The Role of Prior Online Learning Experience on Student Community of Inquiry, Engagement, and Satisfaction Scores

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Abstract
The increase in online education creates a need to explore how learning outcomes, student satisfaction, and student perceptions about online courses are affected by prior online learning experiences. This study examined the role of prior online learning experience on students' perceived cognitive presence, social presence, teaching presence, engagement, and satisfaction. The archival data of online learners at a large midwestern university (a total n=878), including survey responses related to Community of Inquiry (CoI), engagement, and satisfaction, were utilized to conduct statistical analyses to determine whether student responses differed by the number of online courses taken previously. We found that only social presence scores (CoI sub-scale) and emotional engagement scores (engagement sub-scale) differed by the number of the online courses taken. However, the effect size was small. We concluded that student satisfaction, engagement, and perceptions of cognitive and teaching presence are not related to prior online course experiences. Implications are discussed.

Keywords: Online learning, prior online learning, Community of Inquiry, engagement, satisfaction

The number of online courses around the globe continues to increase (Lederman, 2018). For instance, in the United States, 31.6% of students in higher education completed at least one online course between Fall 2015 to Fall 2016 (Seaman et al., 2018). Admission in online courses has grown consecutively for fourteen years, even as traditional offerings have evened out (Seaman et al., 2018). Research has been undertaken to consider the global transition to online education as a result of COVID19: Asia (Adnan & Anwar, 2020; Baticulon et al., 2021; Islam, 2021), Australia (Dodd et al., 2021), Africa (Dube, 2020), Europe (Greek & Landri, 2021), Middle East (Hussein et al., 2020), North America (Wu et al., 2020), and South America (Coolican et al., 2020). The continuation of this trend in post-pandemic education is quite likely, considering the advantages of online learning: more active and flexible learning (Rapanta et al., 2021), as an alternative for students who cannot attend face-to-face classes for personal or professional reasons (Ladson-Billings, 2021), and its suitability for emergency situations (Cahapay et al., 2020). However, the rapid increase in online courses does not always lead to students' successful completion of these courses. Students' attrition rates are still higher than traditional face-to-face courses (Ferguson, 2020; Garratt-Reed et al., 2016; Hachey et al., 2013). Several factors may contribute to this phenomenon, including organizational support and relevance (Park & Choi, 2009), number of credit hours in which students are enrolled, students' prior GPA (Aragon & Johnson, 2008), students' use of strategies (Wang et al., 2013), and students' online learning self-efficacy (Shen et al., 2013). Given this, there is a vested interest in understanding students' learning experiences in an online environment.

Students' prior online learning experience has been discussed in the literature as an important factor that impacts learning outcomes and perceptions. However, empirical evidence is mixed in support of its role. For instance, prior online learning experiences can positively affect students' expectations of online courses (Hixon et al., 2016), perceptions of online courses (Astani et al., 2010), self-efficacy (Shen et al., 2013), utilization of strategies (Shih et al., 2006; Wang et al., 2013), motivation (Yoo, 2013), engagement (Martin & Bolliger, 2018), satisfaction (Jan, 2015; Landrum, 2020), and learning outcomes from online courses (Hachey et al., 2015) to varying degrees. On the other hand, some research has demonstrated the negative effect of prior experiences for later success and perceptional changes (e.g., Arbaugh, 2005; Artino, 2011). Thus, this study aims to explore the role of prior online learning experience to further understand its relationship to student success as defined by the factors of perceived cognitive presence, social presence, teaching presence, engagement, and satisfaction.

Literature Review

Student Perceptions of Prior Online Learning Experience
Student perceptions of online courses can vary depending on the extent of their experiences with online learning. For instance, experienced students who completed at least seven courses viewed entirely different aspects of online courses as important (e.g., assessment appropriateness, content quality, available technology) than did novice students who completed three or fewer online courses (e.g., netiquette, general guidelines) (Hixon et al., 2016). This suggests that students' expectations toward online learning will change or evolve as they gain further experiences with online courses.

