

# Exploring Nursing Students' Perceptions of Educational Experience and Satisfaction in a Blended Learning Course

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This survey study aims to investigate nursing students' perceptions of educational experience and satisfaction in a blended course. The modified Community of Inquiry (CoI) and satisfaction questionnaires consist of 5-point Likert scale items, were administered to 224 nursing students. Nursing students were found to have good educational experience (social, cognitive and teaching presences) and satisfaction in this blended course.

**Keywords:** Blended learning, cognitive presence, community of inquiry, educational experience, satisfaction, social presence, teaching presence

## Introduction

The advancement of digital technology in the healthcare sector has prompted higher institutes to re-design their courses and deploy instructional strategies to engage the millennial nursing students in learning that is relevant to the healthcare workforce. These learners are digital natives that exhibit characteristics such as learning confidently with digital technologies and forming online social learning communities easily. In order to engage the millennial learners, blended learning which combines the face-to-face and online learning is commonly adopted by institutes. Blended learning was reported to be much favoured over fully online learning (Cheung & Hew, 2011; Wang, Author & Hu, 2017). It was highlighted that students in a typical blended course have more control over their learning through asynchronous online learning alongside the face-to-face instruction to engage them and help them experience quality instructor-student interactions in the classrooms. The deliberate design of face-to-face and online instructions have been reported to promote multi-level interactions between learners and resources, learners and instructors as well as amongst the learners themselves. This multi-level interactions have potentially led to meaningful learning outcomes (Okaz, 2015). However, there are two pedagogical challenges in implementing blended learning in institutions (Chan & Author, 2014). These challenges were the increased complexity in the instruction of the tasks and the lack of institutional support. It was also reported that the implementation strategies used by institutions varied from change management process to using framework or guidelines. Further research into successful implementation strategies, design of tasks and framework of blended learning is still needed.

In the study, blended learning for nursing students was implemented for several years in a particular school. It is timely for the school administrators, course leaders and instructors to review what the students' perceived educational experience and satisfaction are, and whether to scale up the blended learning for more courses in the near future. In the training of the next generation of nurses, nursing courses should also provide a meaningful educational experience supported by the latest digital technologies, such that the experience gained and satisfaction derived in nursing as an educational or career choice can translate into their personal and professional development in the workplace. This study is guided by two research questions:

- What are nursing students' perceived educational experience in terms of teaching, social and cognitive presences in a blended course?
- What are nursing students' perceived satisfaction after attending a blended course?

## Literature Review

The CoI framework and its earlier methodology were designed for exploratory studies, with early research relying on laborious transcript analysis extracted from online discussion forums (Garrison, Cleveland-Innes & Fung, 2010). Due to the need to study larger samples of learners' perceptions and experience of the three presences, Arbaugh and colleagues (2008) developed and tested a CoI questionnaire through a multi-institutional effort. The Community of Inquiry (CoI) framework is well-established in guiding research in the specific context of asynchronous, text-based group discussions in higher education and can be used for blended learning context (Akyol & Garrison, 2008). It is conceptually grounded in theories of teaching and learning such as collaborative-constructivism and John Dewey's belief that inquiry is a social activity and the essence of an educational

experience. The framework was proposed to provide order, heuristic understanding and methodology for studying the effectiveness of online learning (Garrison, Anderson & Archer, 2010). The CoI framework attempts to outline not only the interdependent presences (social, cognitive and teaching) but also to understand and create a deep and meaningful educational experience as the heart of the framework (Arbaugh et al., 2008). The basis of this framework is that a deep and meaningful educational experience is best supported in a community of learners engaged in inquiry, critical reflection and discourse. It identifies the core elements of a collaborative-constructivist learning environment required to create and sustain the online learning community for purposeful educational experience (Garrison et al., 2010). The CoI framework can be used to understand the effectiveness of blended learning and the dynamics of learners' blended learning experience (Arbaugh et al., 2008; Garrison et al., 2010).

