DISSERTATION

FACTORS AFFECTING COURSE SATISFACTION OF ONLINE MALAYSIAN UNIVERSITY STUDENTS

Submitted by

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ABSTRACT

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ONLINE MALAYSIAN UNIVERSITY STUDENTS

Course satisfaction in online learning has grown into a concern among online educators, in order to prevent students from dropping, withdrawing, or otherwise leaving their course of study online. Researchers have established three main factors that have an influence on online students' course satisfaction: social, teaching, and cognitive presence. Adapting the Community of Inquiry (CoI) model, this study investigated the association between these presences and other possibly related factors, and their influence on students' course satisfaction with online courses just completed at a University in Malaysia. Concurrently, it also attempted to weigh these constructs and variables according to their impact on course satisfaction. Results show that all presences and age were significantly associated with course satisfaction. Also, course satisfaction was found to differ by gender, undergraduate and postgraduate students but was not by core and elective courses. Teaching presence, social presence, and age were found to be significant predictors of course satisfaction when statistically analyzed by a series of two-step hierarchical linear regressions.

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DEDICATION

This accomplishment is especially dedicated to my wife (*Siti Fatimah*) for her enormous sacrifice along the journey, my son (*Muiz*) and my daughter (*Aqilah*) for their tears, and understanding that piggybacks did not constantly take place, and my upcoming baby, who was continuously kicking your mama's tummy when this project was completed. Hope you will be born safely, healthily, and perfectly. *InsyALLAH.* Baba loves you all. May Allah guide us all to the right path. AMIN.

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CHAPTER 1: INTRODUCTION

Background

There are countless numbers of online and hybrid courses offered by institutions of higher education worldwide. In the United States, there were approximately 400,000 more online students in the fall of 2012 than in the fall of 2011, for a total of seven million students taking at least one online course (Allen & Seaman, 2014). The growth of online learning has increased internationally as well (Demiray et al., 2010). In Malaysia, the growth of enrollment in online courses offered by private universities increased to nearly 160,000 students in 2012 (Malaysia Ministry of Higher Education [MMOHE], 2012). These universities included: Open University Malaysia (OUM), Wawasan Open University (WOU), Asia e-University (AeU), Al-Madinah International University (MEDIU), University Tun Abdul Razak, (UNITAR) and Pusat Pendidikan Kewangan Islam Antarabangsa (INCEIF). Ninety percent (approximately 145,000 students) of the online course enrollment came from OUM (Open University Malaysia [OUM], 2012), which will be the focus of this study.

In spite of the dramatic increase of online courses and student enrollment internationally, there are many indications that online courses are unsuccessful at meeting students' needs (Conrad & Donaldson, 2012; Duffy & Kirkley, 2004; Rovai, 2008; Rovai & Downey, 2010) and students are dissatisfied with their online course experiences (Arbaugh, 2000; Artino, 2008; Artino & Stephens, 2009; Gunawardena & Zittle, 1997; Lee, Srinivasan, Trail, Lewis, & Lopez, 2011; Keeler, 2006; Roblyer & Wiencke, 2003; Steinman, 2007; Swan, 2001). This dissatisfaction phenomenon has been at the center of an intense international debate among online educators. Researchers consistently indicate in the literature that instructors, courses, and peers are important factors contributing to the success of online courses and needs to be taken

into account when implementing courses online (Angelino, Williams, & Natvig, 2007; Bouhnik & Marcus, 2006; Garrison, Anderson & Archer, 2000, 2010a; Garrison & Arbaugh, 2007; Moore, 1989). With proper attention to course content and instructor and peer interaction, the level of satisfaction with online courses could increase and meet the students' needs (Andersen, 2013; Akyol & Garrison, 2010; Cobb, 2011; Denson, Loveday, & Dalton, 2010; Garrison & Arbaugh, 2007; Keeler, 2006; Lowenthal, 2012).

The "Community of Inquiry" (CoI) model designed by Garrison et al. (2000) is one of the models widely used by researchers as a framework to measure three types of presence in terms of online learning environments: social, teaching, and cognitive. These three constructs of presence in the model were determined to have an impact on course satisfaction and achievement in online courses (Akyol & Garrison, 2010; Garrison & Arbaugh, 2007). Even though the model has been applied by many researchers, to date, there are still inadequacies and ambiguities reported in the literature on how the model relates to course satisfaction (Rubin, Fernandes, & Avgerinou, 2013), or other factors in student characteristics (Cobb, 2011; Rubin et al., 2013; Spears, 2012) that contribute to success with a course.

Statement of the Research Problem

Students in an online environment are similar to customers or consumers. If the customers are not satisfied with a service or product, they will discontinue purchasing or using it (Yi, 2014), indicating that satisfaction is vital. In this case, course satisfaction in online learning has become an important issue among online educators (Arbaugh, 2000; Artino, 2008; Gunawardena & Zittle, 1997; Lee et al., 2011; Keeler, 2006; Roblyer & Wiencke, 2003; Steinman, 2007; Swan, 2001) and additional efforts can be made to prevent students from dropping, withdrawing, or leaving a course of study (Angelino et al., 2007; Ng, 2010; Tirrell &

Quick, 2012). As previously mentioned, researchers have identified three main presence factors: social, teaching, and cognitive, which have an impact on online course satisfaction (Akyol & Garrison, 2010; Garrison & Arbaugh, 2007). A higher level of presence increases the level of satisfaction and vice versa. Nonetheless, presence and course satisfaction are measured differently, and inconsistently, using different assumptions, and occasionally being confused with the construct of interaction.

While there are countless studies regarding interaction in online courses, it is important to note that interaction and presence are not exactly the same (Garrison et al., 2000). Few researchers attempt to relate presence based on the Community of Inquiry (CoI) framework with course satisfaction. Even though the CoI framework has grown in prominence and has been used in several studies over the last decade (Arbaugh, 2008b), many studies have relied and focused on individual elements of the framework and frequently solely concentrated on presence (Garrison et al., 2000, 2001, 2010a; Garrison & Cleveland-Innes, 2005; Garrison, Cleveland-Innes, & Fung, 2010b; Garrison & Arbaugh, 2007; Richardson, Arbaugh, Cleveland-Innes, Ice, Swan, & Garrison, 2012; Swan, 2001).

To date, few studies have reported on the dynamic relationships of the CoI constructs with regard to course satisfaction (Angelino et al., 2007; Benbunan-Fich, Hiltz, & Harasim, 2005; Rubin et al., 2013). While other studies looked at additional factors, such as: gender (Bulu, 2012; Cobb, 2011; Spears, 2012), ethnicity and course content (Spears, 2012), age (Alman, Frey, & Tomer, 2012; Wahab, 2007), number of courses previously enrolled in and completed (Bulu, 2012; Cobb, 2011), registration status (Joo, Lim, & Kim, 2011), and type of courses (Alman et al., 2012; Latif, Sharma, & Bahroom, 2007; Joo et al., 2011; Spears, 2012). Even fewer studies have looked at CoI specifically in Malaysia. This indicates that more research is needed to

further the discussion on utilizing the CoI framework as a foundation for online learning and other factors that will aid in compiling a comprehensive depiction of today's online classroom with regard to course satisfaction. It is imperative to further investigate these related factors, as well as relationships, and their ability to predict course satisfaction levels among diverse online Malaysian university students due to the increased number of students and advancement of communication technology in online learning.

Significance of the Study

A study of presence and other related factors in an online learning environment (with presence defined to include peers, instructors, and course content with regard to students' satisfaction with online courses) (Angelino et al., 2007; Benbunan-Fich et al., 2005; Tirrell & Quick, 2012) is needed for several reasons. First, it provides important information about student characteristics. Second, there has been a lack of study specifically focused on the relationship between presence, others factors, and course satisfaction using the Community of Inquiry (CoI) framework. Third, the increased student attrition and lack of presence between tutors (instructors) and their students requires investigation (Abas & Fadzil, 2009; Angelino et al., 2007; Latif et al., 2007; Ng, 2010; Tirrell & Quick, 2012). Last, it is important for online educators to be able to predict whether the presences as established in the CoI model or other factors affect course satisfaction. Course satisfaction could be added as a significant construct to the model due to the shortage of studies in this particular area (Taite, 2012), specifically in the Malaysian context.

The findings from this study aim to provide a plan for improving the quality of online learning and increase the level of course satisfaction in Malaysia. This study contributes to the body of knowledge and aims to guide stakeholders who are involved either directly or indirectly

in implementing, planning, or projecting online education for adult learners. Accordingly, this study also strengthens the applicability of the CoI model (Burgess, Slate, Rojas-LeBouef, & LaPrairie, 2010; Spiro, 2012; Taite, 2012) and adds evidence about affecting course satisfaction that could contribute to other future research directions.

Purpose of the Study

The purpose of this study is to explore the association between teaching, social, and cognitive presences based on the Community of Inquiry (CoI) model and other related factors in an online learning environment with regard to students' course satisfaction in a selected university in Malaysia. These three types of presences in the CoI model and several other factors were also used to predict course satisfaction among students.

Research Questions

The following general questions guided this study of students' satisfaction with online courses just completed (detailed research questions can be found in Chapter 3).

1. Is there an association between types of presences, other related factors, and course satisfaction?
2. Is there a difference between gender, registration status, mode of study, required course, and levels of study on course satisfaction?
3. How well are the combination of the presences and other related factors statistically significant predictors for course satisfaction?

Conceptual Framework

There are four main constructs in this study: (1) teaching presence, (2) social presence, (3) cognitive presence, and (4) course satisfaction. This research examined the impact of these three types of presences, which have been adapted from the Community of Inquiry (CoI) model

on course satisfaction. This model is grounded in theories of teaching and learning in higher education, and is consistent with John Dewey's work on community and inquiry (Garrison et al., 2010a). For the purpose of this study, data was collected on both fully online and hybrid courses regarding student presences in MyVLE (the *Learning Management System* used in this present study) online discussion over a twelve-week course. Figure 1 illustrates the conceptual framework with the three constructs in the CoI model (Garrison et al., 2000) in online discussion and online students' course satisfaction (Ghosh, 2011; Lee et al., 2011) pertaining to this study.

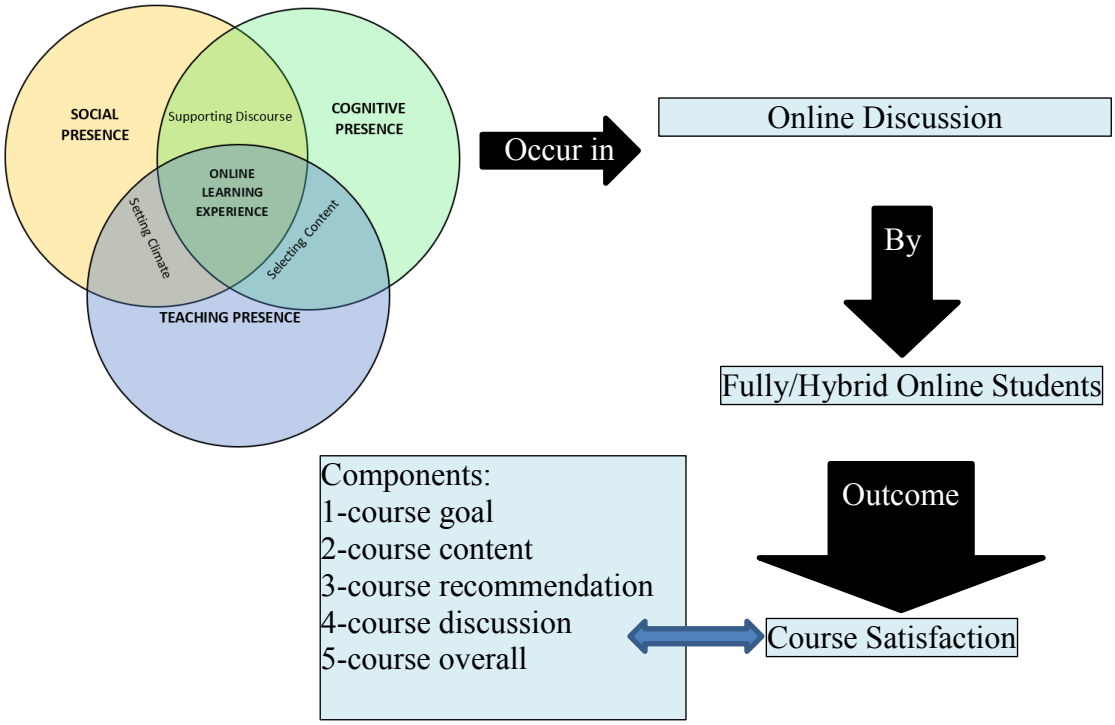

Figure 1. Conceptual framework of presences and course satisfaction. Adapted from "Critical Inquiry In A Text-Based Environment: Computer Conferencing In Higher Education," by D. R. Garrison, T. Anderson, and W. Archer, 2000, *Internet and Higher Education, 2*(2–3), p. 88.

Definition of Terms

Defining terms for the purposes of this study provides consistency in the discussion of presences in online learning environments, even though the terms vary from one research study

to the next (Battalio, 2007; Garrison et al., 2000; Richardson et al., 2012). For clarity and consistency, the following term definitions were adopted throughout this study.

Learning Management System (LMS) is a term widely used interchangeably with course management system (CMS) and virtual learning environment (VLE) in online learning. LMS is a secure, server-side software application used to deliver instruction online or hybrid (Rovai, 2008). In the context of this study, LMS is called MyVLE. It is specifically designed and used by Open University Malaysia (OUM) for instruction and online discussions with tutors and peers nationwide. Through MyVLE, students have access to the OUM digital library (OUM, 2010). Generally, MyVLE shares common features with other LMSs. The only notable difference is the interface.

Online discussion is one of the components of any LMS. The term is used synonymously with *discussion board*, *discussion forum*, *online discussion forum*, *course discussion* and *threaded discussion* by many researchers (Benfield, 2002; Conrad & Donaldson, 2012; Lowenthal, 2012; Rovai, 2008). In the context of this study, online discussion is an asynchronous communication medium that provides the capability to post comments, respond to comments, post questions and answers, and attach documents through MyVLE. At the same time, peers and tutors in the course may do the same thing in real time or at a later time (Abas, Sankaran, Wan Abu Bakar, Johari, & Ayob, 2009). Online discussions are channeled into several folders, such as assignment folders, general folders, and topic folders. The tutors are allowed to create their own folders for discussion. The online discussions were the focus of this study.

Online Course has become a synonymous term with o*nline learning, e-learning, distance education, online learning environment*, and *virtual classroom,* which are used interchangeably depending on the learning context (Rovai, 2008; Sharp, 2009). For Malaysian students, online

courses are termed *open and distance learning* (ODL), which caters to the needs of adults who have families, careers, and other commitments while continuing study at a higher level of education (Abas, 2009; OUM, 2011). For the purpose of this study, online course refers to the online learning instruction that is delivered through an online discussion in MyVLE with either fully online or hybrid modes.

Faculty is a unit within a higher institution of education encompassing a single or multiple subject areas. In Malaysia and in this study, this terminology refers to the division of study. For example, "faculty of education" is similar to college of education or school of education unlike America usage where it refers to academic faculty.

Fully online is a course where every learning activity between students, instructors, peers, and course content occurs virtually through MyVLE, with typically no face-to-face meetings at all (Allen & Seaman, 2014; Bates, 2005). In this study, fully online refers to students who learn almost 100% in the virtual environment with no face-to-face communication (Allen & Seaman, 2014), based on modules provided and delivered via the MyVLE online discussion. Fully online is also considered one type of study mode.

Hybrid learning means learning occurs in both environments: online and face-to-face. Some researchers call it *blended learning* (Rovai, 2008). A substantial proportion of the content is delivered online, typically using discussions and a reduced amount of face-to-face time (Allen & Seaman, 2014). For the purpose of this study, hybrid learning is a course in which students are required to meet their tutors (instructors) face-to-face for discussion purposes at a learning centre five time per semester. Other than that, learning is conducted similar to the fully online learning mode. Hybrid learning is considered another type of study mode as well.

Social presence is the ability of learners to project themselves as real people in the community of learners (Garrison et al., 2000). It means sharing ideas and asking questions of each other without the presence of the instructor (Garrison et al., 2000; Moore, 1989). In this study, it refers to student communication between their peers via online discussion in MyVLE based on the CoI framework: effective expression, open communication, and group cohesion. This model differentiates between the meaning of social presence and student-student interaction (Richardson et al., 2012).

Cognitive presence is the extent to which learners are able to construct meaning through the sustained reflection and discourse that is characteristic of higher education (Garrison, Anderson, & Archer, 2001). Cognitive presence is the core of the educational experience in bringing about changes in knowledge (Garrison et al., 2000; Moore, 1989). In this study, it refers to the ability of a student to understand course content, and participate in effective online discussion based on the CoI framework: triggering event, exploration, integration, and resolution. This model differentiates between the meaning of *cognitive presence* and *student-content interaction* (Richardson et al., 2012).

Teaching presence is the design, facilitation, and direction of cognitive and social processes to bring about relevant and meaningful learning outcomes (Garrison & Anderson, 2007). This is the communication between the student and the subject matter expert; instructors provide the presentation of information and the motivation for students to learn and gain new knowledge (Garrison et al., 2000; Moore, 1989). In this study, it refers to the discussion level between students and their instructors via online discussion based on the CoI framework: design and organization, facilitation, and direct instruction. This model differentiates between the meaning of *teaching presence* and *student-instructor interaction* (Richardson et al., 2012).

Course satisfaction is defined as how much the student is fulfilled or gratified with their learning in the online course. According to Artino and Stephens (2009), course satisfaction is important because it will motivate and stimulate students to learn more. Chiu, Sun, Sun, and Ju (2007), and Roca, Chiu, and Martínez (2006) have identified student satisfaction as an important outcome in online settings with end-of-course satisfaction. In the context of this study, course satisfaction is defined based on five significant components: course goal, course content, course recommendation, course discussion, and overall course satisfaction (Arbaugh, 2000; Artino, 2008; Gunawardena, & Zittle, 1997; Lee et al., 2011; Keeler, 2006). It is defined as: meeting students' needs/expectations; the likelihood of students to recommend the course to other students who need to study that particular online course; and understanding of the course content, which is linked to learning (as illustrated in Figure 1). This definition has been agreed upon by researchers who studied course satisfaction (Arbaugh, 2000; Artino, 2008; Gosh, 2011; Gunawardena & Zittle, 1997; Keeler, 2006; Lee et al., 2011; O'Leary & Quinlan, 2007; Sweeney & Ingram, 2001; Thurmond, Wambach, Connors, & Frey, 2002; Wu, Tennyson, & Hsia, 2010).

Registration status is interchangeable with *student status,* which is used in most studies. It is divided into two: full-time and part-time (Shea & Bidjerano, 2008). Registration status in this study refers to the status of students who have just completed at least one course in that particular semester, either as full-time or part-time.

Required courses are segregated based on program structures such as the Malaysia Qualification Agency (MQA) courses, university courses, basic courses, core courses, and elective courses (Open University Malaysia [OUM], 2011). In this study, course requirements are divided into: core/major and elective. A *core course* means a course that is required by the

program of study or university, whereas an *elective* is chosen by students but is still in their program of study.

Delimitations

The scope of this study was delimited to online students from Open University Malaysia (OUM), who are currently taking at least one online course nationwide, but excludes overseas students such as from Hungary, Ghana, Bahrain, Maldives, Yemen, Sri Lanka, Vietnam, Somalia, or Zambia. This exclusion was performed by a person in charge in the Quality Management, Research and Innovation Center (QRIC) and the registration department of OUM. The study was limited to courses being offered over twelve-week semesters, excluding final examination weeks (May-July). The scope of this study was limited to communication that occurs only in online discussions, and not in any other media formats, such as face-to-face meetings, phone calls, social media, audio or video conferencing, etc. This study used a convenience sample, composed of participants who received the email notification and voluntarily agreed to participate in the web survey (i.e., Qualtrics). The findings from this study are limited and only applicable for this particular setting; the researcher has no interest to generalize the findings to a larger population, such as other online students at other universities in the Malaysian population.

Limitations

No research is perfectly conducted; therefore, limitations can occur regarding coverage, sampling, nonresponse bias, and measurement error (De Leeuw, Hox, & Dillman, 2008). The low response rates via web-based survey are normal and unavoidable, and were expected to happen (De Leeuw, et al., 2008; Schonlau, Fricker, & Elliot, 2001). To get the highest response rates, the sample in this study were selected from all courses across various faculties and levels

of studies including diploma, degree, master, and postgraduates. Since the convenience sample was used, the findings were not generalizable to other populations. Students' learning styles were considered beyond the scope of this study, though they might have an effect on the findings (So & Brush, 2008). In addition, using a questionnaire as self-reported data contains several potential sources of bias and language barriers (Harkness, 2008).

Researcher's Perspective

The researcher has been an examiner, a tutor (instructor), and an online tutor (e-tutor) in a Malaysian private university since 2007, for both fully-online and hybrid learning educational courses. Most of the researcher's students are primary school teachers; among them are experienced teachers, headmasters, and working-adult learners. Having taught in an online learning environment, the researcher noticed that there are instructors and students who are not interested in communicating and interacting with each other through online discussion forums. They prefer email and phone calls rather than posting a message to the forum. Based on the researcher's experience, he believes that not only online presence is affecting students' course satisfaction, but that other issues might exist. These issues can be uncovered and measured statistically, instead of through absolute truth of knowledge, with contiguous errors as the researcher agrees with the post-positivist worldview (Guba & Lincoln, 2005). In short, the researcher hopes the findings of this study will contribute to the body of knowledge and improve the quality of online learning as he returns to his position as an online instructor in Malaysia and continues working on research and development of online learning nationwide in the future.

CHAPTER 2: LITERATURE REVIEW

The constructs of teaching presence, social presence, cognitive presence, and course satisfaction have been debated extensively in online learning environments and have their own body of knowledge. In that light, the purpose of this chapter is to bring perspectives from these and other related constructs to enlighten this study. The literature review section is organized in the following way: online learning development at a glance; its interchangeable definition; the definition of interaction and the definition of presences; the Community of Inquiry (CoI) model; social presence; teaching presence; cognitive presence; and other issues related to satisfaction and course satisfaction exclusively on demographic issues. The structure of the literature review was centered on the conceptual framework of the study as presented in Figure 1, illustrated in Chapter 1. Accordingly, all presences, course satisfaction, and other constructs reviewed were grounded by the online learning body of knowledge in order to achieve greater understanding of the research topic.

Online Learning Development at a Glance

Internet technology plays a significant function in helping to meet the needs of the online student. Even before the technology of online learning existed, distance learning was available in the form of correspondence courses via conventional mail, developed as early as 1873 by Ann Ticknor (Sharp, 2009). In consonance with Romano (2003), in the mid-1990s, Internet technology was introduced into the education system, as teachers and students found it a valuable supportive tool for teaching and learning.

As of 2011, there were more than six million online courses offered in institutions of higher education around the world, and to date, more than seven million students (over 33%) were enrolled in at least one online course in the United States higher education system (Allen &

Seaman, 2014). Noting these extensive increases in figures, researchers have concluded that the online courses offered by most of the higher educational institutions were effective and successful in meeting learning objectives and students' needs. Notwithstanding, there were also studies that contradicted these optimistic findings (Demiray et al., 2010; Rovai, 2008; Rovai & Downey, 2010) and the definition of online learning has varied in several terms.

Interchangeable Terms of Online Learning

Many terms are interchangeably defined within online learning by researchers. Originally, the popular terms *distance education* associated with instructors, and *distance learning* associated with students were used; indicating instruction was taking place at a distance with or without computer technology (Belanger & Jordan, 2000). With the advancement of computer and information technology, gradually terms such as *open distance learning*, *web based training* (WBT), *computer based training* (CBT), *technology based learning* and *e-learning* began to be used interchangeably with *online learning,* depending on the learning context (Hussin, Bunyarit, & Hussein, 2009; Rovai, 2008, Rovai & Downey, 2010; Sharp, 2009), and online learning is considered as a subset of distance learning (Carliner, 2004).

Allen and Seaman (2014) outlined standard definitions for learning by dividing courses into four categories: traditional (fully face-to-face), web facilitated, blended/hybrid, and fully online. A traditional course is conducted with no online technology involved at all; it is delivered purely face-to-face. If online technology is utilized for between one and 29 percent of the course, it is identified as web facilitated. Courses conducted using online learning technology, such as a online discussion for between thirty and 79 percent of the course content as well as face-to-face classes, are considered hybrid courses. Therefore, if more than 79 percent of the course is conducted using online technology, it is known as fully online. In a fully online course, no face-

to-face meeting is involved in the instruction; everything is conducted via online learning technology, such as online discussion and web conferencing. These classifications are also similar to D. Quick's (personal communication, November 1, 2013) standpoint, as summarized in a continuum line shown in Figure 2.

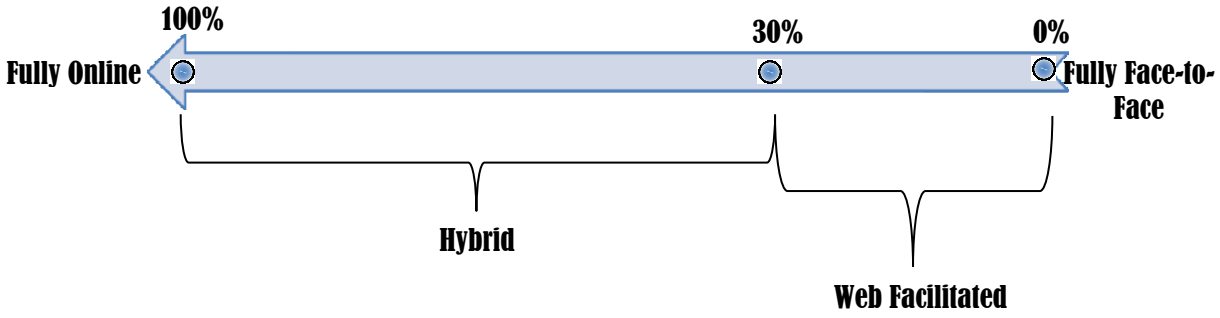

Figure 2. The Continuum Line of the online terms in estimate percentages. Adapted from "Grade Change: Tracking Online Education in the United States," by I. E. Allen, &, J. Seaman, 2014, *Babson Survey Research Group*. Retrieved from http://www.onlinelearningsurvey.com/reports/gradechange.pdf

Definitions of Interaction and Presence

There are numerous definitions that have been set forth in the research on interaction and presence. Interaction may indicate presence (Picciano, 2002); therefore, the meaning of interaction has varied across studies (Battalio, 2007). Vrasidas and McIsaac (1999) noted that interaction is the process of the joint actions of two or more persons in a particular situation. From an educator's point of view, Berge (1999) defined interaction as two-way communication between teachers and students, or other interface in engaging learning activities. Wagner (1994) acknowledged that interaction is an event that occurs between a student and peer in the learning environment, which involves behavioral change and the meeting of objectives. Henri (1995) acknowledged that actual interaction is comparable to communication, which is comprised of three actions that have responses to one another.

Particularly, interaction is a *message* that loops between sender and receiver, student and teacher, student and student; interaction does not happen independently and a message is not limited to verbal messages, but can take place virtually via technology (Yacci, 2000). Shale and Garrison (1990) noted the communications that take place via technology are useful for distance learning, and the technology used provides the opportunity for sharing perspectives, receiving feedback, and bringing about knowledge. Moore (1989) investigated and defined interaction into three main types in online learning environments: student-instructor, student-content, and student-student. These three types of interactions also have been identified as major constructs in online learning research (Moore & Kearsley, 2004; Rovai, 2002a, 2002b, 2008; Rovai & Downey, 2010; Swan, 2001; Wagner, 1994).

The concept of presence has been conceptualized inversely across various theoretical models such as personal presence, telepresence, and spatial presence by Biocca, Harms, and Burgoon; Heeter; Minsky; Slater; Sheridan; Steuer as studied by Bulu (2012). Bulu grouped presence into three categories: place presence, social presence, and co-presence. Previously, Rodgers and Raider-Roth (2006) defined presence as:

> a state of alert awareness, receptivity, and connectedness to the mental, emotional, and physical workings of both the individual and the group in the context of their learning environments, and the ability to respond with a considered and compassionate best next step (p. 265).

