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# Guidelines for facilitating the development of learning communities in online courses

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**Abstract** Online learning has grown exponentially in recent years; however, dropout problem remains challenging for some online programmes. The dropout problem can be attributed to a number of reasons, with a lack of interaction between learners and the instructor constituting one of the main reasons. The lack of interaction also leads to learners' feeling of isolation. Learning communities can provide learners with an environment conducive to increased interactions and alleviate their feeling of isolation. Unfortunately, there are no clear rules that instructors can follow to help learners create learning communities. In this paper, we propose guidelines for online instructors to facilitate the development of learning communities in online courses. We first review the definition of a learning community, importance of a learning community and factors affecting the development of a learning community. Afterwards, based on a review of the existing guidelines and other relevant literature, we propose guidelines for facilitating the development of learning communities in online courses.

**Keywords** isolation, learning communities, online learning, social presence, teaching presence.

Online learning in higher education has grown exponentially in the past decade. In 2008, 4.6 million college students, which accounts for 25% of all college students, took one or more online courses, and the number of online college students grew by 16.9% in the same year (Picciano, Seaman, & Allen, 2010). The flexibility and convenience of online courses attract learners (Lee & Choi, 2011). However, the dropout problem remains challenging for some online programmes (Lee & Choi, 2011; Willging & Johnson, 2009).

Student dropouts can be attributed to a multitude of reasons. After examining graduate students' explanations for quitting an online programme, Willging and Johnson (2009) found that students failed to complete a programme because of difficulties in completing homework requiring collaboration, insufficient communication with teachers and peers, a lack of technology orientation, conflicting schedules, and so on. Another empirical analysis of factors for online course dropouts reported students' lack of interaction with instructors and other students, low quality of the programme, work pressure, financial problems and related matters as issues (Lee & Choi, 2011). Although a wide range of factors lead to dropout, online course dropouts in both studies were attributed mainly to a lack of interactions with instructors and peers.

This lack of interactions between learners and instructors, as well as among learners, also makes students feel isolated (Hughes, Ventura, & Dando, 2007; Liu, Magjuka, Bonk, & Lee, 2007; McInnerney & Roberts, 2004; Pigliapoco & Bogliolo, 2008). That said, the dropout problem and students' feelings of isolation can be mitigated if students become involved

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in a learning community in which they may feel connected to others (Rovai, 2001). In addition, research has shown that online learners' course satisfaction and completion rates tend to increase when they perceive themselves as part of a learning community (Pigliapoco & Bogliolo, 2008). Although successful development of a learning community relies on the joint efforts of instructors and learners (Garrison, Anderson, & Archer, 1999a), there are no 'clearly defined road maps or steps in the development of online communities' (Liu *et al*., 2007, p. 10). Lock (2002) and Snyder (2009) have offered suggestions for this occurrence, but given the development of technologies and online learning, an updated set of guidelines is needed. Guidelines can be generated through drawing on and synthesizing the literature on the existing guidelines for the development of learning communities, literature on online pedagogy and empirical studies on the use of various technologies for online courses.

In addition, the existing guidelines tend to be more general than specific. For example, Lock (2002), Liu *et al*. (2007) and Snyder (2009) all suggest using various technologies. However, they do not explain what technologies could be used and how to use them. Liu *et al*. (2007), as well as Snyder (2009), propose encouraging collaboration, but they do not describe how to accomplish this goal. Therefore, a set of guidelines that not only create a general picture of how to facilitate the development of learning communities, but also specify the steps to reaching the goal of creating learning communities could benefit online instructors.

The purpose of this paper was to provide instructors with guidelines for facilitating the development of learning communities in online courses. To formulate these guidelines, we first reviewed the papers proposing guidelines for facilitating the development of learning communities. We also reviewed papers on online pedagogy and empirical studies that shed light on the development of learning communities, and then we synthesized the studies. We paid special attention to the empirical studies published in the past five years and those that had relevance to social interaction in online courses, discussion facilitation strategies, and technologies that could be employed to facilitate the development of learning communities.

The structure of this paper is as follows: we first review the definition of a learning community, importance of a learning community, and factors affecting the development of a learning community. Then, based on a review of the existing guidelines and other relevant literature, we propose guidelines for facilitating the development of learning communities in online courses.

