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Building and sustaining community in asynchronous learning networks

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Abstract

This article applies the concept of classroom community to asynchronous learning networks (ALNs) by taking on the issue of how best to design and implement a course that fosters community among learners who are physically separated from each other. The following factors that can influence sense of community among distant learners are examined: student–instructor ratio, transactional distance, social presence and instructor immediacy, lurking, social equality, collaborative learning, group facilitation, and self-directed learning. © 2001 Elsevier Science Inc. All rights reserved.

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1. Introduction

Many schools, particularly postsecondary schools, are moving rapidly toward the use of technology to deliver courses and programs at a distance. Several models are presently in use, such as broadcast television, video and audio teleconferencing, and asynchronous learning networks (ALNs) — people networks for anytime–anywhere learning via the Internet. An important aspect of this emphasis on delivering courses at a distance is the generation of interest among educators concerning the nature of distance learning environments and the learning possibilities achievable through technology. One facet of this interest concerns the

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building and nurturing of a sense of community among learners who are physically separated from each other.

The past few decades have witnessed increased interest in the concept of community. Much of this interest is based on the perception that sense of community in this country is weak and there is a need to get our citizens thinking about working together toward the common good (Etzioni, 1993). Communities make demands on its members, and members have an obligation to respond. These demands strengthen the bonds among community members by letting members know they are needed and valued by the community. Putnam (1995) intensified interest in community with his much-publicized view that too many Americans are “bowling alone.”

Goodlad (1997) echoes these sentiments when he quotes an editorial from the 1990 issue of the *Holistic Education Review*:

Our culture does not nourish that which is best or noblest in the human spirit. It does not cultivate vision, imagination, or aesthetic or spiritual sensitivity. It does not encourage gentleness, generosity, caring, or compassion. Increasingly in the late twentieth century, the economic–technocratic–static worldview has become a monstrous destroyer of what is loving and life-affirming in the human soul (p. 125).

McMillan and Chavis (1986) view the broad construct of psychological community as:

... a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together (p. 9).

When community is viewed as what people do together, rather than where or through what means they do them, community becomes separated from geography, physical neighborhoods, and campuses (Wellman, 1999). Hill (1996) and Reingold (1991) identified the need for extensive research in a variety of contexts to fully understand sense of community. They believe that the dimensions of community differ from setting to setting suggesting that sense of community is setting specific. One such setting is education.

Researchers are finding that many positive outcomes are related to sense of community among learners. Strong feelings of community increase the flow of information, the availability of support, commitment to group goals, cooperation among members, and satisfaction with group efforts (Bruffee, 1993; Dede, 1996; Wellman, 1999). Additionally, learners benefit from community membership by experiencing a greater sense of well-being and having a larger and more willing set of individuals to call on for support when needed (Walker, Wasserman, & Wellman, 1994; Wellman & Gulia, 1999). However, educators who perceive the value of social bonds in the learning process must reconceptualize how sense of community can be stimulated in virtual classrooms, particularly in computer-mediated learning environments where many of the verbal and nonverbal cues needed to support strong interpersonal ties are missing. Learners in these courses are not only physically separated but interact with each other through the use of text-based discussion boards and e-mail, without seeing or hearing each other and without the requirement to be online at the same time.

Drawing primarily on the work of McMillan and Chavis (1986), one can define classroom community as a feeling that members have of belonging, a feeling that members matter to one another and to the group, that they have duties and obligations to each other and to the school, and that they possess a shared faith that members' educational needs will be met through their commitment to shared goals. Classroom community is a specific type of psychological community based on the following characteristics: (a) the setting is the world of education; (b) the primary purpose is learning; and (c) the community is based on a fixed organizational tenure, that is, a set length of the course or program in which members are enrolled. We should also make a distinction between classroom community, a community of learners, and school community, a workplace community of principal, teachers, and others who are primarily managers of learning.