Therefore, these definitions of presence were not consistent or acknowledged by all researchers.

According to Richardson et al. (2012), the word *presence* was purposely used to differentiate the Community of Inquiry (CoI) framework from the term *interactions* (Moore, 1989), which includes several particular indicators: design and organization, facilitation, direct

instruction, affective expression, open communication, group cohesion, triggering event, exploration, integration, and resolution. Correspondingly, Garrison et al. (2000) in their CoI model, defined student-instructor interaction, student-content interaction, and student-student interaction as being similar to teaching presence, cognitive presence, and social presence, respectively.

Both *presences* and *interactions* were applied interchangeably by most researchers. This means that there is an interaction happening when presences exist in the online learning environment where learning is expected to take place (Garrison et al., 2000; Richardson et al., 2012). Denoyelles (2014) concluded that the combination of presences results in multiple presences, since Garrison et al. (2000) acknowledged that online discussions—as a multi-faceted, interactive, and evolving activity—are considered an online learning environment in the CoI framework. In other words, presence is a sub-set of interaction, which consists of many types of interaction. Thus, for the purpose and the scope of this study, *interaction* is defined as presence derived from Garrison et al. (2000), and includes several indicators for specifically measuring presences that have been well defined, validated, and deemed reliable by other researchers. Since this model is the major focus for this study, it will be explained further in the next section.

The Community of Inquiry Model

The Community of Inquiry (CoI) model was developed by Garrison et al. (2000) as a tool to conceptualize the online learning process in the higher education system and provided the theoretical framework for this study. Lipman's watchword *community of inquiry* was taken and utilized in the model (as cited in Garrison, 2000; 2010a). This model provides a practical way for viewing the various forms of presence and has been valuable in helping researchers looking at online learning in the higher education system (Garrison & Cleveland-Innes, 2005; Garrison &

Arbaugh, 2007; Swan, 2001). The reason is this model "is generic in that it is conceptually grounded in theories of teaching and learning in higher education. Philosophically…[it is] consistent with John Dewey's work on community and inquiry" (Garrison et al., 2010a, p. 6). This model is based on "the philosophical foundation…[of] collaborative constructivism and, theoretically, it is grounded in research on deep and meaningful approaches to learning" (Garrison & Archer, 2000 cited in Garrison et al., 2010a, p. 32).

In line with Knowles, Holton, and Swanson (2011), adult learning theory is embedded in this model, represented by the six assumptions that adults learners: (1) are generally self-directed, independent learners; (2) are more inclined to be motivated if the content is applicable to real-life situations; (3) enter situations and learning environments with a variety of experiences; (4) need to feel respected and valued for the experience they can offer to a situation; (5) enter a learning environment ready to learn; and (6) are motivated by content that is relevant to where they are developmentally, professionally, and/or personally. Adult learning theory is significant to online learners; therefore, the model has been applied comprehensively by researchers of online and hybrid learning with several enhancements to it (Garrison et al., 2010a, 2010b), especially with regard to asynchronous (text-based) communication (Burgess et al., 2010), for more than a decade.

Garrison et al. (2000) emphasized in the model that learning occurs through the combination of three core elements of presences: teaching, cognitive, and social, within a community of inquiry of teachers and students in the online classroom as posited by Moore (1989), and Swan (2001). Garrison et al. (2000) devised a template based on sample indicators and categories identifying each of the required elements of presence that together compose a community of inquiry. The area of the model where presences overlap creates the educational

experience (Garrison & Arbaugh, 2007). This model seeks to provide an understanding of the dynamics of presences and how presences operate within the online learning environment. In brief, *social presence* means the relationship between peers; *teaching presence* indicates that there is an instructor element in facilitating, directing, and teaching; and *cognitive presence* describes the ability of students to learn and construct meaning cognitively and critically in an online learning environment. Cognitive presence can be equated with communication with the content, teaching presence with communication with the instructors, and social presence with communication with peers.

The fourth dimension, learner-interface, is the technology that enables the presence to take place and serves as the backdrop to the educational experience (Swan, 2001). In this study, this fourth dimension is referred to as online discussion in the MyVLE. Emerging research suggests there is a complementary relationship between the three elements of presence, which serves as a template for analyzing presences and the online learning experience (Garrison et al., 2000).

Denoyelles (2014) identified strategies and conceptualized a concept paper into the valid and frequently employed CoI framework. The researcher concentrated on the effectiveness of particular strategies that appear to confirm the framework. Denoyelles remarked that teaching presence influenced the social climate and reinforced cognitive presence, which confirmed the essential CoI elements in contributing to the success of online discussion, as reinforced by Akyol and Garrison (2010). Denoyelles then concluded that the combination of presences results in multiple presences, which conceptualizes online discussions as a multi-faceted, interactive, and evolving activity. This was already termed as online learning environment by previous studies

(Garrison et al., 2000; Garrison & Arbaugh, 2007; Garrison et al., 2010a) and confirmed the model. The details of each presence in the model will be explained in the following sections.

Social Presence

The first construct from the Community of Inquiry (CoI) model is known as *social presence*. Pursuant to Short, Williams, and Christie (1976), this construct was grounded on the theory of social presence, which explained the effect of telecommunication media on communication. They viewed social presence as the amount of interaction between sender and receiver via an open communication medium; they believed that most people prefer to use audio and video rather than text-based communication media. Picciano (2002) coined social presence as a sense of belonging in a course and the presence of collaboration between students and instructors. Therefore, from an online learning point of view, Tu and McIsaac (2002) viewed social presence as the level of feeling, perception, and reaction via text-based discussion. They proclaimed that social presence had a significant role in shaping communication online.

By means of the advancement of information technology, many researchers began investigating sociability in online learning; they concluded that communication purely based on text in online discussion has an ability to generate social presence (Gunawardena, 1995; Gunawaerdena & Zittle, 1997, Garrison et al., 2000; Tu, 2000), contrary with Short et al. (1976). Subsequently, presence by asynchronous text-based communication is challenging because it lacks immediacy, and does not convey emotion and affective expression (Garrison & Anderson, 2003). Affective expression is demonstrated through the sharing of feelings, attitudes, experiences, and interests (Garrison et al., 2000). Garrison asserted that social presence is meticulously interconnected to relationships with peers, which could occur in online learning

environments. Garrison et al. (2000), then, proclaimed social presence is the ability of the student to project himself or herself as a real person in an open communication environment.

Peer or student-student presence requires that students work together. Their presence, either with or without the real-time presence of the instructor, can prove to be a valuable platform for distance learning (Hirumi, 2006; Moore, 1989). Social presence might arise in activities, for instance: group projects, demonstrations, sharing content and ideas through online discussions, peer reviews, peer editing, role-playing, case studies, debates, collaborative writing, and simulations (Northrup, 2001; Shank & Doughty, 2001). Hence, consistent with the social constructivism view, learning in a social context is derived through communication, collaborative activity, and interactions with others (Swan, 2005).

Peer collaboration is essential to student-centered constructivist environments (Beldarrain, 2006) and becomes the foundation for facilitating collaboration and communities of students in the online environment (Mishra & Juwah, 2006) where the students take responsibility for the construction of personal knowledge (Henri, 1995). Mishra and Juwah, (2006) agreed with Murphy (2004a; 2004b), collaboration is initiated through presence as students become responsive to each other's presence by exchanging viewpoints among themselves. The level of social presence can be increased when learning is structured around collaborative experiences (Roblyer & Wiencke, 2003), which is defined as group cohesion by Garrison et al. (2000). Garrison simplifies the social presence concept into three sub-categories: affective expression, open communication, and group cohesion, as summarized in Table 1.

Table 1

Constructs, Sub-constructs, and Meaning in the Social Presence

Construct	Sub-constructs	Meaning
Social presence	Affective expression	Emotions/feelings
	Open communication	Risk-free expression
	Group cohesion	Encouraging collaboration

Note. Adapted from "Researching the Community of Inquiry Framework: Review, Issues, and Future Directions," by D. R. Garrison & J. B. Arbaugh, 2007, *The Internet and Higher Education, 10*(3), p. 159.

Cognitive Presence

The second construct in the model is called *cognitive presence*, where the main aim of the online higher education system is to impact critical thinking skills (Garrison et al., 2000). This is because online presence can be understood within this framework as not just verbal messages (Yacci, 2002), but as encompassing human and nonhuman activities (Garrison & Anderson, 2003). The theory on cognitive presence is actually also associated to Dewey's work on reflective thought and scientific inquiry, the concept of Vygotsky's development theory (as cited in Richardson et al., 2012), critical thinking, and the practical inquiry model (Garrison et al., 2000, 2001). Moore (1989) noted that cognitive occurrence is the process of cognitive development through the course content, which reflects on students' thinking and learning performances.

Wang, Gould, and Fulton (2007) defined cognitive presence as the ability of students to assimilate course information to construct knowledge. Learning is the process of intellectual work, together with content, which results in the stimulation of thinking (Moore, 1989). Northrup (2001) stressed that instructional content is the key element in the online course because it is the point of transfer for knowledge, skills, and abilities. In addition, Arbaugh

(2008a) addressed that cognitive presence will occur if content and supporting material is used wisely, including: web links, portable document format files, teacher unit introductions, examples, frequently asked questions, links to instructor's homepage, summaries, reflection papers, scholarly articles, test questions, PowerPoint presentations, audio and videotape mini lectures, tutorials, and critiques. Berge (2002) added to the points made by Arbaugh, stating that it is impossible for students and content to successfully interact unless students digest the content and formulate meaning from it.

Correspondingly, in the CoI model, cognitive presence is based on the critical thinking literature and the practical inquiry model. Garrison et al. (2000, 2001) defined cognitive presence as triggering events (e.g., issues and problem), exploration (e.g., information and explanation), integration (e.g., solving and reflection) and resolution (e.g., developing and applying) between course contents in particular online learning environments. Students ideally move from a triggering event to exploration, integration, and resolution (Garrison et al., 2000). Garrison emphasized that elements in cognitive presence are to strengthen the social presence, teaching presence, and to ensure effective online learning, as a key in achieving critical thinking. Table 2, summarizes the components in cognitive presence.

Table 2

Constructs, Sub-constructs and Meaning in the Cognitive Presence

Construct	Sub-constructs	Meaning
Cognitive presence	Triggering events	An issue, dilemma, or problem (Sense of puzzlement)
	Exploration	Students search for information to gain knowledge and make sense of the problem (Information exchange)
	Integration	Gain meaning from the ideas developed during the exploration phase (Connecting idea)
	Resolution	Applying new knowledge

Note. Adapted from "Researching the Community of Inquiry Framework: Review, Issues, and Future Directions," by D. R. Garrison & J. B. Arbaugh, 2007, *The Internet and Higher Education, 10*(3), p. 159.

Teaching Presence

The third construct in the model is called *teaching presence*. Teaching presence from the teacher's point of view is defined as "the experience of bringing one's whole self to full attention so as to perceive what is happening in the moment" (Rodgers & Raider-Roth, 2006, p. 267). Moore (1989) defined teaching presence as two-way communication between students and instructors, where students' learning is monitored by instructors through learning activities, feedback and assessments. Teaching presence provides the dual functions of motivating learners and clarifying content (Hirumi, 2006). It serves the same purpose as the traditional classroom in presenting content, encouraging students to learn, and providing support (Moore, 1989).

Sugar, Martindale, and Crawley (2007) identified specific types of instructor communication with students: information, question, summary, advice, comment, example, experience, assertion, and challenge. To compensate for the loss of physical presence, a number

of ideas have been proposed. Palloff and Pratt (2001) noted that instructor modeling of behavior is important to asynchronous learning. They stated that instructors should set a good example by logging onto the online learning system frequently, providing feedback, contributing to discussion, establishing limits if need be, and contacting students who are not participating actively. Instructors should welcome their students at the beginning of the class and delineate specific guidelines for class participation (Swan, Shea, Fredericksen, Pickett, Pelz, & Maher, 2000). Benfield (2002) noted a need for more frequent confirmation of student work online than there is in the traditional classroom.

Based on interviews with instructors (n = 12) who had experience in teaching online courses, Kanuka, Collett, and Caswell (2002) found two additional important instructor concerns regarding the immediacy of instructor input: determining the right amount of time to wait before providing feedback to a group to allow members to support each other, and the need for instructors to receive feedback from students to make sure they are communicating the content messages effectively. This acknowledgment points to the significance of teaching presence in the online classroom for both participants. Teaching presence and pedagogical skills are important to student success. Garrison and Anderson (2003) posited that teaching presence is the most valued type of collaboration by students, and Battalio (2007) concluded that student-instructor communication repeatedly rates high in online research studies. Consistently, in the CoI framework, teaching presence is viewed and measured based on three main components: design and organization (e.g., course topics, goals, and guidelines), facilitation (e.g., areas of agreement or disagreement, and understanding), and direct instruction (e.g., directing discussion and feedback) (Garrison et al., 2000, 2001) as summarized in Table 3.

Table 3

Construct, Sub-construct and Meaning in the Teaching Presence

Construct	Sub-constructs	Meaning
Teaching presence	Design and organization	The development of the process, structure, evaluation, and interaction components of the course.
	Facilitation	Establishing and maintaining classroom interaction through modeling of behaviors, encouragement, supporting, and creating a positive learning atmosphere
	Direct instruction	Describes the instructor's role as a subject matter expert and sharing knowledge with the students.

Note. Adapted from "Researching the Community of Inquiry Framework: Review, Issues, and Future Directions," by D. R. Garrison & J. B. Arbaugh, 2007, *The Internet and Higher Education, 10*(3), p. 159.

Satisfaction with the Course

The fourth construct is student satisfaction. In the hybrid learning perspective, student satisfaction is defined as "the perception of enjoyment and accomplishment in the learning environment" (Sweeney & Ingram, 2001, p. 57). Wu et al. (2010) viewed student satisfaction as "the sum of student's behavioral beliefs and attitudes that result from aggregating all the benefits that a student receives" (p. 157). Therefore, in fully online learning environments, student satisfaction is defined as "an emotional response that can be induced by actual product, service, or process quality or some combination of product and service quality" (O'Leary & Quinlan, 2007, p. 135), and as "a concept that reflects outcomes and reciprocity that occur between students and an instructor" (Thurmond et al., 2002, p. 176). According to Sinclaire (2011), out of 34 studies reviewed, only six (Sweeney & Ingram, 2001; Wu et al., 2010; O'Leary & Quinlan,

2007; Thurmond et al., 2002) clearly defined student satisfaction in hybrid and online learning environments, which means that a study needs to be conducted to support the literature in this area. Students' satisfaction in a hybrid learning environment was derived from Bandura's Social-cognitive theory (as cited in Wu et al., 2010), and online environments derived from Astin's Input-Environment-Outcome model (as cited in Thurmond et al., 2002).

Presence is essential to satisfy students in online courses. The lack of immediate feedback from instructors and peers contributed to dissatisfaction with the course (Northrup, Lee, & Burgess, 2002; Robyler & Wiencke, 2003; Swan, 2001). Dissatisfaction can arise from factors relating to use of interaction, including the lack of immediate feedback, discomfort with collaborating with unknown peers, and expressing views in a public forum discussion (McIsaac, Blocher, Mahes, & Vrasidas, 1999).

For example, Swan (2001) studied students enrolled in the State University of New York Learning Network, which provided asynchronous online courses to students in the State University of New York system. A student satisfaction survey was administered to 3,800 students enrolled in 264 courses through the learning network who had completed online course work in the spring of 1999. It was found that high levels of interaction with the instructor and between students resulted in higher levels of satisfaction with the course.

Northrup et al. (2002) confirmed the relationship of interaction and satisfaction. An online learning interaction inventory was administered to graduate students (n = 52) in online master's program courses in instructional technology. The students indicated that sharing information with peers and interacting with the content were important to their online learning experiences. Maintaining satisfied students takes on added importance because dropout rates tend to be higher in distance education courses than in their on-campus counterparts (Rovai,

2002a, 2008; Steinman, 2007). As evidenced by research, student satisfaction is critical to the success of an online course, and to reach goals of the learning environment, instructors and institutions must meet the needs of their students (Bolliger & Martindale, 2004; Howell, Jeffrey, & Buck, 2012; Roblyer & Wiencke, 2003; Swan, 2001).

It is important to note that, for the purpose of this study, students' satisfaction is referred to as *course satisfaction*, which includes several components: course goal, course content, course recommendation, course discussion, and course overall (as illustrated in Figure 1 previously). Up to now, the literature has explained in detail concerning the main constructs that will be the attention in this study. In the next coming section, the literature is emphasized on findings and context for the study.

Research Findings and Context for the Study

Hostetter and Busch (2006) examined the relationship between social presence, learning satisfaction, and outcomes among online undergraduate (n = 80) and face-to-face students (n = 32) in the United States. They compared four sections of an online course with two sections of the same face-to-face course (all sections used the same syllabus and assignments) over two semesters on two campuses in a Web-based learning system. Completed surveys yielded (n = 112) an overall response rate of 88%. Social presence was found as a predictor of learning satisfaction, which explained 40% of the variance in the learner satisfaction scores. This was later supported by Sher (2009), but showed inconsistent results with So and Brush (2008). However, no significant difference was found in social presence between both groups of students. When only the responses of students in the online courses was considered, it showed that students on urban campuses had significantly higher social presence scores than students on rural campuses. There was a positive relationship between social presence and the number of online

courses taken, but only seven percent of the variance in the social presence score was explained by the number of online courses taken. Surprisingly, findings showed that social presence had no significant influence on learning outcomes. However, there was uncertainty whether the number of online courses taken and campus location could influence learning satisfaction directly. The response rate for each group and effect size were not reported and the small sample sizes, especially in the face-to-face group, could have affected Hostetter and Busch's finding.

In addition to Hostetter and Busch's study, Cobb (2011) explored students' social presence in online nursing courses and its relationship to student satisfaction and perceived learning at a United States college using the same instrument. Students (n = 128) responded to the online survey with a 43 percent response rate. The course instruction mainly used an asynchronous and text-based Learning Management System (LMS) – *Blackboard's* discussion forum. Findings indicated that social presence was highly positively correlated with perceived learning and satisfaction, similar to the findings of Hostetter and Busch (2006). However, there was no significant relationship between social presence with regard to gender, the number of previous online courses, or currently taken. A multivariate regression analysis showed that social presence predicted a higher amount of variation in overall satisfaction than in perceived learning. Unfortunately, there was no effect size reported. Extending a study among hybrid students, demographic characteristics differences—such as: ethnicity, gender, technology, level of students, prior online course experience with various courses—was recommended (Cobb, 2011; Spears, 2012).

Spears (2012) investigated students' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. Out of 1,141 undergraduate students from a College of Agriculture and Life Sciences, only 159 online

students participated in the study during Fall, Spring, and Summer semesters in 2010, which meant a low response rate of 13.5 percent. Social presence was found to have very high positive correlations with three other variables in online and face-to-face courses. Meanwhile, there was no significant difference between females (n = 97) and males (n = 55) in the two averages of mean scores for social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. This was similar to findings on satisfaction by Richardson and Swan (2003). However, there was a statistical difference for perceptions of social presence, social interaction, and satisfaction in online courses by race, but not by students' course major. The researchers recommended further research be conducted with students of other races, who have taken both formats of online courses, which was also recommended by Cobb (2011), and other colleges to see how other variables are influenced by social presence. Without the effect size being reported and the low response rate, several questions remain.

Zhan and Mei (2013) examined the effects of students' academic self-concept and social presence on learning achievement and satisfaction among undergraduate students (n = 257) enrolled in a digital design course in a major university in Southeast China. They found that academic self-concept and social presence were essential factors in influencing students' learning achievement and satisfaction, especially in the online environment. This finding suggests that online discussion is capable of improving student performance and satisfaction with the course, as found by Hostetter and Busch (2006). However, they found that academic achievement's relationship with satisfaction is not related to online discussion.

Thus, Zhan and Mei recommended that further study is needed to compare both modes of learning regarding self-concept and social presence; both of which have a strong influence on learning achievement and satisfaction. Satisfaction might be affected by various factors, such as:

the instructional strategies, the students' personalities and learning styles, the course content, and online software across different learning environments, not only because of social presence. Due to the fact that no response rates, control group or effect size were reported, it is difficult to make a conclusion of Zhan and Mei's finding.

Bulu (2012) investigated the relationship between the place presence, social presence, and co-presence (addresses more psychological interaction of the individuals) and their relationship with the satisfaction and immersive tendencies of the students (n = 46) who enrolled in a teaching method course in the Department of Computer Education and Instructional Technology at Middle East Technical University in Turkey. The LMS - *Second Life METU Campus* was used to provide the virtual world to the students throughout the course of one semester. The response rate was not reported. The findings of this study revealed that all presences were predictors of the students' satisfaction. The construct of immersive tendencies of the students were related to their place and co-presence but not to their social presence. However, the findings were not strongly supported due to the small sample size and effect size was not given. The researcher recommended studies to examine the relationship among the presences in different virtual worlds with different activities, gender differences, online learning experiences, and individual characteristics as factors that might influence presence and satisfaction.

So and Brush (2008) examined the relationships of the students' perceived levels of collaborative learning, social presence, and overall satisfaction in a hybrid health education course using a mixed-methodology study. This study had a high response rate 87.3%, as 48 of 55 graduate students participated. Nine students were randomly selected to take part in face-to-face open-ended interviews. So and Brush revealed that student perceptions of collaborative learning

have statistically positive relationships with perceptions of social presence and satisfaction. Surprisingly, the relationship between social presence and overall satisfaction was not statistically significant, contradictory with Spears (2012).

In addition, So and Brush demonstrated that ages and students' satisfaction were positively associated with each other, showing that older students were very likely to have higher levels of satisfaction than younger students. Range of age was not clearly mentioned, giving uncertainty to defining age of older or younger students. They also determined that the number of courses taken positively influenced satisfaction levels. However, it was not clear whether those courses were either previously or currently enrolled. The researchers suggested that learning activities and communication in the online learning environment should be considered for future study. However, effect size was not reported, which could have affected on the finding.

Sorden and Munene (2013) investigated the constructs of social presence, collaborative learning, computer-supported collaborative learning, and satisfaction in hybrid learning environments in a community college in southwestern United States in the spring 2011. Simultaneously, as suggested by previous researchers, they explored age (So & Brush, 2008; Shea & Bidjerano, 2008), gender and ethnicity (Ashong & Commander, 2012; Spear, 2012), computer expertise, and number of distance courses previously taken (Cobb, 2011) with those main constructs. The sample (n = 140) of students who enrolled in hybrid courses had a 77 percent response rate (n = 108). Researchers found social presence positively was associated with student satisfaction, which parallels with Spears (2012), and perceived collaboration positively associated with student satisfaction. Nevertheless, they did not find a significant association between any of the demographic variables and the three constructs that were

measured, which contrasted with the study conducted by So and Brush (2008). However, there was not clear evidence to state that these two variables predict student satisfaction, and effect size was also not clarified as well. In term of satisfaction, they did not focus on courses, but instead on satisfaction of online learning in general, which overlaps with social presence; this is similar to Garcia, Abrego, and Calvillo (2014). This, undoubtedly, shows that further study on these particular aspects is essential.

Croxton (2014) reviewed empirical literatures through the lens of Bandura's social cognitive theory, Anderson's interaction equivalency theorem, and Tinto's social integration theory regarding presences in online course design. Croxton noticed teaching presence and social presence, as found by Spears (2012), these presences served as very significant factors that were stimulus in student satisfaction and persistence in online learning. Not only that, the researcher then found that student demographics and learning styles also might need careful attention when there is discussion regarding student satisfaction, as suggested in foregoing studies (Cobb, 2011; Hostetter & Busch, 2006; Spears, 2012; Zhan & Mei, 2013). However, Croxton did not synthesize clearly according to what criteria the empirical literatures were conducted (e.g., total number of references, sample size, type of courses, and locality). The review by Croxton was uncertain about student satisfaction and course satisfaction, which both have their own component (Arbaugh, 2000; Artino, 2008, Gunawardena & Zittle, 1997; Keeler, 2006; Lee et al., 2011) and need further caution in understanding and interpretation the presences and satisfaction.

Estelami (2012) surveyed student satisfaction and learning outcomes in purely online and hybrid-online course formats among those who enrolled in marketing and financial courses (n = 177) across ten course sections studied over a two-year period with the same instructor.

Student satisfaction was found to be affected by cognitive presence, teaching presence, the use of effective learning tools, and the instructor for both formats as determined by Cobb (2011) and Spears (2012). Factors such as instructor quality, clarity of assignments and tasks, quality of the instructional material used, and course communications were the primary contributors to positive student experiences for both courses. Learning experience was unaffected by hybrid delivery, whereas the financial services course showed a positive relationship between learning perceptions and hybrid delivery of the course. Student satisfaction and overall learning experience were primarily driven by the contents and characteristics of the course and the quality of instruction. There was nothing clearly mentioned about response rate and effect size in this study. Due to the fact that the sample was derived from part-time students, the result is not applicable to full-time students and other types of courses.

Harrison, Gemmell, and Reed (2014) surveyed fully-online students' levels of satisfaction (n = 45) of the dissertation course in 2001 at the University of Manchester, England. A total of 37 responded to the study (82% response rate) from part-time and full-time students. Researchers discovered that the number of contacts initiated with their supervisor, and the time spent working on their dissertation course, were not significantly associated between satisfaction among either part-time or full-time students. Opposite results were found among fully-online students who enrolled in public health courses. Largely, 85 percent (28 students) were satisfied or very satisfied with the dissertation course, overall. The constant comparative analysis conducted by these researchers identified key themes and feedback included peer support. They advocated exploring gender, age, and previous online experiences on satisfaction for future study. This study, however, admitted that they were unable to identify an existing validated

satisfaction survey. Many uncertainties endure about the study, especially on instrument, number of sample size, and effect size.

Ashong and Commander (2012) surveyed the impact of ethnicity and gender on satisfaction of fully-online education among African-American and White-American students at a research institution in the southeastern United States. They centered study of satisfaction on: computer usage, teacher support, student interaction and collaboration, personal relevance, authentic learning, student autonomy, equity, enjoyment, and asynchronicity. One hundred twenty students participated in the study, but the actual number of participants and response rate were unidentifiable in this study. Results indicated that females were more satisfied than males about learning online. African-American and White students had overall positive views of online learning. However, the comparisons of those groups were not representative. Most of the participants in this study were enrolled full time; status of study is believed to have connection on satisfaction (Shea and Bidjerano, 2008). Most of the participants had previous online course experience (taken at least one online course), which might have influenced the result. The researchers suggested extending this study with demographic variables, as also suggested by Denson et al. (2010). Additionally, this study focused on satisfaction in general; the researchers did not intend to concentrate on courses, which clearly needs further study on this particular issue, as agreed by several researchers (Arbaugh, 2000; Artino, 2008; Gunawardena & Zittle, 1997; Keeler, 2006; Lee et al., 2011).

Kranzow (2013) highlighted literature about crucial concerns in successfully offering online courses and proposed to faculty (college or school) members several practical aspects that should be emphasized exclusively regarding curriculum and pedagogy. Kranzow concluded that teaching presence can be improved by considering five pedagogical aspects that are essential for

online instructors as well as cognitive presence by structuring courses to meet students' needs and satisfaction that are emphasized by most recent researchers (Grady, 2013; Seaton & Schwier, 2014). This is offered in Table 4 as some broad considerations for instructors.

In an exploratory case study, Seaton and Schwier (2014) identified factors associated with instructor presence (n = 51) in online courses and potential barriers when teaching online at the University of Saskatchewan, with less than half of them (n = 12) participating and interviewed in the study. The researchers found that experience and technological comforts were among the factors that influenced presence, which concerned the online instructor, which could add to Kranzow's (2013) finding. This, certainly, shows that additional study on these particular aspects is necessary (Rovai, 2008; Rovai & Downey, 2010).

Table 4

Five Pedagogical Considerations to Encourage Student Motivation and Student Involvement with Regard to Presences.

