Student perception of helpfulness of facilitation strategies that enhance instructor presence, connectedness, engagement and learning in online courses

Florence Martin⁎, Chuang Wang, Ayesha Sadaf
University of North Carolina Charlotte, Dept. of Educational Leadership, 9201 University City Blvd., Charlotte, NC 28223, United States

ARTICLE INFO

Keywords:
Facilitation strategies
Instructor presence
Online learning
Student perception
Instructor connection

ABSTRACT

Instructors use various strategies to facilitate learning and actively engage students in online courses. In this study, we examine student perception on the helpfulness of the twelve different facilitation strategies used by instructors on establishing instructor presence, instructor connection, engagement and learning. One hundred and eighty eight graduate students taking online courses in Fall 2016 semester in US higher education institutions responded to the survey. Among the 12 facilitation strategies, instructors' timely response to questions and instructors' timely feedback on assignments/projects were rated the highest in all four constructs (instructor presence, instructor connection, engagement and learning). Interactive visual syllabi of the course was rated the lowest, and video based introduction and instructors' use of synchronous sessions to interact were rated lowest among two of the four constructs. Descriptive statistics for each of the construct (instructor presence, instructor connection, engagement and learning) by gender, status, and major of study are presented. Confirmative factor analysis of the data provided aspects of construct validity of the survey. Analysis of variance failed to detect differences between gender and discipline (education major versus non-education major) on all four constructs measured. However, undergraduate students rated significantly lower on engagement and learning in comparison to post-doctoral and other post graduate students.

1. Introduction

An online instructor plays two major roles in the design and delivery of online learning, as a designer and a facilitator. An online instructor first designs the course and then implements it with online learners. However, not all universities expect instructors to design their course. During the implementation process, the instructor acts as a “facilitator” and must actively engage to be present in the course and facilitate learning (Riva, Davide, & Ijsselsteijn, 2003). A facilitator guides the learning process by providing opportunities for the learners to build knowledge and skills. As a facilitator, the instructor is also constantly monitoring the activities to be readily available to provide support to the students when needed. Facilitation strategies are the various strategies used by the instructor when implementing the course with the students. As an online facilitator, instructors keep discussion on track, assist students with technical problems, provide periodic announcements to the class, respond to student emails, and grade work promptly (Correia & Baran, 2010; Mazzolini & Maddison, 2007; Sheridan & Kelly, 2010).

While researchers have examined various aspects of facilitation in online learning, most of them have focused on facilitating asynchronous discussions. Hew (2015) found students preferred online discussions to be facilitated by their instructors rather than their peers, even though prior studies have found benefits of peer facilitators. Similarly, Phirangee, Demmans Epp, and Hewitt (2016) compared instructor and facilitation methods in which they found that students participated more actively in instructor facilitated discussion than peer facilitated discussions. In instructor facilitated discussions, the students were more active by writing notes, editing, and creating connections. Shea, Li, and Pickett (2006) found that instructor facilitation strategies such as questioning and providing feedback were positively related to students' perceived connectedness and learning. There is a need for research to examine the various facilitation strategies an instructor can use in an online course.

1.1. Facilitation effects on four construct (instructor presence, instructor connection, engagement and learning)

In this study, we measure student perception of facilitation strategies on four constructs (instructor presence, instructor connection,
engagement and learning) based on Cho and Cho (2016) in their validation of scaffolding strategies to promote interactions which found these as four out of the five factors to promote interaction.

1.1.1. Instructor presence
Richardson et al. (2015) define instructor presence as “the specific actions and behaviors taken by the instructor that project him/herself as a real person” (p. 259). Garrison, Anderson, and Archer (2000), state that teaching presence occurs when instructors facilitate the flow of the course and content. Instructors also act as facilitators when they interact with their students and encourage them to actively participate in the course. Another key role of facilitators is responding to student questions in a timely manner and also be involved in the online discussions. In this study, focusing on the facilitation role that the instructor takes in an online course, we define instructor presence as “having perceived authenticity among a community of learners and validating one’s personal identity by formally acknowledging and conducting their role through various strategies”.

Establishing instructor presence in an online setting is challenging but essential to the success of asynchronous online courses. Research has found that instructor presence relates to students’ success or satisfaction in online courses (Brinkerhoff & Koroghlanian, 2007), enhances student motivation to learn, increases the depth and quality of students’ interactions and discussions (Dennen, 2011), and reduces the sense of isolation and improves student performance (Arbaugh & Benbunan-Fich, 2006; Benbunan-Fich & Hilz, 2003). Instructor presence is the intersection of social presence and teaching presence and usually occurs during the live part of the online course (Richardson et al., 2015). It is important because when an instructor is present in the online course, it helps bridge the distance and students feel less isolated in the online course (Creasman, 2012). Sheridan and Kelly (2010) found that students value instructors’ providing clear course requirements, being responsive to students’ needs and providing information and feedback in a timely manner as important indicators of instructor presence.