Social presence is defined as the ability to project oneself and to establish purposeful and personal relationships. It involves effective communication, open communication, and group cohesion. Cognitive presence is defined as the exploration, construction, resolution, and confirmation of understanding through collaboration and reflection, operationalised through the practical inquiry model and grounded in the work of Dewey's reflective thinking. Thus, a thoughtful, focused and attentive teaching presence is required to establish and maintain a community of inquiry, for the purpose of realising meaningful educational learning outcomes (Garrison, 2007; Garrison et al., 2010). Akyol and Garrison (2008) used the original 34-item CoI questionnaire and had found it to be suitable for the blended learning context. However, there is a need to further examine the influence of teaching, cognitive and social presences on satisfaction in a blended course using the 34 items in the original CoI questionnaire on a larger sample size. Choy and Author (2016) modified the CoI questionnaire and adapted it for use in the Singapore context. Their study was conducted on 167 students in a blended learning course on nutrition. Findings confirmed the hypothesised relationships among the three elements of the CoI framework (i.e., social, teaching, and cognitive) and students' learning related outcomes (i.e., satisfaction, continuous academic-related online performance, and academic achievement). Generally, the hypothesized model was able to explain 46% of the variance in students' online course satisfaction and 62% of the variance in students' academic achievements. However, only the cognitive element had a direct relationship with continuous academic-related online performance and satisfaction.

Learner satisfaction in learning refers to how instructional strategies are experienced by learners cognitively, emotionally and socially to help them achieve their learning goals. Learner satisfaction is an aggregate feeling that affects the interactions between the instructor and students, students and peers as well as student and resources in a blended course. Learner satisfaction can potentially affect the learners' effective learning and competence. The design of the blended learning environment, learning activities, facilitation and provision of timely feedback are the precursors to learner satisfaction and their desire to continue their learning. The outcome of learner satisfaction is likely to determine sustainability and scalability of blended courses (Bekele, 2010; Arbaugh, 2000). The learners' perceived satisfaction of the Internet-based courses in higher education context was measured using online surveys. The survey items would (i) focus on their satisfaction in taking the course, (ii) measure their perception of course quality and (iii) measure their likelihood of taking future courses. The perceptual measure of the learner satisfaction indicates the success of the educational program and decision making of the courses.

## Methods

This study employed a cross-sectional survey design to explore the nursing students' educational experience and satisfaction in a blended course at a single point in time. For this blended nursing course, the researchers preserved the questionnaire for administration. In this study, Arbaugh's (2000) questionnaire on learner satisfaction was modified, with inputs from the researcher and nursing course leader after pilot testing. The modifications were made to tailor to the nursing students' prior experience and to suit the specific context of this blended nursing course. There are three parts to the overall questionnaire used in this study, consisting of (i) demographic of participants (e.g. gender, age, entry qualification), (ii) 37 items from modified CoI questionnaire showed overall good reliability ( $\alpha=.95$ ) and (iii) 10 items from modified learner satisfaction questionnaire with good overall reliability ( $\alpha=.96$ ). For (ii) and (iii), the use of the CoI items were based on the previous locally validated five point Likert COI questionnaire (Choy & Author, 2016) for use among the polytechnic context. This study is part of a bigger study which also examines the validation of the questionnaire among the nursing students. However, the findings would not be reported in this paper. The focus of this paper is to report the nursing students' perception of their experience and satisfaction based on the blended learning course using the modified CoI.

## Sample

224 students volunteered and participated in this survey study. These participants comprised of 187 (83.5%) female and 36 (16.1%) male students. The majority of them (90%) were in the middle age. The participation rate

was 82.96%. These students attended Nursing Science 3 which was a 72 hour course that covered 11 categories of human system disorders. The blended learning design of this nursing course combines face-to-face (74%) and online instructions (26%). In the online learning, educational games were introduced to nursing students to learn by doing, rather than observational learning through traditional means. For the face-to-face lectures and tutorials, Students brought their own mobile devices so that they could access digital learning activities. These digital devices used were personal computers, mobile devices, tablets while the web 2.0 tools (e.g. Kahoot, Nearpod, Google Drive, Google Document, Google Slides). The Learning Management Systems (e.g. Blackboard) was used to support their access to course information and multimedia resources (e.g. Virtual Hospital game, PowerPoint slides, videos, pictures, course schedule etc) designed by their instructors.