Five Pedagogical considerations	Presence
Has there been consideration of the climate in regard to welcoming open communication and discourse?	Teaching/Social
Are online activities created to allow for reflection, interaction, and problem solving?	Teaching/Social/Cognitive
Are there mechanisms for frequent exchanges with: (1) other students; (2) course content; and (3) instructors?	Teaching/Social/Cognitive
Is an inviting personal introduction modeled for students?	Teaching
Has consideration been given to evaluating technical skills (and is a remediation strategy ready if needed)?	Teaching/Social/Cognitive
Have options been provided at different points in the course to allow students to have an adaptive environment?	Teaching/Social/Cognitive
Are guidelines and/or examples of the types of discussions desired available for all students to see before they are asked to respond to anything?	Teaching/Cognitive

Note. Adapted from "Faculty Leadership in Online Education: Structuring Courses to Impact Student Satisfaction and Persistence," by J. Kranzow, 2013, *MERLOT Journal of Online Learning and Teaching, 9*(1), p. 136.

Previously, Guo (2010) discovered from students' satisfaction surveys (n = 1,540) collected from 43 courses in 11 semesters from 2002 to 2007, that results showed that the number of students enrolled in a course and the high grade achievement rate in final grading were the two most influential factors to student course satisfaction. However, the researcher did not clearly state the total number of respondents, response rate, effect size, or how satisfaction was measured.

Grady (2013) focused on action research to find out causes for a decrease in course satisfaction by students (n = 338) enrolled in a mid-south university school of education in the United States with a compressed-timeline online course compared to satisfaction in previous courses. A total of 54 percent responded (n = 183) in the study. The researcher noticed that teaching presence and the number of assignments indicated that satisfaction was influenced by these changes. Garcia et al., (2014) extended their previous survey with a focus group to examine methods to improve instructional delivery for graduate students (n = 48) in an educational leadership course in a master of Education program in a university located in South Texas, United States, however effect size was not stated. They distinguished among students choosing a hybrid learning mode based on social presence, cognitive presence, flexibility, responsibility in learning, and active learning. In particular, they noted student's need for flexibility; accessing materials online, facilitates a learning experience. This study indicated that course content was a significant factor that affected student learning as established by other studies (Garrison et al., 2010a; Garrison et al., 2010b).

Kim and Zhang (2010) investigated the effect of three socio-technological variables such as sense of presence (virtual presence and social presence), sense of belonging (feelings of membership, feelings of influence, feelings of support, and emotional connection) and cognitive

absorption (temporal dissociation, focused immersion, heightened enjoyment, and curiosity) as second-order constructs of user satisfaction with, and loyalty to, avatar-based 3D virtual worlds known in online learning as *Second Life*. A total of 71 students with response rates of 91 percent from two public universities in the United States participated in three rounds of surveys designed by the researchers. Results of the structural model testing showed a sense of presence significantly impacted user satisfaction within 3D virtual worlds. However, as acknowledged by Kim and Zhang, this result is only applicable to those who are familiar with the use of avatars in *Second Life*. They agreed that most LMS interfaces used in online learning rely on text-based communication. The types of LMS to which the students have access support different levels of presence and require further study. Therefore, many questions remain, particularly the uncertainty of validity and reliability of the self-designed instrument.

Wahab (2007) examined students' expectation and satisfaction with the academic experiences provided by Open University Malaysia (OUM). The researcher found from the result of factor analysis that online course organization was the most important factor, and learning outcome was the most satisfying to students. The researcher recommended that further study on satisfaction level needed to be conducted in regard to the characteristics of the students, such as age, employment situation, objectives, and others factors. Another study at the same university, conducted by Latif et al. (2007), explored students' priority for service and their perceived satisfaction with the service (n = 2,946) with a response of 12.5 percent using a self-designed instrument. The sample was derived from 28 learning centers in the September semester of 2005. They determined that the six major areas considered in priority-satisfaction by students were: student records management, registration and orientation, learner centeredness, student affairs, assessment and teaching, and learning. However, the validity and reliability of the self-designed

instrument were not reported. The level of satisfaction found in this study was general and not focused on a specific issue. Researchers recommended further study to explore particular issues in-depth: course information, MyVLE, tutors/instructors (staff), and communication.

A study by Rubin et al. (2013) extended the CoI model with a mixed-methods study on students' course satisfaction. Thirteen instructors who taught fully-online graduate courses in the new LMS - *Desire2Learn* (previously using *Blackboard*) were interviewed. The results revealed that some instructors used Desire2Learn extensively, while others commented that they did not have time to develop learning in the LMS. Furthermore, as established (n = 605) in the last week of the fully-online courses (Business, Education, Public Administration, Management, Computer Science, and Interdisciplinary), 478 students participated in the study with a 79 percent response rate. Regression analysis found that perceived 'LMS affordances' predicted teaching, cognitive and social presence. 'Satisfaction with the LMS' predicted course satisfaction. Remarkably, social presence did not predict satisfaction with the course, as constantly found by So and Brush (2008), and Joo et al. (2011), but contrarily with Croxton (2014). They suggested that another study should directly compare the same faculty (college or school) teaching the same courses. Nevertheless, researchers did not mention how long the online courses were conducted before the interviews and survey were conducted, and the effect size was not found.

Joo et al. (2011) investigated the structural relationships among teaching, social, and cognitive presence using the CoI model, and perceived usefulness and ease of use, learner satisfaction, and persistence in an online university conducted in South Korea (n = 709), with a response rate of 59.08 percent. The study was conducted among students who enrolled in one fully-online elective course in the fall of 2009. Researchers found that teaching and cognitive presence, along with perceived usefulness and ease of use, showed positive effects on learner

satisfaction. Cognitive presence was also identified as a significant predictor of satisfaction. However, social presence was not a significant predictor of satisfaction as supported by Rubin et al. (2013) but contrary to Hostetter and Bush (2006), Cobb (2011), and Bulu (2012). Social presence was revealed as a mediator of the other two presence variables. However, the effect size was not reported. They suggested that in-depth analysis of presence and other related variables was needed. For example, the sub-categories of each presence variable (e.g., direct instruction in teaching presence and exploration in cognitive presence), academic achievement, students' work status, hybrid students, and type of course (core or elective) could be adopted as predictors as well for future study.

Shea and Bidjerano (2008) investigated and validated the CoI instrument concerning whether the instrument explained levels of student learning and satisfaction with online courses in a higher education context. Additionally, researchers examined the effects of two other variables—age and students' registration status (full-time or part-time)—on levels of satisfaction and learning. The course was conducted asynchronously and primarily text-based. A total of 1,106 students with a response rate of 80.97 percent completed the survey. Unfortunately, the effect size was not mentioned. The results showed that students scoring higher on the dimensions of cognitive presence and the two teaching presence factors (i.e., facilitation, and design and organization) also tended to report more overall satisfaction, regardless of their registration status and age. Shea and Bidjerano recommended further investigating how students' registration status and their learning interconnected to course satisfaction and affect the level of presences.

Dorner and Kárpáti (2010) investigated Hungarian teachers' satisfaction (n = 43) using the CoI framework in 2007 and 2008. A survey was used to measure four variables: participants' global satisfaction, the facilitator's activity, the online communication in the Open Source LMS-

LeMill and social software-*Fle3*, and the participants' perceived social presence. Dorner and Kárpáti found these variables had a significant impact on the participants' global satisfaction. They were satisfied with the feedback provided by the facilitators and the professional scaffolding offered. However, it is hard to rely on the result because the response rates and effect size were not reported, and the sample size was small.

Kumar, Dawson, Black, Cavanaugh, and Sessums (2011) investigated the applicability of the CoI framework in an online graduate educational technology program (n = 26) in fall and spring semesters. They used an open source LMS – *Moodle,* and a web conferencing software – Elluminate in their instruction. A survey measured faculty (instructor) instruction and feedback; support, learning environments, and community-building; and application of learning, that paralleled the CoI components. Only sixteen responded to the survey. The result found that students recounted high satisfaction with asynchronous communication in courses and with synchronous communication during Elluminate sessions and the campus-based experience. Social presence was found to be easier to facilitate in online course discussions or synchronous sessions. However, the sample size in Kumar et al.'s study was small with no effect size reported, so many questions remain.

In a further study grounded on the CoI framework, Draus, Curran and Trempus (2014) experimented on the influence of teaching presence in eleven weeks of asynchronous online courses via video content on student satisfaction in a spring semester. Three sections from the spring term were used as a control group (n = 79) and six sections (n = 172) from the fall and spring terms were used as the experimental group. Findings indicated that teaching presence via video content could have a positive and moderate influence on student satisfaction with asynchronous online courses. Admittedly, the result is not comparable to online courses with a

purely text-based format; even though the same course structure and instructor were maintained (Joo et al., 2011; Rubin et al., 2013; Shea et al., 2008). These suggest that course content might influence students' satisfaction.

Alman et al. (2012) compared students' perceived satisfaction in cohort and non-cohort programs among students who enrolled in IT courses in the summer semester of 2011. The modified version of the CoI survey was conducted among face-to-face and online students. A total of 36 students with a response rate of 67% participated in the study. They found that the cohort-based learning community had a positive influence on the key factors of all presences, and the cohort students exhibited higher perceived satisfaction than the non-cohort students. The data provided evidence to suggest those student subjects in the formally-organized online learning cohort program were more satisfied than their peers in the traditional on-campus program. As acknowledge by the researchers, due to the very low sample size, there is a need to extend this study to include a greater sample size and a more diverse population with characteristic differences: i.e., age, background, and courses enrolled.

Abas and Fadzil (2009) and their twenty teams, including the present researcher, conducted a study at OUM to look at the CoI model in detail. Together, they analyzed 137 LMS online discussion forums from twenty courses based on the CoI model. They noticed that some tutors were rarely present online and failed to respond to important postings by their students. They determined presence in quantitative course discussion in courses such as math and science were more frequent at the beginning of the semester, but that interaction dropped gradually toward the end of the semester due to the use of mathematical symbols. Symbols necessary for such classes were not accommodated for in the MyVLE online discussion. This was said to be a main contributor to a low level of presence in regard to course satisfaction, especially from

courses that involved formulas. This shows that MyVLE needs to improve the capabilities to suit the needs of online course discussion, especially in terms of presences and the course organization (Wahab, 2007).

Likewise, Ng, Kaur, Mohamed, Latif and Bahroom (2009) investigated the implementation of a two-week pro-instruction workshop and supplemental instruction at OUM to find its impact on students' online participation and exam results in fully-online (n = 10) and hybrid (n = 12) courses. The contents of the online forum were analyzed using a 34-item instrument derived from the CoI model as conducted by Abas and Fadzil (2009). Results showed a strong correlation between participation presence in discussion and final exam scores compared to the hybrid format. The mean CoI scores obtained for mathematics between the two tutors indicated that there was a difference in the teaching and cognitive presence as found by Abas and Fadzil (2009), but almost similar to the social presence. However, the analysis was based on a short period of time, a small sample size, and focused on only one course, which might provide a lack of evidence to support the finding. This shows that there is a need to explore further, in depth, and based on a longer period of study, focusing on various courses with a greater sample size.

Using the CoI model, Ng (2010) investigated the impact of types of presences on such factors as commitment to stay and engagement among undergraduate online students (n = 1,116; response rate of 72 percent) and how students' satisfaction and participation in the MyVLE affected their choice to stay in their programs. Results showed that tutors, content, peers, staff, commitment to stay, engagement, and motivation had an impact on students' satisfaction at OUM. However, it was uncertain whether those factors could predict course satisfaction directly,

and the study did not focus on specific courses, which could have an effect on the level of satisfaction. This shows another issue that needs further investigation.

Summary

In brief, in-depth analysis on presences and other related variables is needed:

1. The sub-categories of each presence variable, students' work status, hybrid students, type of courses (core or elective) (Garcia et al., 2014; Joo et al., 2011);
2. Students' registration status (Harrison et al., 2014; Shea & Bidjerano, 2008).
3. LMS forum discussion (Denoyelles, 2014; Kim and Zhang, 2010; Zhan & Mei, 2013).
4. Student characteristic differences such as age, background, and types of courses enrolled (Alman et al., 2012; Bulu, 2012; Croxton, 2014; Sorden & Munene, 2013; Wahab, 2007).
5. Modes of learning, instructional strategies, course contents (Zhan & Mei, 2013);
6. Gender differences, online learning experiences, individual characteristics (Bulu, 2012).
7. Students' races, online course format (Ashong & Commander, 2012; Denoyelles, 2014; Cobb, 2011).
8. Different colleges/major, hybrid students with different gender (Bulu, 2012), ethnicity, technologies.
9. Different levels of students (Ashong and Commander, 2012; Cobb, 2011; Spears, 2012).

Based on the aforementioned studies, to date, there is a shortage of and uncertainty reported in the literature regarding how presences in the CoI model and other related factors

occur in a Learning Management System (LMS) online discussion and how those factors relate to course satisfaction (refer to Appendix A for a summary table). Different LMS or online learning media might have different degrees of presences (Gibbons, 2014; Lowenthal, 2012; Smith & Ragan, 2005). Researchers and practitioners alike seem fascinated by the concept of presence. However, like most research on online learning, research on presence and online learning is of mixed quality. Even though initial research suggests that presences are related to student satisfaction, student interaction, and student learning, many questions remain.

CHAPTER 3: METHOD

This chapter details the research procedures and methods that applied in this study, including the research design, sampling strategy, instrumentations, data collection strategies, data analysis, and limitations. This study explored the association among teaching presence, social presence, cognitive presence, and other related factors and their impact on student's course satisfaction with an online course currently taken at institutions of higher education in Malaysia. It attempted to predict the importance of each of these variables with regard to course satisfaction. The following detailed research questions guided the data collection and data analyses for this study:

1. Is there an association between:
    a) Teaching presence and course satisfaction?
    b) Social presence and course satisfaction?
    c) Cognitive presence and course satisfaction?
    d) Other factors *(age, number of online courses completed prior to taking this course,* and *number of online courses just completed)* and course satisfaction?
2. Is there a difference between:
    a) Gender *(male/female)* on course satisfaction?
    b) Registration status *(full time/part time)* on course satisfaction?
    c) Mode of study *(fully online/hybrid)* on course satisfaction?
    d) Required course *(core/elective)* on course satisfaction?
    e) Levels of study *(undergraduate/postgraduate)* on course satisfaction?
3. How well are the combination of the presences *(cognitive presence, social presence or teaching presence)* and other related factors *(age, levels of study, number of online*

courses completed prior to taking this course, number of online courses just completed) statistically significant predictors for course satisfaction?

Research Design

This study utilized a quantitative associational research design with surveys to determine the association between types of presence, other related variables, and students' course satisfaction. A correlational research design was appropriate to describe and explain the relationship among variables and it provides an opportunity for researchers to determine the patterns of two or more variables that could be used to predict scores or an outcome (Creswell, 2005; Field, 2009, 2012). The Community of Inquiry (CoI) model served as part of the conceptual framework (Figure 1) to explain three types of presence scales (Garrison et al., 2000), other related variables and course satisfaction scales (Arbaugh, 2000; Artino, 2008; Gunawardena & Zittle, 1997; Lee et al., 2011; Keeler, 2006) in online learning environments.

Participants, Sampling Design and Site

The target population (theoretical population) embraced all online students in Malaysia. Therefore, the accessible population (sampling frame) for this study included all online students (hybrid and fully online) which were approximately 3,000 students in Open University Malaysia (OUM) from all enrolled courses (Figure 3), excluding online students from nine international learning centers (OUM, 2011) as explained in the delimitations section in chapter one. A convenience sample was utilized for this study with volunteer participants, availability, and ease of access; and is based on specific criteria (Clark, 2010; Creswell, 2005). The gatekeeper was identified, contacted, and invited to provide information about participants for this study.

The criteria for selection of participants included the following characteristics: (a) online students who have just completed at least one hybrid or fully online course from the various courses offered during the January semester for the twelve weeks of study, and included Malaysia Qualification Agency (MQA) courses, university courses, basic courses, core courses, and elective courses; (b) participants were selected after their final examination at the end of the January semester on April 25, 2014. This sample came from forty-eight OUM learning centers nationwide (OUM, 2011) that enrolled online courses for that particular semester.

In order to get as high a number of participants as possible, the participants were selected from all accessible populations (undergraduate and postgraduate) and they had opportunity to participate in a lucky draw. A *lucky draw* in this study means the researcher offered as an incentive a set of Corelle, or Wristlet Coach, or Fossil wristwatch to the winner of a random draw. To be eligible to have the participant's email address entered in the lucky draw, they must have completed the drawing at the end of the web-survey. For maintaining privacy, the participants' personal information was separated and linked to another database in Qualtric web-survey, and retained only for the lucky draw process. There was no way that the researcher could access an individual identity.

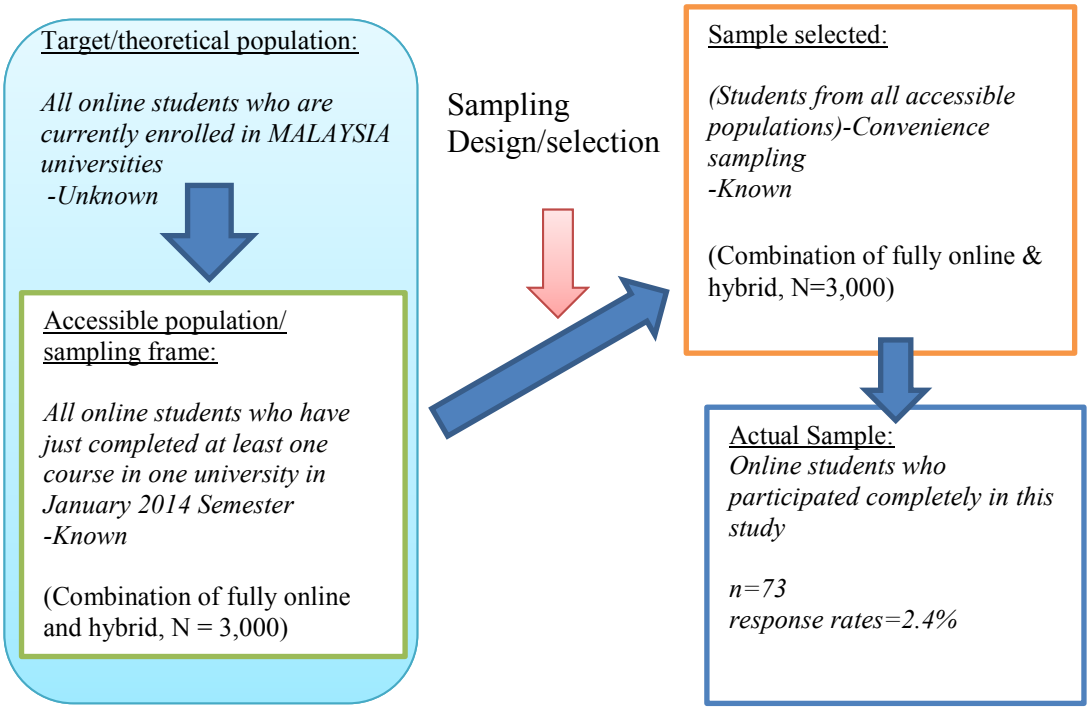

Figure 3. Sampling design.

Instrument

The study used the Community of Inquiry (CoI) survey designed by Garrison et al. (2000), other factors, and course satisfaction scales used by Arbaugh (2000), Artino (2008), Lee et al. (2011), and Keeler (2006) to guide, interpret, and analyze data. The CoI model was established as a practical way to illustrate and understand presences in the online learning environment (Garrison & Cleveland-Innes, 2005). Viewing the forms of presence within this model provides a good illustration of the different types of presence and how they work together to provide the educational experience (Swan, 2001). The CoI survey has been used extensively in the research and practice of online and blended learning contexts, it has been revised more than thirteen times, and it has been found to be a reliable and validated measure (Arbaugh, 2008b; Garrison et al., 2010b). In fact, the internal consistency reliability of the instrument was found

consistent in a pilot study conducted at the end of the spring semester in 2013 via a *Qualtrics* Web-based survey. Instead of the original four-point response scale used in the instrument, the five-point scale was applied with a broader range of responses for the purpose of increasing reliability (Cox, 1980; Preston & Colman, 2000).

The first construct in the CoI model is 'Teaching Presence', defined as the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes. There are originally thirteen items with three sub-constructs measuring student-instructors presence: (1) Design & Organization, (2) Facilitation, and (3) Direct Instruction. Therefore, the researcher noticed that item number 12 (i.e., *The instructor provided feedback that helped me understand my strengths and weaknesses*) has a 'double barrel', that is measuring two different things at the same time, which might confuse the respondents (Harkness, 2008). The researcher then split it into two individual items, which contributes a total of fourteen items measuring the construct of teaching presence.

The second construct is 'Social Presence', defined as the ability of learners to project their personal characteristics into the community of inquiry and consists of nine items with three sub-constructs: (1) Affective Expression, (2) Open Communication, and (3) Group Cohesion. The third construct is 'Cognitive Presence', defined as the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through contents. There are twelve items with four sub-constructs measuring student presence with the content: (1) Triggering Event, (2) Exploration, (3) Integration, and (4) Resolution (Figure 4). The fourth dimension, student-interface, is the technology that enables the presences to take place and serves as the backdrop for the educational experience. In this case, the student-interface is an

online discussion component embedded in the 'MyVLE' (Learning Management System used in the course) and the word of 'Instructor' is changed to 'Tutor' to suit this study.

In addition, other possible related factors/variables suggested in the literature that could have an influence on course satisfaction such as gender (Bulu, 2012; Cobb, 2011), age (Alman, Frey, & Tomer, 2012; Bulu, 2012; Wahab, 2007), number of courses previously enrolled in and just completed (Bulu, 2012; Cobb, 2011), registration status *(full time and part time)* (Joo et al., 2011; Shea & Bidjerano, 2008), mode of study *(fully online* and *hybrid)* (Zhan & Mei, 2013), course requirements (Joo et al., 2011), and levels of study (*undergraduate* and *postgraduate)* (Cobb, 2011; Spears, 2012) consisting of one item for each of these were added into the instrument. The student online course satisfaction consists of five items that were adapted and revised from Arbaugh (2000), Artino (2008), Lee et al., (2011), and Keeler (2006) to suit this study as well. The diagram identified in Figure 4 and the instrument in Appendix B depicts the three elements of presence and their interrelatedness that provides the context for understanding presence in the online educational environment. The instrument was used in English language format as corresponding to Open University Malaysia's (OUM) medium of instruction and official communication.

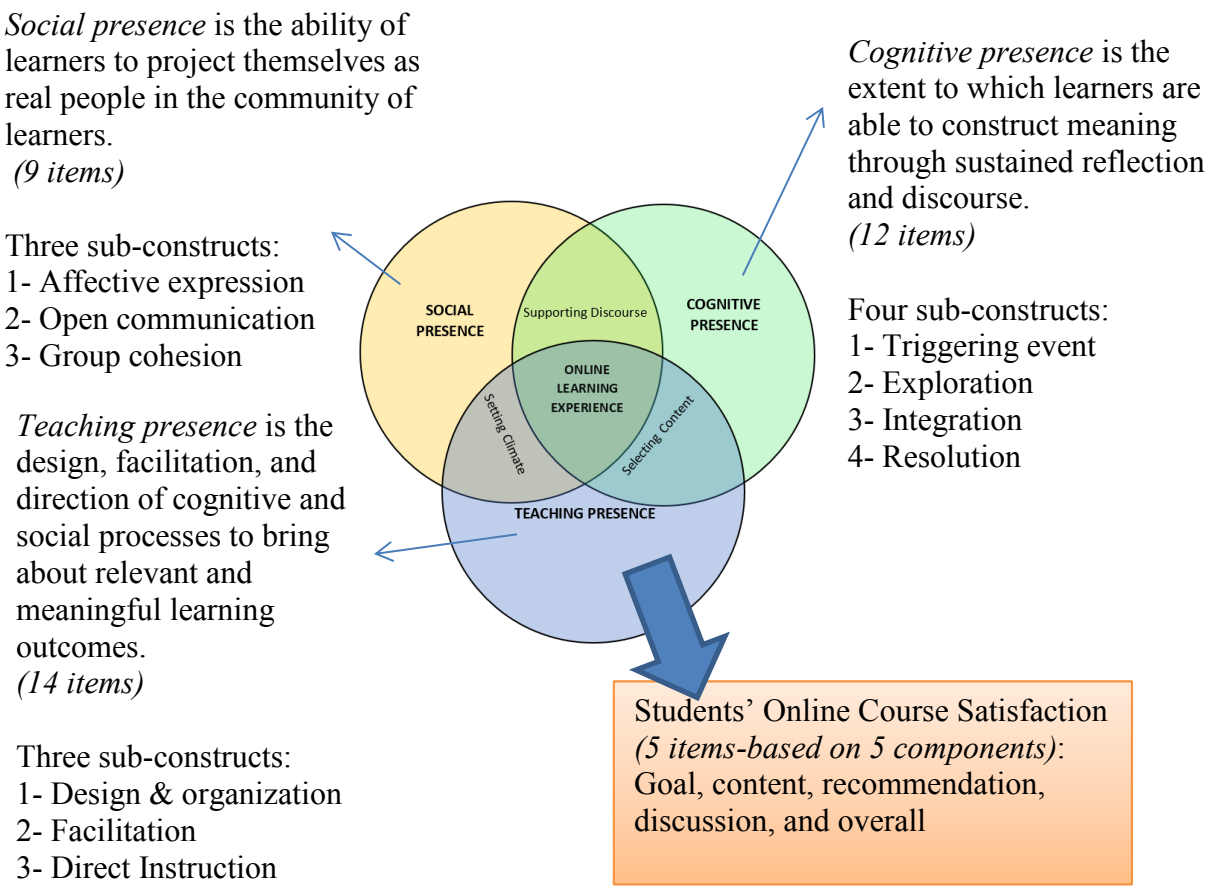

Figure 4. Elements of presences, interrelatedness and students' course satisfaction. Adapted from "Critical Inquiry In A Text-Based Environment: Computer Conferencing In Higher Education," by D. R. Garrison, T. Anderson, and W. Archer, 2000, *Internet and Higher Education, 2*(2–3), p. 88.

Validity

The Community of Inquiry (CoI) Survey has established validity through repeated testing of the instrument (Arbaugh, 2008a, 2008b; Bangert, 2009; Swan et al., 2008; Garrison et al., 2010a, 2010b). Arbaugh (2008a, 2008b), in a large-scale study of online business courses using a version of the CoI Survey, provided strong empirical support for the CoI framework. The same study concluded that the CoI survey was a validated measure. In addition, Shea and Bidjerano (2009) found that the items of the CoI instrument cohere into interpretable constructs congruent with the CoI presences. They found 63 percent of the variance was explained by the three factors while measuring online student presences. The validity of course satisfaction scale was

accomplished by Arbaugh (2000), Artino (2008), Gunawardena and Zittle (1997), Lee et al. (2011), and Keeler (2006). Exploratory Factors Analysis (EFA) for course satisfaction items were examined and they were found highly loaded (between .62 and .75) by Arbaugh (2000). In addition to this, several Confirmatory Factor Analysis (CFA) were conducted to collect validity evidence (convergent and discriminant validity) of the items associated with the course satisfaction (Artino, 2008). Thus, these evidences suggest that all items measured exactly what they were supposed to measure.

Reliability

In a test of the survey instrument, Swan et al. (2008) found that the Community of Inquiry (CoI) items had a Cronbach's alpha of 0.94 for teaching presence, 0.91 for social presence, and 0.95 for cognitive presence. This was indicative of high correlations leading to internal consistencies with online students (n = 287) from a test conducted across four institutions in the summer of 2007. The CoI items were determined to provide a reliable measure that operationalizes the concepts (Arbaugh, 2008a, 2008b; Garrison et al., 2010a, 2010b; Swan et al., 2008). Garrison et al. (2010b) indicated that Cronbach's alpha of 0.93 for teaching presence, 0.91 for social presence, and 0.87 for cognitive presence indicated high internal consistencies. In addition, Cronbach's alphas were 0.88, 0.85, and 0.94 for course satisfaction reported by Gosh (2011), Keeler (2006), and Lee et al., (2011) respectively, among online learners in higher institutions. As mentioned earlier, a five-point response scale was added to the original instrument to increase reliability (Cox, 1980; Preston & Colman, 2000) and the pilot study confirmed that the CoI instrument and the course satisfaction items were reliable.

