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Nursing Student Perceptions of Clinical Simulation During a Maternity Nursing Scenario

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**Nursing Student Perceptions of Clinical Simulation
During Maternity Nursing Scenario**

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**Nursing Student Perceptions of Clinical Simulation During
a Maternity Nursing Scenario**

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Abstract

Clinical Simulation creates near authentic experiences for students. This study examined the students' perceptions of design, implementation and outcomes of a Simulated Clinical Experience (SCE) during their maternal-child clinical practicum. A convenience sample of 27 female and 2 male students with a mean age of 26 years, in a baccalaureate nursing program, evaluated simulation design, educational practices, student satisfaction and self confidence. Using a 5-point Likert scale, 1=strongly disagree to 5= strongly agree, participants found that the SCE was a positive, experience, (score of 4.08), with sound design characteristics, (score of 4.24) and was consistent with known educational practices, (score of 4.11). The data suggest that clinical simulation can be an effective tool for teaching and learning maternity nursing.

Running head: NURSING STUDENT PERCEPTIONS

**Nursing Student Perceptions of Clinical Simulation
During Maternity Nursing Scenario**

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Abstract

Clinical Simulation is an educational tool used to create near authentic practical experiences for students. This study examined the students' perceptions of design, implementation and outcomes of a Simulated Clinical Experience (SCE) during their maternal-child clinical practicum. A convenience sample of 47 students in a baccalaureate nursing program evaluated simulation design, educational practices, and student satisfaction and self confidence. Data obtained suggest that the students agree that the use of the SCE was a positive, confidence building experience, with an average score of 4.08; it had sound design characteristics, with a score of 4.24, and was consistent with known educational practices, with a score of 4.11. The students and faculty involved in the simulations agreed that the SCE provided a positive learning experience for the students.

Introduction

Nursing Education faces serious challenges. Faculty shortages, increasing applications to nursing schools, and limited availability of these clinical agencies for student placements make it difficult to schedule clinical class time. Some agencies have staffing challenges, new orientees, and scheduling issues that make working with nursing students more difficult (Lasater, 2007). Nursing educators, in their effort to provide optimal learning experiences for their students, constantly explore and compare new developments in instructional methodology. Clinical simulation is an educational tool used to create near authentic practical experiences for students; the experience is termed: Simulated Clinical Experience (SCE) (Rothgeb, 2008).

Availability and appropriate use of clinical simulation can effectively extend faculty resources. Faculty shortages continue and while some nurses may be interested in teaching, they may not be interested in full time appointments. Nursing students' clinical class hours, supplemented by SCE may allow more flexibility in scheduling. Part time instructors interested in technology in teaching nursing could facilitate in the simulation lab (Curl, Smith, Chisholm, Hamilton & McGee, 2007).

Traditional nursing student experiential learning is hindered by shortening of patient stays, increased patient acuity, and shortages of staff available to accommodate student learning. Today's nursing students are technically savvy experiential learners (Aviram, Ophir, Raviv & Shiloah, 1998). The use of clinical simulation has presented a way to provide safe, structured, consistent experiences for nursing students in almost every areas of nursing, including maternity nursing assessments (Larew, Lessans, Spunt, Foster & Covington, 2006).

Fountain & Spunt, (2006) describe the use of clinical simulation in maternity nursing education by providing opportunities to practice interventions numerous times. Faculty and

student debriefing provides feedback, advancing students' knowledge and skills and critical thinking.

Clinical Simulation is relatively new to nursing education and more research is needed to evaluate value and uses (Medley and Horne 2005). The purpose of this study is to measure student's perceptions during a Simulated Clinical Experience (SCE) related to maternity nursing.

Conceptual Framework

The conceptual framework used in this study is Jeffries' Simulation Framework. Jeffries (2007) pointed out that patient simulations are an efficient method of safely teaching content and skills without the fear of harming the patient. Her research describes a framework for the design, implementation, and evaluation of simulations. Jeffries' Simulation Framework includes five components: student factors, teacher factors, best practices in education, simulation design characteristics, and outcomes.

Teacher Factors

Teacher factors relate to the role of the teacher in the simulation experience. The teacher must feel comfortable with simulation as one of the tools used. It may be necessary for teachers to attend faculty development workshops related to clinical simulation in order to have them identify with the student experience during simulation (Johnson, 1999).

