Learners’ engagement online in peer help

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ABSTRACT
Much is known about help seeking in face-to-face classrooms, but there is a limited understanding about how learners seek and provide help online. This study implemented a peer-help forum in an online technology course, and investigated students' engagement in the forum, their perceptions, and the relationship between peer help and course performance. The findings suggested that students actively engaged in the peer help beyond the course requirements. Emerging themes are presented regarding the students' online help-seeking and help-giving behaviors and their perceptions. In addition, help seeking was not significantly related to performance, but a significant interaction effect suggested that help seeking benefited the performance of a subgroup of the students – those who provided less help.

In online education, researchers and practitioners are faced with the challenge of supporting both the cognitive and social aspects of learning (Garrison, Anderson, & Archer, 2000). While there is an extensive literature exploring strategies to handle the challenge, research is underdeveloped in the online delivery of technology courses that emphasize computing and programing. As such, Settle, Vihavainen, and Miller (2014) call for empirical investigations on effective pedagogies, tools, and techniques that support teaching programing online.

The current study started as an effort in the design of an online technology course on software applications. Traditionally, technology courses are often taught in computer labs where instructors explain and demonstrate software features and applications, followed by students' hands-on practice. During the practice, students often encounter issues, and would seek help from instructors and, sometimes, fellow students. When moved online, technology courses face the challenge that timely help is often unavailable. To overcome the challenge, we implemented a peer-help forum in an online technology course to provide a social platform for timely peer help. Guided by the theories of community of inquiry (Garrison et al., 2000) and computer-supported collaborative learning (CSCL; Koschmann, 1996), the forum was intended to support social discourses, collaborative problem solving, and peer learning, thereby leading students to go beyond learning in isolation to achieve social construction of knowledge. The pilot of the forum appeared successful, as demonstrated by students’ active participation and positive feedback (Huang & Law, 2015). The success prompted the researchers to empirically investigate the online peer help. In the next section, we present the theoretical framework that guided the investigation.
Theoretical framework

Importance of self-regulation in online CSCL

A CSCL environment supports collaborative learning through its pedagogical, social, and technological elements (Kirschner & Erkens, 2006). Recently, CSCL researchers have started to explore how students self-regulate and co-regulate in collaborative learning environments (e.g., Järvelä & Hadwin, 2013; Volet, Summers, & Thurman, 2009). For instance, Zheng and Huang (2016) found that self-regulation in a CSCL environment predicted group performance.

As online learning becomes prevalent, CSCL now frequently takes place online. The importance of self-regulation holds true in online collaborative learning (Garrison & Akyol, 2015; Shea & Bidjerano, 2010), as indicated in its relationships with a variety of online learning factors, such as learners’ engagement, satisfaction, and performance (Park & Yun, 2017; Puzziferro, 2008).

Help seeking as a self-regulated learning strategy

A critical strategy of self-regulation is to seek help from others (Karabenick & Puustinen, 2013), which is a focus of this study. According to Nelson-Le Gall (1981), help seeking (HS) involves several cognitive stages: awareness of need for help, deciding to seek help, identifying helpers (e.g., instructor, peers), employing strategies to elicit help, and lastly, evaluating help.

Research has identified various issues in the HS stages. For college students, many are aware of the need for help but choose not to seek help (Karabenick & Knapp, 1991; Mahasneh, Sowan, & Nassar, 2012). The avoidance may be caused by a variety of factors. For instance, some learners may think that it is socially embarrassing to ask for help (Karabenick, 2003; Ryan, Pintrich, & Midgley, 2001); others may have a high level of autonomy or self-efficacy and prefer to work on their own (Butler, 1998; Mahasneh et al., 2012). Another issue in HS pertains to different goals learners adopt in their effort to seek help. Two types of goals are distinguished (Nelson-Le Gall, 1981): executive goals count on the help to complete a task (e.g., soliciting the answer to a problem), while instrumental goals aim for just enough assistance in order to complete a task by oneself (e.g., asking for a hint). In a study on HS in CSCL, Makitalo-Siegl, Kohnle, and Fischer (2011) reported that students sought more executive than instrumental help.