Variables

The following tables are independent, dependent, and demographic variables that were involved in this study. Table 5 is the independent (predictors) variables and its sub-constructs, types of data and score range, and items on the survey instrument that applied in this study.

Table 5

Independent (Predictor) Variables, Types of Data, Score Range, and Items on the Survey Instrument

Independent (Predictor) Variables	Type of Data and Score Range	Items on Survey
Teaching Presence • Design & Organization • Facilitation • Direct Instruction	Interval Score range 14–70	14 Items *(Items 1-14)* *(1 "Strongly disagree" to 5 "Strongly agree")*
Social Presence • Affective Expression • Open Communication • Group Cohesion	Interval Score range 9–45	9 Items *(Items 15-23)* *(1 "Strongly disagree" to 5 "Strongly agree")*
Cognitive Presence • Triggering Event • Exploration • Integration • Resolution	Interval Score range 12–60	12 Items *(Items 24-35)* *(1 "Strongly disagree" to 5 "Strongly agree")*

Table 6 is the other related (predictors) variables, types of data, and level and coding that applied in this study.

Table 6

Other Independent (Predictor) Variables, Types of Data, Levels and Coding

Other Related (Predictors) Variables	Type of Data	Level/Coding
Age	Interval	Years
Gender	Dichotomous	*0= Male* *1=Female*
Registration Status	Dichotomous	*0=Full time* *1=Part Time*
Mode of Study	Dichotomous	*0=Fully online* *1=Hybrid*
Levels of Study	Dichotomous	*0=Undergraduate,* *1=Postgraduate*
Required Course	Dichotomous	*0=Yes (Core)* *1=No (Elective)*
Number of online courses completed prior to taking this course	Interval Score range 1-12	1 Item *(0 "None" to 11 "11 and above")*
Number of online courses just completed	Interval Score range 1-7	1 Item *(0 "None" to 6 "6 and above")*

Table 7 is the dependent (criterions) variables and its sub-components, types of data and score range, and items on the survey instrument that applied in this study.

Table 7

Dependent (Criterion) Variable, Types of Data, Score Range, and Items on the Survey Instrument

Dependent (Criterion) Variable	Type of Data and Score Range	Items on Survey
Overall Course satisfaction (Components: *goals, recommendation, content, discussion, and overall satisfaction*)	Interval Score range 5–30	5 Items *(Items 36-40)* *(1 "Very satisfied" to 6 "Very dissatisfied")*

Table 8 is the demographic (Dependent/Criterion) variables, types of data, and coding that applied in this study.

Table 8

Demographic Variables, Types of Data, and Coding

Dependent/Criterion Variables	Type of Data	Coding
Learning Center	Nominal	*Learning Centers (1-34)*
Course under Faculty	Nominal	*1=Education And Language,* *2=Applied Social Sciences,* *3=Business Management,* *4=IT & Multimedia Communication,* *5=Science & Technology,* *6=Nursing & Health Science* *7=Others*
Ethnicity/Race	Nominal	4 Categories *(1=Malay, 2=Chinese,* *3=India, 4=Others)*
Expected Grade	Ordinal	*1=A* *2=A-* *3=B+* *4=B* *5=B-* *6=C+* *7=C* *8=C-* *9=D+* *10=D* *11=F*

Approval Procedure

The Institutional Review Board (IRB) of Colorado State University declared this study exempted from the requirements of the human subject protections regulations. The permission to use and/or to revise the instruments in this study has already been granted by the original authors of the Community of Inquiry (CoI). In Malaysia, permission was received from Open University Malaysia (OUM), by an official letter via email, dated October 22, 2013. The letter sent to the

Senior Vice President OUM, provided a general overview of the research proposal and requested students' email addresses (OUM and personal emails) for the target semester of January 2014.

Data Collection: A Web Survey

A *Qualtric* web survey service provider was employed as a method of data collection to distribute to every online and hybrid Malaysian student. The web survey was chosen for the following reasons: (a) due to geographical constraints, e-mail is more practical and economical to reach a large population of participants (Evans & Mathur, 2005; Shih & Fan, 2008); (b) Graphic User Interface (GUI) in the web survey provides the option of skipping or linking items to other items; and (c) participants are online students.

With the Open University Malaysia's (OUM) permission, the researcher communicated with the person-in-charge of the Quality Management, Research and Innovation Center (QRIC) to get both email addresses (OUM and personal email) of all Malaysian students who had just completed at least one course in the January semester of 2014 from the university's forty-eight learning centers as approved in the proposal. Those who had just completed any courses in that semester were automatically eligible to participate in this study. Nevertheless, due to confidentiality of students' emails, QRIC decided to distribute the survey by themselves instead of the researcher, and thereby acted as a gatekeeper.

The gatekeeper distributed a cover letter (Appendix C) with the *Qualtric* link to both email addresses to all students after their final examination, on April 25, 2014. This was thought to be a good time when most students would be available and would increase the response rate as well, as noted by Nulty (2008). As experienced by the researcher, some of the students might not check OUM email regularly, so this was why both email addresses were used. Expecting that the data collection would be a lengthy process, as noted by Manfreda and Vehovar (2008), two

reminders were sent via both students' email weekly after the first invitation email (May 2, 2014 and May 9, 2014). The survey was accessible online for the four weeks after the final exam and opened for another four more weeks, which meant the data collection period was a total of eight weeks. The scores from the *Qualtric* were imported into IBM SPSS version 21 for further analysis.

A Web Survey Response Rate

After a third reminder to the approximately 3,000 students from learning centers in Malaysia, 95 students participated in the study. Conversely, two were identified as extreme outliers and twenty students who gave partial responses were excluded from this study. The reason for exclusion from the analysis was that it "would not have enough of any given response to form a reasonable size group for analysis" which affected the statistical calculation (Field, 2009; Morgan, Leech, Gloeckner, & Barrett, 2011, p. 20). Therefore, the completed survey yielded (n = 73) a 2.4% response rate, which is within the acceptable range for a web survey, depending on the actual size of the target population. Theoretically, the greater the sample size, the smaller the response rate will be (Hamilton, 2009; Ho et al., 2013; Nulty, 2008).

Numerous researchers (Ho et al., 2013; Nulty, 2008; Shih & Fan, 2008) acknowledged that a web-based survey has its own weaknesses that can be anticipated; low response rate being the major issue. In a meta-analysis, Shih and Fan (2008) concluded from an examination of data gathered from 35 surveys within the last ten years of comparing studies that response rates are relatively weak; the lowest was 5% and the highest was 85%. The rate depended on the population categories: college, professionals, employees, and general population. For greater college populations, an e-mail survey is reasonably comparable with mail surveys (Nulty, 2008; Shih & Fan, 2008).

Ho et al. (2013) applied a web survey in their study on biomedical academics from 65 universities worldwide during the period of March to August 2010. Their lowest response rate was 2.9%, which was the sample derived from Asia (North/East). Other countries had response rates less than 9.4% (e.g. Central/Middle East Asia, Africa, South America, Europe, Australia, New Zealand, and North America). In addition, Nulty (2008) guided other researchers who study students in higher education with acceptable required response rates by size of the sample in liberal conditions as simplified in Table 9. Generally, the higher the sample, the lower the response rates. These can still be sufficient as long as they are still within the acceptable range (Hamilton, 2009; Nulty, 2008). According to this table, the response rate acquired in the current study of 2.4% was still comparable and acceptable.

Table 9

An Acceptable Required Response Rates by Size of the Sample

Total no. of students enrolled in course	Required no. of participants	Required response rate (%)
10	7	75
20	12	58
30	14	48
40	16	40
50	17	35
60	18	31
70	19	28
80	20	25
90	21	23
100	21	21
150	23	15
200	23	12
250	24	10
300	24	8
500	25	5
750	25	3
1,000	26	3
2,000	26	1

Note. Adapted from "The adequacy of response rates to online and paper surveys: what can be done?" by D. D. Nulty, 2008, *Assessment & Evaluation in Higher Education, 33*(3), p. 310. doi: 10.1080/02602930701293231

There are many factors that contribute to low response rates on a web survey. For instance: (1) spam/junk e-mails, which may cause many potential respondents to ignore legitimate e-mail surveys and which are beyond the researcher's control (Evans & Mathur, 2005; Shih & Fan, 2008); (2) lack of internet coverage/penetration and expertise; and (3) cultural issues/laggard etc. In contrast, those factors can be reduced by: (1) having more instances of contact, more personalized contact, and the use of pre-contacts; and (2) token/incentive. It is also important to create e-mail solicitations distinguishable from spam e-mails, since e-mail solicitations might be blocked by spam filters (Pan, 2010). In this study, the researcher did not have the email addresses of the students; there was no way to contact the participants before the data collection began.

Nonetheless, several steps and precautions were taken to increase the response rates, for instance: (a) the online students were selected from all courses across various faculties and levels of studies including diploma, bachelor, master, and Ph.D., and from forty-eight learning centers nationwide; (b) an incentive was offered to online students who participated in the study; (c) two email addresses (university and personal email) were used to invite online students to participate in the study, just in case they did not log-in to MyVLE and check their official email from the university; and (d) the invitation was sent right after students' final examination. Normally, students are free from other course workload at that time.

The main purpose of using a web survey is that it is capable of being distributed to as large a sample as possible, which is impossible to do by any other types of data collection (Evans & Mathur, 2005; Pan, 2010; Shih & Fan, 2008). However, e-mail survey is still a practical method of collecting data for researchers who study a large sample of respondents, are limited in paying survey costs, have a short period of time, etc. (Pan, 2010; Shih & Fan, 2008). From this

analysis, this researcher feels that the 2.4% response rate is a fair representation of the population and is acceptable to draw the conclusions below.

Data Analysis Plan

An Exploratory Data Analysis (EDA) was performed to clean the data (e.g., errors and missing values) before analyzing any inferential statistics. Descriptive analysis was performed because it is appropriate to show approximately normal interval data and other points of interest (Field, 2009, 2012; Morgan et al., 2011). The data was analyzed using IBM SPSS version 21. The data was managed and organized appropriately for analysis to answer the study research questions as represented in each table below according to its research questions.

Research Question 1: Is there an association between:

a) Teaching presence and course satisfaction?

b) Social presence and course satisfaction?

c) Cognitive presence and course satisfaction?

d) Other factors *(age, number of online courses completed prior to taking this course, and number of online courses just completed)* and course satisfaction?

The statistical approach to test for each part of research question one are represented in Table 10 according to its types of variables.

Table 10

Research Questions (1a, 1b, 1c, and 1d) and Type of Statistical Approach for Statistical Test

Research Questions	Variables	Statistical Test
RQ1a	Teaching presence composite score (Interval) Course satisfaction composite score (Interval)	Correlation *(Pearson Correlation)*
RQ1b	Social presence composite score (Interval) Course satisfaction composite score (Interval)	Correlation *(Pearson Correlation)*
RQ1c	Cognitive presence composite score (Interval) Course satisfaction composite score (Interval)	Correlation *(Pearson Correlation)*
RQ1d	Other factors	
	Age (Interval) Number of online courses completed prior to taking this course (Interval) Number of online courses just completed (Interval) Course satisfaction composite score (Interval)	Correlation *(Pearson Correlation)*

Research Question 2: Is there a difference between:

a) Gender *(male/female)* on course satisfaction?

b) Registration status *(full time/part time)* on course satisfaction?

c) Mode of study *(fully online/hybrid)* on course satisfaction?

d) Required course *(core/elective)* on course satisfaction?

e) Levels of study *(undergraduate/postgraduate)* on course satisfaction?

The statistical approach to test each part of research question two are represented in Table 11 according to its types of variables.

Table 11

Research Questions (2a, 2b, 2c, 2d, and 2e) and Type of Statistical Approach for Statistical Test

Research Questions	Variables	Statistical Test
RQ2a	IV = Gender *(male/female)* (Dichotomous) DV = Course satisfaction composite score (Interval)	Independent sample t test
RQ2b	IV = Registration status *(full time/part time)* (Dichotomous) DV = Course satisfaction composite score (Interval)	Independent sample t test
RQ2c	IV = Mode of study *(fully online/hybrid)* (Dichotomous) DV = Course satisfaction composite score (Interval)	Independent sample t test
RQ2d	IV = Required course *(core/elective)* (Dichotomous) DV = Course satisfaction composite score (Interval)	Independent sample t test
RQ2e	IV = Levels of study *(undergraduate/postgraduate)* (Dichotomous) DV = Course satisfaction composite score (Interval)	Independent sample t test

Research Question 3: How well are the combination of the presences *(cognitive presence, social presence or teaching presence)* and other related factors *(age, levels of study, number of online courses completed prior to taking this course, number of online courses just completed)* statistically significant predictors for course satisfaction?

The statistical approaches to test for each part of research question three are represented in Table 12 according to its types of variables. Multiple Regression *(Hierarchical method)* was appropriated and applied here because previous studies already acknowledged which independent variables that predict dependent variable (Field, 2009; Morgan et al., 2011)

Table 12

Research Question 3 and Type of Statistical Approach for Statistical Test

Research Questions	Variables	Statistical Test
RQ4	Step 1 IV4 = Age (Interval) IV5 = Levels of study (*undergraduate/postgraduate)* (Dichotomous) IV6 = Number of online courses completed prior to taking this course (Interval) IV7 = Number of online courses just completed (Interval) DV = Course satisfaction composite score (Interval)	Multicollinearity *(e.g. Tolenrance, Variance Inflation Factor, & Leverage Value)* Multiple Regression *(Hierarchical method)*
	Step 2 IV1 = Teaching presence composite score (Interval) IV2 = Social presence composite score (Interval) IV3 = Cognitive presence composite score (Interval) DV = Course satisfaction composite score (Interval)	

In addition, one open-ended question was designed (e.g., *What would motivate you to participate more in the online discussion in the MyLVE?*) to "allow students to create their own options for responding….without being forced into response possibilities" (Clark, & Cresswell, 2010, p. 257) as part of questionnaire. The aim of this question was "to explore reasons for the close-ended responses and identify people might have that are beyond the responses to close-ended questions" (Clark & Cresswell, 2010, p. 257). This open-ended question was analyzed using a keyword in context (KWIC) and classical content analysis technique based on the Community of Inquiry (CoI) predefined categories (Table 13), and which was performed using Nvivo (version 10) and Microsoft Word (version 13). This finding from this open-ended survey was used to compare the consistency from quantitative and qualitative self-report data; similar to concurrent mixed method for teaching, social, and cognitive presence. This additional concurrent analysis in this study is one of the strategies that can increase the credibility of findings.

Table 13

Keyword in context (KWIC) and classical content analysis technique based on CoI predefined categories use to analyze Open-ended question

The CoI Predefined Categories	Codes	Count/Data Chunks
Teaching Presence		
• Design & Organization	T_Design	
• Facilitation	T_Facilitation	
• Direct Instruction	T_Instruction	
Social Presence		
• Affective Expression	S_Expression	
• Open Communication	S_Communication	
• Group Cohesion	S_Group	
Cognitive Presence		
• Triggering Event	C_Triggering	
• Exploration	C_Exploration	
• Integration	C_Intergration	
• Resolution	C_Resolution	

CHAPTER 4: ANALYSIS AND FINDINGS

This chapter presents the data analysis and findings of the survey. The findings comprise response rate, an Exploratory Data Analysis (EDA) and descriptive discoveries, an SPPSS (version 12) analysis of the data according to each qualitative research question, qualitative analysis of the open-ended items, and a summary of the results. To refresh, the objective of this study is to investigate the association among teaching presence, social presence, cognitive presence, and other related factors and their impact on students' course satisfaction with an online course that they had just completed at institutions of higher education in Malaysia. Additionally, this study attempted to predict the importance of each of these variables with regard to course satisfaction as well.

Descriptive Analysis

The raw data from Qualtrics was exported to SPSS version 21. The data was checked, coded, recoded, and cleaned comprehensively using the Exploratory Data Analysis (EDA) technique, a technique that helps quantitative researchers to understand their data and identify errors or outliers that exist and how to fix those issues (Morgan et al., 2011). EDA was performed by computing various statistical analyses and meeting assumptions before analyzing any descriptive and inferential statistics. Then the descriptive analysis was conducted to describe the profile of student demographics, explained in the following section.

The Profile of Students' Demographics

The online students who contributed to the findings of this study were predominantly female (62%). Fifty one (70%) online students reported the course in which they enrolled is required for their major and twenty two (30%) said it was not. Nearly all of them were part-time students (96%) and used a hybrid mode of study (89%). The number of undergraduate and

postgraduate online students were closely equivalent (47% and 53%, respectively). As fewer students were from diploma and other levels of study, they were combined with the bachelor level and recorded as undergraduate for easy analysis and interpretation. The profile of the students' demographics (Dichotomous Variables) is presented in Table 14.

Table 14

Demographics Variables (Dichotomous Variables) Frequencies and Percentages (n = 73)

Demographics Variables *(Dichotomous Variables)*		n	%
Gender	Male	28	38
	Female	45	62
Required Course	Yes (Major/Core)	51	70
	No (Elective)	22	30
Registration Status	Full Time	3	4
	Part Time	70	96
Mode of Study	Fully online	8	11
	Hybrid (Blended)	65	89
Levels of Study	Postgraduate	39	53
	Undergraduate	34	47

Ethnicity demographics showed that the highest percentages were Malay (42%) and Chinese (32%), as shown in the Pie Chart (Figure 5).

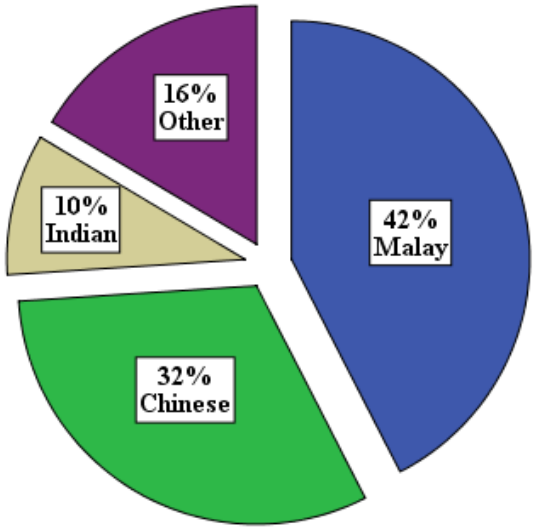

Figure 5. Pie chart of ethnicity percentages (n = 73).

The age distribution of participating online students was between 22 and 69. The ranges were recoded for easy analysis and interpretation. The bar chart (Figure 6) shows most participants (44%) were between 30 and 39, followed by the 40 to 49 age range (19%).

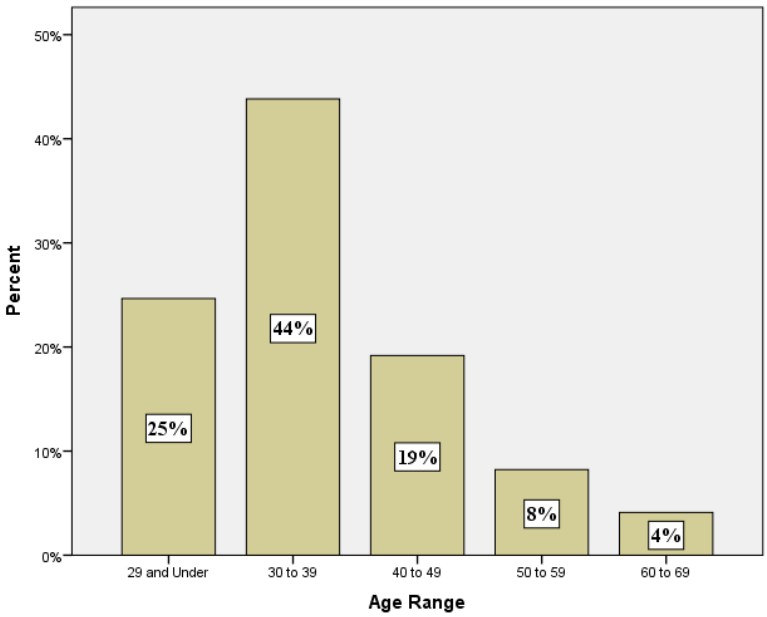

Figure 6. The bar chart of age percentages (n = 73)

Most of the online students in this study came from two faculties (schools or colleges): Business Management (58%), and Education and Language (25%) (Table 15). Unexpectedly, the faculty of science and technology and faculty of nursing and health science were represented by only one student each.

Table 15

Faculty Frequencies and Percentages (n = 73)

Faculty	n	%
Education & Language	18	25
Applied Social Sciences	8	11
Business Management	42	58
Science & Technology	1	1
Nursing & Health Science	1	1
Others	3	4

In terms of describing number of courses completed prior to taking this course (the focus in this study), the number of courses reported was between zero and eleven, and were recoded for easy analysis and interpretation. The bar chart (Figure 7) shows that nineteen students had completed eleven or more courses (26%). Twelve students said they had not completed any online course prior to taking this course (16%).

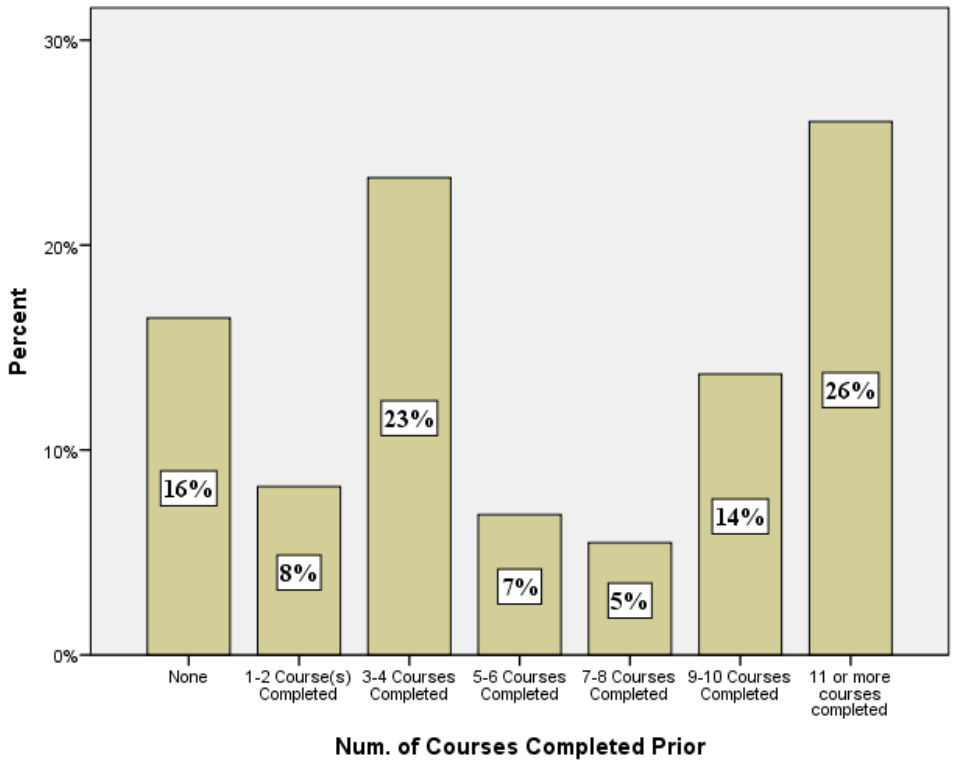

Figure 7. The bar chart of number of courses completed prior to enrolling in this course percentages (n = 73).

The data for number of courses just completed ranged between zero and six, and were recoded for easy analysis and interpretation. The bar chart (Figure 8) shows the majority of students (40%) had just completed three courses as of the January 2014 semester, except for three students who did not complete the course at all (4%).

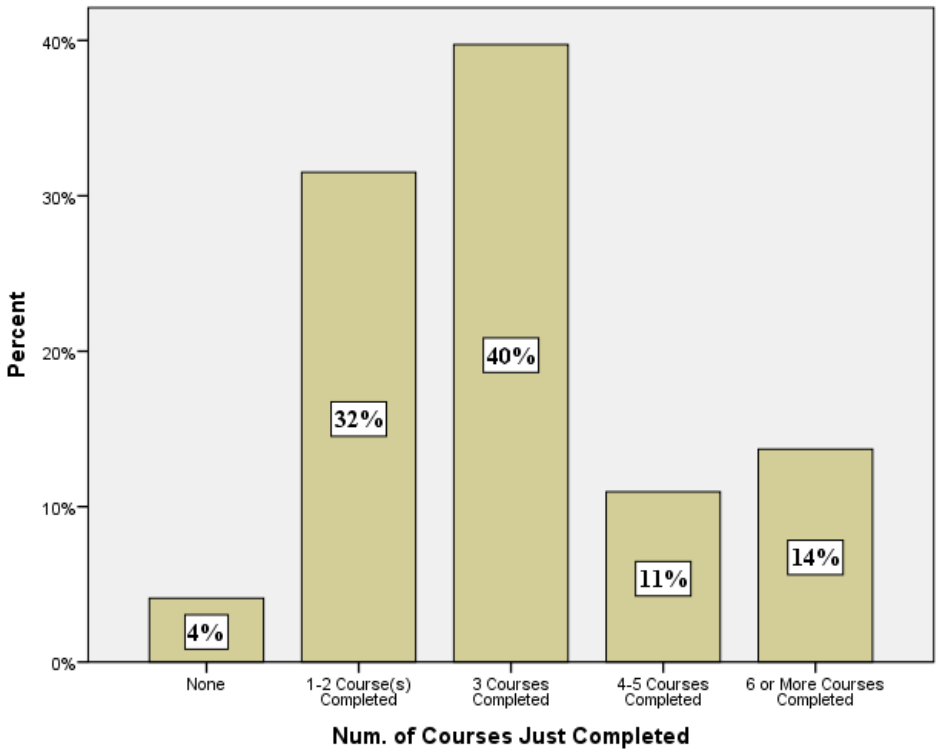

Figure 8. The bar chart for number of courses just completed in January 2014 Percentages (n = 73).

In describing expected course achievement, thirty had expected an A grade in this course (41%). Astonishingly, three students anticipated lower grades, for instance B- (1%), and D+ (1%) as shown in the bar chart (Figure 9).

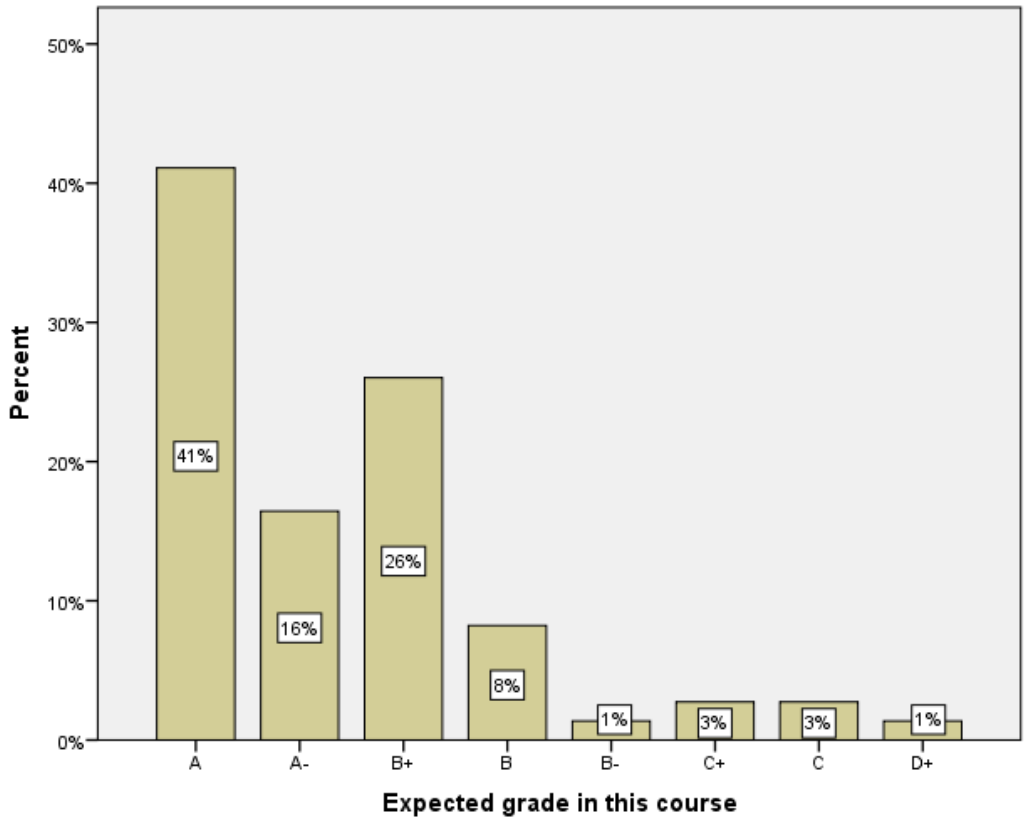

Figure 9. The bar chart for expected grade percentages (n = 73)**.**

Overall, the distribution of online students who participated in this study varied across learning centers in Malaysia; the main campus at Kuala Lumpur (the capital city) had the highest numbers (26.0%) when compared to the other campuses (Table 16).