1.1.2. Instructor connectedness
Instructor connectedness is defined as “communication behaviors that reduce perceived distance between people” (Thweatt & McCroskey, 1998, p. 349). D’Alba (2014) defines it as “Perceived closeness between the student and instructor as well as the instructor and student” (p. 8). Research has found that students who have strong connection with instructors have better learning outcomes and academic achievement (Eccles, 2004; Pianta & Stuhlmman, 2004) and students who have close relationships with the instructors are more confident than those who consider their instructors to be less supportive (Ryan, Gheen, & Midgley, 1998). Creasey, Jarvis, and Knapek (2009) created a student-instructor relationship scale that contained 36 items to capture central relationship dimension. In their research where they surveyed 94 students, they found that students were less anxious than their counterparts when they felt more connected to their instructors. While most of the research on instructor connectedness is done in face to face context, there is a need for research examining instructor connectedness in online settings where it is more challenging to build a strong connection with instructors.

1.1.3. Engagement
Engagement is the “ability to hold the attention of an individual or to induce the individual to participate in some sort of activity” (Meares, 2013, p. 1). Student engagement is defined as “the student’s psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote” (Newman, Wehlage, & Lamborn, 1992, p. 12). Several researchers have found that student engagement increases student satisfaction, enhances student motivation to learn, reduces the sense of isolation, and improves student performance in online courses.

Banna, Lin, Stewart, and Fialkowski (2015) stress that engagement is the key solution to the issue of learner isolation, dropout, retention, and graduation rate in online learning. Meyer (2014), Banna et al. (2015), and Britt, Goo, and Timmerman (2015) affirm the importance of student engagement to online learning because they believe student engagement can be shown as evidence of students’ considerable effort required for their cognitive development and their given ability to create their own knowledge leading to a high level of student success. Lear, Anorge, and Steckelberg (2010) assert that interactions with content, peers, and instructors help online learners become active and more engaged in their courses.

1.1.4. Learning
Learning is the acquisition of knowledge or skills through experience, study, or by being taught. Visser (2001) defines learning as “To engage in continuous dialogue with the human, social, biological and physical environment, so as to generate intelligent behavior to interact constructively with change” (p. 453). Within the context of online learning, Ally (2004) defines online learning as “the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience” (p. 7). Academic achievement is a commonly studied dependent variable to measure learning. Learning is measured by course grades, course evaluation, standardized tests, pre-posttests, observation, analysis of student products, portfolios, exit interviews and surveys from students.

1.2. Theoretical framework for online course facilitation
Berge (1995) categorizes facilitation into Managerial, Social, Pedagogical and Technical (Fig. 1). (See Table 1.)

Twelve facilitation strategies were identified after conducting an extensive literature review on facilitation strategies in online courses and based on the practical experience of expert online instructors. Three faculty who taught Quality Matters certified online courses were consulted on the facilitation strategies they use in their courses. Based on the literature review and the practical experience of expert online instructors, these 12 facilitation strategies were identified. The 12 facilitation strategies identified for this study are categorized below based on Berge’s framework.

1.3. Facilitation strategies
In this section, we describe the twelve different facilitation strategies perceived to enhance instructor presence, instructor connection,
Learning and engagement based on best practices and from literature.

1.3.1. Video based instructor introduction (e.g., Voicethread, Animoto, Camtasia)

An introduction video is one of the first course components that the students watch in the online course. In the introduction video, students can get a sense of what they can expect in the online course, get to know the instructor and dispel fears about the online environment. Fig. 2 is a screenshot of an instructor introduction video created using Voicethread.

Previous research has found that when students watched an introduction video, students were more positive in the course evaluations and also contributed more to the discussion boards. Researchers, Jones et al. (2008) found that students benefited from the introduction video as it helped form a relationship with the instructor right from the start of the course which contributed to their progress in the course.

1.3.2. Video based course orientation (e.g., recording using Camtasia, Screencast o Matic)

Student orientations are essential for online programs to be successful. While orientations can be done at the institutional level or program level, it is essential of instructors to also offer course level student orientation. Starting a course with a good orientation provides students with a satisfying course experience and these students are more likely to want take more similar courses (Ko & Rossen, 2010). Fig. 3 is a screenshot of a video based course orientation created using Camtasia.

Ali and Leeds (2009) discuss the value of orientation in online learning settings since it assists with student retention in online courses when compared to traditional classes and face to face settings. Bozarth et al. (2004) also emphasized on the key role of orientation for online learners. Orientations inform the students about the time commitment requirement and time management skills. Ko and Rossen (2010) recommended that it is better if instructors include a video and provide text transcript of it which enables students to go back to it faster any time during the course.

1.3.3. Able to contact the instructor in multiple ways (contact the instructor forum, email, phone, virtual office hours)

It is important for online instructors to provide multiple ways for the students to contact them. Fig. 4 shows examples of different ways the students can contact the instructor.
Similar to traditional courses, interaction between students and instructor is important in online courses as it helps with students’ satisfaction and retention (King & Doerfert, 1996). Since there is a possibility of isolation in online courses, providing variety of methods to increase student-instructor interaction is helpful. Depending upon the nature of the question, providing different ways for the student to reach the instructor might be helpful.

1.3.4. Instructors timely response to questions (e.g., within 24 to 48 h) via forums, email

In online courses, it is important for instructors to respond promptly to student questions either via forums or email. Miller (2012) found that instructor’s quick email response time between 24 and 48 h was highly important and significant variables in predicting online student success. While 24 to 48 h might be a best practice for the timely response, some instructors might need longer time frames to respond to the students. Fig. 5 is a screenshot from the syllabus listing the instructor response times.