Help giving

In the formal learning context, peer help involves at least two complementary actions: HS and help giving (HG) (Webb & Mastergeorge, 2003). Compared with the extensive literature on HS, HG has received much less attention (Makara & Karabenick, 2013). Yet, the effectiveness of peer help lies equally on the side that provides help. We know from the existing research that effective help should provide detailed explanations (Webb & Mastergeorge, 2003). Greer et al. (2000) conjectured that the reason for individuals to offer help without getting reward is due to “an increase in self-esteem, self-respect, respect from others, and feelings of commitment” (p. 88). On the other hand, many questions remain to be answered. For example, how do learners offer help in the natural setting of an online course? What are specific reasons that...
lead some learners to be more willing to help than others? Is there a relationship between learners’ HG and their academic performance?

**Research purposes and questions**

While much is known about HS, Er, Kopcha, and Orey (2015) contended that the current body of literature is mostly based on a face-to-face model. With the affordances of learning technologies and the frequent lack of synchronous communications, such as eye contact or physical gestures, online learners’ HS patterns may be different from those in face-to-face settings (Karabenick & Puustinen, 2013). We know that online learners feel less threatened to seek help than those in traditional classes (Kitsantas & Chow, 2007), yet we do not have an empirical account on how learners actually seek help online. Further, research to date has been primarily using self-report questionnaires to investigate HS (Makitalo-Siegl et al., 2011), yet there appears to be deviations between learners’ self reports and their actual HS events (Mahasneh et al., 2012). Additionally, we know that college students are more likely to seek help from peers in face-to-face settings (Karabenick & Knapp, 1991), but we do not have a clear knowledge about the online setting. While Mahasneh et al. (2012) found that online nursing students preferred to seek help from peers, Makara and Karabenick (2013) reported opposite preference among the online college students in their study. More research is needed to understand online students’ perceptions and use of peers as a source of help.

To close the gaps in the literature, this study took advantage of the written peer-help discourses and traced behavioral data in an online technology course, and asked the following questions:

1. How do students participate in online peer help?
2. How do students perceive online peer help?
3. Is there a relationship between students’ peer-help behaviors and their academic performance?

**Methods**

**Participants, context, and the peer-help forum**

Forty-eight students from two sections of the aforementioned online technology course agreed to participate in the study. Both sections were taught by the same instructor at a U.S. southeastern university. Focusing on Microsoft Office for business communications and operations, this project-based course integrated realistic business practices and software applications in 19 projects. For each project, the students received guidelines that directed them to work on specific project tasks outlined in the course textbook. To complete a project, students had to review course materials, apply software skills, and troubleshoot any emerging issues in the process.

While the students were individually accountable and graded in their completion of the 19 projects, the course was also designed to offer students collaborative learning experience through a peer-help forum using the discussion board feature on the university’s Blackboard Learning Management System. Students were encouraged to use the forum to
seek or offer help regarding their projects, just as they would do in a face-to-face computer lab. To build a peer-help culture, 3% of the course grade was offered to any students who contributed a minimum of three total posts by the end of the semester. The modest requirement of three posts in the entire 16-week semester was so that students would not be forced into peer help only for the sake of earning points. The instructor informed the students that she generally would not respond to a post for help unless it did not get responded within 24 hours. In the actual implementation, the instructor closely monitored the forum, and sometimes responded within 24 hours when deemed necessary.

**Data collection and analysis**

Four datasets were collected to answer the research questions. First, all the posts in the peer-help forum were collected in order to examine students’ posting behaviors. Second, each student’s number of visits to the forum tracked by Blackboard was recorded. Third, 41 students completed a survey at the end of the semester, which consisted of three Likert-scale questions regarding their perceptions of the forum, and three open-ended questions for students to further elaborate their ratings. Lastly, students’ course grades were collected as an indicator of their performance.

To answer the first research question, we employed verbal data analysis which warranted both qualitative and quantitative methods (Chi, 1997). All the forum posts were collected and analyzed with a coding scheme of three general categories: HS, HG, and other (neither HS nor HG). Occasionally, two codes might be assigned to one post due to its dual intentions. The codes were then compiled and descriptive statistics were calculated, together with the descriptives of the students’ number of forum visits. Finally, the posts within each of the three coding categories were read closely again to identify any emerging themes within each category (Strauss & Corbin, 1990).