Descriptive analysis revealed that number of courses completed prior to enrolling in this course, number of courses just completed in the current semester, and the levels of study, were distributed approximately as a normal curve (skewness ranged between -.01 to .78) (Morgan et al., 2011). Age was slightly skewed more than 1.0, as noted in Morgan et al. (2011), however, since the other IVs and the DV were not, then it is acceptable to use the Pearson's on age for consistency (G. Morgan, personal communication, September 25, 2014) in data analysis.

Table 16

Learning Center Frequencies and Percentages (n = 73)

Learning Center	n	%
Kuala Lumpur (Main Campus)	19	26.0
Selangor (Petaling Jaya)	7	9.6
Perak (Greenhill)	5	6.8
Melaka (Bukit Baru)	5	6.8
Sabah (Kota Kinabalu)	4	5.5
Other Campus	4	5.5
N. Sembilan (Seremban)	3	4.1
Sarawak (Sibu)	3	4.1
P.Pinang (Pusat Bandar Seberang Jaya)	2	2.7
Kuala Lumpur (Sri Rampai)	2	2.7
Selangor (Bangi)	2	2.7
Johor (Batu Pahat)	2	2.7
Kelantan (Kota Bharu)	2	2.7
Terengganu (Kuala Terengganu)	2	2.7
Sabah (Tawau)	2	2.7
Sarawak (Miri)	2	2.7
Kedah (Sungai Petani)	1	1.4
P.Pinang (SEAMEO–RECSAM)	1	1.4
Selangor (Shah Alam)	1	1.4
Johor (Johor Bahru)	1	1.4
Pahang (Kuantan)	1	1.4
Sabah (Keningau)	1	1.4
Sarawak (Kuching)	1	1.4

Summated or composite scales for teaching presence, social presence, cognitive presence, and course satisfaction were computed. All scales, dichotomous, and summated variables that applied to the inferential statistics according to each related research question were summarized in Table 17. In addition, the Boxplot in Figure 10 shows the normality distribution of four main variables even though there are several outliers due to their skewness less than 1.

Table 17

Summary of Scales, Dichotomous, and Summated Variables, Mean, Standard Deviation, Percentages and Skewness (n = 73).

Variables	M	SD	Min.	Max.	N	%	Skewness
Age (IV)	37.03	*9.95*	22	69	73	100	1.20
Levels of Study (IV)	.53	*.50*	0	1	73	100	-.14
Number of courses completed prior to enrolling in this course (IV)	5.79	*4.24*	0	11	73	100	-.01
Number of courses just completed (IV)	2.99	*1.61*	0	6	73	100	.45
Teaching Presence (IV)	3.63	.86	1	5	73	100	-.78
Social Presence (IV)	3.74	.51	2	4.78	73	100	-.56
Cognitive Presence (IV)	3.83	.56	2.17	5	73	100	-.54
Course Satisfaction (DV)	4.60	.96	2	6	73	100	-.84

Note: IV=Independent variables applied for related research questions.
DV=Dependent variable

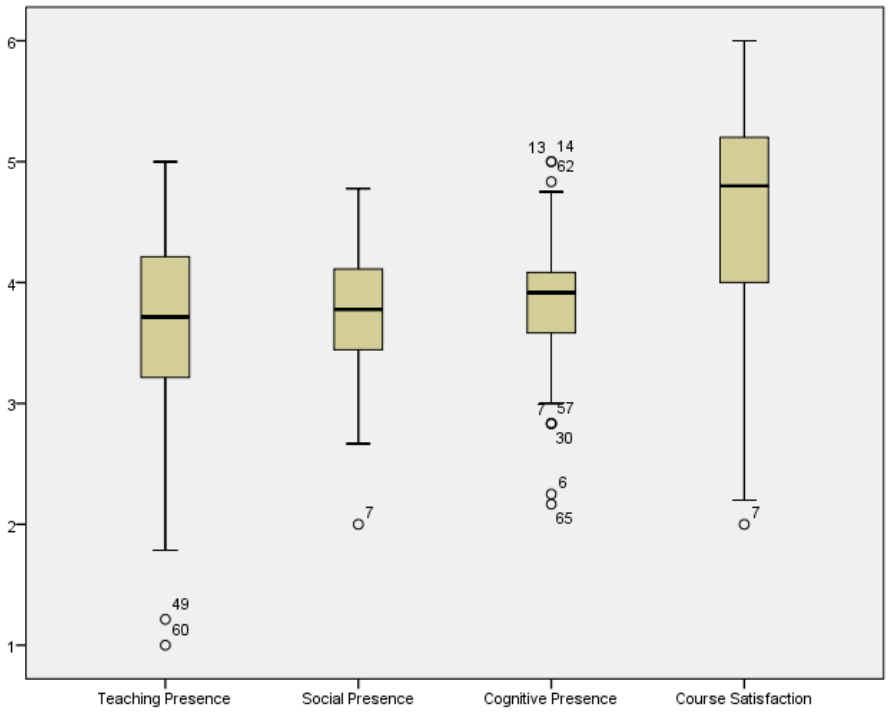

Figure 10. Boxplot for teaching presence, social presence, cognitive presence, and course satisfaction scales *(n = 73).*

Instrument Reliability

Although the instrument has been found reliable and valid in previous studies, the reliability was re-estimated in this study by computing Cronbach's Alpha (α) to report the internal consistency. The values of Cronbach's Alpha (α) ranged from .86 to .97. The highest alpha value is the Teaching Presence scale with .97, while the lowest one is the Social Presence scale with .86. Generally, the reliability for the forty items of CoI instrument in this study was .97, which is above .70 and reliable (Gliner et al., 2009; Yang & Green, 2011). Table 18 shows that the values of Cronbach's Alpha with five-point scales for each of the variables.

Table 18

The reliability for teaching presence, social presence, cognitive presence, and course satisfaction scale

Variables (Scale)	Number of Items	Cronbach's Alpha (α)
Teaching Presence	14	.97
Social Presence	9	.86
Cognitive Presence	12	.93
Course Satisfaction	5	.93
Overall/Total	40	.97

In addition, Table 19 shows the reliability for the Teaching Presence Sub-Scale. Design and Organization, Facilitation, and Direct Instruction ranged from .90 to .95. The highest alpha value is the Facilitation scale with .95, while the lowest one is Direct Instruction with .90.

Table 19

The Reliability for Teaching Presence Sub-Scale

Teaching Presence Sub-Scale	Number of Items	Cronbach's Alpha (α)
Design and Organization	4	.93
Facilitation	6	.95
Direct Instruction	4	.90
Overall/Total	14	.97

Table 20 shows the reliability for the *Social Presence* Sub-Scale. Design and Affective Expression, Open Communication, and Group Cohesion ranged from .60 to .82. Open Communication and Group Cohesion had the highest alpha value with over .80, while the lowest was Affective Expression with .60, however it was only three items. Overall Cronbach's Alpha is beyond .70, which indicates high reliability for Social Presence.

Table 20

The Reliability for Social Presence Sub-Scale

Social Presence Sub-Scale	Number of Items	Cronbach's Alpha (α)
Affective Expression	3	.60
Open Communication	3	.82
Group Cohesion	3	.80
Overall/Total	9	.86

Table 21 shows the reliability for the Cognitive Presence Sub-Scale. Triggering Event, Exploration, Integration, and Resolution ranged from .71 to .91. The highest alpha value was Integration with .91, while the lowest was Exploration with .71.

Table 21

The reliability for Cognitive Presence Sub-Scale

Cognitive Presence Sub-Scale	Number of Items	Cronbach's Alpha (α)
Triggering Event	3	.87
Exploration	3	.71
Integration	3	.91
Resolution	3	.82
Overall/Total	12	.93

Instrument Validity

Since one original item was split into two (item 12 and item 13) on the Community of Inquiry (CoI) instrument, Exploratory Factor Analysis (EFA) was conducted to further examine

the structure and validity of the CoI items applied in this study. Consequently, *principal axis factor analysis* with *varimax rotation* was executed for easy interpretation (Morgan et al., 2011) to assess the underlying structure for the 35 items. Three factors were entreated, established on the fact that the items were intended to index three constructs: teaching presence, social presence, and cognitive presence. After rotation, the first, the second, and the third factor accounted for 29.29%, 15.56%, and 14.89% of the variance, respectively. The value of a Kaiser-Meyer-Olkin measure of sampling sufficiency was .86, which means that there was correlation among items and indicated sufficient items for each factor. Additionally, the commonalities for all items were relatively high, between .60 and .93, which indicates that the reliability of the loading factor was strong. Table 22 summarizes the items and three factor loadings for the rotated factors, with loadings less than .40 omitted to improve clarity.

As can be seen from Table 22, the first factor, which appears to index teaching presence, had strong loadings (between .85 and .70) on the fourteen items. Only two of the items indexed low teaching presence (.41 and .40). The second factor, which appeared to index cognitive presence, had high loading (between .71 and .54) on the next eleven items. Item numbers 25, 35, and 26 had the highest loading but had a cross-loading over .40 on the social presence factor. Item number 32 had a cross-loading on the teaching presence factor. In addition to that, item number 30 had the second highest loading, but had cross loading on the teaching presence and social presence factors. Only item number 29 was loaded to the third factor. The third factor, which appeared to index social presence, loaded highly (between .74 and .42) on the last ten items in the table.

Table 22

Factor loadings for the Rotated Factors

Number and Scale Items	Factor Loadings			Communality
	1	2	3	
8) Facilitated to learn	.85			.91
3) Clear instructions	.85			.90
7) Keep me engaged and participating	.84			.90
9) Encouraged to explore new concepts	.83			.89
6) Helpful toward understanding	.82			.87
11) Help to focus on relevant issues	.81			.84
10) Reinforced the development among students	.81			.80
2) Clear important course goals	.80			.93
1) Clear important course topics	.79			.91
12) Provided feedback; strengths	.79			.91
4) Clear important due dates	.79			.82
14) Provided feedback in a timely fashion	.78			.89
5) Helpful in identifying area of agreement/disagreement	.76			.82
13) Provided feedback; weaknesses	.70			.90
27) I utilized a variety of information sources		.71		.78
34) I have developed solutions to course problems		.69		.78
25) Course activities piqued my curiosity		.67	.42	.87
33) I can describe ways to apply knowledge		.65		.76
24) Problems posted increased my interest		.63		.71
30) New information help me answer questions	.41	.62	.63	.86
35) I can apply the knowledge to my work/activities		.57	.41	.80
28) Brainstorming helped me resolve questions		.57		.81
26) I felt motivated to explorer questions		.56	.41	.87
32) Discussion helped me to understand concepts	.40	.56		.87
31) Learning activities helped me construct solutions		.54		.86
20) comfortable interaction with peers			.74	.76
23) sense of collaboration			.72	.76
22) my point of view was acknowledged			.71	.84
18) comfortable discussing online			.67	.66
15) a sense of belonging			.63	.84
19) comfortable participating in discussion			.62	.77
29) Online discussions were valuable			.53	.77
21) I felt comfortable disagreeing			.49	.73
17) I felt online is an excellent medium			.47	.60
16) I was able to form distinct impression			.42	.77
Eigenvalues	10.25	5.45	5.21	
% of variance	29.29	15.56	14.89	

Note. Loadings <.40 are omitted

Overall, all the items measured exactly what they were supposed to measure, which supports the construct validity. The researcher decided to transfer item number 29, *"Online discussions were valuable in helping me appreciate different perspectives"* that originally was to measure cognitive presence to social presence. Then the Cronbach's Alpha for both concepts was conducted one more time. The result showed that the reliability was still consistent: .93 and .87 for cognitive presence and social presence, respectively. A scree plot test in Figure 11 was visualized with eigenvalues on the y-axis and factor/item numbers on the x-axis. Figure 11 displays an examination analysis, and proposes that three factors may be appropriated for the break point in the data where the curve started to flatten. However, the result from EFA was very weak, as the number of participants was fewer than 100 (Field, 2009; Morgan et al., 2011).

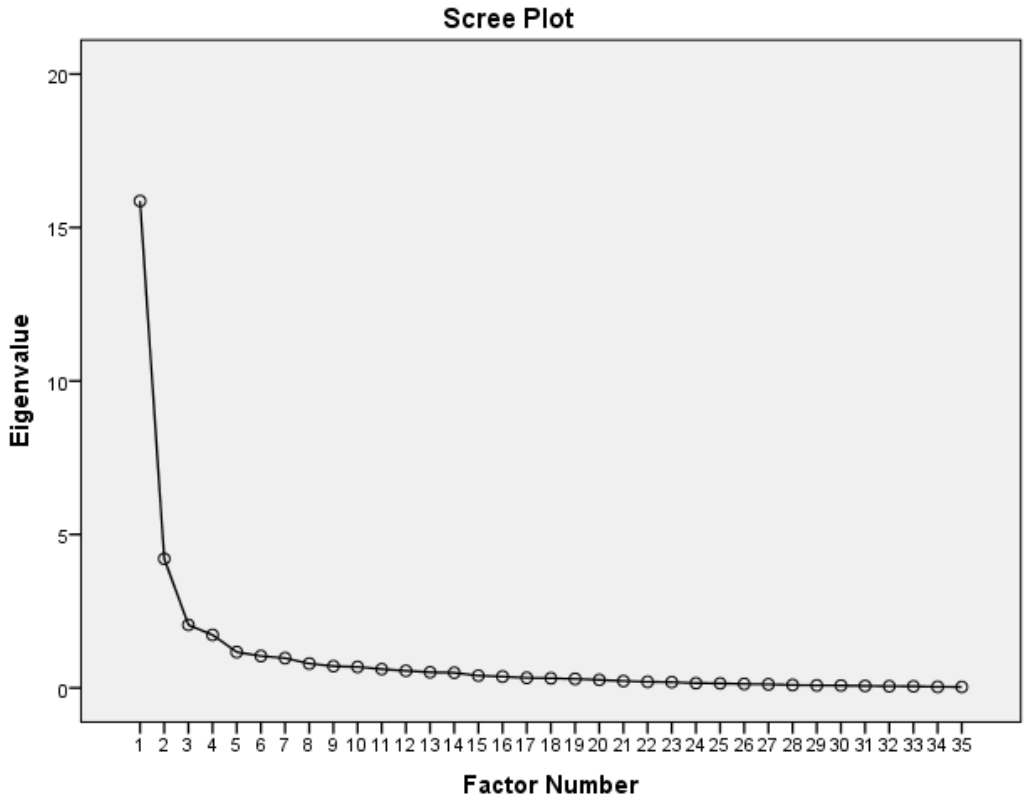

Figure 11. The scree plot for Community of Inquiry components/items.

Research Question One: Associations

Research Question 1: Is there an association between:

a) Teaching presence and course satisfaction?

b) Social presence and course satisfaction?

c) Cognitive presence and course satisfaction?

d) Other factors *(age, number of online courses completed prior to taking this course,* and *number of online courses just completed)* and course satisfaction?

To investigate research question 1 (a, b, c, and d), all four scale variables (teaching presence, social presence, cognitive presence, and course satisfaction) were checked. They were normally distributed (See Table 18) and the assumption of linearity was not markedly violated, Pearson correlations were computed to examine the intercorrelations of the variables. Teaching presence was significantly correlated with course satisfaction, $r(71) = .77$, $p < .001$ followed by cognitive presence, ($r(71) = .70$, $p < .001$ and social presence, $r(71) = .61$, $p < .001$. Teaching presence and cognitive presence showed the strongest positive correlation, which would be considered a very large effect size, and social presence showed a large effect size according to Cohen (1988). These indicate that students who had relatively high teaching presence, social presence, cognitive presence scales were very likely to have high course satisfaction scales. Age was found significantly correlated with course satisfaction, $r(71) = .31$, $p < .001$ which showed the weakest positive correlation and a medium effect size (Cohen, 1988) (as visualized by the scatter plots in Figure 12).

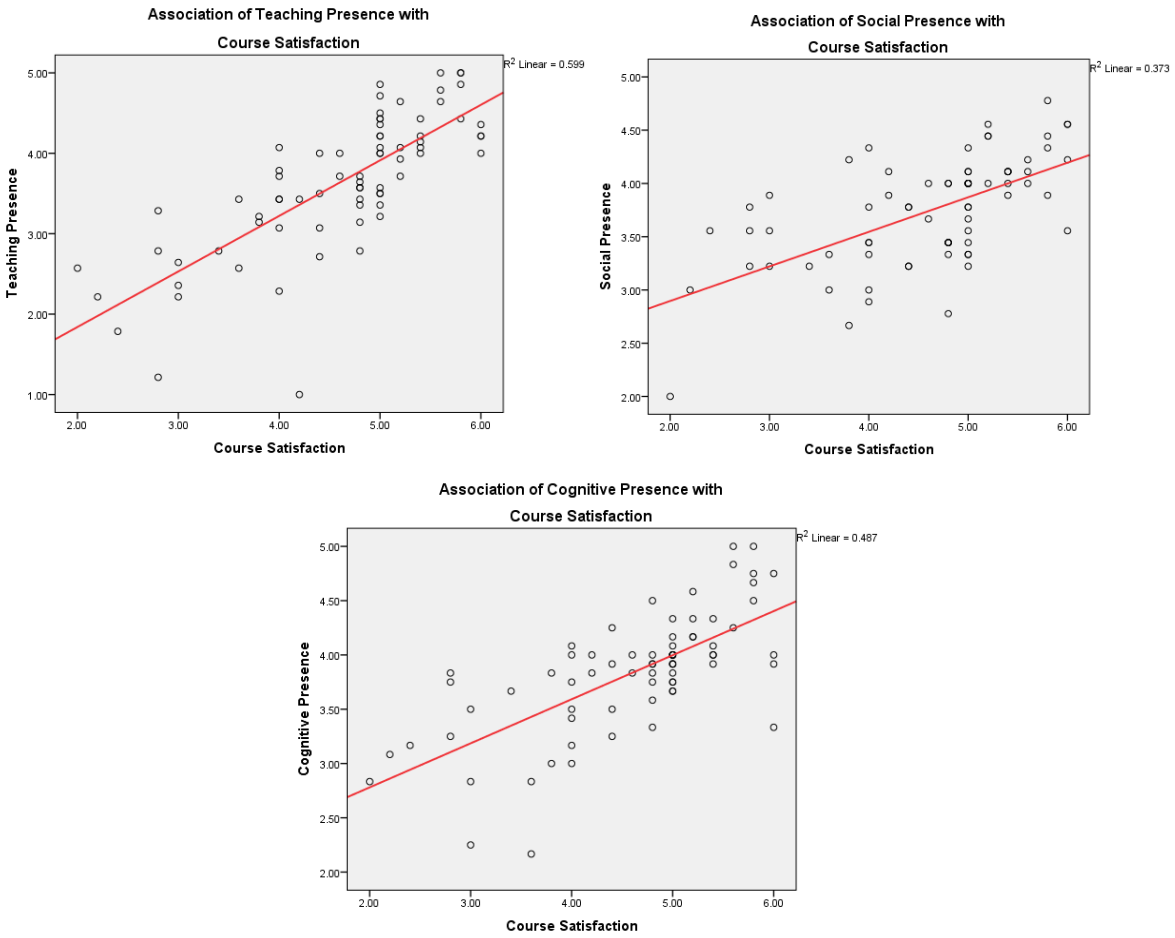

Figure 12. Association between teaching presence, social presence, and cognitive presence with course satisfaction.

In contrast, two independent variables—number of online courses completed prior to taking this course, and numbers of online courses just completed—did not statistically show any correlation with course satisfaction as visualized by scatter plots in Figure 13.

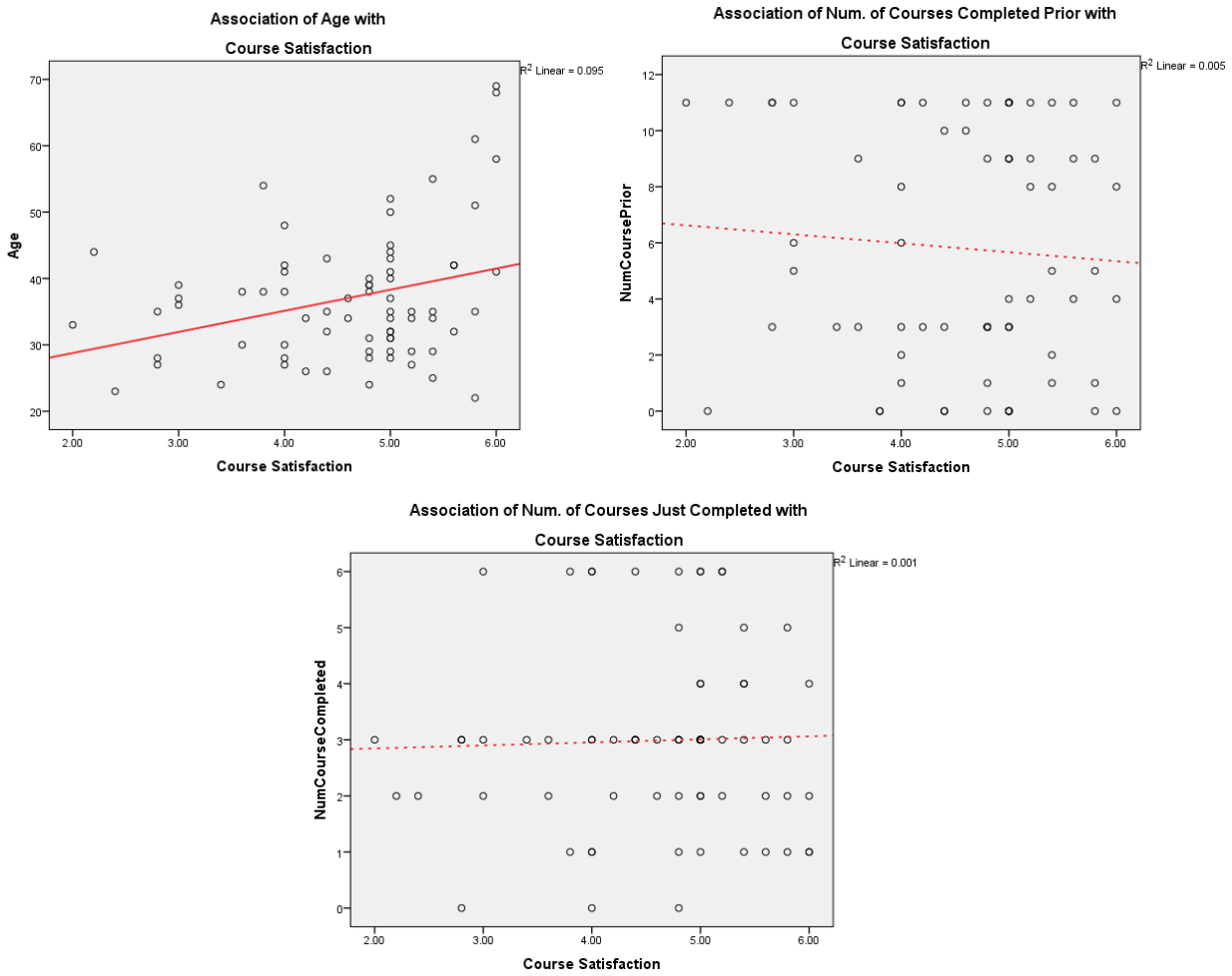

Figure 13. Association between Age, Number of online courses completed prior to taking this course, and Number of online courses just completed with Course Satisfaction

Research Question Two: Differences

Research Question 2: Is there a difference between:

a) Gender *(male/female)* on course satisfaction?

b) Registration status *(full time/part time)* on course satisfaction?

c) Mode of study *(fully online/hybrid)* on course satisfaction?

d) Required course *(core/elective)* on course satisfaction?

e) Levels of study *(undergraduate/postgraduate)* on course satisfaction?

An analysis for research question 2b (Is there a difference between registration status (full time/part time) on course satisfaction?) was not appropriate to compute due to an unrepresentative sample, where only three students were registered as full time as compared with the other seventy students were registered as part time. Research question 2c (Is there a difference between mode of study (fully online/hybrid) on course satisfaction?) also had an unrepresentative sample, where only eight students were in fully online as compared with the other 65 students that were in a hybrid mode of study. The assumption for registration status and mode of study levels were markedly violated.

For research question 2a (Is there a difference between gender (male/female) on course satisfaction?), an independent sample t-test was computed to examine the two groups. With the skewness of -.49, and other checks, it is assumed that gender levels were nearly normally distributed (Field, 2009; Morgan et al., 2011). Table 24 shows that males were significantly different from females on course satisfaction ($p = .019$). An examination of the two group means indicates that the average course satisfaction scale for female students ($M = 4.39$) was significantly lower than the score ($M = 4.93$) for males. The effect size d is approximately .58, which is typical in the behavioral sciences (Cohen, 1988).

For research question 2d (Is there a difference between required course (core/elective) on course satisfaction?), an independent sample t test was computed to examine the two groups. With the skewness measure of .88, and other checks, it is assumed that required course levels were nearly normally distributed (Field, 2009; Morgan et al., 2011). Table 24 shows that core courses were not significantly different from elective courses on course satisfaction ($p = .253$). Nevertheless, an examination of the two group means indicates that the average course satisfaction scale for elective courses taken by students ($M = 4.40$) was significantly lower than

the score ($M = 4.68$) for core courses taken by students. The effect size d is approximately .28, which is smaller than typical in the behavioral sciences (Cohen, 1988).

For research question 2e (Is there a difference between levels of study (undergraduate/postgraduate) on course satisfaction?), an independent sample t test was computed to examine the two groups. The result shows that undergraduate students were not significantly different from postgraduate students on course satisfaction. However, the p value was approaching significance ($p = .053$). When reexamined in SPSS data in detail, the responses from participant number seven was found to be extreme and it was omitted (Field, 2009). After the outlier was deleted, and with the skewness of .11 and other checks, it is assumed that levels of study was nearly normally distributed (Field, 2009; Morgan et al., 2011). Table 23 shows that undergraduate students were significantly different from postgraduate students on course satisfaction ($p = .018$). Examination of the two group means indicates that the average course satisfaction scale for undergraduate students ($M = 4.36$) was significantly lower than the score ($M = 4.87$) for postgraduate students. The effect size d is approximately -.58, which is typical in the behavioral sciences (Cohen, 1988).

Table 23

Comparison of Dichotomous Variables on a Course Satisfaction Scale (n = 73)

Variable	n	M	SD	*t*	*df*	*p*	*d*
Gender				2.40	71	.019	.58
Males	28	4.93	.91				
Females	45	4.39	.94				
Required course				1.15	71	.253	.28
Core course	51	4.68	.92				
Elective course	22	4.40	1.05				
Levels of study				- 2.43	70	.018	-.58
Undergraduate	34	4.36	.84				
Postgraduate	38	4.87	.93				

Research Question Three: Predictors of Course Satisfaction

Research Question 3: How well are the combination of the presences (cognitive presence, social presence or teaching presence) and other related factors (age, levels of study, number of online courses completed prior to taking this course, number of online courses just completed) statistically significant predictors for course satisfaction?