Sheridan and Kelly (2010) discuss about instructor presence and the value student attribute to timely feedback for their questions and problems. Kelly (2014) quotes that some faculty encourage students to post their logistical questions to a special forum within the course and monitor it periodically. It is also found that students often answer each other’s questions before the faculty even sees the question. Eskey and Schulte (2010) in their study had an entire section of survey on online instructor response time for online adjunct faculty. They found that the instructor responding to questions in instructor office thread promptly and instructor responding to email questions promptly where the two were rated the highest. Summers et al. (2005) found students feel unhappy when they have to wait for answer to their questions or problems.

1.3.5. Instructors weekly announcements to the class (e.g. every Monday via announcement forum, email)

Sending announcements is like greeting the students in the face to face classroom and letting them know that they are not alone and that the instructor is there to support them in their learning process. Fig. 6 is a screenshot of the instructors weekly announcements. Ko and Rossen (2010) discuss the importance of sending regular announcements in the online courses. Regular announcements can be used to get students’ attention, encouraging, reminding, and in general update students with the course as semester is going. Generally online students are non-traditional learners who have full time jobs and try to balance their personal lives with the course work. Quick reminders each week on what is due and what is coming next is helpful for students to manage their time (Kelly, 2014). Eskey and Schulte (2010) in their survey based research found that it was important for the instructor to communicate via online announcements.

1.3.6. Instructor created content in the form of short videos/multimedia (e.g., Camtasia, articulate modules)

Using multimedia in online courses increases student engagement and learning. Fig. 7 is a screenshot of a short video created on camtasia and uploaded to Youtube. Draus et al. (2014) reported positive relationship between providing video content in online course and students’ engagement, satisfaction and retention. While several instructors use existing off the shelf multimedia, some instructors take the time to create their own multimedia. Rose (2009) found that instructor-made videos help students understand the instructional material better and also helped connect with their instructors.

Griffiths and Graham (2009) from their evaluation of instructor generated video content found that students reported closer connection to the instructor and that student responses to assignments were
improved. Borup et al. (2012) found that when instructor generated video content was used that instructor social and teaching presence, student evaluations of the instructor was improved though there not significant improvement in the course outcomes. King (2014) found that mini videos and screen-casting that assist making instructors more visible are techniques that have been believed to bring many pedagogical benefits.

1.3.7. Instructor being present in the discussion forums (e.g., refers to students by name, responds to students posts)

Discussion forums are integral to most of the asynchronous online courses and enhances student-student, student-instructor and student-content interaction. Instructors use various strategies to facilitate discussions. While some assign students to facilitate discussions, in some cases instructors themselves are present in the discussions for a considerable amount of time. Mandernach et al. (2006) in their study found that 77% of faculty participants preferred that the university mandate faculty to participate in discussions in their online courses. They also found that faculty had little agreement on the minimum number of postings instructors had to make in the online discussion threads. They further examined if faculty should be evaluated on the quality of their interactions and found 41% of faculty support it, 24% oppose it and 35% neither supporting or opposing it.

Ko and Rossen (2010) reiterate the importance of discussion forums
and how it needs instructor’s effort to design and facilitate the discussion. Some of the strategies they recommend for instructors include starting major topic threads narrowing down topic, responding to students posts and mentioning their names. However, instructor’s presence and engagement should be managed in a way that does not become overwhelming for both students and instructor. Fig. 8 shows the screenshot of instructor’s response to student by name on the discussion forum.

1.3.8. Instructor providing timely feedback on assignments/projects (e.g., within 7 days)

Instructor feedback is a vital part of online learning and facilitates the learning process and enhances students’ knowledge (Badiee & Kaufman, 2014; Thiele, 2003). Reinforcement occurs as a result of feedback which directs students’ performance by correcting what they have done and it helps with lasting longer for correct information (Wagner, 1994).

Providing timely feedback in online learning is considered a challenging and time-consuming duty for instructors specifically in written form. Since providing timely feedback is challenging for instructors they use some creative methods to make sure they will be able to provide quick feedback. One of the ways is to developing a resource of common questions and problems over time. These collected comments can be used faster than writing a new one each time. Another strategy is to provide feedback for students who submit their assignment before due date while other students are still are working on it (Lewis & Abdul-Hamid, 2006). Fig. 9 shows the screenshot of instructor’s response time to assignments.

1.3.9. Instructor providing feedback using various modalities (e.g., text, audio, video, and visuals) on assignments/projects

Wolsey (2008) defines feedback as the “interaction designed to promote learning between professor and student or between students”. Providing written feedback is time consuming for instructors. Audio feedback technology is still new and instructors have begun to use various modalities to provide feedback to the students. Ice et al. (2007) found in their study that audio feedback was more helpful than text-based feedback. They also found that when an instructor provided audio feedback, students felt there was increased involvement, helped retain content and also made the students feel that the instructors cared more about them. They also found that the time spent listening to audio feedback versus reading text-based feedback was not a significant factor in deciding whether audio feedback should be used. Lunt and Curran (2010), Merry and Orsmond (2007) and Rotherham (2008) found that students responded positively to audio feedback.

Fig. 10 shows a screenshot of the instructor providing audio/video feedback on an assignment on Canvas LMS.

1.3.10. Instructors personal response to student reflections (e.g., via journals to questions on benefits/challenges)

Reflection has been used as a strategy to enable retention of learning. Johnson (2010) states, “critical reflection is of benefit to adult learners as these methods promote involvement and engagement in the learning process” (p. 1). Dewey (1933) stated that, “We do not learn from experience. We learn from reflecting on experience” (p. 78).