## Results

### Overall Means and Standard Deviations of Nursing Students' Educational Experience and Satisfaction

Descriptive statistics were used to analyse 224 students' responses to the modified CoI. Table 1 shows the means and standard deviations of 224 nursing students' 5-point Likert survey responses. It was reported that the means of perceived teaching presence ( $M = 3.87$ ,  $SD = .64$ ), perceived social presence ( $M = 3.65$ ,  $SD = .66$ ), perceived cognitive presence ( $M = 3.71$ ,  $SD = .65$ ) and satisfaction ( $M = 3.69$ ,  $SD = .74$ ) were above the average of 2.5. This shows that most nursing students perceived themselves to have meaningful educational experience, in teaching, social and cognitive presence, and satisfaction in this blended nursing course.

**Table 1: Overall Means and Standard Deviations of Nursing Students' Perceived Teaching, Social, Cognitive Presences and Satisfaction in Modified CoI Questionnaire (N = 224)**

Dimensions	Means (SD)
Perceived teaching presence	3.87 (.64)
Perceived social presence	3.65 (.66)
Perceived cognitive presence	3.71 (.65)
Perceived satisfaction	3.69 (.74)

### Nursing Students' Perception of Teaching Presence

Table 2 shows the nursing students' perceptions and the frequencies of their responses on the five-point scale. The mean and standard deviation of each item in the modified CoI questionnaire was also calculated. Findings show that nursing students perceived better teaching presence (Mean=3.87, SD=.64) as compared to the cognitive and social dimensions. The smaller standard deviation of .64 for perceived teaching presence indicate that more nursing students' responses cluster around the mean of 3.87, as compared to other factors. Nursing students' responses on the five-point scale were calculated for each item as shown in Table 2.

**Table 2: Means, Standard Deviations and Frequencies of Teaching Presence in Modified CoI Questionnaire (N = 224)**

Dimension 1: Teaching Presence (Mean= 3.65, SD=.66)		Means (SD)	Frequency (%)				
			1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree
1.1	The lecturer clearly communicated important course topics.	3.92 (.78)	.4	3.1	22.8	51.3	22.3
1.2	The lecturer clearly communicated important course goals.	3.92 (.76)	.4	2.7	21.9	54.0	21.0
1.3	The lecturer provided clear instructions on how to participate in course learning activities.	3.87 (.78)	.9	2.2	25.1	52.5	19.3
1.4	The lecturer clearly communicated important due dates or time frames for learning activities.	3.95 (.80)	.9	1.3	25.0	47.3	25.4
1.5	The lecturer was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	3.91 (.75)	.9	1.3	23.7	54.5	19.6
1.6	The lecturer helped to keep course participants engaged and participating in productive dialogue.	3.83 (.77)	.9	1.8	28.6	50.4	18.3
1.7	The lecturer helped keep the course participants on task in a way that helped me to learn.	3.89 (.78)	.4	1.8	28.1	47.8	21.9
1.8	The lecturer encouraged course participants to explore new concepts in this course.	3.85 (.77)	.9	1.8	27.2	51.3	18.8
1.9	The lecturer reinforced the development of a sense of community (i.e. a sense of belonging, safe learning environment, shared values) among course participants.	3.79 (.81)	1.3	3.6	27.2	50.9	17.0
1.10	The lecturer helped to focus discussion on relevant issues in a way that helped me to learn.	3.85 (.77)	.9	.9	29.9	48.7	19.6
1.11	The lecturer provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.	3.79 (.81)	1.3	2.2	30.8	47.8	17.9