Student Factors

Students must be self-directed. Student roles can be response based or process based. Students in the response-based role are not active in the SCE, having no control over the scenario. An example of this is the case notes given to the student at the beginning of the scenario. This allows standardization of background information for all learners. In the process-

based role the student actively participates, selects the information and its sequence. Examples of this are role-plays, vignettes, and simulations.

Educational Practices

Educational practices include those components of good teaching that result in student learning and satisfaction. Some of these principles, listed by Chickering and Gamson (1987), are: active learning, prompt feedback, student and faculty interaction, collaborative learning, high expectations, allowing diverse learning styles, and time on task.

Simulation Design

The simulation design must support the goals of the course and be appropriate to the learners. Attention should be paid to course objectives, skills, and desired learning outcomes. In addition, attention to the following five areas: learning objectives, planning, fidelity, complexity, cues and debriefing allows the creation of realistic, complex learning scenarios that mimic clinical reality.

Objectives

Clearly written learning objectives guide the students' learning progress. Simulations are usually new to the students. For this reason, students need accurate information about the activity process, the roles they will be expected to assume, the outcome expectations, and the time frame allowed for the activity. This provides structure for the student to achieve the desired outcomes.

Fidelity

Also known as realism, this is the quality of the scenario that creates the illusion of reality for the student.

Complexity

Simulations can have complexity all along a range from the most simple to very complex. This degree of complexity depends on the amount of relevant information available to the participants and the level of the learner.

Debriefing

Debriefing is probably the most valuable tool used in the process of the simulated clinical experience (SCE). Debriefing allows the participants to see themselves in action and to reinforce the positive aspects of the experience. It takes place at the end of the SCE, allowing time for the participants to discuss the scenario, process, and outcomes; all learning related to clinical practice.

Outcomes

The outcomes are the same as other experiences in nursing education: the ability for a student to competently assess, analyze, plan, implement and evaluate. With that they improve skills performance, learn prioritization, critical thinking, and develop professional self-confidence.

Method

Research Design

The research was a descriptive study using quantitative data collection. The participants completed an evaluation of the SCE at the conclusion of the experience. The data was tabulated using a numerical 5-point Likert scale. Each student's responses were tabulated to obtain mean scores for each tool used in the evaluation.

Participants

The undergraduate students in this study were recruited from an urban university school of nursing in Northern California. The students were enrolled in their maternity and pediatric courses at the time of the study. Of the total possible N=75, 47 (63%) students participated in the simulations and completed the survey. The majority were female, with the mean age of 26 years. Seventy two percent (n=34) had some previous experience with simulation and twenty eight percent (n=13) of them had previous nursing experience before entering nursing school. (See Table 1).

Participants were compensated for their participation with a \$10.00 gift card to a nationally known bookstore, coffee shop, or juice smoothie bar. They received compensation after their responses to the survey questions were completed and submitted for tabulation. Before the scenarios were run, the students signed consent to participate in simulation and be video recorded as well as a non-disclosure agreement, asking them not to divulge any information about the scenario to other students. This was needed to preserve the integrity of the experience for other classes that followed.

Possible risks and benefits were discussed as part of the consent form. Their participation indicated consent.

Instruments and Procedure

The study used the following instruments with permission from the NLN/Laerdal Simulation Project. The simulation activity was evaluated in three phases: (1) design using the Simulation Design Scale (SDS), (2) implementation using the Educational Practices in Simulation Scale (EPSS), and (3) outcomes using the Student Satisfaction and Self Confidence in Learning Instrument. The content validity of the NLN instruments was established through a

review by nine nurse experts. The instruments' reliability was tested using Cronbach's alpha. In the SDS Cronbach's alpha was found to be 0.92 for presence of features, and 0.96 for the importance of features. The EPSS reliability using Cronbach's alpha was 0.86 for the presence of specific practices and 0.91 for importance of specific practices. The Student Satisfaction and Self Confidence in Learning Instrument was also reliability tested using Cronbach's alpha with 0.94 for satisfaction and 0.87 for self confidence (Jeffries, 2007).

The study was conducted in the School of Nursing Simulation Lab using the female birthing simulator NOELLE, manufactured by Gaumard Scientific. The simulation was a previously created scenario and was executed by the students as a part of their clinical practicum. The questionnaires were completed by the students upon completion of the simulation experience.