Reflection is an essential strategy to use in online courses as it helps the instructor to understand what the student has got out of the instructional content. However it is important for the instructor to not only read the student reflection but also respond to each of their reflections with positive affirmation or with suggestions to assist with the challenges. Fig. 11 shows the reflection promote and the opportunity for the instructor to respond to the reflection.

1.3.11. Instructors use of various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat)

Synchronous tools allow students and instructors to interact live using features such as audio, video, text chat, interactive whiteboard, and application sharing. Author and Parker (2014) found that instructors used synchronous tools to promote interaction, build a sense of community, and provide an opportunity for students from different locations to be able to participate. Some of the features that persuaded instructors to adopt synchronous tools were audio chat, archiving option, video and text chat.
Though synchronous sessions limit the flexibility in time to participate, it enhances immediate feedback and interaction. LaPointe et al. (2004) found that audio and visual functionality of synchronous tools help build communities of practice and bridge cultural differences. Reushle and Loch (2008) found that synchronous tools assisted instructors and students to interact from a distance. Fig. 12 shows the screenshot of a synchronous session.

Fig. 10. Audio/Video Feedback on Assignment on Canvas LMS.

Fig. 11. Weekly reflection.
1.3.12. Interactive visual syllabi of the course (e.g., includes visual of the instructor and other interactive components)

Syllabus is an instructional roadmap for the entire course (Richards, 2003). However, in a lot of cases, instructors do not take the time to make the syllabus visually appealing and students do not spend sufficient time to go over the details listed in the syllabus as it is not provided in an engaging format. Richards (2003) states the value of an interactive syllabus and how syllabus is a part of course that has been neglected for long. Richards (2003) believes that syllabus plays an important role in students’ success in a course. Using variety of media in syllabus content has been encouraged to engage students as much as possible.

A visual syllabus includes a variety of media including images, videos embedded to engage the learner and help the students find answers to all their questions about expectations and other class information easily in the syllabus. An interactive syllabus includes hyperlinks to various sections of the syllabus and course and also integrates multimedia to provide information about the course to the learner.

1.4. Importance of demographics in online learning research

Research has found that students learn differently based on gender and major (Kolb, 1984; Neumann, Parry, & Becher, 2002). Based on the majors, students have different learning strategies and methods and are educated differently (Sanford, Ross, Rosenbloom, Singer, & Luchsinger, 2014). This is critical in the online learning environment especially when different strategies are examined for the design and facilitation of online learning. Johnson (2011) has reiterated the importance of characteristics of online learners with gender being one of them. Also, there has been mixed findings on student perception based on gender and hence we decided to examine gender in this study.

1.5. Purpose of this research

We examine student perception on the helpfulness of different facilitation strategies used by instructors in online courses and its effects on instructor presence, instructor connection, engagement and learning. Helpfulness can be defined as providing useful assistance. Helpfulness can be defined as providing useful assistance. In this study, helpfulness refers to providing useful assistance to facilitate student online learning.

The following research questions are being addressed in this study:

1. Which facilitation strategies do students perceive helpful in establishing instructor presence, instructor connection, engagement and learning in the online course?
2. Is the instrument to measure student perceptions of instructor facilitation strategies reliable and valid?
3. Is there a relationship between student demographic factors and student perceptions of instructor facilitation strategies?

2. Methods

2.1. Data sources

One hundred and eighty eight graduate students who were taking online courses in the Fall 2016 semester in US higher education institutions were surveyed on their perception of benefits of various facilitation strategies. There were 126 female and 60 male respondents. Two students did not identify their gender. Among the 188 students, the majority were education majors (62%) at master’s level (40%). Doctoral students consist of 20% and undergraduate students consist of 25%. The others were from arts and sciences, engineering/applied sciences, and business at either post-bachelorette or post-doctorate levels. The age of the participants ranged from 17 to 70 with a mean of 34.03 and a standard deviation of 12.37. The number of online courses that the participants took at the time of the survey ranged from 0 to 35 with a mean of 6.65 and a standard deviation of 7.62.

2.2. Instrument

The instrument was developed by the researchers after conducting an extensive literature review on facilitation strategies in online courses.
and based on the practical experience of expert online instructors. Twelve Likert-scale items on facilitation strategies were developed on aspects of instructor presence, instructor connection, engagement and learning, respectively. All 12 items are rated by each student for the four constructs, instructor presence, instructor connection, engagement and learning. The participants rated the 12 facilitation strategies about how they think these strategies are helpful on a five point Likert Scale (1-Strongly Disagree 2- Disagree 3- Somewhat Agree 4 –Agree 5-Strongly Agree). Cronbach’s alpha was calculated to check the internal consistency of student responses to the survey. The Cronbach’s alpha for all items was 0.98, and that for each of the latent construct was 0.91 (instructor presence), 0.94 (instructor connection), 0.93 (engagement), and 0.95 (learning).

Two open ended questions were also asked to capture student perception of helpfulness of facilitation strategies. One of the open-ended questions asked, “What are some facilitation strategies that your online instructor uses but not listed here and you have found it helpful?” Another open-ended question asked “What are some facilitation strategies that your online instructor uses but not listed here and you have found it least helpful?”

2.3. Data collection

Emails were sent to instructional technology list serve from the Association for Educational Communications and Technology. Emails were also sent directly to program directors and faculty who teach online to distribute this survey with their students.