Classroom community can also be constitutively defined in terms of four components: spirit, trust, interaction, and learning. Spirit denotes recognition of membership in a community and the feelings of friendship and cohesion that develop among learners. Trust is the feeling that the community can be trusted and feedback will be forthcoming and positive (McMillan, 1996). Candor is important to classroom community because with trust comes the likelihood that members will expose gaps in their learning and feel that other members of the community will respond in supportive ways. Trust in the community also fosters contribution and support in times of need (Haines, Hurlbert, & Beggs, 1996). Spirit and trust are directly related to interaction, which is the feeling that mutual benefit comes from discussions. Each learner's understandings are influenced by interactions with others (Brooks & Brooks, 1993; Glaser, 1990). Thus, interaction among learners is an important element of the learning process. Learning, the final component of community, reflects the purpose of classroom community and epitomizes learner attitudes concerning the quality of learning and the degree to which one's educational needs are being satisfied.

Since face-to-face and other forms of synchronous communications are usually absent from the ALN environment, it seems reasonable that the quality of asynchronous interactions is a major factor that influences sense of community within such environments. Without interactions with others, the learner feels isolated, such as might be expected in a traditional correspondence course. Indeed, some online instructors view online courses as an electronic form of a correspondence course, where delivery of instruction is of primary importance. Little or no attempt is made to facilitate interactions and little sense of community is nurtured in such environments. However, skillful online instructors can build and sustain community by encouraging and facilitating equitable interactions whereby members of the community feel valued and benefit from sharing ideas, experiences, and resources.

Research regarding the learning effectiveness of various media for delivering instruction at a distance provides substantial evidence that the medium is rarely the determining factor in learning effectiveness (Russell, 1999). It is course design and pedagogy that matter the most. The key question is: "How do learners in a virtual classroom build and sustain sense of community?" A review of the professional literature suggests that many factors can influence the quality of interaction and thus sense of community within any distant learning environment. These interrelated factors, in turn, influence course design and/or pedagogy. The remainder of this article examines the following eight factors as depicted in the accompany-

ing figure: student–instructor ratio, transactional distance, social presence and instructor immediacy, lurking, social equality, collaborative learning, group facilitation, and self-directed learning (Fig. 1).

2. Student–instructor ratio

The first factor is student–instructor ratio. Distance education can increase the student–instructor ratio by allowing one instructor to teach hundreds of students. Such a possibility is attractive because large class sizes can rapidly amortize high development and initial technology costs. The result is fewer and fewer instructors teaching to more and more students as course design moves toward the independent study model. What may be overlooked is that many content areas, such as research and statistics, require equally specialized learner attention. Breakeven points — course sizes for which the cost of distance education and traditional delivery are roughly equal — will vary depending on variables such as the size of technology investment and instructor costs. While high student–instructor ratios can result in great economic savings, the issue becomes one of whether the price in quality of learning and the loss of human interaction and sense of community is worth the savings. This is an important issue for administrators to consider as they formulate institutional norms.

Class size is a perennial issue that divides educators when discussing traditional face-to-face education, and distance education venues appear to be no different. Intuition tells us that smaller classes facilitate increased learner–instructor interaction, thus promoting increased sense of community. The groundbreaking research conducted by Glass and Smith (1979) in traditional class size continues to influence discussions to this day. Their meta-analysis examined 80 studies that compared smaller and larger classes with respect to student achievement, classroom processes, and teacher and student attitudes. They concluded that smaller classes were significantly better than larger classes on all these variables. There is no evidence to suggest that these outcomes are not generalizable to distance education.

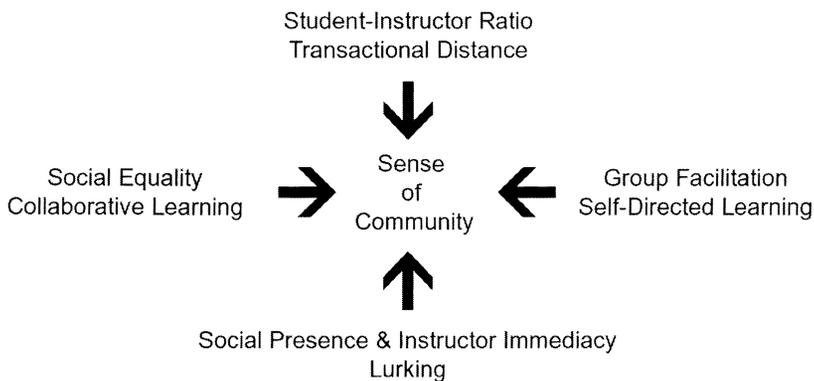


Fig. 1. Factors that can influence sense of community.

