., 2002. The micropolitics of teacher induction. A narrative-biographical study on teacher socialization. Teach. Teach. Educ. 8, 105–120.
Lamont, S., Brunero, S., Woods, K.P., 2015. Satisfaction with clinical placement - the perspective of nursing students from multiple universities. Collegian 22, 125–133.
Levett-Jones, T., Pitt, V., Courtney-Pratt, H., Harbrow, G., Rossiter, R., 2015. What are the primary concerns of nursing students as they prepare for and contemplate their first clinical placement experience? Nurse Educ. Pract. 15, 304–309.
Lewis, L.H., Williams, C.J., 1994. Experiential learning: a new approach. In: Jackson, L., Caffarella, R.S. (Eds.), Planning Programs for Adult Learners: A Practical Guide for Educators, Trainers, and Staff Developers. Jossey-Bass, San Francisco, pp. 5–16 (San Francisco).
Mele, N., 2008. Conjoint analysis: using a market-based research model for health care decision making. Nurs. Res. 57 (3), 220–224.
McInnes, S., Peters, K., Hardy, J., Halcomb, E., 2015. Clinical placements in Australian general practice: (Part 1) the experiences of pre-registration nursing students. Nurse Educ. Pract. 15, 437–442.
Moon, J.A., 2004. A Handbook of Reflective and Experiential Learning: Theory and Practice. Routledge, New York.
Papp, I., Markkanen, M., von Bonsdoff, M., 2003. Clinical environment as a learning environment: student nurses' perceptions concerning clinical learning experiences. Nurse Educ. Today 23 (4), 262–268.
Rao, V.R., 2013. Applied Conjoint Analysis. Verlag, Berlin Heidelberg: Springer.
Rebueno, M.C., Tiongco, D.D., Macindo, J.R., 2016. A structural equation model on the attributes of a skills enhancement program affecting clinical competence of pre-graduate nursing students. Nurse Educ. Today 49, 180–186.
Ryan, M., Farrar, S., 2000. Using conjoint analysis to elicit preferences for health care. Br. Med. J. 320 (7248), 1530–1533.
Scully, N.J., 2011. The theory-practice gap and skill acquisition: an issue for nursing education. Collegian 18 (2), 93–98.
Staykova, M.P., Huson, C., Pennington, D., 2013. Empowering nursing preceptors to mentoring undergraduate senior students in acute care settings. J. Prof. Nurs. 29 (5), 32–36.
Thies, N.K., Travers, J.F., 2001. Human Growth and Development through the Lifespan. Jones & Bartlett Learning, New Jersey, USA.
Upadhayay, N., Guragain, S., 2014. Comparison of cognitive functions between male and female medical students: a pilot study. J. Clin. Diagn. Res. 8 (6). https://doi.org/10.7860/JCDR/2014/7490.4449.
Zeynali, S., 2012. Exploring the gender effect on EFL learners' learning strategies. Theor. Pract. Lang. Stud. 2 (8), 1614–1620.