2.4. Data analysis

Descriptive statistics were used to report the status quo of the participants’ perception of the facilitation strategies. Confirmatory factor analysis was employed to examine the construct validity of the instrument developed, and inferential statistics (analysis of variance) was used to see if the perceptions of facilitation strategies vary across gender and discipline (education versus non-education majors). Pearson correlation was used to see if relations exists between the perceptions of facilitation strategies and age and the number of online courses taken.

3. Results and conclusion

3.1. Facilitation strategies

In general, students thought that facilitation strategies listed on the instrument were relatively helpful. Their total mean score for all facilitation strategies was 4.10 with a standard deviation of 0.60. The means scores for each construct ranged from 3.75 to 4.65. Means and Standard Deviations are included for each of the 12 items on the survey for the four constructs of instructor presence, instructor connection, engagement and learning are reported in Table 2.

3.2. Instructor presence

For the instructor presence construct, instructors timely response to questions (M = 4.58) and instructors timely feedback on assignments/projects (M = 4.33) were rated the highest by the students. The lowest rated item was instructors use of various features in synchronous sessions to interact with students (M = 3.91) and interactive visual syllabi of the course (M = 3.94).

3.3. Instructor connection

For the instructor connection construct, students rated video based introduction (M = 4.30) and instructors response to student reflections (M = 4.27) as the highest. Students rated the interactive visual syllabi of the course (M = 3.73) and instructors use of various features in synchronous sessions to interact with students (M = 3.85) as the lowest.

3.4. Engagement

For the engagement construct, instructors timely response to questions (M = 4.32) and instructors timely feedback on assignments/projects (M = 4.32) were rated the highest. The lowest rated item was video based introduction (M = 3.85) and interactive visual syllabi of the course (M = 3.77).

The lowest rated item on the survey was at M = 3.73 which shows that students were very positive of all these 12 facilitation strategies and value it to be helpful toward feeling that their instructor is present, connecting with instructor, for engagement and learning.

3.5. Learning

For the learning construct, instructors timely response to questions (M = 4.34) and instructors timely feedback on assignments/projects (M = 4.32) were rated the highest. The lowest rated item was video based introduction (M = 3.85) and interactive visual syllabi of the course (M = 3.77).

The lowest rated item on the survey was at M = 3.73 which shows that students were very positive of all these 12 facilitation strategies and value it to be helpful toward feeling that their instructor is present, connecting with instructor, for engagement and learning.

3.6. Demographics and constructs

Descriptive statistics for each of the construct by gender, status (undergraduate, master's student, doctoral student, and other), and discipline (education versus non-education major) are presented in Table 3. No statistically significant differences were noticed for any one of the four latent constructs with respect to gender or discipline (all ps > .05). However, statistically significant differences were noted with respect to status on their perceptions about engagement, F (3, 182) = 3.00, p = .03 and learning, F (3, 182) = 3.04, p < .03, but not on instructor's presence, F (3, 183) = 2.71, p = .05 or connection, F (3, 182) = 1.68, p = .17. Post-hoc multiple comparisons with Tukey’s HSD method to control for Type I error revealed that the differences existed between undergraduate students and post-doctoral and other post graduate students (coded as “other”). Undergraduate students rated significantly lower on engagement and learning in comparison to post-doctoral and other post graduate students (ps < .05). The differences between undergraduate, master's student, and doctoral students are not statistically significant (ps > .05). Similarly, the differences between master's students, doctoral students, post-doctoral and other graduate students are not statistically significant either (ps > .05).

The data fit the model satisfactorily (Table 4) although the Root Mean Square Error of Approximation (RMSEA) exceeds the limit set by Hu and Bentler (1999). According to Hu and Bentler (1999), the CFI value should be close to 0.95, SRMR value should be close to 0.08, and the RMSEA value should be close to 0.06 in order to claim that the model fit well. Many scholars, such as Marsh, Hau, and Wen (2004), have challenged the cutoff criteria for fit indices suggested by Hu and Bentler (1999) for being too restrictive and rejecting adequately fitting models. Results from some studies using simulated data questioned the validity of Hu and Bentler’s (1999) two-index strategy (e.g., Fan & Sivo, 2005). As a result, this study used the combination of all GFI’s to assess the measurement models. The 90% confidence intervals for the estimation of RMSEA were also provided in Table 3 with Lower Limit (LL) and Upper Limit (UL). The measurement models for each dimension are presented in Appendix A. The suggestions provided by LISREL to add paths from observable variables to latent variables were only followed when the correlation between the observable variables is reasonable according to theory (MacCallum, Roznowski, & Necowitz, 1992). For example, we added a path from “video-based instructor introduction” to “video-based course orientation” for the measurement models of presence, engagement, and learning, and another path from “instructor
timely response to questions” to “instructor timely feedback on assignment projects” for the measurement model of learning because these paths are reasonable and improve the goodness of fit indices for the confirmatory factor analysis. Table 5 shows that correlation coefficients between the four dimensions of faculty facilitation strategies seem to be extremely high (ranged from 0.72 to 0.85), which suggests that these four dimensions might be just one construct.

3.7. Open-ended comments

3.7.1. Helpful instructor facilitation strategies

In addition to facilitation strategies listed on the survey, students reported other strategies that they found helpful by responding to the open-ended survey (see Table 6). Students noted the availability of additional resources and examples (n = 16), clear expectations (n = 10), and integration of instructional videos (n = 9) to be beneficial in learning the course content. For example, one student wrote, “providing additional resources and examples that we can choose to look at if we are not understanding a certain topic/concept seems to be really helpful.”