To investigate how well the three presence scales predicted course satisfaction—after controlling for age, levels of study, number of courses prior, and number of courses just completed—a series of two–step hierarchical linear regressions were computed. The assumptions of linearity and normality were checked and met (see Table 18). The tolerance values were well over .28; 1- R^2 (Morgan et al., 2009), all values of the Variance Inflation Factor (VIF) for independent variables fell between 1.08 and 2.56, which is still less than the maximum VIF values of 5 (Rogerson, 2001) or even 4 (Pan & Jackson, 2008). This shows that the independent variables were not affected by multicollinearity. Therefore, the leverage statistic and Cook's distance calculation (see Appendix D) indicated that two participants (number 6 and 60) were potentially outliers and influencing the model (Field, 2009; Field & Miles, 2012).

To further investigate, the two–step hierarchical linear regressions were recomputed without outliers by removing one of them at a time, and the result changed substantially. In the first step, when age, number of courses prior, and number of courses completed were entered, only age significantly predicted course satisfaction scale, $F(3, 67) = 3.35$, $p < .024$, adjusted $R^2 = .09$ ($R^2 = .13$). However, as indicated by the adjusted R^2, only 9% of the variance in course satisfaction could be predicted by knowing the student's age. In the second step, when the other variables were added to the model, three out of six variables showed the improvement of the

prediction, R^2 change = .63, $F(3, 64) = 55.67$, $p < .001$, age still remained as a significant predictor.

The entire group of variables significantly predicted course satisfaction, $F(6, 64) = 33.60$, $p < .001$, adjusted $R^2 = .74$ ($R^2 = .76$). This means 74% of variance in course satisfaction was explained by the model; 26% was explained by unknown factor(s). This is a very large effect according to Cohen (1988). The beta weights and significance values, presented in Table 24, indicate which variable(s) contributes most to predicting course satisfaction, when age, number of prior courses, number of courses completed, teaching presence, social presence, and cognitive presence were entered together as predictors. Cognitive presence was no longer significant (compare with Table 25). Number of prior courses, number of courses completed, and cognitive presence seem to be affected slightly to the equation and were retained, while levels of study did not influence the model and was dropped.

Table 24

Hierarchical Multiple Regression Analysis Summary for Teaching Presence, Social Presence, Cognitive Presence, and Age Predicting Course Satisfaction (N = 71) (After Removing Two Outliers)

Variable	*B*	*SE B*	*β*	R^2	ΔR^2
Step 1				.13	.13
Age	.03	.01	.36*		
Num. Course Prior	-.02	.03	-.09		
Num. Course Completed	.11	.07	.18		
Constant	3.18	.53			
Step 2				.76	.63
Age	.01	.01	.14*		
Num. Course Prior	-.03	.01	-.10		
Num. Course Completed	.07	.04	.10		
Teaching Presence	.68	.11	.49**		
Social Presence	.47	.16	.29*		
Cognitive Presence	.23	.18	.24		
Constant	-1.05	.53			

Note.
**p<.05, **p*<.001.

As a result, with this combination of predictors, teaching presence took the highest beta (.49), followed by social presence (.29), and age (.14), and were the variables that contributed significantly to predicting *course satisfaction*. Finally, the hierarchical linear regression model for course satisfaction was:

Course Satisfaction = -1.05 + (.01 Age) + (-.03 Number Course Prior) + (.07 Number Course Completed) + (.68 Teaching Presence) + (.47 Social Presence) + (.23 Cognitive Presence).

The result of the hierarchical multiple regression analysis before removing the outliers is presented in Table 25 for comparison purposes with the final result in Table 24.

Table 25

Hierarchical Multiple Regression Analysis Summary for Teaching Presence, Social Presence, Cognitive Presence, and Age Predicting Course Satisfaction (N = 73) (Before Removing Two Outliers)

Variable	*B*	*SE B*	*β*	R^2	ΔR^2
Step 1				.14	.14
Age	.03	.01	.29*		
Levels of Study	.34	.24	.18		
Num. Course Prior	-.01	.03	-.05		
Num. Course Completed	.10	.07	.16		
Constant	3.15	.54			
Step 2				.75	.61
Age	.02	.01	.16*		
Levels of Study	-.11	.14	-.06		
Num. Course Prior	-.02	.02	-.10		
Num. Course Completed	.06	.04	.10		
Teaching Presence	.55	.10	.49**		
Social Presence	.47	.16	.29*		
Cognitive Presence	.42	.17	.24*		
Constant	-1 .30	.55			

Note.
*$p < .05$, **$p < .001$.

The Open-Ended Question

Open-Ended Question: What would motivate you to participate more in the MyVLE online discussion?

To analyze this additional open-ended question embedded in the survey, classical content analysis techniques based on predefined categories were applied to this qualitative data using Nvivo 10 and Microsoft Word 2013. Of the 73 responses, 46 (62.9%) responded to the question. Most of the responses were derived from the Faculty (School or College) of Business Management, since the majority of the students were coming from this faculty. Remarkably, no

students from the Faculty Nursing and Health Science were participants in this survey. Overall, students' responses from various faculties were detailed in Table 26.

Table 26

Student's Responses from Various Faculties

Faculty	n	%
Education & Language	12	16.4
Applied Social Sciences	5	6.8
Business Management	25	34.2
Science & Technology	1	1.4
Nursing & Health Science	0	0
Others	3	4.1
Total	46	62.9

Results from word count analysis in Table 27 generally detail the number of the most counted words. Such as 'tutor'(instructor), 'discussion', 'student', 'course', 'online', 'participation', 'learning', 'answer', and 'forum'.

Table 27

Results from Word Count Analysis; the most counted words

Words	Count
Tutor (instructor)	42
Discussion	36
Student	30
Course	32
Online	25
Participation	27
Learning	35
Answers	22
Forum	18

All words were graphically summarized using a word cloud, comprising the most and the least counted as shown in Figure 14. The bigger size of the text means the most counted text or vice versa.

Figure 14. Word cloud.

Based on CoI predefined categories, data chunks were coded, counted, and segregated into categories. Students were asked to respond to the question, *"What would motivate you to participate more in the MyVLE online discussion?"* The category of teaching presence was determined to be the most repeated feedback by students (n = 38). Specifically, the feedback focused on the ability of a tutor (instructor) to design and organize with clear instructions on how to participate in course learning activities (item 3), the tutor's facilitation in guiding them to understand a course topic (item 6), and the tutor's ability to keep students engaged and participating in productive discussion (item 7), and focused on relevant issues (item 11). This feedback was more about the tutor (instructor) as visualized by the *Word Cloud* (Figure 14).

Twenty-two students who responded to the question reported social presence. Their feedback indicated they were concerned about their affective expression via online discussions (item 17), comfortably open communication in the course discussion (item 19), and developing a sense of collaboration among themselves (item 23).

In terms of the cognitive presence category, only seven students were anxious regarding interest in: course issues, activities, explorations, solutions and reflections. None of them described ways to apply the knowledge created in this course related to their work. All student feedback is detailed in Table 28. Thus, based on students' feedback, teaching presence and social presence play significant roles in motivating them to participate more in the MyVLE online discussion. Nevertheless, sixteen students did not respond to the question directly; they were more concerned with other issues; some of the feedback they offered turned into keyword out of context (KWOC), and generated towards other new themes such as comments (tutors, and courses), MyVLE discussion, internet coverage, suggestions, and complaints.

Table 28

Keyword in context (KWIC) and classical content analysis technique based on the CoI predefined categories

The CoI Predefined Categories (*Keyword in context)*	Codes & Items	Count
Teaching Presence		
• Design & Organization	**T_Design**	
	1-Topic	0
	2-Goal	0
	3-Instruction	5
	4-Due Date/time frame	0
• Facilitation	**T_Facilitation**	
	5-Agreement/ disagreement	1
	6- understanding	7
	7- engaged/ participating	7
	8-facilitated	3
	9-encouraged	0
	10-reinforced	1
• Direct Instruction	**T_Instrution**	
	11-focus	7
	12-strengths	2
	13-weaknesses	0
	14-timely fashion	5
	Total	**38**
Social Presence		
• Affective expression	**S_Expression**	
	15-Sense of belonging	2
	16-impressions	1
	17-excellent medium	7
• Open communication	**S_Communication**	
	18-Discussing	2
	19-participating	3
	20-interacting	2
• Group cohesion	**S_Group**	
	21-Disagreeing	1
	22-Acknowledge	1
	23-Collaboration	3
	Total	**22**

Cognitive Presence		
• Triggering event	**C_Triggering**	
	24-Interest	1
	25-Curiosity	1
	26-motivated	0
• Exploration	**C_Exploration**	
	27-Sources	0
	28-Brainstorming	1
	29-Discussion	0
• Integration	**C_Intergration**	
	30-Combining	0
	31-Activities	2
	32-Reflection	2
• Resolution	**C_Resolution**	
	33-Describe	0
	34-Developed	0
	35-Apply	0
	Total	**7**

Additional Concurrent Findings

An additional concurrent finding indicates that there was a discovery of consistency between quantitative and qualitative self-report analysis. Both comparisons advocate that teaching presence was significantly associated, and a predictor, with regard to course satisfaction followed by social presence. Conversely, cognitive presence was found least imperative. The consistency finding between quantitative and qualitative self-report can be found in Table 29.

Table 29

Integration of Consistency finding between Quantitative (survey) and Qualitative Self-Report (Open-ended question) for Teaching, Social, and Cognitive Presence as Important Predictors to Course Satisfaction.

Predictors to Courses Satisfaction	Quantitative Finding (Regression)		Qualitative Finding (Open-Ended)	
	B	*p*	*n*	*% of Students who considered important*
Teaching Presence	.68	.001	38	57
Social Presence	.47	.005	22	33
Cognitive Presence	.23	.217	7	10

CHAPTER 5: DISCUSSION

This chapter presents a discussion of the findings from the previous chapter with regard to the research questions. It also includes the open-ended discussion, a summary, implications for practice, and suggestions for future investigation. As mentioned before, this study focused on investigating the associations among teaching presence, social presence, cognitive presence, and other related factors and their impact on students' course satisfaction with an online course at institutions of higher education in Malaysia. It also attempted to predict the importance of each of these variables with regard to course satisfaction.

Research Question One: Associations

Teaching Presence and Course Satisfaction

In investigating an association between teaching presence and course satisfaction in an online course, this study revealed that teaching presence was a significantly strong positive factor associated with course satisfaction; when one tends to increase or decrease so does the other. This means that online students who have a high degree of communication with their tutors (instructors) tend to have higher degrees of satisfaction with online courses. This finding was consistent with Rubin et al. (2013), who studied graduate students and instructors. The sample of this study was derived from both undergraduates and postgraduate online students which are Malaysian whereas Rubin's were Americans and thus adds to the knowledge base.

In similar research conducted with students who enrolled in elective courses, Joo et al. (2011) also reported that there was a significant relationship between teaching presence and course satisfaction, though this current study did not rely only on elective courses but major courses as well. The studies by Draus et al. (2014), Denoyelles (2014), Shea and Bidjerano (2008) concluded that two sub-scales in teaching presence (facilitation, design and organization)

had an essential impact on satisfaction. This was consistent with the current study, and it added another sub-scale (direct instruction) that also plays a significant role in student satisfaction.

The current study was also similar with the research conducted by Andersen (2013), Sher (2009), Keeler (2006), Bolliger and Martindale (2004), Denson et al. (2010), and Moore (1989) who used a different term, *student-instructor interaction*, and various instruments as opposed to CoI, which clearly focused on tutors' capability as communicated, designed, organized, facilitated, and taught online or hybrid. Hence, this study determined the construct of social presence in the CoI framework is vital in sustaining course satisfaction.

Contrarily, Abas and Fadzil (2009) found a low level of teaching presence in the CoI related to high course satisfaction due to the use of mathematical symbols that could not be used directly in a discussion forum. This shows that tutors' involvement with the use of symbols and formula in different types of courses might contribute to the level of satisfaction. The interesting thing is, that their study and the current study were conducted at the same University with Malaysian population, but with dissimilar methodology: they analyzed threaded discussion from the LMS qualitatively whereas, this current study was a survey. This might cause inconsistent results. Nevertheless, teaching presence in the CoI framework was found in the current study as an important element that tie together with course satisfaction among Malaysian students.

Social Presence and Course Satisfaction

In terms of investigating the association of social presence with regard to course satisfaction, a student's social presence was also found to be a significantly positive, highly associated with course satisfaction, similar to teaching presence. This means that students who had relatively high social presence were very likely to have high course satisfaction. The current study was consistent with many researchers (Alman et al., 2012; Bulu , 2012; Cobb, 2011;

Croxton, 2014; Hostetter & Bush, 2006; Kumar et al., 2011; Ng, 2010; Spears, 2012; Wahab, 2007, Kim & Zhang, 2010). Nevertheless, this present study is grounded on both undergraduate and postgraduate online students who were enrolled in multiple courses from various faculties which were Malaysian, whereas most of others studies (Cobb, 2011; Hostetter & Bush, 2006; Kumar et al., 2011; Kim & Zhang, 2010; Spears, 2012) were derived on American populations and focus on one group of students in one particular course thus contributes to the knowledge base.

The finding that high social presence is necessary to course satisfaction is contradictory to other studies (So & Brush, 2008; Joo et al., 2011; Rubin et al., 2013), where it was found that students' levels of feeling, perception, and response via text-based discussion with peers were low and weakened the association to course satisfaction (Tu & McIsaac, 2002). This suggests that affective expression, open communication, and group cohesion, which are embedded in the theory of social presence as investigated by Garrison et al. (2000), are very important in improving the quality of relationships with peers in an online learning environment. As a result, this current study concludes that social presence in the CoI framework establishes a strong relationship with course satisfaction, exclusively among Malaysian online students.

Cognitive Presence and Course Satisfaction

In investigating the association between cognitive presence and course satisfaction in an online course, this current study found the same results as with teaching presence and social presence. Cognitive presence was also found to be significant and highly positively associated with course satisfaction. This indicates that online students who had a relatively high cognitive presence were very likely to have high course satisfaction. In other words, the more students comprehend the course content and their ability to apply it, and developed knowledge which

resulted in the stimulation of thinking (Garrison et al., 2000; Moore, 1989), the more satisfaction they derived from the course.

The present study was consistent with many researchers (Alman et al., 2012; Denoyelles, 2014; Garcia et al., 2014; Joo et al., 2011; Shea & Bidjerano, 2008; Rubin et al., 2013), who ascertained that cognitive presence is a crucial component in the success of online courses offered; different courses have different structure. This is because the triggering event, exploration, integration, and resolution that are incorporated in the CoI framework reflect the concept of Dewey's work, Vygotsky's development theory (as cited in Richardson et al., 2012), critical thinking, and the practical inquiry model (Garrison et al., 2000, 2001). Thus, the current study with Malaysian added significant findings to Taite (2012), Burgess et al. (2010), Lowenthal (2012), and others whose samples were Americans, and linked cognitive presence from to course satisfaction which contributes to the knowledge base. Consequently, similar with teaching presence and social presence, this study ascertains that another construct in CoI framework, cognitive presence, establishes a durable relationship with course satisfaction, and it is relevant to Malaysian online students.

Other Related Factors and Course Satisfaction

In investigating the association of other factors—age, number of online courses completed prior to taking this course, and number of online courses just completed—and course satisfaction in an online course, this study revealed that only age was significantly positively associated with course satisfaction. The result coincides with So and Brush (2008), who found student satisfaction to be positively related to student ages, showing that older students were more likely to have higher levels of satisfaction than younger students. The range of age was not mentioned; unlike the current study, which had students aged 22 to 69 with most aged 30 to 39.

Meaning that the age range had substantially contributed to the level of course satisfaction, especially with older students, because they were part time students who are more concerned with flexibility of course structure and learning. However, in interpreting age regarding course satisfaction was done with caution, due to the comparatively small effect size.

The result of relating the numbers of distance courses prior to enrolling in the course and the number of distance courses that had been completed with course satisfaction were consistent with Cobb (2011), where there was no significant association between the numbers of online courses previously taken or completed with regard to course satisfaction. This indicates that online students who had experience in online courses, and the quantity of courses enrolled in their current semester did not have any connection with course satisfaction. In other words, the American students in Cobb's study and Malaysian in this current study did appear similar.

However, So and Brush (2008) indicate that students who had taken more distance courses tended to have higher satisfaction levels than those who had taken fewer distance courses. This is contrary to the current study and Cobb (2011), Angelino et al. (2007), Ng (2010), and Tirrell and Quick (2012) indicated that by monitoring the number of online courses enrolled in per semester for graduates and undergraduate students are able to manage their time wisely, especially for part time students due to dropping and withdrawing from a course remains a vital issue.

Research Question Two: Differences

In investigating gender differences in course satisfaction, this study revealed there was a significantly higher level of course satisfaction with males than females. This supports previous research conducted by Richardson and Swan (2003), Ashong and Commander (2012) and Denson et al. (2010), however, Denson et al. and Sullivan (2001) also found male students

tended to rate the quality of the course lower as compared to female students. Nevertheless, Spears (2012) showed gender did not show any significant differences with regard to course satisfaction.

As there is inconsistency and limited findings regarding gender and course satisfaction, other researchers (Bulu, 2012; Cobb, 2011; Rubin et al., 2013) claimed that it would be worthwhile to reexamine gender as one of the student characteristics that has the potential to contribute to success with online courses if properly understood. According to Sullivan (2001), female online students—possibly with children, family responsibilities, and a profession—who enroll in online courses learn differently than male students. These data should be of special awareness to academicians, course developers, and administrators in developing a flexible course structure, goals, contents, materials, and LMS discussion forums. Looking at the current finding in this study, female students seem to reflect Sullivan's conclusion.

In investigating how registration status and mode of study differences affect course satisfaction, this current study was unable to conduct a statistical analysis due to unrepresentative samples in both categories. According to the data, it is not practical to compare three full-time online students and seventy part-time online students, and between eight fully online students and 65 hybrid online students. To do so would result in misleading conclusions or bias of interpretation on findings (Field, 2009, 2012).

In investigating required course differences and course satisfaction, this current study revealed there was no statistically significant difference in the course satisfaction between students taking a required course and students who were taking the course as an elective. More specifically, there was no difference shown among the students who enrolled in Malaysia Qualification Agency (MQA) courses, university courses, basic courses, and core courses,

compared to students who enrolled in elective courses with regard to course satisfaction. Spears (2012) also indicates this. This also added to Joo et al. (2011), whose sample was only derived from Korean students who enrolled in only online elective courses. Their findings might be different if they had included students taking core courses; as courses which must be taken to fulfill specific requirements of the program force students to participate, require more concentration, and demand more responsibility, as indicated by Kardan, Sadeghi, Ghidary, & Sani, 2013. Conversely, caution must be exercised in interpretation of the results, since the participants were drawn from a group of students taking multiple courses from multiple faculties offered at Open University Malaysia (OUM).

Furthermore, the data shows that most of the online students in this study were derived from the faculty of business management, education and language, and applied social sciences, which all had different course workload, formats of evaluation, and discussions. Some focused more on graphics, formulas, and numbers as opposed to other courses which were purely text-based. If more students from other disciplines had been involved, for example from faculties of science and technology, or nursing and health sciences, the effect of required or elective courses on course satisfaction might be different.

In investigating the differences among levels of study and their effect on course satisfaction, this study revealed there was a statistically significant difference in course satisfaction between undergraduate students and postgraduate students; postgraduate students had a higher level of course satisfaction than undergraduate students. This current study supports previous research conducted by Spears (2012). However, few studies have been conducted about course satisfaction on both levels (undergraduate and postgraduate), concurrently. Most available studies limited the sample to postgraduate students (Bolliger, & Martindale, 2004; Keeler, 2006;

Lowenthal, 2012; Rubin et al., 2013), though there are some limited to undergraduate students (Cobb, 2011; Hostetter & Busch, 2006).

Nevertheless, interpreting course satisfaction in different levels of study was done with caution due to its moderately typical effect size, moderate strength of relationship or magnitude (Field, 2009; Morgan et al., 2011). At first, the result showed no significant difference between both variables, but once an outlier was excluded in the analysis the result changed substantially. Course structure and goals are different in graduate and bachelor's levels of study. This became noticeably worthwhile from these results to reexamine for its potential in contributing to success with online courses.

Research Question Three: Significant Predictors of Course Satisfaction

This current study found teaching presence, social presence, and age were determined as predictors to course satisfaction. However, the cognitive presence, number of courses prior and just completed are not predictors. These results are consistent with previous studies that provide evidence that teaching presence (Bulu, 2012; Seaton & Schwier, 2014), and social presence (Bulu, 2012; Cobb, 2011; Hostetter & Busch, 2006; Rubin et al., 2013; Sher, 2009) are significant main contributors to the prediction of students' course satisfaction, and age is a less significant predictor. However, Rubin et al. (2013), Hostetter and Busch (2006), So and Brush (2008), and Joo et al. (2011) found the social presence is not a predictor. Additionally, So and Brush (2008) found that age did not influence satisfaction.

Surprisingly, this study revealed that the ability of online students to understand course content, and participate in effective online discussion based on the CoI framework, cognitive presence (i.e. triggering event, exploration, integration, and resolution) did not significantly predict course satisfaction. Probably, modules or learning sources that provided by OUM already

adequately support students understanding of the content; they had ability to learn independently. In other words, the level of cognitive presence whether low or high, it did not influence their level of satisfaction toward course. This was an unexpected result since prior studies reported cognitive presence as one of the essential factors that would increase student satisfaction in online courses (Bulu, 2012; Rubin et al., 2013). However, Bulu's participants were from Turkey and Rubin et al., were American, where the current studies were Malaysian.

Concerning the result of the amount of courses, and number of online courses completed prior to taking this course, contradicts Alman et al. (2012). The number of online courses just completed contradicts Hostetter and Busch (2006) and So and Brush (2008). While age contradicts Denson et al. (2010) and So & Brush (2008). These variables were significantly related to course satisfaction. Nevertheless, even though they did not significantly predict course satisfaction directly, they seem to reduce the variance in course satisfaction. Based on this statistical evidence, these factors were retained in the model. Unlike levels of study (undergraduate and postgraduate), which was dropped; the amount of explained percentage variance in course satisfaction remained the same.

Open-Ended Question

What would motivate you to participate more in the MyVLE online discussion?

Information gleaned from this open-ended question strongly suggests that teaching presence was notable in the student's mind. The second most noted issue had to do with social presence followed by cognitive presence, which was less commented upon by students. Other issues noted regarded technical issues, internet coverage, recommendations, and complaints. Most of the feedback was composed by business management students, since they were the majority in this study.

In term of teaching presence, over half of student responses suggested that the ways tutors communicate, facilitate, guide, encourage, provide prompt and constructive feedback, and participate influence them to take part actively in online discussion forum (i.e., *"..some e-tutor does not give responses immediately..", "online tutor for this course seems like…does not know how to explain to the student, and sometimes the tutor simply asks us to refer to the module,"* and *"more constructive feedback and not YES or NO only in the answers given."*

Regarding social presence, around one third of the student responses concerned peers: i.e., sense of belonging, participation, interaction, and collaboration among themselves which should be enriched. They believed it would stimulate others to become involved more deeply in online conversation *(i.e., "most of the students in my group rarely use this discussion medium," "…the on-line students do not really utilize the on-line opportunities..", "must be committed to learning, have a positive attitude, be willing to take on a challenge, and possess time management skills.").* These indicators of teaching presence and social presence were consistently supported in the associations and predictions in the research questions as discussed earlier.

Contrarily, merely one-tenth of student responses reported cognitive presence issues, which suggest that activities in the course content should be able to hold their curiosity and attention. For instance, interest in the topic, brainstorming, activities, and reflection were among the ideas gathered from the open-ended question. Others said similar points (i.e., *"short assignments," "I would be motivated to participate if the topics are relevant to the course content," "case studies from various industry/business would encourage me to participate more in the discussion forum," "the brainstorming section starts and motivates me the most").* The construct of cognitive presence found in this qualitative analysis was not found as a predictor

with regard to course satisfaction. The finding was in disagreement with previous studies, specifically to Dewey's effort, and Vygotsky's development theory.

Astonishingly, there were students who demanded marks be allocated for actively participating in online discussions (i.e., *"...there should be marks allocated for forum discussion.. so I may not spend time in online discussion unless necessary,"* and *"a certain percentage allocated to online studying"*). Even though there was a certain percentage of the students' grade dependent on participation, it was not considered satisfactory. Frequency and quality of online participation should be considered as well; based on an appropriate rubric (Rovai, 2008; Rovai & Downey 2010). There were also unsatisfactory comments by students about the MyVLE system and online discussion forum (i.e., *"the new platform of discussion forum is sometimes confusing. The old platform was more friendly and easy to understand," "We only use the forum to discuss solutions to the assignment, class postponement and rearrangement, topics to focus on for the coming face-to-face meeting...")*. Therefore, the efficiency and user-friendliness of the LMS were also contributing factors to course satisfaction, an element that requires attention (Gibbons, 2014; Smith & Ragan, 2005). Hence, the finding from this open-ended question at least offers new insight synchronized with the survey.

Study Summary

As mentioned earlier, this study focused on three major issues on presences (teaching, social and cognitive) and other potential variables with regard to course satisfaction. All presences and age were found statistically significantly associated with course satisfaction. Therefore, cognitive presence and other related variables—like number of courses completed prior and just completed, required and elective course—were found not to be predictors for course satisfaction, which was concurrently found from open–ended surveys. To encapsulate all

of the discussion, Figure 17 simplifies the fallouts for better understanding of the study as a whole in a graphic display. This diagram could be a meaningful online course satisfaction model in the forthcoming.

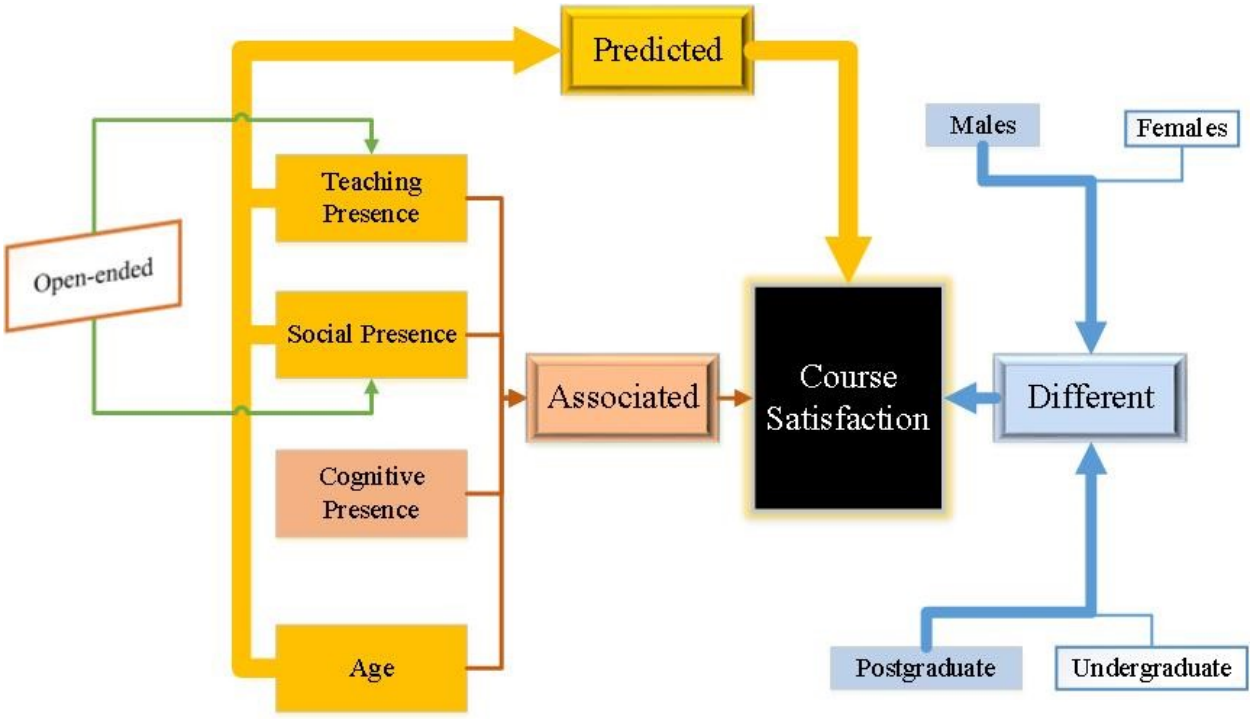

Figure 17. Overall discussion of the study. The thin line is the associated, the thick line is the different, and the thicker line is the predicted with regard to course satisfaction.