Rice (1994) found that community size in computer-mediated environments strongly influences its activities. Too few members generate little interactions and too many members generate a sense of being overwhelmed. Hard and fast guidelines regarding community size are difficult to determine since the chemistry of the community is situational and varies with content area, instructor, and learners. Nonetheless, the personal experiences of the author spanning three years as an online instructor suggest that 8–10 students typically represent the minimum critical mass needed to promote good interactions. At the opposite end of this continuum, 20–30 students seem to be the most learners that a single online instructor can reasonably handle if the course has active discussions. Large ALN courses, that is, courses with over 30 learners, can be managed by using a team teaching approach in order to maintain a reasonable student–instructor ratio and by using multiple active discussion groups so that each learner can make connections with a reasonable number of community members. Alternatively, large courses that focus on delivering content can be created, followed by small discussion groups led by subject matter experts doing one-on-few coaching and mentoring.

3. Transactional distance

The second factor that can influence classroom community is transactional distance. Moore (1993) defines transactional distance as the psychological and communications space between learners and instructors. Transactional distance is relative and different for each person. According to Moore, the extent of transactional distance is a function of structure and dialogue. Structure is the amount of control exercised by the instructor in a learning environment and additional structure tends to increase psychological distance and decrease sense of community. Dialogue, on the other hand, is the amount of control exercised by the learner and more dialogue tends to decrease psychological distance and increase sense of community. By manipulating the communications media and designing an online course to take full advantage of these capabilities, dialogue can be increased and transactional distance reduced. Comeaux (1995) endorses this view and reports that interaction and collaborative involvement lessens the psychological distance for students at remote learning sites. Vrasidas and McIsaac (1999) stress the need for educators to plan for dialogue because of the need to include learner–learner interactions.

4. Social presence and instructor immediacy

Social presence and instructor immediacy are also related to sense of community. Some instructors feel that once they design their course and place it online their job is mostly done, that the community of learners will take care of itself and thrive, and learning will occur. What is likely to happen in such situations is that sense of community will wither away unless the community is nurtured and support is provided in the form of heightened awareness of social presence. Short, Williams, and Christie (1976) view social presence as the extent to which learners feel that other members of the learning community are jointly

involved in communicative interaction. “Social presence in cyberspace takes on more of a complexion of reciprocal awareness by others of an individual and the individual’s awareness of others . . . to create a mutual sense of interaction that is essential to the feeling that others are there” (Cutler, 1995, p. 18). Computer-mediated communications are regarded as less personal and possessing diminished “social presence” and “social context cues” when compared to face-to-face communication. Distant learners feel isolated when they doubt that others are reading the comments they post to discussion boards. As cues are fewer, social presence is lower, and as social presence goes down so does sense of community. Consequently, ALN instructors must improve feelings of social presence among the community of learners. Instructor immediacy can help achieve this goal.

Instructor immediacy is the immediate verbal and nonverbal communications such as smiles, head nods, use of inclusive language, and eye contact, which promote increased learning. Research evidence identifies the need for online instructors to manifest immediate behaviors in providing feedback to distant learners, even if the feedback consists of a simple acknowledgement that the work was received. Part of the need for such acknowledgement is a basic mistrust that many online learners, particularly those new to asynchronous learning, have with the technology. Often, new learners will become so anxious that they will e-mail the instructor to ask if the instructor received their previous e-mail or read a message they posted to a discussion board. Peer evaluation in the form of feedback from other learners is also valuable because it provides other viewpoints and can reduce the instructor’s workload.

Kulik and Kulik (1988) examined the issue of immediate vs. delayed feedback in a meta-analysis and discovered that immediate feedback is preferable over delayed feedback in verbal environments. There is no evidence to suggest these findings would differ in asynchronous environments. As Dempsey, Driscoll, and Swindell (1993) observe in text-based instructional systems, delaying feedback “is tantamount to withholding information from the learner that the learner can use” (p. 24). Frymier (1993) investigated the interaction of students’ motivation to study and instructors’ verbal and nonverbal immediacy in a traditional face-to-face learning environment. Her research found that students beginning a course with either low or moderate motivation to study had increased motivation to study after being exposed to a highly immediate instructor, while students with a high level of motivation were unaffected by their instructors’ immediacy.