To answer the second research question, we analyzed the students’ survey responses regarding their perceptions of the forum. The responses to the Likert-scale questions were compiled and the frequencies were counted. The responses to the open-ended questions were closely read and coded. Emerging patterns were identified and further refined until distinct themes emerged (Strauss & Corbin, 1990). For the last research question, a $2 \times 2$ ANOVA was conducted to examine possible relationships between the students’ HS/HG behaviors and their course grades.

**Results**

**Research question 1: students’ participation in peer help**

The forum accumulated a total of 662 messages throughout the semester. Among them, 494 were contributed by the students. Table 1 summarizes the descriptive statistics of the participation data. With an average of more than 10 posts, the students exceeded the minimum requirements of three, which indicated their strong motivation towards peer help beyond earning extra points.

On the other hand, the participation was uneven. As shown in Figure 1, 6% or 3 out of the 48 students only met the minimum requirement of three posts. On the other end of
the continuum, four students (9%) posted more than 20 messages. A majority (85%) of the students contributed anywhere between 4 and 20 posts.

HS posts made up near half (46%) of all the posts. Figure 1 shows that a majority of students (71%) sought help less than five times, while four students (8%) showed a high need for help by posting more than 11 HS messages.

In the HS posts, students demonstrated four general intentions to seek help. First, *cannot find*, represents the cases where students sought help because they could not locate certain features or functions within a software application. For example, one project required students to use a birthday card template in Publisher, but a student could not find the template and sought help on the forum. The second category is *need for clarification*, which refers to the cases where students were unclear about certain project

<table>
<thead>
<tr>
<th></th>
<th>Number of total posts</th>
<th>Number of HS posts</th>
<th>Number of HG posts</th>
<th>Number of Other posts</th>
<th>Number of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>494</td>
<td>225 (46%)</td>
<td>159 (32%)</td>
<td>116 (23%)</td>
<td>3694</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>10.29 (6.44)</td>
<td>4.69 (3.94)</td>
<td>3.31 (3.03)</td>
<td>2.42 (2.26)</td>
<td>76.96 (66.14)</td>
</tr>
<tr>
<td>Range</td>
<td>3–28</td>
<td>0–16</td>
<td>0–14</td>
<td>0–11</td>
<td>7–312</td>
</tr>
</tbody>
</table>

Figure 1. Percentages in number of total posts, help-seeking posts, help-giving posts, and forum visits.
requirements, and posted to the forum to seek clarifications. For example, a project required the use of formulas in *Word* to perform basic calculations. A student posted to the forum to ascertain that it was indeed *Word*, not *Excel*, that was required to complete the project. The third category, *technical issues*, represents those posts that sought help on technical or mechanic issues rather than the content of the course or projects. For example, a student had difficulty downloading certain project file or was unable to submit an assignment on Blackboard, and sought help to resolve the issue. The last category, *troubleshooting*, was more related to the key objective of the course, which was to acquire necessary software skills to perform business functions. For example, a student found out that his *Excel* formulas did not yield correct numbers in calculating employee salaries for a project. As a result, he sought help to find out what could possibly be wrong with his formulas.

*HG* posts made up of about a third (32%) of the total forum posts. Figure 1 shows that a majority (81%) of the students offered help less than five times, while two students (4%) contributed to more than 11 *HG* posts.

Students showed two different approaches in providing help. The first approach, which was the case in most *HG* posts, was to share their own experience in resolving an issue. In sharing their experiences, however, the students showed various levels of specificity, ranging from short, general descriptions of their solution to very detailed information, sometimes with screenshots or formulas. Not all students opted to share their solutions. In the second approach, some students shared information or resources instead of directly helping with an issue. For example, a student referred a help seeker to an online video that helped her to solve a problem in question.

Not all *HG* posts were in response to a request for help. Some posts provided active help. For example, in working on a project that used section breaks and page numbering in *Word*, a student found a helpful online video. Subsequently, she shared the video on the forum. In another example, a student found that significant time was needed to complete the project of a particular week. He then posted to the forum to give peers a “heads up.”