Additionally, some researchers found that prior online learning success is a key predictor of subsequent online course successes. For example, Hachey et al.'s study (2015) of 1,566 students enrolled in STEM courses in a large urban community college found that students who achieved higher GPAs were likely to have more prior online learning experiences. They also found that prior online learning experience significantly predicted students' successful course completion even when controlling for prior GPAs. A possible explanation for this is that as students take more online courses, they take ownership of their learning, learn to self-regulate their behavior, organize their learning, and use more deep learning strategies (Richardson & Newby, 2006).

Several lines of evidence also suggest that prior online learning experience leads to increased student satisfaction, self-efficacy, motivation, and use of strategies. For instance, Astani et al. (2010) found that prior online learning experience led to satisfactory perceptions about online learning among students in business studies. After surveying 406 students, Shen et al. (2013) found a significant positive relationship between prior online learning experience and two of the five dimensions of online learning self-efficacy: "a) self-efficacy to complete an online course, and b) self-efficacy to interact with classmates for academic purposes" (p. 16). Moreover, Wang et al. (2013) surveyed 256 undergraduate and graduate students in the U.S. and found that more experience with online learning led to the use of more effective learning strategies such as elaboration, time management, metacognitive and self-regulation, and critical thinking which, in turn, led to increased motivation in online learners. Improved organizational strategies were also found among participants who had more previous experience with information and communication technologies. For instance, participants who had more experience with internet tools organized their activities with less time and surfing fewer pages on the internet (Shih et al., 2006).

However, some contradictory findings have also been reported for prior online learning experience. For instance, Arbaugh (2005) conducted a four-year longitudinal study between 1998 and 2002 and found that students' ratings of perceived learning decreased between their beginning course and subsequent courses while they were in the Master of Business Administration (MBA) program. This means that prior online learning not only did not improve students' perceived learning over time but, in fact, caused its decline. Similarly, Artino (2011) surveyed 135 students after applying the Quality Matters Standard and concluded that students who had more prior online learning experience had lower perceptions of the quality of online course design than those who did not have any prior experience. Although the study by Yoo and Huang (2013) was inconclusive in understanding the relationship between prior online learning experience and adult students' motivation, it indicated that those learners with limited prior online experiences needed solid instructional support at least in the beginning year of their online studies.

Constructs Investigated in Relation to Prior Online Learning

Community of Inquiry Survey: Cognitive, Social and Teaching Presence. In this study, we used the Community of Inquiry (CoI) survey (Arbaugh, 2008) that was created based on the CoI framework as one of the instruments to measure student perceptions of online learning. The CoI model developed by Garrison et al. (2000) is widely used to explain the deep and meaningful online learning environment through the intersection of three interconnected components: cognitive presence, social presence, and teaching presence (Garrison et al., 2010).

Cognitive presence is defined as "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al., 2000, p. 89). Social presence refers to the degree to which the learners in an online course feel socially and emotionally attached to other students (Swan et al., 2009). Anderson et al. (2001) defined teaching presence as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (p. 5). Through the CoI survey, we measured student perceptions of cognitive presence, teaching presence, and social presence separately. The basis of the CoI survey is the CoI framework, which can "provide order, heuristic understanding, and a methodology for studying the potential and effectiveness of computer conferencing" (Garrison et al., 2010, p. 6).

Several research studies have investigated the interaction between different CoI presences while controlling for prior online learning experience. For instance, Archibald (2010) investigated the impact of teaching presence and social presence on cognitive presence while controlling for prior online learning experience. Shea and Bidjerano (2012) explored whether students' self-regulated learning impacted different CoI presences while controlling for prior online learning experience. Because, in both studies, prior online learning experience was controlled for, its relationship with different presences in CoI was not explored and is thus still unknown.