Note. Participants may have mentioned multiple strategies.

Table 2
Student perception of the helpfulness of instructor facilitation strategies.

<table>
<thead>
<tr>
<th>Facilitation strategies</th>
<th>Instructor presence M (SD)</th>
<th>Instructor connection M (SD)</th>
<th>Engagement M (SD)</th>
<th>Learning M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Video based instructor introduction (e.g., Voicethread, Animoto, Camtasia)</td>
<td>4.27 (0.90)</td>
<td>4.30 (0.81)</td>
<td>3.98 (0.96)</td>
<td>3.85 (1.04)</td>
</tr>
<tr>
<td>2 Video based course orientation (e.g., recording using Camtasia, screen cast or matic)</td>
<td>4.22 (0.89)</td>
<td>4.10 (0.87)</td>
<td>3.95 (0.98)</td>
<td>3.89 (0.99)</td>
</tr>
<tr>
<td>3 Able to contact the instructor in multiple ways (Contact the Instructor Forum, Email, Phone, Virtual Office hours)</td>
<td>4.33 (0.77)</td>
<td>4.15 (0.94)</td>
<td>4.16 (0.90)</td>
<td>4.05 (1.01)</td>
</tr>
<tr>
<td>4 Instructors timely response to questions (e.g., within 24 to 48 h) via forums, email</td>
<td>4.65 (0.58)</td>
<td>4.20 (0.88)</td>
<td>4.32 (0.84)</td>
<td>4.34 (0.84)</td>
</tr>
<tr>
<td>5 Instructors weekly announcements to the class (e.g., Every Monday via announcement email, forum)</td>
<td>4.31 (0.83)</td>
<td>4.06 (0.91)</td>
<td>4.18 (0.89)</td>
<td>4.00 (0.96)</td>
</tr>
<tr>
<td>6 Instructor created content in the form of short videos/multimedia (e.g., Camtasia, articulate modules)</td>
<td>4.14 (0.89)</td>
<td>4.01 (0.90)</td>
<td>4.12 (0.86)</td>
<td>4.22 (0.83)</td>
</tr>
<tr>
<td>7 Instructor being present in the discussion forums (e.g., refers to students by name, responds to students posts)</td>
<td>4.32 (0.82)</td>
<td>4.13 (0.98)</td>
<td>4.22 (0.91)</td>
<td>4.10 (0.93)</td>
</tr>
<tr>
<td>8 Instructors timely feedback on assignments/projects (e.g., within 7 days)</td>
<td>4.45 (0.78)</td>
<td>4.06 (1.05)</td>
<td>4.32 (0.89)</td>
<td>4.32 (0.83)</td>
</tr>
<tr>
<td>9 Instructor’s feedback using various modalities (e.g., text, audio, video, and visuals) on assignments/projects</td>
<td>4.02 (1.00)</td>
<td>3.94 (1.01)</td>
<td>4.02 (0.91)</td>
<td>4.04 (0.96)</td>
</tr>
<tr>
<td>10 Instructors personal response to student reflections (e.g., via journals to questions on benefits/challenges)</td>
<td>4.30 (0.84)</td>
<td>4.27 (0.87)</td>
<td>4.28 (0.81)</td>
<td>4.22 (0.91)</td>
</tr>
<tr>
<td>11 Instructors use of various features in synchronous sessions to interact with students (e.g., polls, emoticons, whiteboard, text, or audio and video chat)</td>
<td>3.96 (0.96)</td>
<td>3.85 (1.02)</td>
<td>3.96 (0.98)</td>
<td>3.87 (0.96)</td>
</tr>
<tr>
<td>12 Interactive visual syllabi of the course (e.g., includes visual of the instructor and other interactive components)</td>
<td>3.86 (0.99)</td>
<td>3.73 (1.09)</td>
<td>3.79 (1.00)</td>
<td>3.77 (0.98)</td>
</tr>
</tbody>
</table>

Table 3
Descriptive statistics on helpfulness of facilitation strategies for participants by gender, status, and discipline.

<table>
<thead>
<tr>
<th>Presence</th>
<th>Connection</th>
<th>Engagement</th>
<th>Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>M(SD)</td>
<td>M(SD)</td>
<td>M(SD)</td>
<td>M(SD)</td>
</tr>
<tr>
<td>Female</td>
<td>4.25 (0.55)</td>
<td>4.08 (0.71)</td>
<td>4.08 (0.68)</td>
</tr>
<tr>
<td>Male</td>
<td>4.20 (0.56)</td>
<td>3.97 (0.74)</td>
<td>4.14 (0.61)</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>4.05 (0.61)</td>
<td>3.89 (0.81)</td>
<td>3.88 (0.79)</td>
</tr>
<tr>
<td>Master</td>
<td>4.27 (0.57)</td>
<td>4.02 (0.79)</td>
<td>4.11 (0.65)</td>
</tr>
<tr>
<td>Doctorate</td>
<td>4.30 (0.42)</td>
<td>4.12 (0.48)</td>
<td>4.21 (0.31)</td>
</tr>
<tr>
<td>Other</td>
<td>4.37 (0.51)</td>
<td>4.26 (0.60)</td>
<td>4.30 (0.57)</td>
</tr>
<tr>
<td>Education</td>
<td>4.29 (0.49)</td>
<td>4.06 (0.71)</td>
<td>4.13 (0.60)</td>
</tr>
<tr>
<td>Non-Education</td>
<td>4.15 (0.63)</td>
<td>4.01 (0.74)</td>
<td>4.05 (0.75)</td>
</tr>
</tbody>
</table>