## Definition of a learning community

A learning community consists of a group of learners who have a sense of belonging (Ouzts, 2006). There has been much research on understanding what constitutes the characteristics of a learning community. Chang (2003) argues that a learning community possesses the following qualities: '(1) spontaneous learning and active knowledge construction by individual learners; (2) idea sharing and information provision for all members of the learning community; and (3) distributed knowledge and experience' (p. 27). Rovai (2002) states that 'spirit, trust, mutual interdependence among members, interactivity, shared values and beliefs, and common expectations' are characteristics of a learning community (p. 198). Carlen and Jobring (2005) define a learning community as 'a learning atmosphere, a context providing a supportive system from which sustainable learning processes are gained through a dialogue and collaborative construction of knowledge by acquiring, generating, analyzing and structuring information' (p. 273). These lists of features share common elements and also provide complimentary information. The salient features of learning communities are trust, knowledge construction, information sharing, a feeling of being connected, common goals, and a belief that learners' needs would be fulfilled.

A learning community is not simply a group of individuals. The critical element of a learning community is a sense of community, which is the feeling that group members matter and that one's needs are satisfied through the collective effort of the group. The elements of a sense of community include (a) membership, the feeling that one belongs to a group; (b) influence, the feeling that one can influence a group and that the group is important for its members; (c) fulfillment of needs, the feeling that one's needs can be satisfied with help from the group; and (d) shared emotional connection, the sense of being connected with others in the group (McMillan & Chavis, 1986).

An online learning community, which is also referred to as an eLearning, or a virtual learning community, is the environment in which community members interact with each other in the cyber world (Tu & Corry, 2002). In online learning communities, members work with one another via technology to construct knowledge and attain common goals. For the sake of simplicity, in this paper we use the term 'learning communities' to mean the communities that learners in an online course form and develop.

Online learning communities differ from traditional learning communities. First, members of online learning communities convey their ideas mainly via text, while traditionally, instructors and students interact orally (Garrison, Terry, & Walter, 1999b). There is no doubt that written communication is devoid of the visual cues available in oral communication, and these visual cues are instrumental in helping learners form a better understanding. However, researchers argue that writing enhances higher-order and deeper learning (Garrison *et al*., 1999a; Thomas, 2002). When learners write, they have ample time to process the information, organize their language and compose their messages (Hew & Cheung, 2013). Second, in a face-to-face class, learners compete for opportunities to talk (Althaus, 1997). Those who are slow in organizing their thoughts may repeatedly lose the opportunity to speak, and as a result, tend to remain reticent; however, in an online learning context, learners have equal opportunities to post messages at their convenience.

## Importance of a community of learning

A learning community is a community of practice. The term 'communities of practice' (CoP) was coined by Lave and Wenger (1991) in their study of situated learning. Lave and Wenger (1991) defined the concept as 'a system between people, activities and the world; developing with time, and in relationship to other tangential and overlapping communities of practice' (p. 98). In a community of practice, people demonstrate a passion for the goal they desire to achieve; they interact frequently in order to attain the goal; they develop relationships and identity through interactions; they accumulate and construct knowledge in a field (Laxton & Applebee, 2010; Roberts, 2006). An online learning community is a community of practice in which a group of online learners come together for a common goal.

Empirical studies indicate that learning communities benefit learners in a number of ways (DiRamio & Wolverton, 2006; Falvo & Solloway, 2004; Liu *et al*., 2007; Yoon & Johnson, 2008). As previously stated, one of the factors causing online course dropouts is learners' having insufficient interaction with their peers and instructors. Learning communities, in which students develop a feeling of being connected, share knowledge, and achieve common goals, can reduce dropout rates (DiRamio & Wolverton, 2006).

The instructor–learner interaction and peer interaction in learning communities could increase course performance and course satisfaction (Yoon & Johnson, 2008). Shea, Fredericksen, Pickett, Pelz, and Swan (2000) conducted a study on students' learning in an asynchronous learning environment. The researchers reached the following conclusion about the relationship of satisfaction, interaction and grades:

> The greater the percentage of the course grade that was based on discussion, the more satisfied the students were, the more they thought they had learned from the course, and the more interaction they thought they had had with the instructor and with their peers. (Shea *et al*., 2000, p. 15)

In addition, as learners discuss course topics with others in the community, their discussions may reach an agreement; however, disagreements that sometimes arise contribute to a deeper understanding of the topics discussed (Tolmie & James, 2000). The end product of a discussion – an agreement – might be important for the discussion, but the 'dialogue' learners are engaged in is considered of greater significance than the result (McKendree, Stenning, Mayes, Lee, & Cox, 1998).

When learners interact with others in a learning community, they receive support from their peers (Ferguson, 2010), observe their peers' actions and integrate new ideas into their existing knowledge base. In so doing, students are learning from their peers.