Student Engagement. Engagement, a key element in learning environments, refers to students' persistent efforts to achieve the set learning objectives through interaction (Hu & Kuh, 2002; Richardson & Newby, 2006). In the context of online education, engagement is considered an important variable influencing students' learning and satisfaction (Kucuk & Richardson, 2019; Mason, 2011; Robinson and Hullinger, 2008; Truhlar et al., 2018). Through a collective case study, Orcutt and Dringus (2017) found that instructors' active teaching presence beyond prescribed pedagogies (i.e., interest and passion for teaching, establishing the relevance of course content to learners, promoting a shared responsibility in the teaching and learning process) impacted student engagement and intellectual curiosity the most in a structured online learning environment. After examining four synchronous chat interactions in an introductory sustainability course, Truhlar et al. (2018) found that assignment of chat roles and students' group reflections enhanced critical student-to-student engagement, whereas students' self-reflection did not have any effect. Buelow et al. (2018) reported that students found intellectually stimulating questions pertaining to practical situations and opportunities for sharing diverse opinions and developing individual viewpoints more engaging than other strategies. After conducting a survey study examining which engagement strategies students valued most (learner-to-learner, learner-to-instructor, and learner-to-content), Martin and Bolliger (2018) found that students gave most importance to learner-to-instructor engagement strategies. They also found prior online learning experience to be a significant factor in differences of student perceptions regarding three specific interaction items: utilization of an informal virtual lounge, regular instructor email messages and announcements, and interaction with a wide range of content. For instance, an informal virtual lounge was given more importance by students with less prior experience than by students with more online experience. Through analyzing existing literature, Redmond et al. (2018) proposed an online engagement framework consisting of five engagement components: social, cognitive, emotional, collaborative, and behavioral. They also

included indicators for each type of engagement. Similarly, Reeve (2013) discussed four types of engagement: behavioral, emotional, cognitive, and agentic, and their fit within self-regulated learning theory. Behavioral engagement refers to giving attention to information sources and persevering in the learning process. Emotional engagement denotes students' inquisitiveness and mitigation of their stress level and dissatisfaction. Cognitive engagement represents students' use of effective strategies to solve problems or achieve learning objectives. Finally, agentic engagement refers to a learner-initiated drive that leads to a more effective learning environment. The final component of engagement is different from the other three as it is learner initiated and driven, whereas the other three are only learner driven. The original engagement survey developed by Reeve (2013) was intended for in-person learning environments. However, Kucuk and Richardson (2019) adapted it for online context by modifying certain words for each item without altering its meaning. For instance, "When I am in this class, I listen very carefully" was changed to "When I am in my course, I am able to focus." (Kucuk & Richardson, 2019, p. 201) In this study, we used the modified engagement survey that Kucuk and Richardson (2019) used based on the survey developed by Reeve (2013) to measure student perceptions on these four types of engagement in the online environment separately.

Student Satisfaction. Student satisfaction is also a determinant of success of online courses (Alqurashi et al., 2019; Kucuk & Richardson, 2019; Kauffman, 2015). Satisfaction of students in online courses refers to students' own perceptions of their online learning experience, and it is an important predictor of a high level of student achievement (Biner et al., 1997; Sahin & Shelley, 2008). Higher satisfaction also leads to more persistence for students in an online course (Ali & Ahmad, 2011; Joo, Joung, & Kim, 2014). A study conducted by Landrum (2020) revealed that students' satisfaction with online courses is strongly impacted by their own ability to learn online. This study also found that students' satisfaction with online courses increases as they gain more experience with online learning. Jan (2015) found a significant positive relationship between prior online learning experience and satisfaction by surveying 103 graduate students at a midwestern university. Studies have also examined the relationship between various CoI presences and student satisfaction in online courses. Through meta-analyses, for instance, Richardson et al. (2017) and Caskurlu (2020) found a moderate positive correlation between student satisfaction and social presence, and between student satisfaction and teaching presence respectively. Students' cognitive presence has also been found to be significantly related to student satisfaction (Akyol & Garrison, 2008). Therefore, we can conclude that student satisfaction is an important variable as both a predictor and determinant of success in the online learning environment. In this study, we used the instrument developed by Kuo et al. (2013) to measure student satisfaction.

Prior research has shown that the CoI framework has the potential to provide insights into the implications of various crucial outcomes of the online learning such as perceived learning, engagement, and satisfaction (Richardson et al., 2017; Kucuk & Richardson et al., 2019; Garrison & Akyol, 2013; Rockinson-Szapkiw et al., 2016; Swan, 2001). However, to date, there is no research that has explored whether prior online learning experiences play a role in students' perceived cognitive presence, social presence, teaching presence, engagement, or satisfaction. Therefore, the purpose of this study is to examine whether students' previous number of online courses had an impact on these constructs. We hypothesized that participants who had taken more online courses would have higher perceptions of these constructs than participants who had taken fewer online courses. Specifically, the research questions were:

1. To what extent do students' ratings of cognitive presence, social presence, and teaching presence in online courses differ by the number of online courses previously taken?
2. To what extent do students' ratings of their engagement in online courses differ by the number of online courses previously taken?
3. To what extent do students' ratings of their satisfaction with their online courses and instructors differ by the number of online courses previously taken?