Implications for Practice

As emphasized periodically in the past Allen and Seaman (2014), indicated that there is no doubt that the number of online courses offered by institutions of higher education have increased tremendously around the globe. Why? Supply and demand in basic economic theory forced this phenomenon to happen. Nowadays, adult learners are no longer able to learn through purely traditional means due to their profession, time, locality, budget, family and many other difficulties (Rovai, 2008; Rovai & Downey 2010). As a result, learning online is the best alternative in extending knowledge and improves the level of education. Unfortunately, such

issues of dropping, withdrawing, and leaving from online courses by online learners also indicate levels that worry online educators.

For this reason, this present study concludes that several significant aspects in offering online courses need to be planned comprehensively by online institutions, instructors, course designers etc. This is especially the case when dealing with online teaching, peers, and content as recognized in the established model, the Community of Inquiry (CoI), which has been studied for more than a decade (Garrison et al., 2000). Additionally, this study linked the model with other factors with regard to course satisfaction as a value added to the model. Age, for instance, seems vital to consider for adult learners, where younger and older students learn differently (Knowles et al., 2011). It was remarked that about almost half of students were aged 30 to 39 and they contributed significant results to this study. How to deal with this group is a bit challenging, because they were part time and in hybrid mode of study, particularly in developing a flexible online course structure to suit their self-paced learning. More exclusively is to accommodate the need of Malaysian online students.

Besides presences, gender, core or elective courses, undergraduates or postgraduates were additional issues revealed in this study that should be given close attention in enhancing the quality of online courses offered via virtual discussion forum technologies. This is because everybody learns differently, whether: visual, auditory, kinesthetic, logical, social, or solitary (Lacey & Lawson, 2013) (even though this is beyond the scope of this study). It would be magnificent if course designers could integrate them into a compact LMS, which has an ability to link to students' email, social networking, and compatible with other operating system, and mobile technologies. Nonetheless, the problems of being time consuming, requiring expert knowledge, and cost will be further issues to overcome in online learning.

This current study revealed that the ability of online students to understand course content, and participate in effective online discussion based on the CoI framework, cognitive presence (triggering event, exploration, integration, and resolution) did not significantly predict course satisfaction. This was an unexpected result since prior studies reported cognitive presence as one of the essential factors that would increase student satisfaction in online courses (Bulu, 2012; Rubin et al., 2013). Nevertheless, cognitive presence was retained in the model due to statistical evidence showing that it seemed to reduce the amount of explained variance in course satisfaction; it was not significant, but an essential factor. Meaning that, emphasis must be given to course content on how to maintain students' interest with learning activities, reflection, and discussion so that students will be able to comprehend the knowledge in practice. In other words, the CoI framework also contributed the substantial result to Malaysian online students.

Future Research

Additional research is necessary concerning the learning experiences of online students based on the Community of Inquiry (CoI) model. It is recommended that this study be extended in several areas and conditions:

1. Currently, based on this recent study, the researcher is in the process of collecting data from Colorado State University (CSU) Global campus. In the future, this will be a comparison study between samples from United States and Malaysia. Correspondingly, the researcher will look at comparing to other Asian and European countries as to whether the levels of course satisfaction vary across countries, which could added to literature.
2. Future research is recommended to extend this study to multiple courses, semesters of study, focus on learning, age differences; which courses, semesters, grade achievement,

range of age show high or low levels of course satisfaction (e.g. education courses versus business courses, first-year versus final year of study, low grade achievement versus high grade achievement, and young versus older student). In addition, interview students or instructors or both, and triangulate the findings as a concurrent mixed study would also be meaningful, so that bias can be minimized.

3. In an attempt to add to the literature, if the sample is adequate, it would be meaningful to modify the research design in this study with a more complicated and advanced statistical analysis, such as Two-Way ANOVA and MANOVA, which could empower result in different perspective, for example:
    a. Do levels of study *(undergraduate and postgraduate),* and gender each seem to have an influence on course satisfaction, and do the levels of study on course satisfaction depend on whether the student is male or female?
    b. Is there a significant difference between levels of study *(undergraduate and postgraduate)* in teaching presence, social presence, cognitive presence and course satisfaction if the variance on age, gender, registration status *(full time and part time)*, mode of study *(fully online and hybrid)*, number of online courses completed prior to taking a course and currently just completed, required course and type of courses is removed?

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Appendix A: Summary of Some Empirical Literature

Summary of Some Empirical Literature Using Presences and other Variables (Independent Variables) and Course Satisfaction (Dependent Variables)

Authors	**Design**	**Main Factors: Social, Teaching, Cognitive Presence (SP, TP, CP)**	**Satisfaction (S)**	**Other Factors/finding: >S=significant ≠S=not significant**	**Sample/level & Response rate (RR)**	**Instrument & analysis**	**Location/ Courses H=hybrid, FO=fully online**	**Course Period**
Cobb (2011)	QuanTI	SP	Course	perceived learning>S gender, Number of online courses previously/currently enrolled≠S	n=128, 43% RR, college student	Instrument: Gunawardena & Zittle, (1997) Analysis: Correlation, Multiple regression, ANOVA, FA	Nursing, FO *(USA)*	12-weeks
Hostetter & Busch (2006)	QuanTI	SP	Course/ Learning	Number of online courses enrolled>S Campus location (urban/rural)>S learning outcomes≠S	n=80 online n=32 hybrid 88% RR, undergraduate	Instrument: Gunawardena & Zittle, (1997) Analysis: Factor Analysis, T-Test, OLS regression	Not stated what courses, FO & H *(USA)*	2 sem

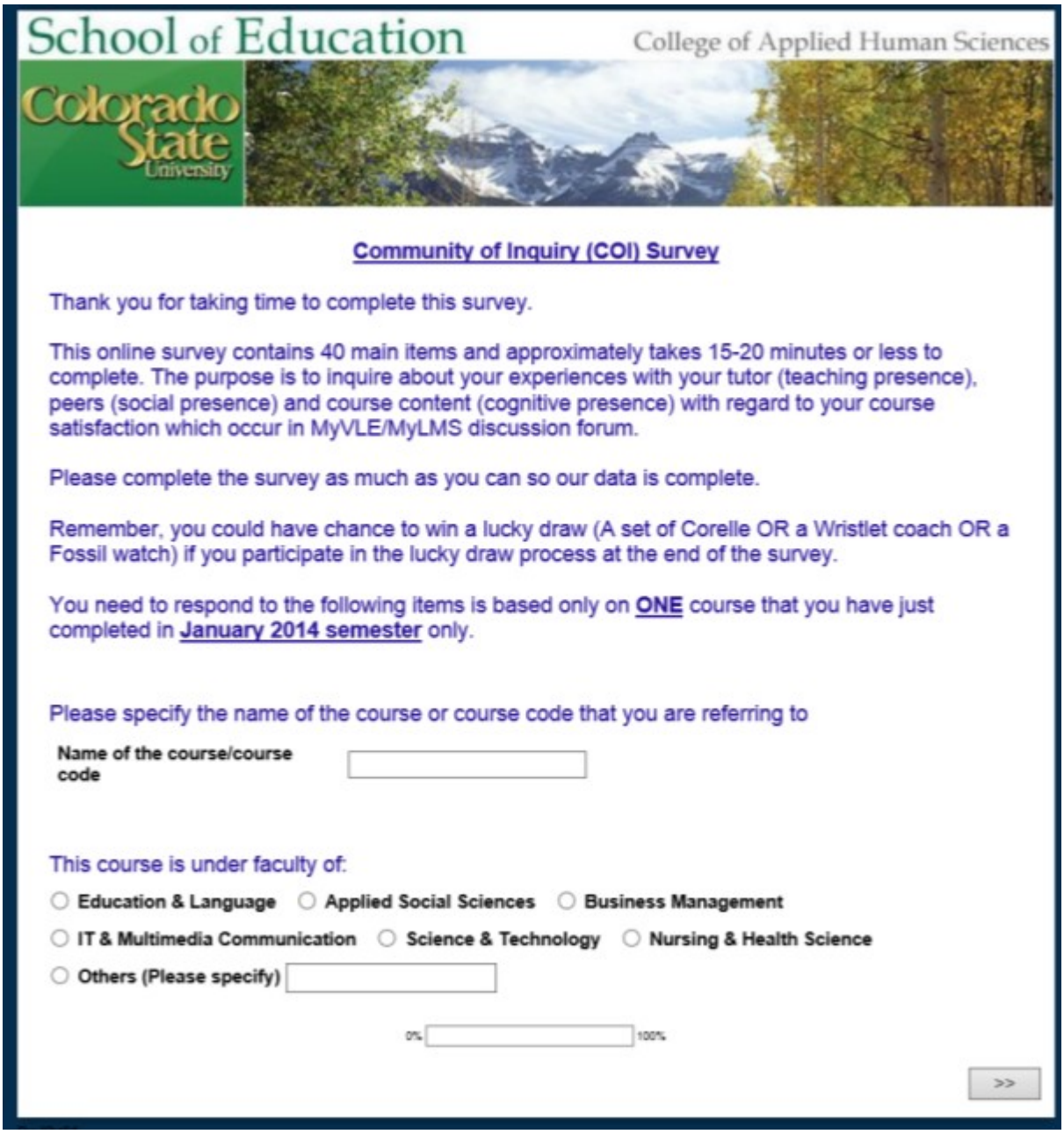
Authors	**Design**	**Main Factors: Social, Teaching, Cognitive Presence (SP, TP, CP)**	**Satisfaction (S)**	**Other Factors/finding: >S=significant ≠S=not significant**	**Sample/level & Response rate (RR)**	**Instrument & analysis**	**Location/ Courses H=hybrid, FO=fully online**	**Course Period**
Rubin, Fernandes & Avgerinou (2013)	Mixed	SP, TP, CP	Course	LMS affordances> SP, TP, CP Satisfaction with LMS>S **refer diagram*	n=478, 79% RR (Graduates), n=13 instructors	Instrument: CoI, It was not reported clearly about other instruments used, validity & reliability Analysis: Interviewed, Multiple regression	Business, Education, Public Admin. and Mgment, Computer Science, & Interdis., FO *(USA)*	Not reported
Spears 2012)	QuanTI	Social	Course	social interaction>S collaborative learning>S male&Female≠S (FO&F2F) major≠S Races>S	n=159 13.5% RR (undergraduate, graduate)	Instrument: Gunawardena and Zittle (1997), Picciano (2002), and So and Brush (2008) Analysis: T-test, Mann-Whitney U, Correlations	Agriculture and Life Sciences *(USA)*	3 sem

Authors	**Design**	**Main Factors: Social, Teaching, Cognitive Presence (SP, TP, CP)**	**Satisfaction (S)**	**Other Factors/finding: >S=significant ≠S=not significant**	**Sample/level & Response rate (RR)**	**Instrument & analysis**	**Location/ Courses H=hybrid, FO=fully online**	**Course Period**
Zhan & Mei (2013)	QuanTI	SP	Course	Academic self-concept>S learning achievement F2F>S FO≠S	n=257 (n = 121 F2F, n= 136 F) RR was not reported	Instrument: The Social Presence Inventory (SPI), course interest survey (CIS), Analysis: T-Test, Multigroup analysis-AMOS	Digital design *(a major university Southeast China)*	Spring & Fall 2011
Bulu (2012)	QuanTI	SP	Course	Place presence, co-presence, immersive tendencies>S	N=46 (small sample size), Response rate was not reported,	Instrument: SP from Kreijns et al. (2007). Analysis: Correlation, Multiple regression	Educational course *(Middle East Technical University in Turkey)*	1 sem
So & Brush (2008)	Mixed	SP	Course	Age>S Computer competency>S No of distance courses>S, collaborative learning>S, preferences for learning>SP	N=48 (small sample size), 87.27 % RR N=9 interviewed	Instrument: Analysis: EFA, Correlation, Multiple regression	H Health education	1 sem

Authors	**Design**	**Main Factors: Social, Teaching, Cognitive Presence (SP, TP, CP)**	**Satisfaction (S)**	**Other Factors/finding: >S=significant ≠S=not significant**	**Sample/level & Response rate (RR)**	**Instrument & analysis**	**Location/ Courses H=hybrid, FO=fully online**	**Course Period**
Joo, Lim, & Kim (2011)	QuanTI	SP, TP,CP	Learner	Perceived usefulness and ease of use>S CP,TP>S CP pred S	N=709 59.80 % RR	Instrument: CoI, Satisfaction (Shin, 2003), Analysis: SEM-CFA,	Elective computer course (University in Korea)	Fall 2009
Shea and Bidjerano (2008)	QuanTI	SP, TP,CP	Course	Registration status, Age>Presences,	N=1106 80.97 % R.rates	Instrument: CoI Analysis: EFA, ANOVA, MANOVA, Hierarchical Regression.	FO Unknown university	Not reported

Authors	Design	Main Factors: Social, Teaching, Cognitive Presence (SP, TP, CP)	Satisfaction (S)	Other Factors/finding: >S=significant ≠S=not significant	Sample/level & Response rate (RR)	Instrument & analysis	Location/ Courses H=hybrid, FO=fully online	Course Period
Kim & Zhang (2010)	QuanTI	SP	User	sense of presence>S (virtual presence and social presence), sense of belonging (feelings of membership, feelings of influence, feelings of support, and emotional connection), cognitive absorption (temporal dissociation, focused immersion, heightened enjoyment, and curiosity) loyalty	N = 71 91 % RR	Instrument: Self-developed Analysis: Structural modelling, Correlation	USA	Not reported
Alman, Frey and Tomer (2012)	QuanTI	SP, TP,CP	Course	Online course experiences	N = 36 67% RR	Instrument: CoI Analysis: Mann-Whitney	IT courses FO, F2F	Summr 2011

Appendix B: The Community of Inquiry (COI) Survey Instrument



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Community of Inquiry (COI) Survey

Thank you for taking time to complete this survey.

This online survey contains 40 main items and approximately takes 15-20 minutes or less to complete. The purpose is to inquire about your experiences with your tutor (teaching presence), peers (social presence) and course content (cognitive presence) with regard to your course satisfaction which occur in MyVLE/MyLMS discussion forum.

Please complete the survey as much as you can so our data is complete.

Remember, you could have chance to win a lucky draw (A set of Corelle OR a Wristlet coach OR a Fossil watch) if you participate in the lucky draw process at the end of the survey.

You need to respond to the following items is based only on **ONE** course that you have just completed in **January 2014 semester** only.

Please specify the name of the course or course code that you are referring to

Name of the course/course code

This course is under faculty of:

- Education & Language
- Applied Social Sciences
- Business Management
- IT & Multimedia Communication
- Science & Technology
- Nursing & Health Science
- Others (Please specify)

0% 100%

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This section is about your presence in the MyVLE 'Online Discussion' between you and your tutor (instructor). Please indicate your level of agreement with each item from strongly disagree to strongly agree (1 to 5) considering the ONE course you have specified above and that you have just completed

Teaching Presence (about your tutor)

*(Considering only **ONE** course that you have just completed)*

Design & Organization

1) The tutor clearly communicated important course topics.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

2) The tutor clearly communicated important course goals.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

3) The tutor provided clear instructions on how to participate in course learning activities.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

4) The tutor clearly communicated important due dates/time frames for learning activities.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

0% 100%

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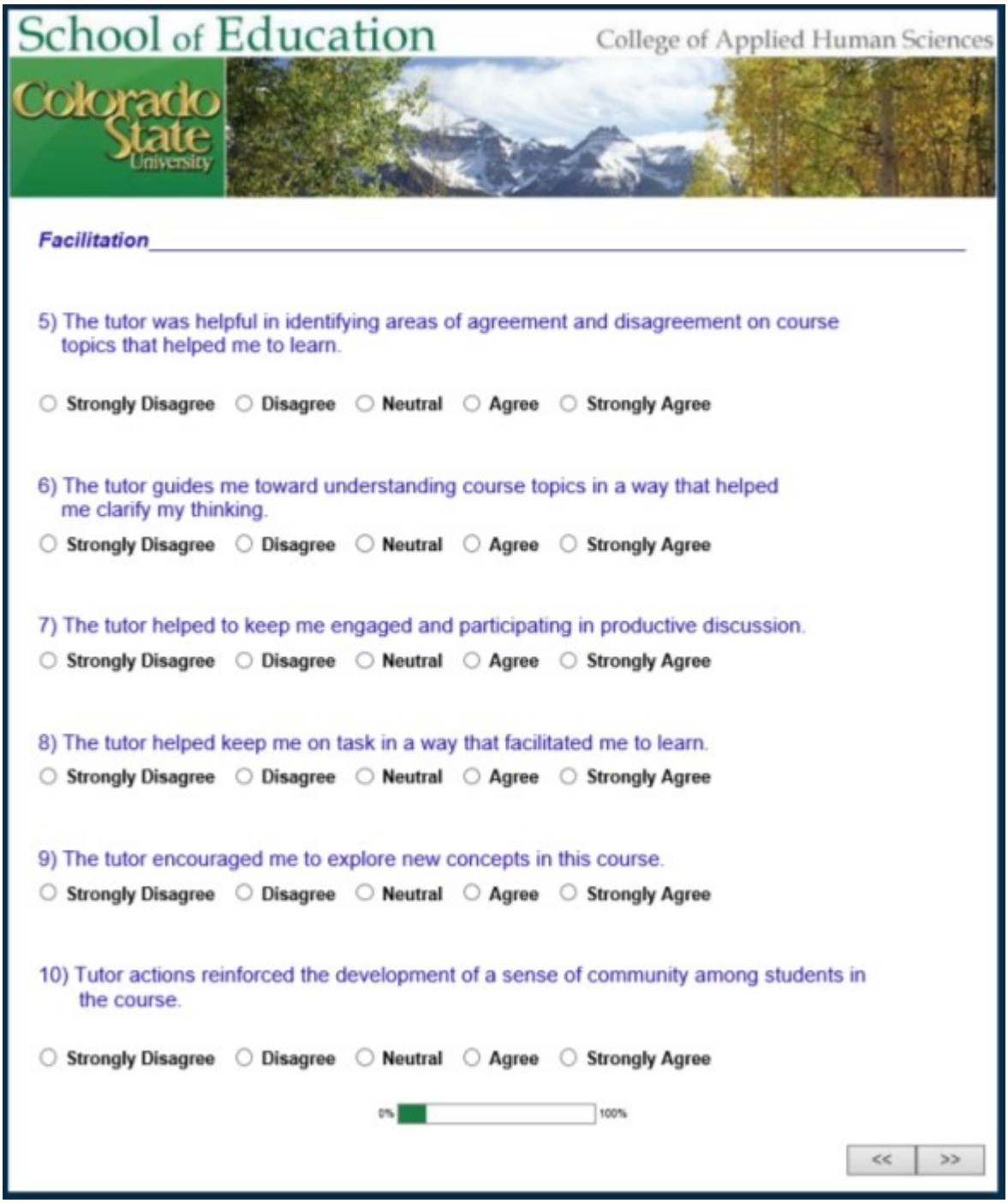
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Facilitation
5) The tutor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
Strongly Disagree Disagree Neutral Agree Strongly Agree
6) The tutor guides me toward understanding course topics in a way that helped me clarify my thinking.
Strongly Disagree Disagree Neutral Agree Strongly Agree
7) The tutor helped to keep me engaged and participating in productive discussion.
Strongly Disagree Disagree Neutral Agree Strongly Agree
8) The tutor helped keep me on task in a way that facilitated me to learn.
Strongly Disagree Disagree Neutral Agree Strongly Agree
9) The tutor encouraged me to explore new concepts in this course.
Strongly Disagree Disagree Neutral Agree Strongly Agree
10) Tutor actions reinforced the development of a sense of community among students in the course.
Strongly Disagree Disagree Neutral Agree Strongly Agree
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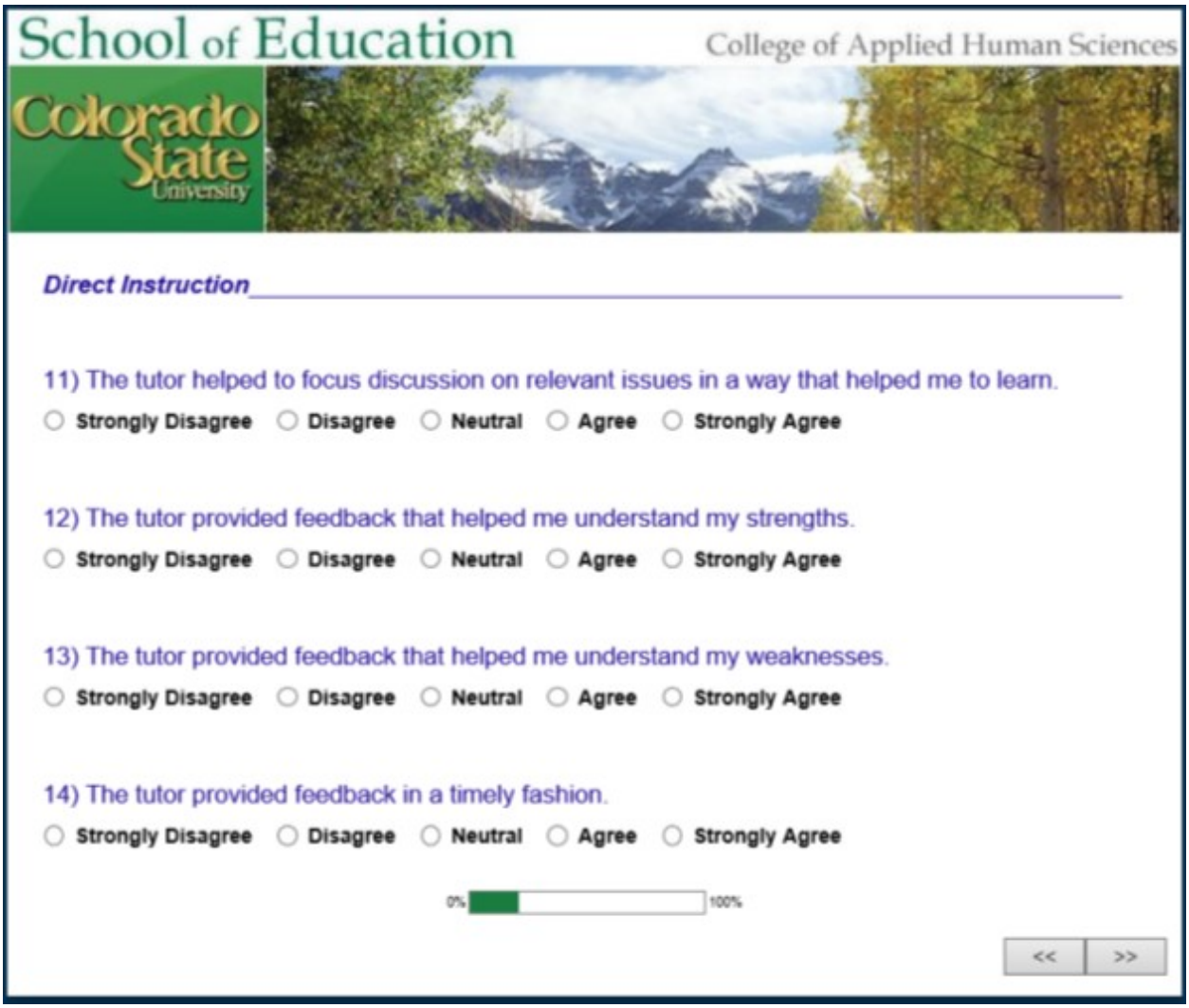
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Direct Instruction
11) The tutor helped to focus discussion on relevant issues in a way that helped me to learn.
Strongly Disagree Disagree Neutral Agree Strongly Agree
12) The tutor provided feedback that helped me understand my strengths.
Strongly Disagree Disagree Neutral Agree Strongly Agree
13) The tutor provided feedback that helped me understand my weaknesses.
Strongly Disagree Disagree Neutral Agree Strongly Agree
14) The tutor provided feedback in a timely fashion.
Strongly Disagree Disagree Neutral Agree Strongly Agree
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This section is about your presence in the MyVLE 'Online Discussion' between you and your peers. Please indicate your level of agreement with each item from strongly disagree to strongly agree (1 to 5) considering the ONE course you have specified above and that you that you have just completed.

Social Presence (about your peers)

*(Considering only **ONE** course that you have just completed)*

Affective Expression

15) Getting to know other peers gave me a sense of belonging in the course.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

16) I was able to form distinct impressions of some peers in the course.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

17) I felt online or web-based communication is an excellent medium for social interaction discussion.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

0% 100%

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Open Communication

18) I felt comfortable discussing through the online medium.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

19) I felt comfortable participating in the course discussions.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

20) I felt comfortable interacting with other peers using discussion forum.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

0% 100%

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Group Cohesion

21) I felt comfortable disagreeing with other peers in discussion while still maintaining a sense of trust.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

22) I felt that my point of view was acknowledged by other peers in discussion.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

23) Online discussions help me to develop a sense of collaboration.

○ Strongly Disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

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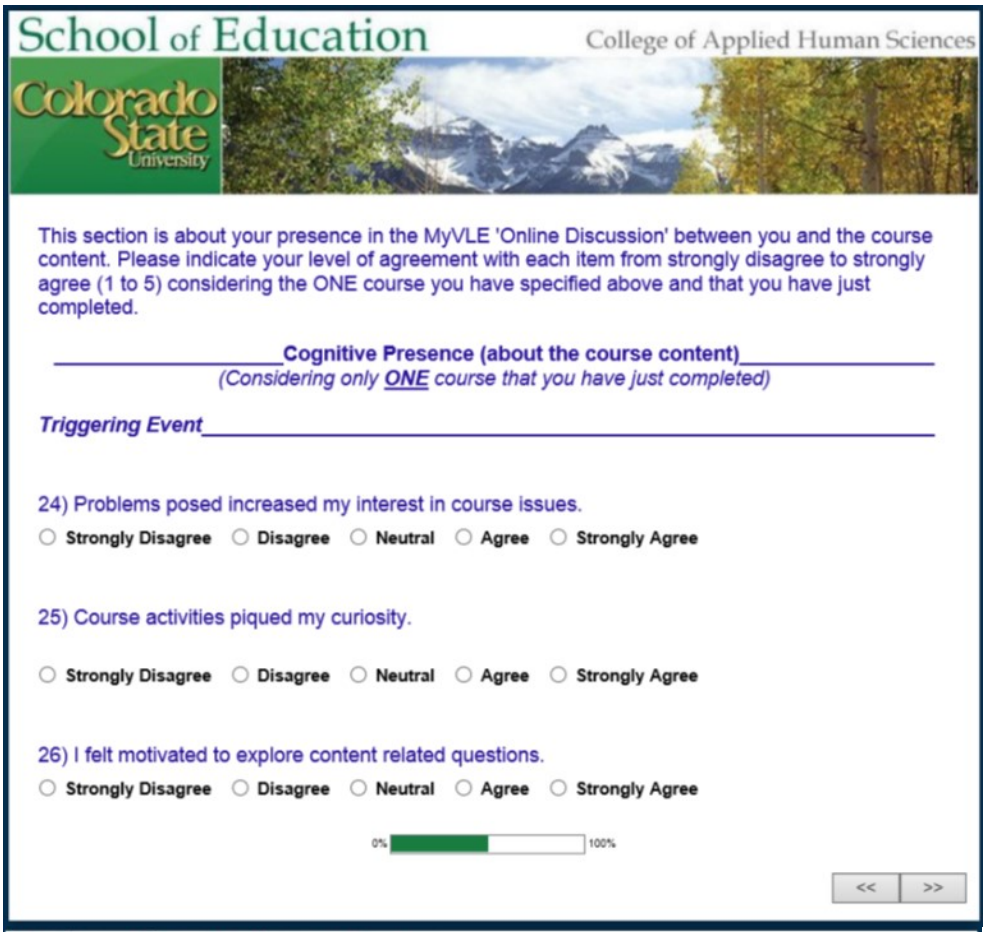
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This section is about your presence in the MyVLE 'Online Discussion' between you and the course content. Please indicate your level of agreement with each item from strongly disagree to strongly agree (1 to 5) considering the ONE course you have specified above and that you have just completed.