## Factors affecting the development of a learning community

Social presence (Bangert, 2008; Garrison *et al*., 1999a; Wei, Chen, & Kinshuk, 2012) and teaching presence (Bangert, 2008; Shea, Li, & Pickett, 2006; Whipp & Lorentz, 2009) affect the development of a learning

community. Social presence refers to the degree of the feeling of 'being with another' (Biocca, Harms, & Burgoon, 2003). Social presence is an important construct for online learning. In an online class, a higher degree of social presence enhances learning interaction, fosters the development of critical thinking skills, improves learning performance, and leads to greater learning satisfaction with a course (Garrison, Cleveland-Innes, & Fung, 2010; Gunawardena & Zittle, 1997; Wei *et al*., 2012; Weinel, Bannert, Zumbach, Hoppe, & Malzahn, 2011). Consequently, social presence should be created and maintained in an online learning community.

Teaching presence refers to the 'design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes' (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). It is reflected in the design of a course and the instructor's facilitation of learning (Garrison *et al*., 1999a). Designing a course involves setting course goals and learning objectives, providing learning resources, assigning projects and tasks to learners, and creating assessments to decide whether learners have achieved the goals (Anderson *et al*., 2001). Facilitating learning includes setting expectations, articulating discussion rules, encouraging participation, acknowledging participants' contributions, and providing feedback (Shea *et al*., 2010). Instructors' interaction with learners, primarily reflected through facilitating and guiding learning, is highly rated by learners and regarded as a crucial factor affecting their learning. Some online learners do not think highly of interactions with their peers, but all of those who prefer online learning highly value interacting with an instructor who can assist them in achieving their learning goals (Lapointe & Reisetter, 2008).

## Guidelines for helping students develop online learning communities

The guidelines described in this paper are constructed on the papers that proposed guiding principles and suggestions for online instructors to facilitate the development of online learning communities, as well as on empirical studies that carry implications for the development of online learning communities. To locate such papers, we searched electronic databases including ERIC, Education Research Complete, and Google Scholar. Search terms included *facilitate/create/establish/maintain online learning community*, *sense of community*, *online discussion strategy*, *social presence*, *teaching presence*, and *technology and online discussion*. We identified three papers that explicitly proposed suggestions or guidelines for instructors to facilitate the development of online learning communities. The suggestions and guidelines offered in those papers are listed in Table 1.

Despite the suggestions and guidelines from the papers mentioned earlier, given the development of technologies and the growing body of literature on online pedagogy, an updated set of guidelines is needed. Therefore, in addition to reviewing the three papers, we searched for empirical studies that shed light on the development of online learning communities. During this process, we paid special attention to the papers published in the past five years reporting studies on discussion facilitation strategies, social interaction, and technologies that could be utilized to facilitate the development of online learning communities. We identified 71 papers, 45 of which were synthesized to formulate guidelines because they included specific strategies or carried implications on when, who, where, and how to build learning communities. The three papers that put forward guidelines for the development of online learning communities are included in the 45 papers. These 45 papers are listed in Table 2.

In the following, we propose several guidelines grounded in the review of the literature. The guidelines are organized around (1) *when* to build a learning community; (2) *who* to be involved in the process of building a learning community; (3) *where* to build a learning community; (4) *how* to build a community; and (5) within each guideline, we explain *why* these considerations are important. We have organized the guidelines in this manner to provide answers to the questions that novice online instructors might have with regard to online learning communities. By stating where to create a learning community, we mean the space in which students and instructors could interact to create a learning community. The structure of these guidelines could provide novice online instructors with a clear picture about facilitating the development of online learning communities. However, this structure could be helpful even to experienced online instructors

Table 1. Studies Dedicated to Suggestions and Guidelines for the Development of Online Learning Communities