The posts that were coded into the *Other* category mainly consisted of two types. The majority of the posts belonged to the first type – expressing appreciation. In most cases, the appreciation was by a help seeker for those who directly responded to his/her request for help. In other cases, a student might express a general appreciation for both help-seekers and help-givers. For example, when a student encountered an issue, she visited the forum and found that someone else already asked for help with the issue and received helpful responses. As a result, she wrote, “I was very thankful to see you had asked this question and received such great responses. I had begun working on (the project) tonight and was super frustrated that it was not working out . . . Decided to check out the forum before continuing and . . . tada . . . you guys had the help I needed.” In the second type of posts within the *Other* category, help seekers reported back the status of their issue. Sometimes help seekers resolved their own issue, while other times they reported the success of the solutions suggested by others.

Lastly, regarding students’ *number of visits* to the forum, an average student accessed the forum nearly 77 times throughout the semester, which was about five times per week. The percentage distribution of the number of visits is shown in Figure 1.
Research question 2: students’ perceptions of peer help

Students’ responses to the three Likert-scale survey questions are summarized in Figure 2. Overall, 85% of the students found the forum to be helpful, and 88% found it helpful to view others’ questions and responses. Comparatively, fewer students (71%) were willing to offer help by sharing resources or solutions.

Students’ responses to open-ended questions provided insights into the quantitative ratings. The responses could be summarized in five themes. Theme 1 addresses the question: In what ways was the forum helpful? An overwhelming number of responses triangulated with the quantitative finding that viewing others’ questions and responses helped to complete the projects. A student stated that the forum was the first thing she would check when she could not figure out how to do an activity. As a student indicated, “Many times when I was stuck on a problem or couldn’t figure something out, it was the same thing another student was having trouble with and had asked the question, and received an answer. Really made solving problems easier!” Some students chose to take advantage of the forum proactively before starting a project, as shown in a student’s comment that the forum “has let me see, in advance, issues I may or may not run into when I begin a project.” Some students also commented on the timeliness and convenience in getting help from the forum. While the majority of the perceptions stayed within the cognitive scope, one student’s perceptions went beyond, “If someone else was having the same problem, I did not feel too bad because it helped me realize that it was not just me. This gave me a sense of ease and understanding.”

Theme 2 has to do with the question, Why was the forum not perceived helpful by some? One student indicated that she had opted to work ahead (an option for students). As such, she was not working at the same pace as the rest of the class. While working ahead was a practical reason, another student, despite finding the forum to be generally helpful, stated, “there were times that I would post a question and I didn’t get a response from anyone.” In two other cases, students felt the forum not as helpful because they “haven’t needed help,” which leads to Theme 3, Why did some students not seek help from the forum?

The data suggested three main reasons why some did not seek help from the forum. First, some students appeared to have a high prior knowledge or self-efficacy, as indicated

![Figure 2. Percentages of student ratings in three Likert-scale survey questions.](image-url)
by statements like, “... on a majority the assignments, I already knew what to do and didn’t need help.” Second, some students would rather use other means to get help. One student chose to rely on his own, “I like to work things out on my own, and I think it helps me prepare for the future.” Another student believed that the instructor’s guidance and resources already provided “substantive” help. Another student “just google and don’t bother asking classmates.” Still another student had an interesting approach, “When I could not figure out how to do an activity, I would check the forum first for an answer in case someone else had the same question. If my question was there, it was great but if it was not, I would research for an answer and when I could not find a solution, I would contact my instructor.” The student appeared to get help from the forum if there was an existing solution. However, she would not initiate a request for help. The third reason for not seeking help might explain this student’s case, as captured in one student’s response, “Sometimes, I felt like I didn’t want to post a question because when some students answer, they would say ‘Oh that’s easy...’ making it seem like I didn’t understand something that was easy. So I always waited to see if someone would ask or answer the question I had.”

Theme 4 has to do with the question, What motivated some students to offer help? A majority of the responses was represented by the statement, “I believe in the golden rule. ‘Do unto others...’” The students offered help “to save others’ time and frustration,” because they knew they needed help as well. The second motivator is related to some students’ future goals. These students regarded peer help as “a practice for the real world” where they would need to work and communicate with remote team members. The third motivator went beyond a focus on individuals – some students believed that helping others created a “student camaraderie,” which was “often lacking in an online course.”