Method

Data Sources

This study utilized the archival data collected from the students of an online MS program in Learning Design and Technology at a large Midwestern public university. The program was selected as this is where the researchers are housed and involved in the improvement of online education as researchers, designers, and instructors. The expected duration to complete this fully online program is 20 months, and the duration of each course is eight weeks. The program enrolls around 240 students at any given time. Three instruments, the Community of Inquiry survey (Arbaugh et al., 2008), an adapted version of Reeve's 2013 engagement survey (Kucuk & Richardson, 2019), and Kuo et al's satisfaction survey (2013) were administered as part of the end of course evaluation. Participation in the surveys was voluntary; however, if 90% of students from a section completed a survey, then they received two bonus points. Data were collected anonymously using the Qualtrics survey system. For this study, the data consisted of 878 responses in 100 sections of 12 courses taught by 37 instructors between fall 2016 and fall 2017.

Dependent Variables

We decided to use student perceptions rather than actual student learning (i.e., grades) as our dependent variables because our sample spanned different courses, and it may be difficult to compare grades between different courses as the grading rubrics and standards may vary greatly. Instruments of student perceptions were assumed to give us a unified measure to compare different student outcomes across courses and contexts. This argument has been supported by previous literature (Arbaugh, 2005; Richardson et al., 2010).

We used eight subscale scores from three instruments as dependent variables. The CoI survey, developed by Arbaugh (2008), is a 34-item survey on a five-point Likert scale to measure teaching presence, cognitive presence, and social presence. The reliability of this instrument has been established through Cronbach's alpha, which indicated high internal consistency: (a) cognitive presence (CP) (12 items) = 0.95, (b) social presence (SP) (nine items) = 0.91, and (c) teaching presence (TP) (13 items) = 0.94 (Arbaugh, 2008). Reliability estimates computed with our data (n =878) are also comparable with what reported by Arbaugh (2008); (a) cognitive presence (CP) = 0.956, (b) social presence (SP) = 0.927, and (c) teaching presence (TP) = 0.964.

Reeve's engagement survey (2013) was adapted for the online context by Kucuk and Richardson (2019) and used to measure engagement in online courses (Note: 2019 publication utilized same data set as this study). The survey consists of 17 items on a five-point Likert scale, and the reported Cronbach's alpha with their original sample was high: (a) agentic engagement (AE) (five items) = 0.84; (b) behavioral engagement (BE) (four items) = 0.87; (c) emotional

engagement (EE) (four items) = 0.91; and (d) cognitive engagement (CE) (four items) = 0.72 (Reeve, 2013). With the current data, reliability estimates are for AE = .888, for BE =.868, for EE = .926, and for CE =.857, respectively.

The satisfaction instrument developed by Kuo et al. (2013) was utilized to measure student satisfaction (SS) with online learning. The instrument consists of five items on a five-point Likert scale. Kuo et al. (2013) reported the Cronbach's alpha of 0.93, which is similar strength of what we found with the current data (alpha = .916). We computed the average score across item responses for each component of CoI, engagement, and satisfaction scale to obtain single scale score for each construct and used for analysis (Kucuk & Richardson, 2019). Table 1 summarized intercorrelations among the eight dependent variables.

Table 1
Pearson's Correlation Matrix among Eight Dependent Variables

	DV	TP	SP	CP	BE	AE	CE	EE
Presence	TP							
	SP	.486**						
	CP	.719**	.713**					
Engagement	BE	.452**	.586**	.618**				
	AE	.505**	.602**	.633**	.637**			
	CE	.418**	.526**	.618**	.622**	.636**		
	EE	.712**	.599**	.846**	.609**	.584**	.604**	
Satisfaction	SA	.790**	.658**	.861**	.597**	.570**	.542**	.852**

**p<.01

Listwise deletion was used (*n* = 679)

Independent Variable

The original survey included a question regarding the number of online courses the student took before enrolling in the existing course. The number of previous online courses in this sample ranged from 1 to 4 courses. It is noteworthy that while our independent variable is ordinal, we decided to include the variable as a categorical variable in our inferential analyses due to the limited range and unbalanced frequencies among categories and we do not expect a monotonical relationship between the number of courses and outcome variables.