| Authors and years | Type of paper | Suggestions/Guidelines |
|---|---|---|
| Lock (2002) | Conceptual paper | Guidelines for creating an online learning community:<br>• Arouse students' awareness of community.<br>• Design courses in a way that supports learning communities.<br>• Mechanisms such as technologies should be available to sustain the sense of community.<br>• Create a community throughout and beyond a course.<br>• Conduct research needed to provide guidelines for creating and sustaining learning communities.<br>Guidelines for sustaining an online learning community:<br>• State the goals of maintaining a learning community.<br>• Instructors and decision makers of a school should use knowledge and skills to facilitate the development of a learning community.<br>• Instructors and learners should be aware of the efforts that are required to sustain a learning community.<br>• Leaders of a school or programme need to invest in sustaining a learning community, such as acting as role models of contributing to a learning community. |
| Liu *et al*. (2007) | Empirical study | Guidelines stated in the literature review of this paper:<br>• Use different strategies to facilitate the development of online learning communities, including encouraging both task-oriented discussion and social interactions, assigning group projects, and using peer critique.<br>• Utilize both synchronous and asynchronous technologies.<br>• Construct a friendly learning environment.<br>• Provide learners with adequate feedback.<br>Guidelines developed from the research:<br>• Make use of the pre-existing communities among learners.<br>• Promote social interaction.<br>• Give learners assignments that require collaboration. |
| Snyder (2009) | Conceptual framework | • Nurture trust.<br>• Provide consistency and predictability in all aspects of a learning community.<br>• Identify the purpose of maintaining a learning community.<br>• Encourage learners to share their expectations and personal information.<br>• Encourage collaboration.<br>• Help learners to attain their goals.<br>• Encourage learning in multiple ways.<br>• Provide learners with the opportunity to facilitate learning.<br>• Provide resources that are related to the learning content.<br>• Utilize technologies to create a virtual space for members to interact.<br>• Acknowledge learners' contribution and reward learners.<br>• Encourage learners to reflect on their experience. |

as it provides options to choose per their needs (e.g., those who know how to create a learning community, but are not sure about when to do so).

Table 2 contains an overview of all guidelines, including the lists and descriptions of the guidelines, the studies that provide rationales for the guidelines, and short descriptions of representative studies. The studies that provide the rationales are the 45 of 71 studies we identified. The descriptions of guidelines also provide online instructors with specific strategies to reach the goal of helping students to develop learning communities.

### Guideline 1 (when): The effort to build a learning community should be made from the beginning of a course and continued throughout the term

Instructors and students need to make an effort to build learning communities from the beginning of a course and throughout the entire semester. To arouse students' awareness of the importance of learning communities and the difficulties in constructing them, instructors can ask learners to read papers on the importance of learning communities, difficulties that might be encountered, and learners' diverse learning