The fifth theme addresses the question, Why did some student not offer help? The data suggested four main reasons. First, one student stated, “I really don’t have any personal reasons for helping others in the Forum besides the fact that is was part of our grade to lend peer support.” Second, some student did not have sufficient self-efficacy in helping others, as indicated by one student who was “leery to share my advice because I feel like I don’t really know what I am doing and do not want to mislead anyone.” Third, some students intended to help, but they did not quite understand some HS posts, and were not clear about the kind of help requested. The fourth reason was revealed by a student’s post, “I’m not sure how much I can reveal without crossing the line into complicity or cheating? It’s going to be hard to answer questions in a setting like this without knowing where that line is.” It appears that the student needed more guidelines for offering help.

**Research question 3: relationship between peer-help behaviors and performance**

To examine the relationship between peer-help behaviors and course grade, we used median numbers to divide the students into four groups, two within each of the two variables: number of HS posts and number of HG posts. Accordingly, each student was assigned into a high/low HS group and a high/low HG group. A 2 × 2 ANOVA was then performed to examine the effects of students’ HS and HG behaviors on their course performance. The correlation of HS and HG was .076 (p = .606). The means and standard deviations for course grade as a function of the two factors are presented in Table 2.
The results of ANOVA indicated a significant main effect for HG. Students who provided more help performed better in the course, $F(1, 44) = 4.785, p < .05, \eta^2 = 0.098$. However, HS did not have a significant main effect on performance, which indicated that students who sought more help did not perform significantly better, $F(1, 44) = .206, p > .05, \eta^2 = .005$. In addition, there was a significant HG × HS interaction effect, $F(1, 44) = 5.513, p < .05, \eta^2 = 0.111$. As illustrated in Figure 3, students in the low HG group performed better when they sought more help. However, students in the high HG group showed an opposite trend.

**Discussion**

In this study, we investigated the use of a peer-help forum to establish an in-situ understanding of online students’ peer-help behaviors and perceptions. The forum was investigated using the theoretical lenses of HS and HG, which are critical self-regulated learning strategies (Karabenick & Puustinen, 2013; Shea & Bidjerano, 2010). Although online students may not prefer seeking help from peers (Makara & Karabenick, 2013), this study indicated that appropriate design and scaffolding could promote a peer-help culture.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>High HS</td>
<td>842.90</td>
<td>88.27</td>
</tr>
<tr>
<td>Low HS</td>
<td>848.38</td>
<td>126.62</td>
</tr>
<tr>
<td>High HG</td>
<td>938.67</td>
<td>13.91</td>
</tr>
<tr>
<td>Low HG</td>
<td>783.63</td>
<td>146.67</td>
</tr>
</tbody>
</table>

**Figure 3.** Interaction effect between help seeking and help giving on students’ grade.
In the study, the students were actively engaged in peer help that went beyond the course requirements. Overall, they found the forum helpful, timely, and effective. Further, considerable social interactions were alongside cognitive processes (Garrison et al., 2000), as shown in the number of posts where students expressed appreciation, which contributed to a sense of “camaraderie.” On the other hand, the peer-help platform per se did not produce equal learning outcomes among students. The outcomes appeared to vary with students’ engagement in the peer help.

**Seeking help from peers online**

While the existing HS literature provides us with a general view of HS (Karabenick & Knapp, 1991; Nelson-Le Gall, 1981), the findings from the current study enable us to construct an empirical account of HS from a particular source – peers, in a naturalistic online setting. The summary below provides an illustration of the cognitive and behavioral HS activities found in this study. It should be emphasized that the illustration is not intended as a model of online peer HS. Rather, it is descriptive of what was found in this study.

1. **Decision (not) to seek help.** When working on a project, if students had high self-efficacy or judged themselves as having sufficient knowledge, they might choose to complete the project on their own without asking for help (Mahasneh et al., 2012).

2. **Decision (not) to seek help from peers.** If students became aware of their need for help, they might resort to other help sources despite the availability of peer help. Some preferred to find help online (Er et al., 2015), while others would rather get help from formal sources like instructors (Makara & Karabenick, 2013). Several reasons might have caused students’ preferences for alternative help sources:
   (a) Some students might be autonomous learners who preferred to solve a problem with their own means (Mahasneh et al., 2012).
   (b) Others might believe that knowledge from the instructor carries more authority (Hofer & Pintrich, 1997), and might not place equal amount of trust on peers’ help.
   (c) Others used alternative sources due to practical reasons, e.g., concerns about the timeliness of peer help.