Data Analysis

Because the subscale scores of CoI (CP, TP, and SP) and engagement scores (BE, AE, CE, EE) are highly correlated (See Table 1. Presence scores ranged from *r* = .486 to .719; Engagement scores ranged from r =.584 to .637), multivariate analysis of variance (MANOVA) was conducted on the CoI and engagement scores separately to address the first two research questions. To address the third research question, we conducted a one-way analysis of variance (ANOVA) on the satisfaction outcome. We used the alpha of 0.05 to make a statistical decision on significance. Prior to the inferential analyses, we conducted a series of descriptive analyses to examine if the data met the underlying data assumptions for ANOVA and MANOVA.

Results

Descriptive Statistics

The number of previous online courses ranged from one to four with four courses taken by the highest number of respondents (67%), followed by three courses (22.2%), one course (5.6%), and two courses (5.2%). The descriptive statistics for the dependent variables (CoI scores, engagement scores, and satisfaction scores) are presented in Table 2.

Table 2

Descriptive Statistics for the Dependent Variables in Total and by the Number of Online Courses

Previously Taken

Outcome		Number of online courses								
		1		2		3		4		
		n	*M (SD)*	*n*	*M (SD)*	*n*	*M (SD)*	*N*	*M (SD)*	*p*
CoI	CP	45	4.26 (.43)	44	4.32 (.75)	182	4.17 (.64)	546	4.22 (.70)	<.001
	SP	49	4.07 (.58)	45	4.02 (.82)	185	4.10 (.64)	556	4.29 (.62)	
	TP	47	4.42 (.64)	42	4.36 (.85)	184	4.14 (.88)	553	4.29 (.78)	
Engagement	BE	48	4.47 (.44)	45	4.48 (.57)	190	4.37 (.62)	571	4.45 (.61)	.031
	AE	49	4.16 (.64)	44	4.05 (.81)	191	4.00 (.75)	568	4.14 (.69)	
	CE	47	4.47 (.49)	45	4.59 (.50)	191	4.43 (.53)	568	4.49 (.52)	
	EE	49	4.23 (.51)	46	4.29 (.72)	192	3.92 (.89)	573	4.02 (.88)	
Satisfaction	SS	49	4.40 (.56)	44	4.26 (.85)	192	4.17 (.82)	562	4.28 (.81)	.253

Note. P-values indicate the statistical significance of MANOVA /ANOVA analysis for the effect of the prior online experiences on outcomes

Inferential Analysis

The results of MANOVA for CoI scores indicate that a statistically significant difference on the CoI sub scores was observed among the groups with the different number of online courses previously taken, $F(9, 1801.12) = 5.452$, $p < .001$, Wilks' $\Lambda = .935$, partial $\eta^2 = .022$. However, the effect is small and the post-hoc analysis indicates that only Social Presence (SP) scores showed a statistically significant difference by the number of the online courses taken, $F(3, 746) = 7.532$, $p < .001$, partial $\eta^2 = .03$. More specifically, students who had taken four online courses tended to have higher SP scores compared with the rest of students. No difference in Cognitive Presence (CP) nor Teaching Presence (TP) scores was found due to the previous online course taking experiences.

The MANOVA was repeated with the set of engagement scores as outcomes. We found a significant difference in the combined engagement scores by the number of the previously taken online courses, $F(12, 2403) = 1.89$, $p = .031$, Wilks' $\Lambda = .028$, partial $\eta^2 = .009$, but the effect was small. The post hoc analyses identified only Emotional Engagement (EE) as having a statistically significant difference by the number of online courses taken previously, $F(3, 806) = 3.457$, $p = .016$, partial $\eta^2 = .013$. No difference in Agentic Engagement (EE), Behavioral Engagement (BE), and Cognitive Engagement (CE) was found for previous online course experiences. Finally, we found no statistically significant difference in satisfaction scores by the number of the online courses taken based on the results of the ANOVA, $F(3, 846) = 1.361$, $p = .253$. Thus, student satisfaction was unrelated to the number of online courses students had taken previously.