Table 2. Guidelines and Rationales for the Guidelines

| Guidelines | Descriptions | Rationales | |
|---|---|---|---|
| | | List of studies | Short descriptions of representative studies |
| Guideline 1 (When): The effort to build a learning community should be made from the beginning of the course and continue throughout the semester. | • Arouse students' awareness of creating learning communities.<br>• If possible, arrange an orientation at which students can meet face-to-face. | Lewis 1997, Tolmie and James 2000, Lock 2002, Falvo and Solloway 2004, Snyder 2009, Koh *et al.* 2010. | Falvo and Solloway (2004) employed various strategies to help students develop learning communities. The strategies include informing students of the course expectations and requirements, stating explicitly the objective of creating learning communities, arranging a face-to-face meeting at which students familiarized themselves with technical tools that would be used and interacted with the instructor and other students, and also requested students to read a paper about online communities and then reflect on the paper. Students felt a sense of community throughout the course.<br>Students participating in a study on collaboration conducted by Koh and her colleagues (Koh *et al.*, 2010) suggested having a technology orientation and face-to-face meeting.<br>Both Lock (2002) and Snyder (2009) proposed identifying the goal of creating learning communities. |
| Guideline 2 (Who): Both students and instructors should be involved in building the learning community. | • Encourage students to enhance their social presence.<br>• Instructors should project a high level of teaching presence. | Garrison *et al.* 1999a, Tu and McIsaac 2002, Shea *et al.* 2006, Bangert 2008, Whipp and Lorentz 2009, Jahng *et al.* 2010, Shea *et al.* 2010, Weinel *et al.* 2011, Wei *et al.* 2012. | Bangert (2008) demonstrated that students in the social presence combined with teaching presence group outperformed those in the social presence group and those in the group without social presence and teaching presence.<br>Students felt they were well supported in a learning environment with a high level (Whipp & Lorentz, 2009). Instructors need to provide clear project instructions, pose challenging questions, share resources and respond to students' questions in a timely fashion. |
| Guideline 3 (Where): Use both synchronous and asynchronous technologies to create the shared space in which students and instructor interact. | • Synchronous tools include Acrobat Connect Professional, Wimba Classroom, Skype, etc.,<br>• Asynchronous tools include learning management systems and tools for social networking, blogging, instant messaging, and collaboration. | Bannan-Ritland 2002, Lock 2002, Beldarrain 2006, Liu *et al.* 2007, Schullo *et al.* 2007, Snyder 2009, Kearns and Frey 2010, Schroeder *et al.* 2010, Hwang *et al.* 2011, Junco *et al.* 2011, Kassens-Noor 2012, King 2012, Strang 2012. | Strang (2012) showed that compared with students who had discussions in online discussion fora, the students who had synchronous Skype meetings were more active in discussions and achieved better learning outcomes.<br>MSN fostered a sense of community and enhanced student learning achievement (Hwang *et al.*, 2011).<br>Twitter made it easy for students to share information and facilitated the process of knowledge construction (Kassens-Noor, 2012). Twitter could also enhance student learning engagement and learning outcomes (Junco *et al.*, 2011).<br>Lock (2002), Liu *et al.* (2007) and Snyder (2009) suggested using various technologies for the development of learning communities. |
| Guideline 4.1 (How): Employ various strategies to stimulate discussions. | The following strategies can be used to stimulate discussions: (1) assigning roles to learners; (2) posing provocative debates; (3) inviting experts to give presentations or join online discussion; and (4) creating a case study that requires learners to define problems, search for resources, and discuss ways to solve the problems | Pilkington and Walker 2003, Tu and Corry 2003, Schellens *et al.* 2005, Kanuka 2005, Kanuka *et al.* 2007, Wang 2008, Woo and Reeves 2008, Farruggio 2009, De Wever *et al.* 2010, Richardson and Ice 2010, Shea *et al.* 2010, Darabi *et al.* 2011, Hou 2011, Wise *et al.* 2012. | Table 3 lists a representative study on each of the four discussion strategies. |
| Guideline 4.2 (How): Encourage both task-oriented discussions and social interactions. | • Instructors can provide social feedback, share feelings and experiences, and encourage students to comfort and motivate each other.<br>• Optional task-oriented discussion fora and optional social discussion fora might not encourage student participation. | Jung *et al.* 2002, Hewitt 2005, Liu *et al.* 2007, Chen and Wang 2009, Pate *et al.* 2009, Snyder 2009. | In a study that explores different types of interactions (Jung *et al.*, 2002), students in the social interaction group demonstrated better learning performances than those in the task-oriented group or the collaborative interaction group.<br>Social talk among high school students in online discussion fora transmited 'soft power' that exerted pressure on students to participate in discussions (Chen & Wang 2009). Social interaction also directed group discussions toward solving problems.<br>Liu *et al.* (2007) and Snyder (2009) suggested encouraging social interaction.<br>Optional discussion fora might not be useful, for optional fora do not tend to draw participation (Pate *et al.*, 2009). |
| Guideline 4.3 (How): Assign students tasks that require collaboration. | • Use the following strategies to facilitate group work:<br>(a) Provide a timeline for group projects;<br>(b) Check project progress to see whether the group is on track;<br>(c) Check to see whether groups encounter collaboration problems;<br>(d) Present criteria that will be used to assess collaborative work and individual contributions before students start their project;<br>(e) Ask students to submit individual work samples; and<br>(f) Help students form groups.<br>• In addition to group projects, give students individual assignments. | Jung *et al.* 2002, Ke and Carr-Chellman 2006, Koh and Hill 2009, Jahng *et al.* 2010, Koh *et al.* 2010. | In a study that explores different types of interactions (Jung *et al.* 2002), compared with students in a task-oriented discussion group and a social interaction group, students in the collaborative interaction group showed a higher level of satisfaction about their learning experience.<br>Ke and Carr-Chellman (2006) conducted a study on solitary learners' online learning experience. Their findings show that solitary learners gain the most from readings and their own reflective and critical thinking. |

preferences. After that, students can discuss the importance of learning communities, challenges to establishing learning communities, and possible solutions to the challenges (Falvo & Solloway, 2004). In so doing, learners will become aware that it requires an intentional effort to develop learning communities so that when they meet challenges in the future, they will not be surprised or dejected. Additionally, when community-building problems arise, learners can refer to the solutions suggested by the papers, discovered in their own discussions, or found in online sources. If possible, instructors should try to arrange an orientation at which learners can meet, for a face-to-face meeting will have a very positive influence on learners' interactions (Koh, Barbour, & Hill, 2010; Lewis, 1997; Tolmie & James, 2000). What can be achieved during the session ranges from self-introduction, information sharing, technology orientation, to course expectations (Falvo & Solloway, 2004). Therefore, when possible, the instructor should plan for a face-to-face gathering at the beginning of the course.