Note. Numbers in parentheses are standard deviations.
Students noted a few strategies that were least helpful to them in their online courses (see Table 7). Open-ended survey data revealed that required group work (n = 7) and forced interaction in online discussions (n = 6) were noted as the least helpful facilitation strategies. One student explained, “Having to work with others who are not on my schedule that I do not know well was a source of undue stress for me.” Another student wrote, “Having discussion boards that demand a certain amount of interaction have always felt forced and inauthentic.” Additionally, students reported timed quizzes (n = 4) “were too easy to get through without learning,” social forums (n = 4) “were not used and did not seem to be necessary,” and grading rubrics (n = 2) were unclear and “did not provide helpful feedback or any ideas of how to improve.”

### 3.7.2. Least helpful instructor facilitation strategies

Students perceived instructor’s response to questions and instructors timely feedback on assignments/projects as the most helpful facilitation strategies for instructor presence, engagement and learning. These results support Eskey and Schulte’s (2010) findings of the instructor responding to questions in discussion thread promptly and instructor responding to email questions promptly as the most important for online student success. These results suggest that online students generally perceive instructor’s timely responses and feedback helpful in establishing instructor presence, encouraging them to become more engaged in their courses, and leading them to higher levels of learning. King (2014) explained such interpretation that students perceive thorough and timely instructor feedback on their work as most valuable because it helps them make improvements in their learning process.

### 4.1. Facilitation strategies rated highest

#### 4.1.1. Timely response/feedback in online facilitation

Students perceived instructor’s timely response to questions and instructors timely feedback on assignments/projects as the most helpful facilitation strategies for instructor presence, engagement and learning. These results support Eskey and Schulte’s (2010) findings of the instructor responding to questions in discussion thread promptly and instructor responding to email questions promptly as the most important for online student success. These results suggest that online students generally perceive instructor’s timely responses and feedback helpful in establishing instructor presence, encouraging them to become more engaged in their courses, and leading them to higher levels of learning. King (2014) explained such interpretation that students perceive thorough and timely instructor feedback on their work as most valuable because it helps them make improvements in their learning process.

### 4.2. Facilitation strategies rated lowest

#### 4.2.1. Use of technology features in synchronous session

Although research suggests that audio and visual functionality in synchronous tools help build communities of practice (LaPointe et al., 2004), findings from this study demonstrated that students did not perceive instructors use of various technology features in synchronous sessions to interact with students helpful for instructor presence and instructor connection. Park and Bonk (2007) found that the students viewed time constraints, lack of reflection, language barriers, tool-related problems, and peers’ network connection problems as challenges impacting successful synchronous learning. Our study did not show that students view the various features of synchronous technology was valuable for me.” Other students valued synchronous meetings (n = 13) and Q & A sessions (n = 4) to help connect them with the instructor. One student stated, “personal meeting (web conference) once during semester provide an opportunity to communicate with the instructor and ask questions.” Some students perceived that moderated discussions (n = 12) and allowing peer feedback (n = 5) on assignments “help facilitate active engagement with course content, other students, and the instructor.” Also, students stated that narrated power points (n = 10) and learning about instructor’s personal experiences (n = 4) were helpful in feeling that their instructor is present in their courses. As one student wrote, “I really enjoy when instructors share their own personal experiences on subjects we are learning about. I can connect so much more with anecdotes and real life experiences, and it helps the content really click for me.”

#### 4.1.2. Video based introduction

Video based Introduction was found to help in building instructor connection. This finding support Jones et al. (2008) study that found that students benefited from the introduction video as it helped form a relationship with the instructor from the start of the course. These results indicate the importance of using video based introductions to improve perceived closeness between the students and instructor that may lead to better academic achievement. Students perceived instructors’ response to their reflections to be helpful in establishing a connection with their instructor. Student reflections have shown to enable confidential communication between the learner and instructor (Black, Sileo, & Prater, 2000) and to promote involvement in the learning process (Johnson, 2010). These findings demonstrate that instructors’ response to students’ reflections are important in facilitating more closeness and reducing perceived distance between student and the instructor. This implies that, instructor support and guidance is critical if students are to gain the maximum benefits from student reflections.

#### 4.1.3. Instructors response to student reflections

Students perceived instructors’ response to their reflections to be helpful in establishing a connection with their instructor. Student reflections have shown to enable confidential communication between the learner and instructor (Black, Sileo, & Prater, 2000) and to promote involvement in the learning process (Johnson, 2010). These findings demonstrate that instructors’ response to students’ reflections are important in facilitating more closeness and reducing perceived distance between student and the instructor. This implies that, instructor support and guidance is critical if students are to gain the maximum benefits from student reflections.