Online instructors need not reply to all learner postings to course discussion boards. However, learners must feel that others are reading their written comments. This can lead to what Csikszentmihalyi (1977) refers to as a “flow experience” in which action and awareness are fused, the passing of time is unremarked, and the activity itself becomes intrinsically rewarding and deeply engaging. This sense of involvement and engagement can be critical to building a sense of community among learners. Online instructors must deliberately structure interactions to overcome the potential lack of social presence. In doing so, instructors must balance the need for immediate responses with providing the opportunity for other members of the community to respond. Successful online instructors develop such a sense of timing. For example, immediate feedback is essential in the case of distressed learners. On the other hand, it is often useful to provide learners who receive negative feedback, such as a low grade, opportunities to simmer before replying.

5. Lurking

The presence of lurkers in an online course can threaten sense of community among all learners. Lurkers are learners who are bystanders to course discussions, lack commitment to the community, and receive benefits without giving anything back. Lurking is generally viewed as a common occurrence in many online discussion groups. For example, Nonnecke and Preece (2000) conducted a study of 77 online health support groups and 21 online technical support groups and determined that 46% of the health support groups and 82% of the technical support groups were lurkers. McKendree and Mayes (1997) argue that dialogue between learners can benefit lurkers who read the discussions. Admittedly, there is a measure of learning in such situations, but the low level of participation itself is insufficient to provide sustained benefit to onlookers. Additionally, active members of the community mistrust those who do not participate, thereby affecting overall sense of community. To encourage all learners to access and participate in online discussions on a regular basis, learners should understand that course participation is not only a course requirement, but is also a graded component of the course. Members of the learning community should be graded on quantity, quality, and timeliness of their contributions.

6. Social equality

The fifth factor that influences the growth of community is social equality. Kiesler, Siegel, and McGuire (1984) describe computer-mediated communications as a channel that “depersonalizes” learners since they are less able to exchange nonverbal cues, such as facial expression and vocal pitch. Kiesler et al. assert that there is a resulting social anonymity around which communicators must imagine their audience. Additionally, nonverbal indicators of vertical hierarchy, status, and power, including appearance, cannot be transmitted via text. These factors have been theorized to promote social equality in online discussions. Nonetheless, Belenky, Clinchy, Goldberger, and Tarule (1986) identify two different communication patterns that can be detected in textual communications and are serious threats to social equality: (a) the separate voice, that is, the separate, autonomous, or independent path, which is typical of the majority of men (and some women); and (b) the connected voice, the relational, connected, or interdependent path, which reflects the majority of women (and some men). This communications model suggests that many female students place emphasis on relationships and prefer to learn in an environment where cooperation is more valued than competition. The connected voice supports classroom community building, while the separate voice does not.

In a study examining online communication patterns, Herring (1996) found significant differences by gender along the lines theorized by Belenky et al. (1986). Such gender differences were also reported by Blum (1999) based on her analysis of internal message patterns by gender of postsecondary students enrolled in an ALN course. Blum’s study characterized the voice of male messages as tending to be confrontational, autonomous, certain, abstract, arrogant, or consisted of a controlling nature, while female messages tended

to be empathetic, mentioned self, family, or spouse, or had a cooperative tone. Blum also noted that male communication patterns were different online where male domination seemed to be stronger than in face-to-face communications. Confrontational behavior appears to be more common in virtual environments, which seem to reduce inhibition and constraints of etiquette. For example, take the Internet's USENET news groups. It is at the same time both unregulated and guided by a rigid unwritten code. This code is enforced not by a governing body, but by peer pressure. Noncompliance by a new user can instantly lead to "flame wars," the electronic equivalent to a prolonged tongue-lashing. Such extreme behavior is unlikely to occur in a moderated ALN course, but as Blum noted, the separate style is stronger in virtual environments. The threat to community occurs when one or more students use an authoritative tone in online discussions and those students who have a more inclusive style of discourse feel put off and reduce their discussion participation. Online instructors must ensure equal opportunities for participation by all students, particularly if discussions are used as summative assessments. One technique available to the online instructor to reduce anonymity and to help learners make connections with each other is to have all members of the course introduce themselves during the first week of the course in a course discussion area set aside for this purpose. Such an activity can help maintain etiquette and civility in discussions and promote a sense of community.