**Guideline 2 (who): Both students and instructors should be involved in building the learning community**

Students' sense of community is closely related to social presence (Bangert, 2008; Garrison *et al*., 1999a; Wei *et al*., 2012; Weinel *et al*., 2011) and their perceptions of the instructor's teaching presence (Bangert, 2008; Shea *et al*., 2006; Whipp & Lorentz, 2009). In a study examining the influence of social presence and teaching presence on the quality of inquiry in a community (Bangert, 2008), students were assigned to one of three groups: a social presence group, a social presence combined with teaching presence group, and a control group without social presence or teaching presence being supported. The social presence group performed team-building activities including an ice-breaker activity and a discussion of strategies that could be employed for their group task. The social presence combined with teaching presence group did the team-building activities as well. In addition, this group was supported by their instructor who posed thought-provoking questions, provided clarifications for misconceptions, and modeled responses to the group task. The findings indicate that the social presence combined with teaching presence group had the largest number of discussion postings at the highest level of cognitive processing.

Factors such as collaboration, good relationships, technology skills, immediate responses to messages, proper message size, and proper group size lead to a higher level of social presence (Garrison *et al*., 1999a; Jahng, Nielsen, & Chan, 2010; Tu & McIsaac, 2002; Wei *et al*., 2012). Teaching presence is reflected through the instructor's course designs, discussion facilitation, and direct instruction and feedback provision (Shea *et al*., 2010). Whipp and Lorentz (2009) examined how differences in course design, discussion facilitation, and direct instruction and feedback led to the differences in students' perceptions of support, help seeking behaviors, and learning achievements. Students felt they were well supported by the instructors who provided clear project instructions, posed challenging questions, shared personal and academic resources, and responded to students' questions in a timely manner. Therefore, both students and instructors should assume the responsibility for creating learning communities.

**Guideline 3 (where): Use both synchronous and asynchronous technologies to create a shared space in which students and instructor interact**

Learners and instructors can construct knowledge, share information, and provide support through interactions in asynchronous and synchronous discussion forums. Synchronous interaction can be stimulated with web conferencing tools (Acrobat Connect, Wimba Classroom, Skype, etc.). Synchronous technologies can benefit users in several ways. They can be used to motivate learners to maintain the same pace as their peers, enhance their sense of being connected, and provide immediate feedback to learners (Schullo, Hilbelink, Venable, & Barron, 2007). On the other hand, synchronous meetings pose challenges including accessing the technology and scheduling a time when learners can meet online on a regular basis (Bannan-Ritland, 2002; Schullo *et al*., 2007). These challenges could be overcome by asynchronous technologies, which also contribute to the development of relationships in online courses (Schroeder, Minocha, & Schneider, 2010). Asynchronous technologies include learning management systems and social networking (e.g., Facebook), blogging (e.g., Twitter), instant

messaging (e.g., MSN), video conferencing (e.g., Skype), and collaborative tools (e.g., Wiki) (Beldarrain, 2006; Kearns & Frey, 2010; Schroeder *et al*., 2010). Instructors can employ various synchronous and asynchronous tools to meet students' needs and the needs of their course. What should be kept in mind is that the use of technology should be aligned with the instructor's teaching philosophy (King, 2012). Technology should not be used simply for the sake of using technology.

Studies have been conducted on using various technologies to facilitate learning. Strang (2012) conducted research with students in an applied quantitative reasoning course. They were divided into a control group and an experimental group. For the control group, the readings, tutorials, and discussion topics were posted in the discussion forum. For the experimental group, the tutorials were presented at synchronous Skype meetings. Students in the experimental group could ask questions when listening to the tutorial presentations. They could also discuss their solutions to questions on Skype when requested. Students in the experimental group had significantly more responses to discussion questions than those in the control group. The experimental group also showed better learning achievement. Hwang, Huang, and Wu (2011) designed an MSN agent that displayed messages in the discussions and directed students to online experts. The online experts were students who demonstrated a high engagement level. Students could retrieve information from the MSN agent such as course announcements, most recent messages, and a list of experts. Students reported that the MSN agent fostered a feeling of belonging to a group, and they thought the agent positively influenced their learning achievement (Hwang *et al*., 2011). Although developing tools that meet the instructor's needs would be impossible for most practitioners, instructors can make use of the tools that have been designed and developed.

In another study, one group of students used Twitter to exchange information and discuss how urban planners create sustainable cities, while the other group kept diaries and held one in-class discussion (Kassens-Noor, 2012). The study showed that Twitter is beneficial for students to share information and construct knowledge.