#### 4.2. Interactive visual syllabus was rated as the lowest in all four of the constructs

Although syllabus plays an important role in students’ success in a course (Richards, 2003), the findings of this study revealed that students did not perceive interactive syllabus to be least helpful in establishing instructor presence, instructor connection, engagement, or learning in the online course. Given the rare use of visually appealing or engaging syllabus in online courses (Richards, 2003), it may be just likely that most of the students did not use an interactive syllabus in their online courses. Another reason may be that the students did not find the visual syllabus meaningful or relevant to their learning. Grigorovici, Nam, and Russill (2003) argue that the relatedness of the hyperlinks and the type of tasks users pursue are more important than the amount of interactivity. This suggests that online instructors should use interactive visual syllabus that is learner centered with hyperlinks and visuals that help the students find answers to all their questions about expectations and other class information easily.

#### 4.3. Demographics

In terms of student demographic (e.g., age, gender, status, and discipline), statistically significant differences were noted with respect to status on student perceptions about engagement and learning. Results revealed that undergraduate students rated lower on

<table>
<thead>
<tr>
<th>Survey categories</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work</td>
<td>7</td>
<td>3.72</td>
</tr>
<tr>
<td>Forced interaction in discussion</td>
<td>6</td>
<td>3.19</td>
</tr>
<tr>
<td>Timed quizzes</td>
<td>4</td>
<td>2.13</td>
</tr>
<tr>
<td>Social forums</td>
<td>4</td>
<td>2.13</td>
</tr>
<tr>
<td>Unclear grading rubrics</td>
<td>2</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Note. Participants may have mentioned multiple strategies.
engagement and learning in comparison to post-doctoral students. These findings are comparable to Richardson and Swan (2003) findings that age is not related to students’ perception of social presence in online courses. This suggest that novice online students may require more interaction and support from instructors to improve their engagement and learning in online courses.

4.4. Open-ended comments

Open-ended survey responses further revealed facilitation strategies that students perceive helpful in establishing instructor presence, instructor connection, engagement and learning in their online courses. For example, narrated PowerPoints were helpful in establishing instructor presence; synchronous meetings helped establish connection with the instructor; moderated discussions helped facilitate active engagement in the course; and providing additional resources and setting clear expectations were beneficial in student learning. These findings are supported by Swan’s (2001) conclusions that instructor’s clear and consistent course structure, frequently and constructive interaction with students, and active discussions contribute to the success of online courses.

5. Conclusion

5.1. Implications

The results of this study have implications for 1) instructional designers who assist in designing online courses, 2) online instructors on what facilitation strategies to include in the design and facilitation of their online course and 3) administrators who can provide support for instructors to effectively facilitate online courses.

Instructors’ facilitation is crucial especially timely response to questions and timely feedback on assignments in establishing instructor presence, encouraging students to become more engaged in their courses, and leading them to higher levels of learning. In this regard, online instructors can use different ways to communicate with their students. For example, they can set up a discussion forum specifically to answer general questions about the course or syllabus and should monitor that forum once or twice a day to respond to student questions as needed. This can be an efficient way to answer student questions and allow all the students to benefit from instructors’ responses. Also, holding online office hours through online meeting tools (Skype, WebEx, Google Hangout, etc.) once or twice a week at specific times may help students get answers to their questions and get direct feedback from the instructor. As evidenced by the results of this study, students value synchronous meetings and Q&A sessions with the instructors to communicate with the instructor and ask questions. Although providing timely feedback can be challenging and time consuming for instructors, they can use creative strategies to make sure they will be able to provide quick feedback. One of the ways is to develop a resource of common questions and problems and responses over time. These collected comments can be used faster than writing a new one each time.

The results of this study suggests the importance of facilitation strategies in online learning. It is important for the instructor not only to design the course, but be actively engaged in facilitating the course during the implementation of the course. Most of the facilitation strategies were rated highly by students and course designers and instructors can use any of these facilitation strategies in their online courses. This study also adds to the research literature and assists other researchers in building on facilitation strategies for online learning.

5.2. Limitations and future research

There were some methodological limitations in this study. First, the sample size as relatively small, and the sample was drawn from a limited number of universities. We received only 186 complete responses. However, the list of universities included different classifications of universities and different geographical regions. We do not have an exact number of participating institutions and this is a limitation of this study. Second, all data were self-reported due to the nature of the study. Also, students who have not experienced some of these facilitation strategies or have limited exposure may rate the strategies low. Third, the list of strategies is not an exhaustive list of all possible facilitation strategies that may be used in online courses. Readers should interpret the results with caution due to these limitations because results may have limited generalizability in different settings and contexts.

Response bias: The data are collected from instructors who chose to respond to the survey, so the data do not represent all higher education students in online education. Students who chose to answer the questions might be different from those who chose not to answer the questions. Of those 188 who answered the questions, 16–26 students missed at least half of the 12 items. The missing pattern was checked with Little’s Missing Completely at Random (MCAR) test. Since the p-value for MCAR test is larger than 0.05, we removed all these cases with missing values. For the rest of the cases, missing values were replaced with multiple imputation (regression method).

Future researchers could examine additional facilitation strategies that are not included in the survey utilized to collect data in this study. Future research could focus on examining faculty perceptions of facilitation strategies and compare differences between faculty and student perceptions. It would be worthwhile to investigate facilitation strategies from using an experimental design of the course using the facilitation strategies.
Appendix A

Note. upper left (presence), lower left (connection), upper right (engagement), and lower right (learning).

References


Equation Modeling, 12, 343–367.
Sheridan, K., & Kelly, M. A. (2010). The indicators of instructor presence that are important to students in online courses. Journal of Online Learning and Teaching, 6(4), 767.