### Nursing Students' Perception of Social Presence

Table 3 shows the nursing students' perceived social presence has the lowest mean ( $M = 3.65$ ,  $SD = .66$ ). Course leaders and lecturers could look into strengthening social presence in this blended course. The lowest mean score of 3.58 was from "I felt comfortable disagreeing with other course participants while still maintaining a sense of trust" in the social presence scale. 10.7% felt uncomfortable disagreeing while maintaining a sense of trust, 33.2%

remained neutral and 56.1% felt comfortable disagreeing while maintaining a sense of trust. In order not to break the sense of trust or sense of goodwill among course mates, some nursing students might tend to agree for the sake of being friendly, helpful or cooperative i.e. more comfortable and likely to share opinions that concur. This result is interesting as it contradicts nursing students' perception of having stronger knowledge and skills to use digital technologies responsibly for communication, socializing and learning through observing netiquette, protecting safety or privacy and dealing with cyberbullying issues. Lecturers may provide scaffolds in the form of sentence starters or model how to disagree respectfully in an objective manner e.g. not to be influenced by personal feelings or opinions when presenting their considerations and representing facts. By doing so, lecturers can help to create an atmosphere of trust and safety for learning in a community, thereby improving social presence.

**Table 3: Means, Standard Deviations and Frequencies of Social Presence in Modified CoI Questionnaire (N = 224)**

Dimension 2: Social Presence (Mean =3.65, SD=.66)		Mean (SD)	Frequency (%)				
			1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree
2.1	Getting to know other course participants gave me a sense of belonging in the course.	3.61 (.82)	2.2	4.9	32.3	50.7	9.9
2.2	I was able to form distinct impressions of some course participants.	3.64 (.80)	.9	4.9	36.3	44.8	13.0
2.3	Online or web-based communication is an excellent medium for social interaction.	3.65 (.79)	.4	5.8	34.5	47.1	12.1
2.4	I felt comfortable conversing through the online medium.	3.72 (.85)	.9	6.7	28.3	47.5	16.6
2.5	I felt comfortable participating in course discussions.	3.68 (.81)	.4	6.3	32.3	46.7	14.3
2.6	I felt comfortable interacting with other course participants.	3.66 (.84)	.9	7.2	30.9	47.1	13.9
2.7	I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.	3.58 (.87)	.4	10.3	33.2	42.6	13.5
2.8	I felt that my point of view was acknowledged by other course participants.	3.64 (.78)	.4	5.4	35.4	47.1	11.7
2.9	Online discussions help me to develop a sense of collaboration.	3.64 (.77)	.5	5.4	34.8	48.0	11.3

### Nursing Students' Perception of Cognitive Presence

Table 4 shows the nursing students' perceptions and the frequencies of their responses on the five-point scale. The mean and standard deviation of each item in the modified CoI questionnaire was also calculated. Findings show that nursing students perceived fairly high cognitive presence (Mean=3.71, SD=.65). In this blended course, the lower mean scores perceived by students in the course activities, case studies and writing reflection could suggest that these learning activities might not be meeting the students' learning needs.