7. Collaborative learning

The sixth factor that supports community-building is collaborative learning. A key concept of learning is Vygotsky's idea of the "zone of proximal development" as the site where learning occurs. This zone is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). This concept has greatly influenced educators in viewing learning as a collaborative process. Breaking large numbers of students into small groups (typically under 10 learners), providing specific tasks, and setting timelines help learners to become actively engaged in collaborative work. The fundamental idea underlying such group work is that students become meaningfully engaged in a variety of learning activities such as student- or teacher-led discussion groups, debates, projects, and collaborative learning groups. Case studies are particularly relevant to online collaborative learning as they present real or hypothetical situations that demand group discussion and the use of concepts to develop recommendations or to achieve a preferred solution (Barnes, Christensen, & Hansen, 1994). Online education is inherently student-centered and augmenting individual learning activities with small group activities promotes learning, as well as sense of community by helping students make connections with each other.

Collaborative learning is also relevant to the online medium and allows students at various performance levels to work together in small groups toward a common objective. The goal of collaborative work is to share alternative viewpoints and challenge as well as help develop each alternative points of view (Sharan & Sharan, 1992). Learners are responsible for one

another's learning, as well as their own. Thus, the success of one student helps other students become successful. According to Slavin (1989), for effective collaborative learning, there must be "group goals" and "individual accountability." When the group's task is to ensure that every group member has learned something, it is in the interest of every group member to spend time explaining concepts to members of the group. Hiltz, Benbunan-Fich, Coppola, Rotter, and Turoff (2000) report strong correlations between the degree of collaborative learning in an ALN course and course outcomes. They observe that, "When students reported high levels of interaction with classmates, significant correlations were found with high levels of reported satisfaction and learning . . . students who reported the lowest levels and quality of interaction reported the lowest levels of satisfaction and learning, that is, they had the least opportunity for collaboration." Hiltz (1998) supports the view that interaction is an important aspect of online pedagogy and cites a number of studies that suggest when collaborative learning is used in ALN delivery, mastery of material and efficiency of education tend to be equal to or better than traditional face-to-face courses.

8. Group facilitation

The seventh factor is group facilitation. As noted above, dialogue is an essential component of an online course and facilitation efforts are meant to inspire learners to interact so all feel involved. Online instructors must be mindful of two types of functions related to group facilitation: (a) functions related to the group task; and (b) functions related to building and maintaining the group. The online instructor has a duty to see that all functions are performed adequately. Benne and Sheats (1978) describe group building and maintenance roles as those roles that are oriented toward the functioning of the group. They are designed to alter or to maintain the group's way of working, to strengthen, regulate, and perpetuate the group as a group. Some of these group maintenance roles include encourager, harmonizer, compromiser, gatekeeper, or standard setter. Skill in performing these roles is useful to the instructor in facilitating group discussion and in promoting sense of community.

Many teachers who experiment with online courses report being overwhelmed with small enrollments because they set up e-mail conversations with each student or participate too much in online discussions. This model, which places the teacher in the center of numerous private and public conversations, is not feasible for online courses. The superior model is like a seminar, where the instructor assumes the role of a tutor and determines the topic and activities, encourages substantive interactions among students, monitors and shapes the conversation, but refrains from extensive direct interactions. Good interactions in ALNs are discursive, that is, each participant actively attempts to understand the viewpoints of others in the interaction and then to modify his or her own postings to help others better understand that viewpoint (Laurillard, 1993). Thus, interaction can facilitate a shared construction of knowledge that is valued in collaborative learning environments.