Cognitive Presence (about the course content)

*(Considering only **ONE** course that you have just completed)*

Triggering Event

24) Problems posed increased my interest in course issues.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

25) Course activities piqued my curiosity.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

26) I felt motivated to explore content related questions.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

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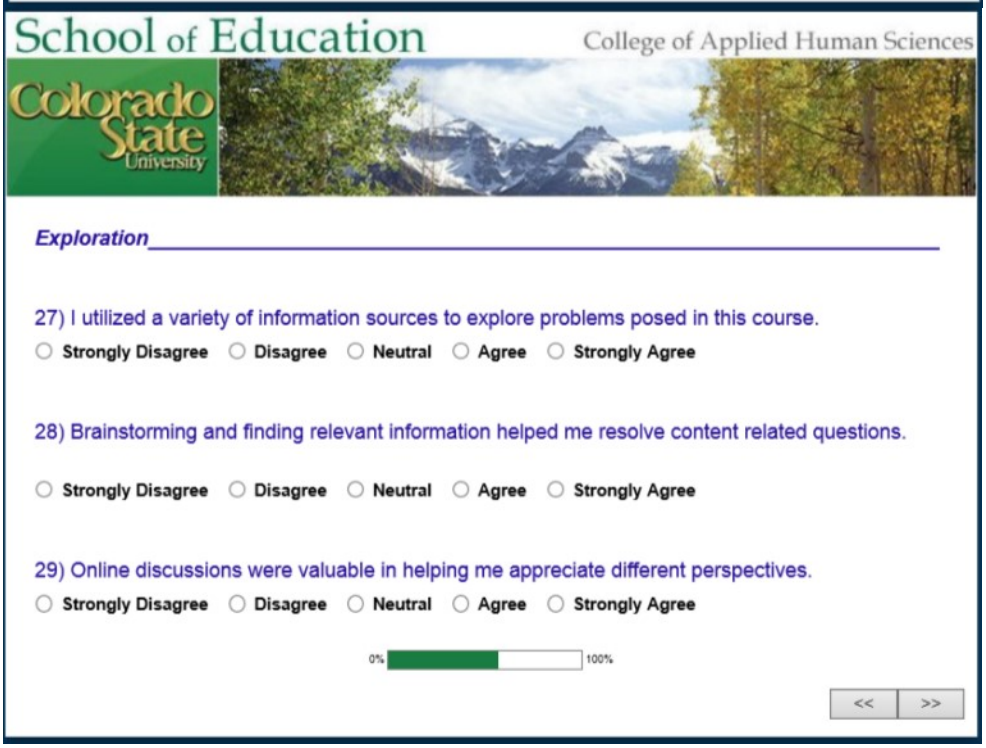
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Exploration

27) I utilized a variety of information sources to explore problems posed in this course.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

28) Brainstorming and finding relevant information helped me resolve content related questions.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

29) Online discussions were valuable in helping me appreciate different perspectives.

○ **Strongly Disagree** ○ **Disagree** ○ **Neutral** ○ **Agree** ○ **Strongly Agree**

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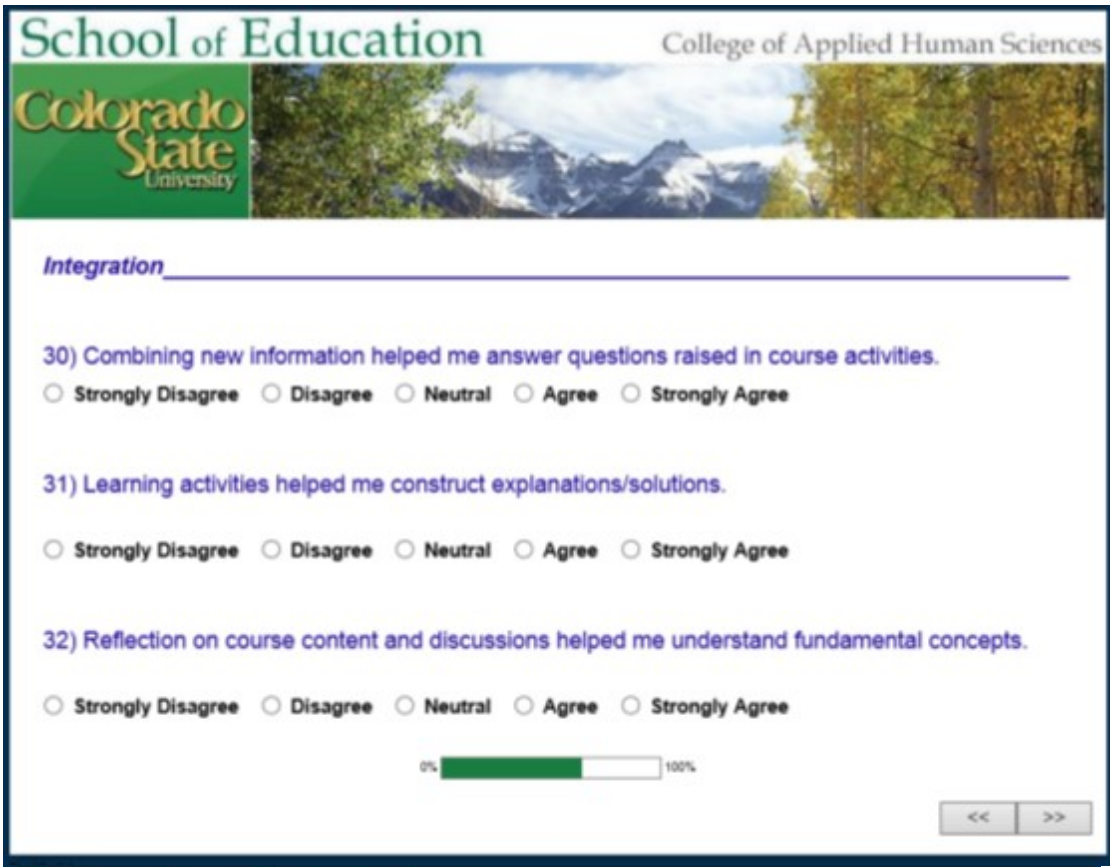
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Integration
30) Combining new information helped me answer questions raised in course activities.
Strongly Disagree Disagree Neutral Agree Strongly Agree
31) Learning activities helped me construct explanations/solutions.
Strongly Disagree Disagree Neutral Agree Strongly Agree
32) Reflection on course content and discussions helped me understand fundamental concepts.
Strongly Disagree Disagree Neutral Agree Strongly Agree
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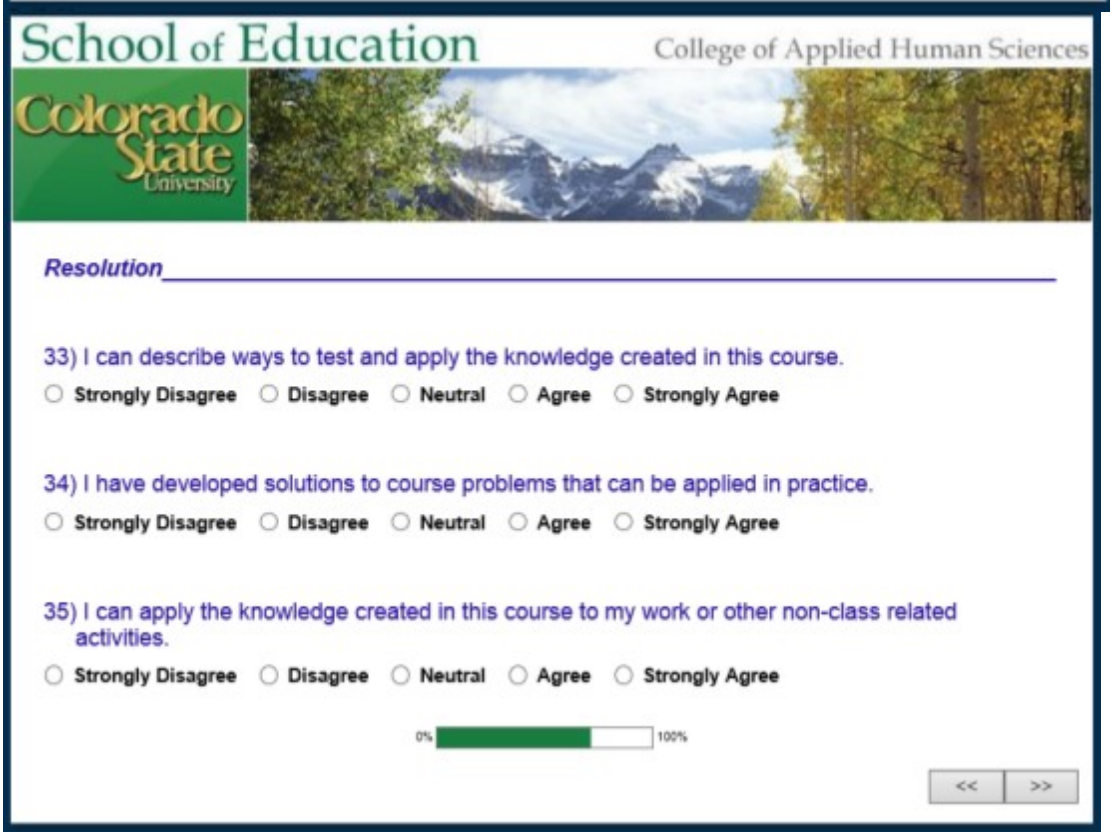
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Resolution
33) I can describe ways to test and apply the knowledge created in this course.
Strongly Disagree Disagree Neutral Agree Strongly Agree
34) I have developed solutions to course problems that can be applied in practice.
Strongly Disagree Disagree Neutral Agree Strongly Agree
35) I can apply the knowledge created in this course to my work or other non-class related activities.
Strongly Disagree Disagree Neutral Agree Strongly Agree
0%
100%
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This section is about your overall course satisfaction. Please indicate your level satisfaction with each item from very satisfied to very dissatisfied (1 to 6) considering the **ONE** course you have specified above and that you have just completed.

Overall Course Satisfaction

*(Considering only **ONE** course that you have just completed)*

36) I am _____ with the course meeting my goals.

Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied	Very Dissatisfied
○	○	○	○	○	○

37) I am _____ to recommend this course to a friend who needs to learn the material online.

Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied	Very Dissatisfied
○	○	○	○	○	○

38) I am _____ with my understanding of the course content.

Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied	Very Dissatisfied
○	○	○	○	○	○

39) I am _____ with the online discussion in MyVLE (MyLMS) used in this course.

Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied	Very Dissatisfied
○	○	○	○	○	○

40) Overall, I am _____ with this online course

Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied	Very Dissatisfied
○	○	○	○	○	○

Open Ended Questions

What would motivate you to participate more in the discussion forum?
Please explain in detail why or why not

0% 100%

<< >>

School of Education College of Applied Human Sciences

Personal Information

I am

○ Male ○ Female

My year of birth is

My ethnicity/race is

○ Malay ○ Chinese ○ India ○ Other

My registration status is

○ Full Time ○ Part Time

My mode of study is

○ Fully online ○ Hybrid (Blended)

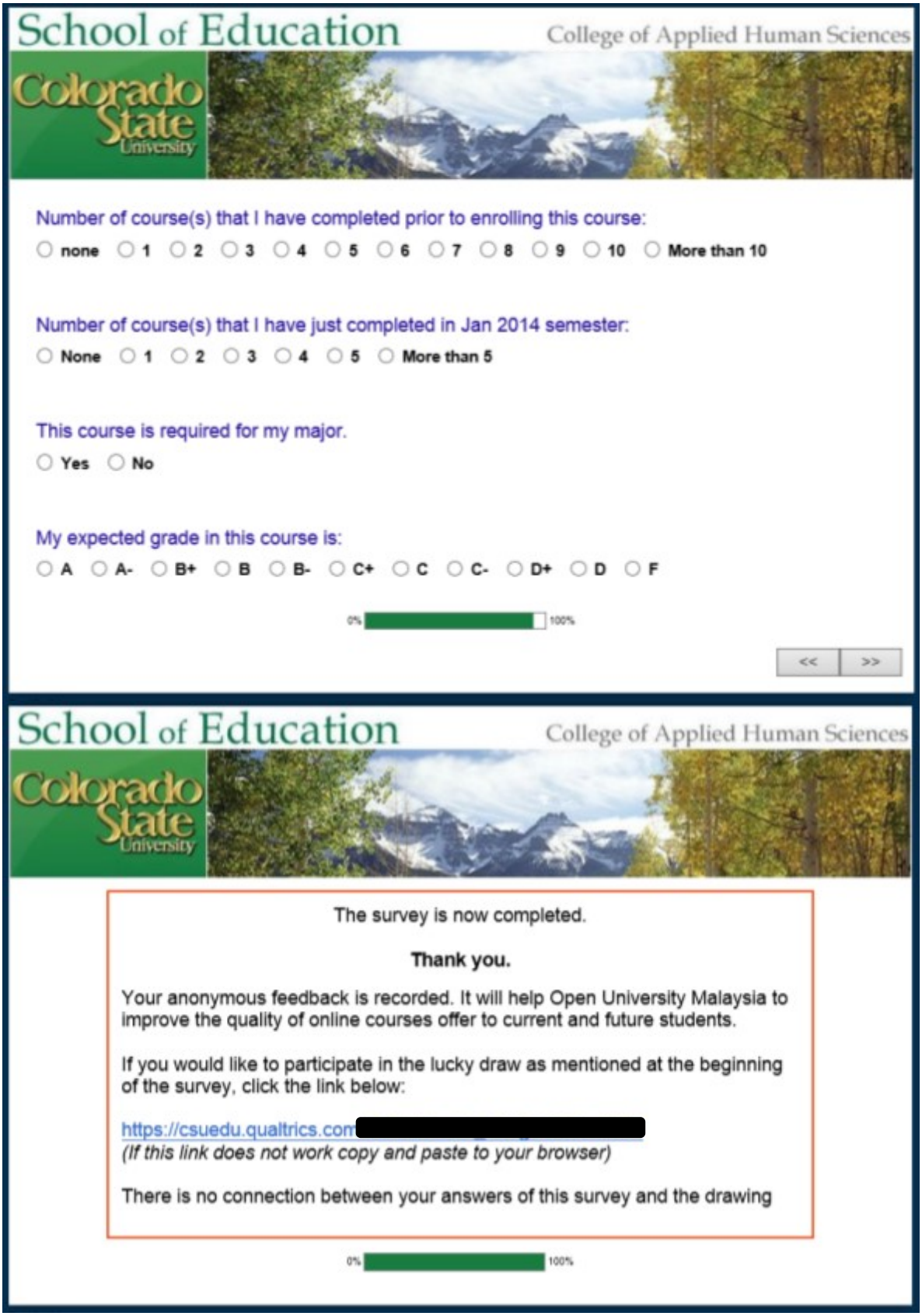
I am from Learning Center of

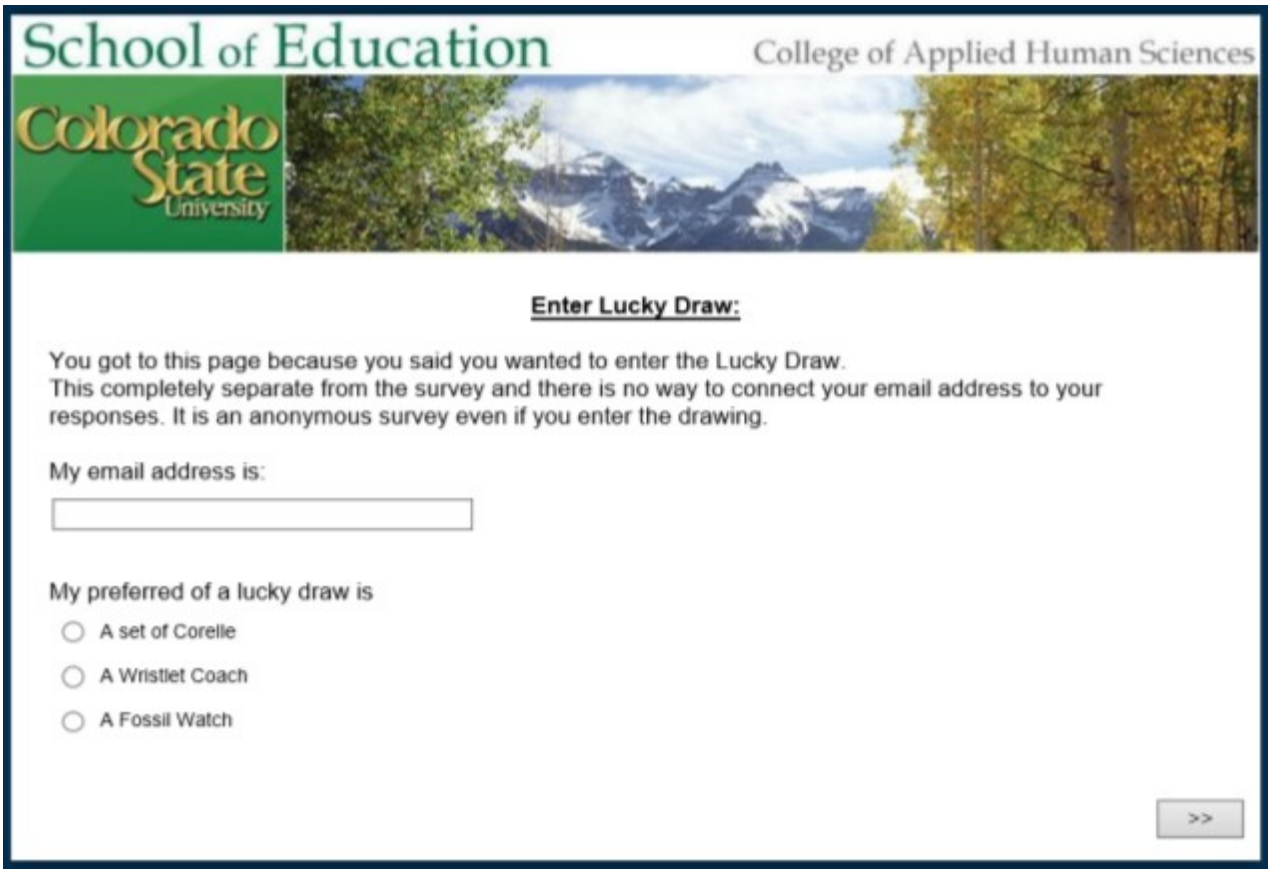
My Level of Study is

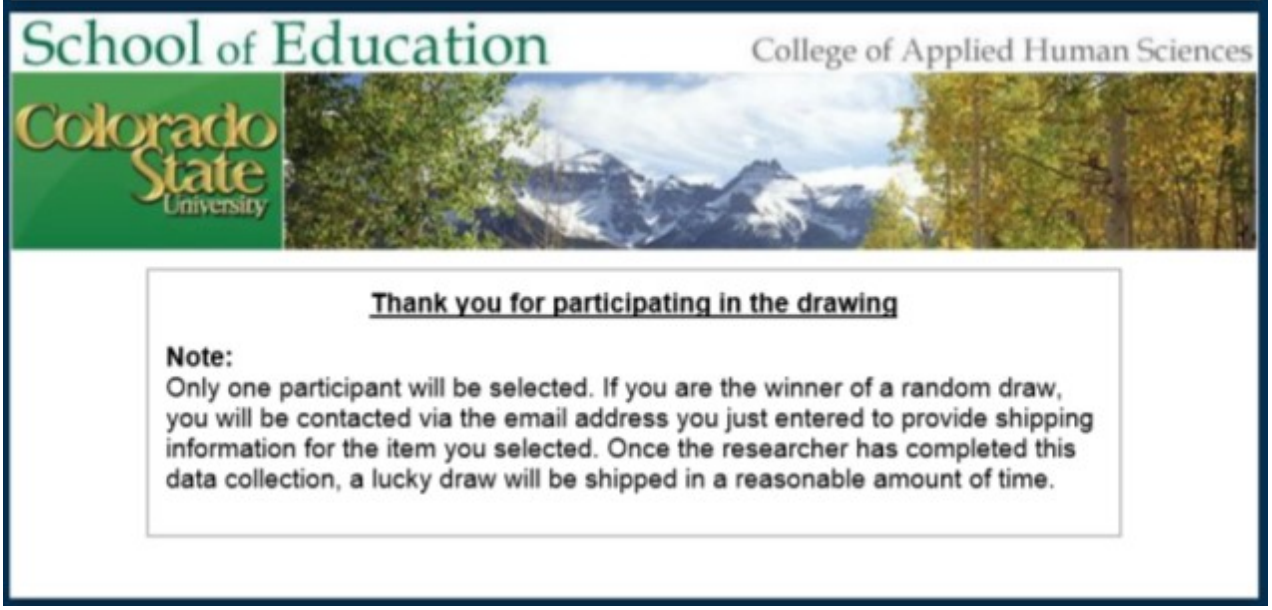
○ Diploma ○ Bachelor ○ Postgraduate ○ Others

0% 100%

<< >>


School of Education
College of Applied Human Sciences
Colorado State University
Number of course(s) that I have completed prior to enrolling this course:
none 1 2 3 4 5 6 7 8 9 10 More than 10
Number of course(s) that I have just completed in Jan 2014 semester:
None 1 2 3 4 5 More than 5
This course is required for my major.
Yes No
My expected grade in this course is:
A A- B+ B B- C+ C C- D+ D F
0% 100%
<< >>
School of Education
College of Applied Human Sciences
Colorado State University
The survey is now completed.
Thank you.
Your anonymous feedback is recorded. It will help Open University Malaysia to improve the quality of online courses offer to current and future students.
If you would like to participate in the lucky draw as mentioned at the beginning of the survey, click the link below:
https://csuedu.qualtrics.com
(If this link does not work copy and paste to your browser)
There is no connection between your answers of this survey and the drawing
0% 100%


School of Education
College of Applied Human Sciences
Colorado State University
Enter Lucky Draw:
You got to this page because you said you wanted to enter the Lucky Draw.
This completely separate from the survey and there is no way to connect your email address to your responses. It is an anonymous survey even if you enter the drawing.
My email address is:
My preferred of a lucky draw is
A set of Corelle
A Wristlet Coach
A Fossil Watch
>>


School of Education
College of Applied Human Sciences
Colorado State University
Thank you for participating in the drawing
Note:
Only one participant will be selected. If you are the winner of a random draw, you will be contacted via the email address you just entered to provide shipping information for the item you selected. Once the researcher has completed this data collection, a lucky draw will be shipped in a reasonable amount of time.

Appendix C: Cover Letter

COLORADO STATE UNIVERSITY
SCHOOL OF EDUCATION
209 Education Building
Colorado State University
Fort Collins, CO 80523-1588
Voice: 970.491.6317
FAX: 970.491.1317

Dear Students, *Assalamualaikum wbt* and *Salam Sejahtera.*

My name is Khalid; I am a tutor at the Open University Malaysia (OUM) and a doctoral candidate in the School of Education at Colorado State University (CSU) in USA, concentrating in Educational Leadership, Renewal and Change. With the approval from Professor Dr. Mansor Fadzil, our senior vice president of OUM, you have been selected to complete this online survey with the title of *"Factors Affecting Course Satisfaction of Online Malaysian University Students", as* part of my research. You are entitled to receive a lucky draw (A set of Corelle or a wristlet coach or Fossil watch) if you voluntarily participate in the drawing, please complete the survey as much as you can so our data is complete.

This online survey is to inquire about your experiences with your tutor *(teaching presence)*, peers *(social presence)* and course content *(cognitive presence)* with regard to your course satisfaction. Your participation in this study is totally anonymous and your name is not required except if you wish to participate in the lucky draw. Therefore, only one participant will win the drawing and will be contacted via email.

The survey should take approximately 15-20 minutes or less to complete. If you agree to participate, you can view and take this online survey questionnaire which is accessible through the following hyperlink that has been created using Qualtrics. Please answer the questions specifically focused only on **ONE** course that you have just completed.

[link]

You may receive another request next week and the week after via your OUM and personal email because this is anonymous we do not know if you have replied. Sorry for the extra emails. Only fill out the survey once. Your involvement is important to my study and is greatly appreciated. Thank you for taking the time to complete this survey. The information you provide will be used to help me and OUM improve the quality of the online courses in the future. I value your input and time and wish you good luck in your studies.

Best regards,

Don Quick, PhD
Co-Advisor and Study PI
237 Education
Colorado State University
Fort Collins. CO 80521, USA
don.quick@colostate.edu

Mohd Khalid Mohamad Nasir
Doctoral Candidate and Study Co-PI
Education and Human Resource Studies
Educational Leadership, Renewal and Change Specialization
School of Education, Colorado State University, USA
mohd_khaliid@yahoo.com / khaliid@oum.edu.my

Appendix D: Leverage Statistic

Case Summaries

	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
1	7.97897	.01080	.11082
2	5.28660	.00005	.07342
3	5.19023	.00861	.07209
4	5.95643	.00477	.08273
5	4.32492	.00488	.06007
6	18.17512	.04914	.25243
7	19.48430	.08310	.27062
8	3.36486	.00386	.04673
9	5.00732	.02530	.06955
10	5.41909	.01476	.07527
11	3.38618	.00105	.04703
12	7.72884	.00651	.10735
13	7.06621	.00656	.09814
14	12.24264	.00024	.17004
15	6.37151	.00565	.08849
16	6.10246	.00910	.08476
17	8.15976	.05202	.11333
18	3.11712	.01652	.04329
19	8.74625	.02066	.12148
20	3.13110	.06002	.04349
21	3.65614	.03193	.05078
22	4.16386	.00460	.05783
23	4.12089	.00041	.05723
24	3.20949	.00323	.04458
25	3.22537	.00272	.04480
26	3.16812	.00778	.04400
27	4.23620	.00471	.05884
28	8.03104	.00620	.11154
29	3.88225	.00052	.05392
30	6.51215	.00000	.09045
31	3.79497	.00818	.05271
32	4.75593	.00506	.06605
33	5.81846	.00000	.08081
34	7.21768	.00155	.10025
35	6.77238	.00008	.09406
36	5.03782	.00852	.06997

37	7.77299	.08942	.10796
38	18.08965	.02723	.25125
39	9.57648	.00726	.13301
40	15.42262	.00239	.21420
41	5.74295	.00511	.07976
42	2.98293	.00024	.04143
43	6.52786	.00040	.09066
44	8.30797	.01295	.11539
45	9.28218	.05481	.12892
46	6.56891	.00392	.09123
47	3.61827	.00851	.05025
48	4.28069	.00235	.05945
49	16.41161	.00086	.22794
50	2.79800	.00625	.03886
51	6.78835	.05928	.09428
52	13.25268	.15237	.18407
53	3.70301	.00018	.05143
54	7.30133	.00238	.10141
55	4.08618	.01221	.05675
56	3.28875	.01854	.04568
57	9.32758	.00373	.12955
58	4.80219	.01493	.06670
59	7.01427	.04823	.09742
60	21.14298	.28918	.29365
61	4.79205	.00005	.06656
62	3.73714	.00146	.05190
63	7.38184	.00039	.10253
64	5.79476	.00007	.08048
65	15.03778	.04460	.20886
66	4.11259	.01168	.05712
67	3.30602	.00126	.04592
68	2.59043	.00002	.03598
69	9.34088	.01916	.12973
70	11.34026	.00078	.15750
71	3.88481	.00066	.05396
72	4.36392	.00028	.06061
73	6.38439	.01911	.08867
Total N	73	73	73