The Simulated Clinical Experience

The students participated in a SCE related to the care of an inpatient hospitalized mother-baby couplet. Each SCE scheduled required a block of 4 hours of lab time and there were 8 to 10 students per clinical group. Each complete SCE consisted of three short scenarios. The first scenario involved infant safety, the second involved a post partum hemorrhage (PPH) easily resolved, and the third, a more complicated scenario involving post-partum hemorrhage (PPH). The students appeared at the simulation lab dressed in their scrubs and equipped with all equipment they would usually bring with them to the clinical agency. This was done to reinforce the reality and serious nature of the experience. The scenario did not use NOELLE's prerecorded voice, but instead, a faculty member used the overhead microphone to speak the patient lines. In addition, another faculty or graduate student provided the voice of the doctor on the telephone. The simulation lab activity was required clinical time.

The students were split up into three small groups of three or four, each one with a specific role in the scenario. The students played roles as described on their role cards prepared for the scenario. The assignment of roles was made just before the start of the scenario. Students who did not participate in the running scenario stayed in the debriefing room where they observed their classmates in action and heard the dialogue via the simulation lab's video feed. These students were given an assignment, an observation record, where they recorded any thoughts, comments, suggestions or anything they wanted to mention later in the debriefing session.

At the end of the scenario, after a short break, the students met in the debriefing room, moderated by a member of the faculty. This debriefing lasted 15 to 20 minutes.

Limitations

This was a convenience non-randomized small sample from a single urban Northern California university, taking place during a single semester of the academic year. The demographic characteristics of this sample were tabulated. Generalizability is therefore limited to students with the same characteristics of the sample. The results may or may not therefore be the same for other groups of nursing students from different nursing programs.

Another limitation noted was the length of time and the intensity of the activity. After 4 hours of scenarios and debriefings, there was a possibility that fatigue would cause some students to lose interest and focus.

Results

The purpose of this study was to examine the students' perceptions of the design, implementation and outcomes of a Simulated Clinical Experience (SCE) as a method of instruction during their maternal-child clinical practicum.

The average scores for the student evaluation tools were based on a 5 point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The Simulation Design Scale and Educational Practices Scale rates agreement with statements as well as the students' perception of the importance of those statements. There were two scores for each item, one for agreement, and one for importance. The quantitative data obtained indicate that the students assigned an overall average of 4.30 to agreement with the 20 statements about the design of the SCE. This indicates the students agreed that the SCE met the design requirements of a teaching strategy. Similarly for the student's perceived importance of these design elements, the students assigned an overall average of 4.59. The scores obtained show an agreement score with 16 statements about the implementation of the SCE related to educational practices including active learning, collaboration, diverse ways of learning and high expectations. The average agreement was 4.14. The average importance was 4.38. The outcomes of the SCE were measured by the students' satisfaction and self confidence in learning scores. The mean agreement score for 5 statements about student satisfaction was 4.24 and for the 9 statements about self confidence in learning, the mean score was 4.16.

These sets of data suggest that the students agree that the use of the SCE as a learning experience was a positive, confidence building experience; it had sound design characteristics and was consistent with known educational practices. One student commented in the debriefing "We want more sim!" Another said "yes, I would definitely do it again". Students observed that they were, for the first time, able to "walk in the nurse's shoes" making decisions without a staff nurse looking over their shoulders to tell them what to do. They stated this was a very important opportunity for them.

Discussion

The students and faculty involved in the simulations agreed that the SCE provided a positive learning experience for the students as evidenced by their comments on the evaluation forms. The SON is currently in its first year of including simulation time into the clinical hours of the maternal-child nursing practicum. In addition to the students having the opportunity to benefit from this new teaching modality, this creates an opportunity for clinical faculty to learn about clinical simulation by observing their students' SCE participation.

With every execution of the SCE, there were lessons learned to improve the next SCE. It was apparent that while there was ample time for the students in the simulation lab to do the simulation, debriefing time ran over into the time allotted to the next group. The simulations were engaging and dynamic. Some students became emotional, some excited, but all expressed positive reactions to their experience. The students in the observation role expressed similar positive reactions. The students' participation is very intense, and they appear engaged in all three sessions, however their energy starts to fade in the third scenario. Debriefing requires cueing and directions to keep them on track and elicit their responses

The positive reaction to the scenarios indicated that the students liked learning with simulation. The consensus was that students benefit from the use of simulation, and in spite of nerves, would do it again, given the opportunity. The simulation lab can be an effective setting for teaching and learning nursing skills, planning, and critical thinking. Successful simulation requires a large investment in time, money and material.

Planning and development require time. Many hours of collaboration were needed to create the scenario. These were meticulously designed scenarios created by faculty and graduate students who were subject matter experts. In addition to the time needed for scenario orientation

and participation, simulations require significant time for preparation, set up, and clean-up.