In summary, while we found some significant differences in Social Presence and Emotional Engagement based on the number of the online courses taken previously, the difference represented as an effect size tended to be small. The statistically significant effects observed might be largely due to strong statistical power to detect the differences.

Discussion and Scholarly Significance

This study examined whether students' perceived cognitive presence, social presence, teaching presence, engagement, and satisfaction differed by the number of previous online courses taken. We examined engagement and satisfaction together with CoI as engagement and satisfaction are also considered crucial elements in an online learning environment. Moreover, the relationship among the CoI presences, and engagement and satisfaction has been established in the literature (Kucuk & Richardson, 2019). Examining all these elements together helps us as designers and instructors to better understand the role of prior learning experience in an online learning environment. The results indicated that only perceived social presence (SP) and emotional engagement (EE) changed significantly as students took more online courses, though the increase was small. Social presence has also been found to be an important predictor of perceived learning and satisfaction (Richardson & Swan, 2003), and thus it is necessary to understand to what extent social presence improves by the number of prior online courses. Furthermore, the connection between social presence and emotional expressions has been previously discussed in the literature, specifically, how social presence is "associated with an emotional sense of belonging" (Garrison et al., 2010, p. 7). Moreover, "emotional expression" is one of the categories for the social presence construct of the community of inquiry (CoI) framework (Garrison et al., 2000). Perhaps the significant increase in perceived social presence and emotional engagement scores as students took more courses is a result of students gradually becoming more familiar with the online environment as they continued taking online courses, becoming more comfortable interacting with peers and instructors virtually as Richardson and Newby (2006) discussed. Akyol and Garrison (2008) found that two of the three categories of social presence (i.e., affective expression and group cohesion) changed significantly over the course of a nine-week course. Although the study was conducted within a single course, this indicated a gradual progression of social presence over time. This gradual shift in the role and capabilities of students in an online environment has been discussed in the literature; Richardson and Newby (2006) found that students progressively take on more responsibilities as they become more experienced. We believe that this finding has important implications for course designers and facilitators who should keep prior experience in mind when designing and

facilitating online courses, both for novices and more experienced students (Richardson & Newby, 2006).

We did not find significance for the other elements of CoI (CP and TP), engagement (BE, AE, CE), or satisfaction. The findings suggest that these elements are influenced by variables other than the number of previous online courses. First, cognitive presence is operationalized through the Practical Inquiry (PI) model, and has four phases: triggering event, exploration, integration, and resolution (Garrison et al., 2000). According to Garrison et al. (2001), students may not go beyond the exploration phase of the model if the design and facilitation of a course do not support it. This suggests that the extent of cognitive presence depends on the design and implementation of individual courses (Garrison et al., 2001), which refers to teaching presence, and each course is different in its design and implementation. Garrison et al. (2001) also emphasized the role of social presence and teaching presence in generating effective cognitive presence. After controlling for self-directed learning readiness, students' previous learning experience, and students' previous collaborative learning exposure, Archibald (2010) found both teaching presence and social presence significantly predicting cognitive presence in a study conducted in multiple research method courses. Therefore, having more prior online learning experience may not have helped students achieve more cognitive presence if there was not sufficient social presence and teaching presence. This also holds true for students' perceptions of teaching presence, which has been divided into three components: design and organization, facilitating discourse, and direct instruction (Anderson et al., 2001). These three components of teaching presence clearly vary depending on the instructor or instructional designer and cognitive presence. Drawing on examples from many research studies, Fiock (2020) listed numerous instructional strategies through which teaching presence, along with the other two presences, can be facilitated, and this indicates the variability of the nature of teaching presences depending on courses, instructors, and contexts. Fiock et al. (2021) also found that teaching presence scores significantly differed for different instructors even though they taught the same course with identical design. They investigated 11 sections of two courses in an online MS program. Their findings also reveal that teaching presence varies from instructor to instructor. For our present study, students' ratings of the perceived teaching presence did not differ significantly by the number of previously taken online courses, probably because there were 12 courses and 37 instructors involved with the study. Each course had its own course objectives, and instructors had varied facilitation skills. Therefore, our findings suggest that students' perceptions of teaching presence are unrelated to the number of online courses students have previously taken. As students may have taken different types of courses at different points in the program, perceptions of teaching presence also varied for each course and did not lead to stable improvement with the increase of experience with online learning.