However, learning in a discursive interaction environment requires that the participants are able to "follow" the interaction from beginning to end. This is because the discursive negotiation of understanding may traverse a circuitous path as the instructor and students

search for ways to communicate and understand concepts, knowledge, skills, and attitudes. Skillful online instructors model higher-order thinking by frequently asking questions that probe students' knowledge. The best types of questions are those that remain at the metacognitive level and avoid whenever possible expressing opinion or providing answers to learners. For example, the instructor should frequently ask questions such as "Why?" or "How do you know that's true?" Barrows (1992) describes this process as follows:

The ability of the tutor to use facilitatory teaching skills during the small-group learning process is the major determinant of the quality and success of any educational method aimed at (1) developing students' thinking or reasoning skills (problem solving, metacognition, critical thinking) as they learn, and (2) helping them to become independent and self-directed (learning to learn, learning management). Tutoring is a teaching skill central to problem-based, self-directed learning (p. 12).

9. Self-directed learning

The eighth and final factor that can influence sense of community is self-directed learning. Grow (1991) describes self-directed learning as the degree of choice that learners have within an instructional situation, a concept that is related to Moore's (1993) concept of use of dialogue to reduce transactional distance. Grow theorized the staged self-directed learning model in which learners evolve from being a dependent learner through intermediate stages of becoming interested and then involved learners on their way to becoming fully functional self-directed learners. Each stage of learning requires an instructor who manifests an appropriate teaching style. For example, the dependent learner is usually most comfortable in a learning environment that emphasizes structure over dialogue, while the opposite is true for the self-directed learner who seeks more dialogue and less structure. Mismatches will occur and both sense of community and learning will suffer if there is a weak alignment of teaching style to learning stage. For example, self-directed learners are likely to resent an authoritarian instructor who emphasizes structure and to rebel against a series of low-level tasks, although there is evidence that some self-directed learners develop the ability to function well and retain overall control of their learning, even under directive teachers (Long, 1989). Grow identifies this type of mismatch as one of the fundamental difficulties with the public school system. Students who are capable of more individual involvement in learning are often relegated to passive roles in authoritarian classrooms. Adults who return to college may find themselves faced with a similar mismatch. Their life experiences and learning skills enable them to be self-directed learners in many subjects, but at some schools they encounter faculty who teach with an authoritarian style. Dependent learners, on the other hand, will resent an unstructured learning environment and the freedom they are not ready for. Grow suggests what is "good teaching" for one student may not be "good teaching" for another student. Good teaching does two things: (a) it matches the student's stage of self-direction; and (b) it empowers the student to progress toward greater self-direction. Good teaching is situational, and it requires that the online instructor design and facilitate an online course

based on the needs of all learners, regardless of their stage of learning. However, as Lepper and Chabay (1985) point out regarding learner control: “It is unlikely that any choice of level of control will be optimal for all students, or even that the same level of control will be optimal for a single student for all activities or in all situations” (p. 226).

10. Summary

The eight factors of student–instructor ratio, transactional distance, social presence and instructor immediacy, lurking, social equality, collaborative learning, group facilitation, and self-directed learning can all impact sense of community in the virtual classroom. A student–instructor ratio of no higher than 30:1 sets the stage for successful community building in a distance education course. Transactional distance describes not only the dimension of physical separation but also the communication gap that must be bridged by dialogue so that learners construct understanding and feel a sense of community (Moore, 1993). Transactional distance and the misunderstandings and miscommunications it entails are likely to be low in a course delivered using interactive technologies where learners and the instructor are in frequent communication with each other. The online instructor creates an environment where learners feel the social presence of others by encouraging and facilitating interaction by everyone and by providing immediate feedback, particularly to distressed learners. Instructors also recognize and respond to discussion by some students that discourage discussion by others and ensure all students are afforded equal opportunities to interact, particularly if discussions are used as summative assessments.

Much of modern cognitive learning theory emphasizes that understanding is a personal thing and is influenced by prior experiences and attitudes. Individual perceptions do not mean that it is impossible for individuals to construct essentially the same understanding for any object or event in the external world. Common understandings regularly result from social negotiation of meaning that is supported by collaborative construction of knowledge. Understandings and instructional outcomes can be negotiated among learners and the instructor. Rather than imposing a prescribed and objective reality on learners, online instructors must accept that each learner will interpret the same object or event somewhat differently. There will be times when the instructor’s knowledge matters more than anything else and lecturing may be the best possible response at that point. Afterwards, the instructor returns to group interaction and facilitation as a means to build and sustain sense of community in the virtual classroom.

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