**Table 4: Means, Standard Deviations and Frequencies of Cognitive Presence in Modified CoI Questionnaire (N = 224)**

Dimension 3: Cognitive Presence (Mean=3.71 , SD=.65)		Mean (SD)	Frequency (%)				
			1 Strongly disagree	2 Disagree	3 Neutr al	4 Agre e	5 Strongl y agree
3.1	Case-studies posed increased my interest in course issues.	3.67 (.84)	2.2	3.1	34.1	46.6	13.9
3.2	Course activities piqued my curiosity.	3.62 (.84)	2.2	4.0	35.4	45.7	12.6
3.3	I felt motivated to explore content related questions.	3.64 (.85)	2.2	4.9	32.7	47.1	13.0
3.4	I utilized a variety of information sources to explore case-studies posed in this course.	3.71 (.73)	.9	2.7	31.5	54.1	10.8
3.5	Brainstorming and finding relevant information helped me resolve content related questions.	3.70 (.77)	1.3	2.7	33.2	50.7	12.1
3.6	Online discussion were valuable in helping me appreciate different perspectives.	3.71 (.78)	1.3	2.2	33.6	49.3	13.5
3.7	Combining new information helped me answer questions raised in course activities.	3.74 (.73)	.5	2.7	32.4	51.4	13.1
3.8	Learning activities helped me construct explanations or solutions.	3.76 (.76)	.9	2.7	30.2	52.3	14.0
3.9	Reflection on course content and discussions helped me understand fundamental concepts in this class.	3.68 (.76)	1.4	2.7	33.8	51.4	10.8
3.10	I can describe ways to test and apply the knowledge created in this course.	3.73 (.77)	.9	2.2	34.1	48.4	14.3
3.11	I have developed solutions to case-studies that can be applied in practice.	3.73 (.75)	.4	3.6	31.8	50.7	13.5
3.12	I can apply the knowledge created in this course to my work in future.	3.84 (.73)	.5	.9	30.1	50.7	17.8

### Nursing Students' Perception of Satisfaction in a blended course

Table 5 shows the nursing students' perceptions and the frequencies of their responses on the five-point scale. The mean and standard deviation of each item in the modified CoI questionnaire was also calculated. The mean scores of all items in the modified satisfaction questionnaire ranged from 3.58 to 3.74. The standard deviations ranged from .80 to .92. One of the items, "I will take as many courses that incorporates uses of technologies as I can." has shown the lowest mean score ( $M = 3.58$ ,  $SD = .92$ ), 9.4% of the nursing students disagreed, 33.9% remained neutral and 56.7% agreed. In another item, "I was satisfied with the way this course worked out." has the highest mean score ( $M = 3.74$ ,  $SD = .87$ ). 5.8% disagreed, 32.1% remained neutral and 62.1% agreed.

**Table 5: Means, Standard Deviations and Frequencies of Satisfaction (N = 224)**

Satisfaction (Mean= 3.69, SD= .74)		Means (SD)	Frequency (%)				
			1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree
1	I am very satisfied with this course.	3.71 (.85)	1.8	4.5	30.8	47.3	15.6
2	I feel that this course served my needs well.	3.72 (.83)	1.3	4.0	32.1	46.0	16.5
3	Conducting the course with the use of technologies improved the quality of the course compared to other nursing courses.	3.77 (.80)	.9	3.1	31.3	47.8	17.0
4	I will take as many courses that incorporates uses of technologies as I can.	3.58 (.92)	3.1	6.3	33.9	42.9	13.8
5	The quality of the course compared favourably to my other nursing courses.	3.70 (.87)	1.8	3.6	35.4	40.8	18.4
6	I feel that the quality of the course I took was largely unaffected by conducting it with the use of technologies.	3.71 (.83)	.9	4.9	32.7	44.8	16.6
7	I was satisfied with the way this course worked out.	3.74 (.87)	1.3	4.5	32.1	42.9	19.2
8	If I had another choice, I would still take this course with the use of technologies.	3.63 (.89)	3.1	3.1	36.6	42.0	15.2
9	Conducting the course with the use of technologies made it easier than other nursing courses I have taken.	3.61 (.86)	2.2	4.5	37.5	42.0	13.8