Time must be allotted for short breaks. The intensity of the experience is tiring to all involved.

Debriefing time must be adequate. This is the area of rich learning, self reflection, and synthesis for the participants and observers.

Clinical classes of 9 to 10 are best split up into smaller groups in the scenarios.

Adequate personnel are important to the success of the simulation. Technical support is important as well as clean-up staff. A group of 4 seems to be the ideal number of facilitators.

The scenario needs at least 2 in the control room, but while 2 facilitate debriefing, it is helpful to have 2 setting up for the next scenario. Organization of materials and supporting paperwork saves time.

Developing and implementing an SCE is a time and effort intensive project. The data obtained from the students' survey scores indicate that the benefit to the students is real and positive. This SCE project added a great deal to the simulation expertise of the SON faculty and graduate students. This project gave an opportunity to the faculty and laboratory staff to use many features of the NOELLE birthing manikin. The plan is to apply this expertise will be applied to other simulation projects in maternal-child nursing.

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Table 1.

Demographic Information (n=47)

Variable	n	%
Age		
20-25	24	50
18-21	8	17
36-45	7	15
31-35	4	10
26-30	3	8
Over 45	1	2
Gender		
Female	43	93
Male	4	7
Experience with simulation		
Yes	34	72
No	13	28

Other nursing experience

Yes	34	72
No	13	28

**Years pursuing nursing
degree**

5 and greater	24	51
1-4	23	49

Ethnicity

White	20	43
Asian	19	40
Other	8	17

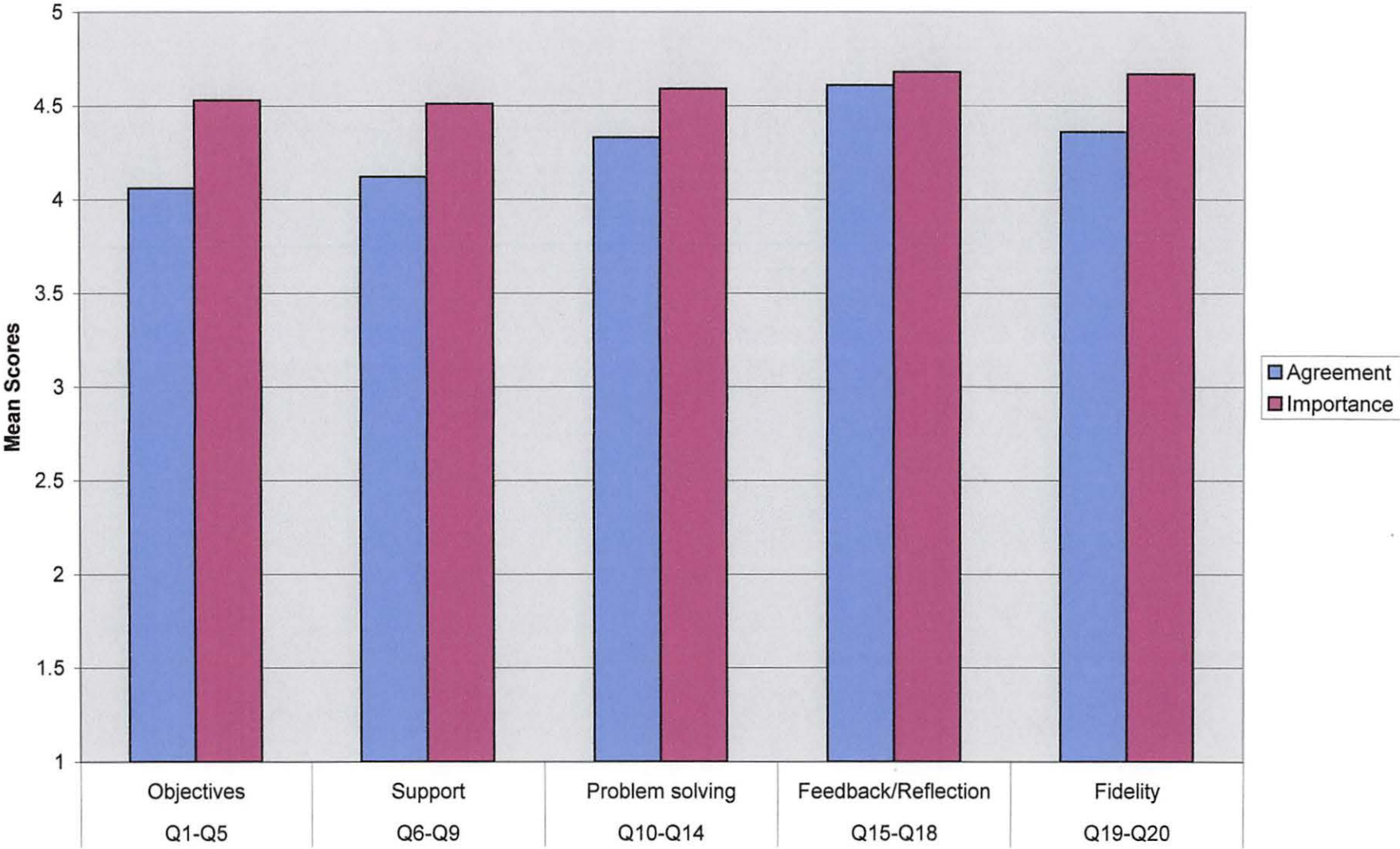
Language spoken at home

English	31	70
Other	14	30

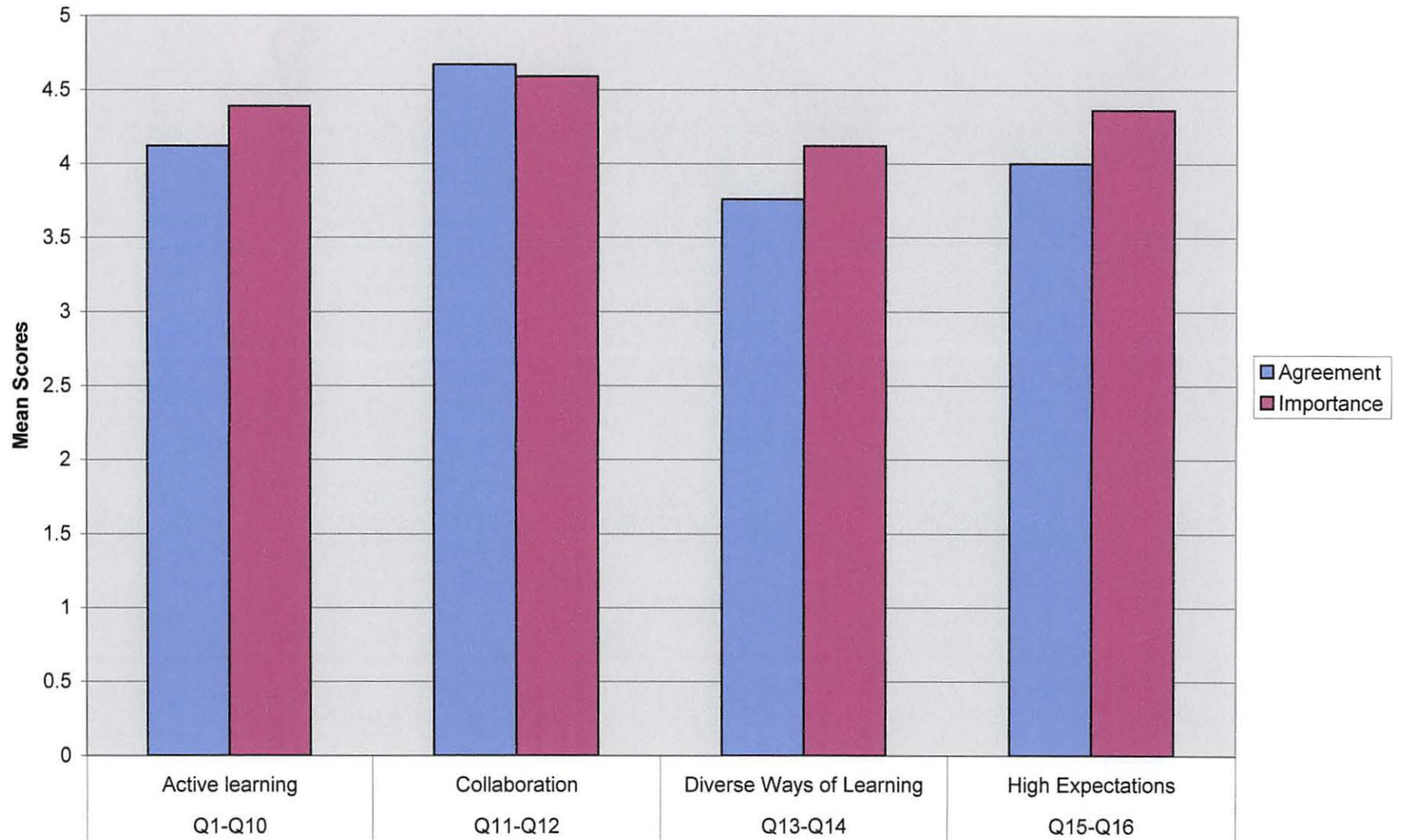
**Previous non-nursing
education**

High School	27	57
Associate degree	8	17
Bachelors degree	7	15
Vocational/technical	5	11