Next, we did not observe any significant increase in students' perceived engagement with the increase of online learning except the emotional engagement sub-category. Mason (2011) found that lack of adequate facilitation is one of the reasons for poor student engagement, which indicates that teaching presence plays a major role in sustaining student engagement. This view of the impact of teaching presence on student engagement has also been supported by other literature (Martin & Bolliger, 2018; Orcutt & Dringus; 2017). Therefore, no matter how many courses students have taken previously, engagement is dependent on factors specific to a particular course. Emotional engagement may be an exception because of its connection to social presence. Finally, we also did not find any significant increase in students' satisfaction scores

with the increase of prior online learning. This is not surprising, based on what we have explained above. Teaching presence was found to be one of the major determinants of satisfaction (Kucuk & Richardson, 2019; Landrum et al., 2021; Parahoo et al., 2015), and a moderate positive correlation has also been observed between teaching presence and student satisfaction through a meta-analysis (Caskurlu, 2020). This indicates that student satisfaction highly depends on teaching presence, and similar to the previous instances, teaching presence varies from one course to another and in turn satisfaction varies from one course to another. Therefore, satisfaction is also unrelated to the number of courses students previously took.

Limitations and Future Research

There are several limitations to this study. First, the data were collected from a single graduate-level program which may limit generalizability. Future research should incorporate students from different programs and levels into the sample. Second, because the data were collected anonymously for each semester across years, the same student may have provided multiple responses to the survey, but not for the same course or in the same semester. We treated these data as independent because we asked student's affective outcomes for a specific course that a student engaged in the specific semester under a specific instructor. However, students' general attitude toward online courses may potentially influence their perceptions of online courses and satisfaction.

The highest number of prior online courses for this study was four, and this might be a reason for the small difference in perceived presences between the lowest number of courses and the highest number of courses. As students with more prior online learning experience valued completely different aspects of online learning as important compared to students with less prior online learning experience (Hixon et al., 2016), incorporating a greater range of previous online courses may provide us a clearer picture about the relationship between the prior online learning experience and different student outcomes. Thus, future research may focus on incorporating a greater range of courses previously taken to examine to what extent the perceived scores vary.

Conclusion and Implications

In conclusion, the study found that previous online learning experience had limited impact on students' perceptions of CoI presences, engagement, and satisfaction. Only social presence and emotional engagement were impacted by prior online learning experience. Nonetheless, the study has implications for course designers and instructors since understanding the online learning experience as dynamic is vital to the development of relevant instructional strategies in different stages. First, students' self-reported social presence and emotional engagement scores differed significantly by the number of previously taken online courses, indicating a progressive improvement in their perception of social presence and emotional engagement. Although we have only found small effects, the range of the prior online courses taken by students was also limited (one to four). Therefore, it may suggest a gradual growth that occurs as students take more courses and become more familiar with the environment and their responsibilities. Considering this, instructors may consider creating activities for students who have more online learning experience that requires more interaction or social presence from students. For students new to online learning, instructors should focus more on gradually creating opportunities for students to interact with each other so that interactions become more familiar and natural for them over time.

Next, more online learning experience as investigated here does not lead to stronger perceptions of teaching presence, cognitive presence, engagement, or satisfaction. Therefore, while naturally expecting a better social presence in students who take more online courses, instructors may focus on strengthening the design, facilitation, and direct instruction phase of each course so that students' perceptions of cognitive presence and teaching presence could be improved. We think the design, facilitation, and direct instruction are crucial elements for generating improved teaching and cognitive presence as these three elements are parts of teaching presence (Anderson et al., 2001), and they are also important components to improved cognitive presence (Garrison et al., 2001).

With nearly every facet of life including education impacted by the pandemic and gradually moving into the new normal, online education will continue to play a pivotal role (Cahapay et al., 2020; Ladson-Billings, 2021; Rapanta et al., 2021). Therefore, it is of crucial importance to investigate the factors that impact student outcomes in online environments. Students' prior online learning experience is one such factor that needs further investigation.

Conflict of Interest
The authors declared no conflicts of interest.

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