Twitter can also enhance students' engagement and learning outcomes (Junco, Heiberger, & Loken, 2011). In a study conducted by Junco and colleagues, college students in the experimental group used Twitter for a variety of purposes, including discussing topics related to their course content, asking questions, receiving class reminders from instructors, and forming study groups. The control group performed the same activities on Ning except for forming study groups. The findings suggest that students in the experimental group exhibited higher engagement and better learning outcomes. However, Twitter constricts critical thinking because of the limit on characters (Kassens-Noor, 2012). Therefore, if the learning objective is to foster students' critical thinking skills, Twitter might not be an effective tool.

### Guideline 4.1 (how): Employ various strategies to stimulate discussions

The main vehicle of communication in an online learning community is online discussion. Instructors can employ various strategies to motivate learners to participate in online discussions. By drawing learners into a discussion and keeping them engaged, an instructor can enhance his or her teaching presence as the indicators of teaching presence include encouraging participants to contribute to discussion, acknowledging participants' contributions, summarizing discussion and so forth (Shea *et al*., 2010).

Strategies that can be used to stimulate discussions include (1) assigning roles to learners (Darabi, Arrastia, Nelson, Cornille, & Liang, 2011; De Wever, Keer, Schellens, & Valcke, 2010; Hou, 2011); (2) posing provocative debate topics (Kanuka, Rourke, & Laflamme, 2007; Pilkington & Walker, 2003; Richardson & Ice, 2010; Tu & Corry, 2003; Woo & Reeves, 2008); (3) inviting experts to give presentations or join in online discussions (Kanuka, 2005; Kanuka *et al*., 2007); and (4) creating a case study that requires learners to define problems, search for resources, and discuss ways to solve problems (Hou, 2011; Richardson & Ice, 2010; Tu & Corry, 2003).

Assigning roles to learners is a common strategy for stimulating discussion (Darabi *et al*., 2011; De Wever *et al*., 2010). These roles include the parts that learners play in simulation scenarios and in discussions. In a discussion, learners can assume a role to start a thread, provide participants with a direction, motivate their peers to participate, search for theories, generate new ideas, respond to other's postings, search for external

Table 3. Studies Examining the Influence of Discussion Strategies on Online Discussion

| Authors and years | Methodology | Findings |
|---|---|---|
| Hou (2011) | Thirty-two college students in a business course participated in two discussion activities. In Activity 1, students solved issues faced by an MP3 player company described in a scenario. In Activity 2, students played the roles of employees in a real estate brokerage company to solve problems the company faced. | Students' discussions in Activity 2 were more effective than those in Activity 1, in that the former demonstrated a better focus and deeper understanding. |
| Wise *et al*. (2012) | This study tested the functions of assigned students' roles in online discussions. The ten assigned roles included a conversation starter, an elaborator, a questioner and wrapper, among others. | Seventy-six per cent of the students who responded to a survey indicated that the assigned roles helped to provide a structure for starting discussions, keeping students focused on the discourse, and encouraging students to bring in multiple perspectives. As a result, students were engaged in a high-quality discussion. |
| Kanuka *et al*. (2007) | This study explored the impact of discussion strategies on the quality of discussions. The strategies included nominal group technique, debate, invited expert, WebQuest, and reflective deliberation. | Debate and WebQuest promoted the highest levels of critical thinking. |
| Farruggio (2009) | The author invited an expert in second language learning and teaching to a class of students who are supposed to teach English language learners in the future. Students read papers by the guest speaker in advance and then asked questions. The guest speaker answered questions posed by students. | An analysis of online discussions showed that the guest speaker's participation kept students engaged in the discussion. In addition, students obtained an understanding of topics not covered in the course. |
| Richardson and Ice (2010) | Students participated in three online discussions, each facilitated with one of three strategies – case study, debate, and open-ended discussion. | The strategy preferred by the majority of students was open-ended discussion. However, critical thinking achievement levels were lowest in open-ended discussions and highest in the case-based discussions. |

sources, and summarize ideas (De Wever *et al*., 2010; Pilkington & Walker, 2003; Schellens, Keer, & Valcke, 2005; Wang, 2008; Wise, Saghafian, & Padmanabhan, 2012).

A number of studies have been conducted to examine the influence of various discussion strategies on the quality of online discussions. Table 3 lists a representative study on each of the four discussion strategies previously stated.