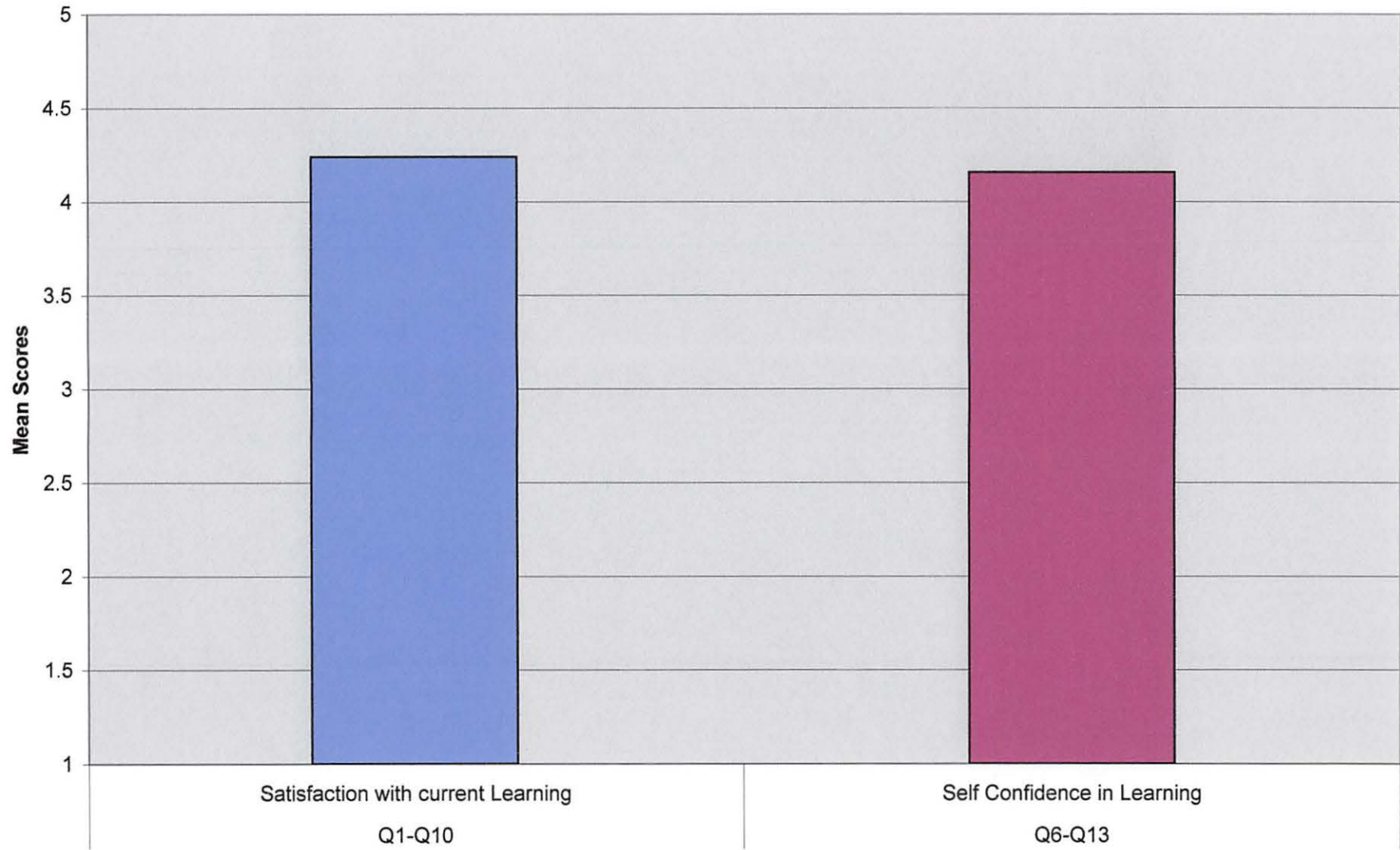
Simulation Design Scale



Educational Practices Questionnaire



Student Satisfaction and Self Confidence in Learning





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