## Discussion

Nortvig, Petersen and Balle (2018) conducted a review of studies comparing face-to-face teaching to online and/or blended learning and noted that student learning in online and/or blended courses appears not to arise from technology per se but from a combined influence of context, learner characteristics and implementation. Since nursing students' perceived social presence has the lowest mean ( $M = 3.65$ ,  $SD = .66$ ), course leaders and lecturers could look into strengthening social presence in this blended course. The lowest mean score of 3.58 was from "I felt comfortable disagreeing with other course participants while still maintaining a sense of trust" in the social presence scale. 10.7% felt uncomfortable disagreeing while maintaining a sense of trust, 33.2% remained neutral and 56.1% felt comfortable disagreeing while maintaining a sense of trust. In order not to break the sense of trust or sense of goodwill among course mates, some nursing students might tend to agree for the sake of being friendly, helpful or cooperative i.e. more comfortable and likely to share opinions that concur. Nortvig and colleagues (2018) reported that some students may feel empowered and knowledgeable, when posting on an online platform, while some students may refrain from posting due to their perceived lack of knowledge. The lack of moderation from lecturer or peer response to the postings may also contribute towards isolating the latter group of students further from the online academic community of learners. It is important for course leaders and lecturers to create sufficient learner support through scaffolding online discussions in details, setting rules on the quantity and quality of postings, monitoring and following up on non-participation (Nortvig, et al., 2018). Lecturers may also provide a structure for peer response (e.g. each student to respond to three different postings by others and to limit the maximum number of peer response to five) or provide scaffolds in the form of sentence starters or model how to disagree respectfully in an objective manner (e.g. not to be influenced by personal feelings or opinions when presenting their considerations and representing facts). Lecturers can also interact with students online, address some postings and highlight interpersonal dialogues during face-to-face and/or online lessons so that students perceive the importance of online participation.

Nursing students' perceived teaching presence has the highest mean ( $M = 3.87$ ,  $SD = .64$ ). Course leaders and lecturers should continue communicating important course goals, course topics, important due dates or time frames for learning activities and identifying areas of agreement and disagreement on course topics for learning. Since the items "the lecturer reinforced the development of a sense of community (i.e. a sense of belonging, safe learning environment, shared values) among course participants" ( $M = 3.79$ ,  $SD = .81$ ) and "the lecturer provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives" ( $M = 3.79$ ,  $SD = .81$ ) scored the lowest mean, improvements for better teaching presence can be done in these areas. Diep, Zhu, Struyven and Blicck (2017) acknowledged that lecturers assume more roles in blended learning as compared to traditional face-to-face or online learning. Besides having sufficient technological, pedagogical and content knowledge, lecturers must also invest time to be responsive to students on online platforms and inspire students to have a positive attitude towards blended learning to achieve the desired learning objectives. As such, regular communication online with students, consistent feedback, and modelling critical discourse online by asking key leading questions or prompts could be further strengthened. Nortvig and colleagues (2018) also acknowledged that developing a sense of community takes time and requires conscientious effort. Teaching presence is crucial in facilitating students' feeling of connectedness to others, through student-to-student interactions online, which can help to establish trust and safe learning environment. Lecturers could provide clearer guidelines for how to initiate and participate in online discussions. Students can also be instructed to use inviting tone and be better monitored for their online activities based on shared values (e.g. responsibility and respect).

Although nursing students had perceived relatively high cognitive presence ( $M = 3.71$ ,  $SD = .65$ ), the item "course activities piqued my curiosity" scored the lowest mean ( $M = 3.62$ ,  $SD = .84$ ). As this blended learning course was designed by replacing some of the face-to-face with online learning activities, course leaders and lecturers can identify the parts of the nursing that could be facilitated better online by considering students' characteristics, course goals and availability of online resources to arrive at a good balance between online and face-to-face components (Alammary, Sheard & Carbone, 2014). As there is no defined standard on the structure of blended learning, regular evaluative feedback and findings should be considered for iterative course redesign for course improvement (Alammary et al., 2014).

Nursing students had perceived relatively high satisfaction in this blended nursing course ( $M = 3.69$ ,  $SD = .74$ ). Although most nursing students are satisfied with the way this blended course worked out, they were cautious to agree that they would take as many courses that incorporate digital technologies as they could. The use of digital technologies must be useful and meaningful, to support their development of educational experience in a community of learners.

## Conclusion

Digital technology evolves over time and the type of tools used during a blended course may be different across various courses. Hence, the items used in the questionnaires may need to be modified, validated and assessed for reliability due to different tools, practices or teaching approach used. Future research in the form of longitudinal study can also investigate the effect of instructional interventions to bring about better cognitive presence, social presence, teaching presence on blended course satisfaction.

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