### Guideline 4.2 (how): Encourage both task-oriented discussions and social interactions

In addition to task-oriented discussions that aim at promoting learning, the instructor should also invite learners to participate in social interactions because social interaction serves as a prerequisite for successful interpersonal relationship development. Social interaction also helps a group to attain cohesion (Chen & Wang, 2009), which renders a feeling of 'being with another' (Biocca *et al*., 2003) and enhances social presence. In addition, the encouragement and social feedback provided by the instructor contribute to students' learning outcomes (Jung, Choi, Lim, & Leem, 2002). Through the social interactions, students and the instructor can greet each other, share feelings and experiences, and comfort and encourage others. However, if a discussion thread becomes markedly off topic, learners might ignore the discussion (Hewitt, 2005).

Jung *et al*. (2002) suggested that students who are provided with encouragement and emotional support performed better than those who only received feedback related to the learning content. The former also participated more actively in the online discussion than the latter (Jung *et al*., 2002). Chen and Wang (2009) analysed the discussions of high school students in a

virtual summer camp and found that social talk served as a 'springboard' for group learning (p. 601). Social talk transmitted 'soft power' that exerted pressure on students to participate in discussions (p. 607). Additionally, students who did not frequent the discussion forum used social talk to demonstrate their presence. Therefore, instructors could provide social feedback and encourage students to share feelings and support one another emotionally. However, a discussion forum dedicated to social interaction might not be effective, especially as an optional discussion forum. Pate and colleagues (Pate, Smaldino, Mayall, & Luetkehans, 2009) created required discussion and optional discussion fora. Students participating in the study did not contribute much to the optional discussion fora.

### Guideline 4.3 (how): Assign students tasks that require collaboration

Collaboration contributes to learners' satisfaction in their learning experience (Jung *et al*., 2002). Through collaboration, they can interact with one another, build trust, assist one another, provide feedback to others, and develop a sense of fulfillment. Assignments requiring collaboration can take the form of whole class online discussions and group projects (Jahng *et al*., 2010). However, there are some learners who prefer learning by reading and reflective thinking. Instructors need to make sure that the class can meet the needs of different learners (Ke & Carr-Chellman, 2006).

Students hope that online instructors will provide clear project instructions and assessment rubrics (Whipp & Lorentz, 2009), outline a timeline for group projects, monitor project progress to see whether a group is on track, check to see whether groups are encountering collaboration problems, ask students to submit individual work samples (Koh *et al*., 2010), and help with group formation (Koh & Hill, 2009).

However, some researchers argue that collaborative learning is not as fruitful as independent learning for solitary learners (Hopper, 2003; Ke & Carr-Chellman, 2006). Ke and Carr-Chellman (2006) used the Myers–Briggs Type Indicator personality types Test (Association for Psychological Type, 2000) and the cognitive styles analysis (Riding & Rayner, 1998) to identify solitary learners in an online class and then conducted a phenomenological study on solitary learners' online learning experience. They found that solitary learners tended to be more involved with student-to-content interaction than student-to-student interaction, and gained the most from the readings and their own reflective and critical thinking. They relied on themselves, not on shared responsibility, for assignments and valued the feedback from peers they believed were experts. They interacted with others for academic purposes, not for socialization. If they were required to participate in collaborative projects, solitary learners believed the work should be divided equally. Therefore, in addition to group projects, individual assignments should be available. If there are solitary learners in a group, check the group to see whether they have encountered problems.

## Discussion

### Summary

Online learners tend to feel isolated because of their physical separation from other learners and the instructor (Lee & Choi, 2011; Willging & Johnson, 2009). Learning communities can assuage the isolation problem and motivate learners to persist in their learning.

It is important for online instructors to help students develop online learning communities. Although there are some existing guidelines that propose guidelines for facilitating the development of learning communities, given the increasing use of emerging technologies in online courses and the growing body of literature on online pedagogy, an updated set of guidelines is needed. In this paper, guidelines have been proposed for online instructors to facilitate the development of online learning communities. The strategies should help online instructors design a learning environment in which students have a sense of community.

### Limitations and suggestions for future research

Future research is needed to validate the guidelines. The guidelines should be tested and refined to address context-specific needs. Research is also needed to examine how an online learning community created following the guidelines influences learners' cognitive presence. Cognitive presence refers to the degree to which learners could build and confirm knowledge in a community of inquiry (Garrison *et al*., 1999a). Cognitive presence is crucial for the development of critical thinking, which constitutes the ultimate goal of creat-

ing and sustaining learning communities and the goal of higher education (Garrison *et al*., 1999a).

### Implications

The guidelines proposed in this paper can provide a direction for online instructors to help their learners create and sustain online learning communities. In addition, not only instructors, but also researchers and designers can use these guidelines to evaluate online learning environments. The guidelines can also be conducive to creating interventions and providing support for students in whom teachers detect feelings of isolation.

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