3. **Getting help from existing peer-help discourses.** For those who opted to seek help from peers, many got help from the existing body of peer-help information. This finding is unique in the online setting, where peer-help discourses become a repository from which students can often get help. Although the help was actually from peers, students were likely to perceive the peer-help discourses as impersonal source of help, which they preferred over personal sources (Makara & Karabenick, 2013).

4. **Decision (not) to actively seek peer help.** When the existing peer-help repository could not help with an issue, some students did not actively seek help from peers. The reason found from this study is aligned with the existing literature. Some students saw peer HS as a threat to self-esteem (Ryan et al., 2001). Even though research suggested that online students feel less threatened to seek help (Kitsantas & Chow, 2007), this study suggested that some students were still deterred by the prospect of imposing a negative image of self among peers.
(5) **Peer HS intentions.** Among the four identified intentions in this study, the first three mostly fell under *executive* HS (Nelson-Le Gall, 1981). When students sought help to locate a software feature, to clarify a project requirement, or to solve a technical problem, the underlying intentions were either unrelated to the learning task or focused on the completion of a task with the help. Only the last intention, troubleshooting, might fall under *instrumental* HS, although not all the troubleshooting posts were instrumental (i.e., seeking explanations or hints). The finding is similar to what was reported by Makitalo-Siegl et al. (2011) that students sought more executive than instrumental help in CSCL.

(6) **Peer HS strategies.** Students showed different strategies in their written discourses for HS. Some students did not clearly explain their issues, which caused confusions to potential helpers.

Although most students found it helpful to ask for peer help, the study did not find the number of HS posts to have an effect on course performance. This finding is different from the existing literature which often suggests a relationship between HS and performance (Karabenick, 1998; Kitsantas & Chow, 2007). The difference might be that previous studies often used self-report instruments to measure HS, whereas this study examined students’ number of HS posts, which can be considered as an indicator of HS effort. Although the findings suggested that more HS did not necessarily mean better performance, the significant HG × HS interaction suggested that HS could be beneficial to a subgroup of students. As shown in Figure 3, among the students who provided less help (low HG), those who also sought less help (low HS) performed at the lowest level. These students might be the ones who were unaware of a need for help, unmotivated to seek help, or lacking self-regulatory skills to identify and elaborate HS needs (Webb & Mastergeorge, 2003). In comparison, those who also provided less help (low HG) but sought more help (high HS) performed better.

**Giving help to peers online**

Although less studied, HG is a necessary companion to HS. The findings suggested that, while there were a few students who provided help only because of a grade, most were willing to offer help as a reciprocal gesture, as a strategy for achieving future goals, or as a means to foster a sense of community. The help was not limited to responding to peers’ requests for help; students also provided active help. On the other hand, even when students intended to help, there were factors that hindered them: lack of self-efficacy, peers’ unclear HS request, and the fine line between offering help and giving an answer. For those who did offer help, they approached it in different ways (suggesting resources or sharing solutions), with different levels of specificity (from general to very detailed).

The findings pointed to a few challenges in peer HG, which suggested that additional scaffolds are needed when designing a peer-help system. The challenges range from learners’ personal factors (e.g., lack of motivation or self-efficacy), help-seeker factors (e.g., unclear questions), to proper skills to provide help (e.g., providing hints or resources rather than giving explicit answers). Our findings confirmed that it is important to train HG skills in an online learning environment (Webb & Mastergeorge, 2003). Appropriate guidelines should be provided for online learners to effectively help each other.
Conclusions

While this study has limitations due to the lack of qualitative data, such as interviews to allow in-depth analysis of experiences, it provided a few implications for effectively engaging learners in online peer-help activities. First, online technology courses can particularly benefit from a platform for peer-help discourses, which can become an important and preferred source of help itself, especially for students who have low prior knowledge or lack self-regulatory skills. Second, online learning activities and discourses should be designed and investigated to promote instrumental HS among learners. Lastly, more scaffolding needs to be provided to learners for effective HS and HG, especially the latter.

References


Huang, K., & Law, V. (2015, November). Piloting a peer support forum in a fully online technology class. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Indianapolis, IN.


