Designing Communities of Learners for Asynchronous Distance Education

☐ Leslie Moller

Asynchronous distance education can replicate traditional face-to-face training or education; but, why should it do so? Asynchronous distance education provides an opportunity to create meaningful learning which is not feasible in a traditional classroom, provided that communities of learners that encourage knowledge building and social reinforcement are specifically created. This article describes the need for learning communities within the context of asynchronous distance education. Asynchronous learning communities are specifically relevant for training environments, given the need for instant and constant training with employees who are located in an ever-expanding national and international workplace. Specifically, three types of communities are described: academic, intellectual and interpersonal.

LEARNING AND DISTANCE

☐ Distance education is an umbrella term describing the practice of educating learners who are separated from the teacher or trainer and each other by space, time, or both. A significant body of research shows that distance education can be as effective in facilitating learning achievement as traditional face-to-face instruction (Barry & Runyan, 1995; Hanson et al., 1996; Moore & Kearsley, 1996). However, as Moore and Kearsley (1996) state, there is "insufficient evidence to support the idea that classroom instruction is the optimum delivery method." Thus there is the possibility that distance education can create learning opportunities that are not practical in a traditional classroom setting (Ahern, Peck & Laycock, 1992). Classroom lecture is excellent at delivering information efficiently. There is, however, a growing belief that viewing a learner primarily as a receiver of information tends to encourage inactivity rather then thinking (Ahern, Peck & Laycock, 1992; Grabinger, 1996). Passive learning limits learners and causes them to mirror the presented knowledge, rather than allowing them to grow their own expertise. It is real, meaningful thinking that arises out of a collaborative and reflective thought process that engages the learner and promotes the kind of learning necessary for present and future work preparation (Jonassen & Reeves, 1996).

With asynchronous distance education, the learner initially interacts with the content and instruction individually, thus alleviating the need for the one-to-many instructional models and their corresponding teacher control of topic, speed and sequence (Dillon & Gunawardena, 1992). However, the potential of asynchronous learning can only be realized by designing expe-

riences and environments which facilitate learning beyond the content-learner interaction. To that end, it becomes necessary to create learner support communities.

THE RELATIONSHIP OF COMMUNITY AND DISTANCE LEARNERS

Just as the physical environment influences the traditional classroom learning experience, asynchronous distance learning cannot solely focus on instructional interaction alone. It must include other factors that could positively effect the learning outcomes (Saba & Shearer, 1994). Creating positive and effective asynchronous learning is more than just modifying the time frame. Two functions must be supported: first, structuring the way a learner engages in meaningful learning; second, after generating a teaching-learning design that exploits the possibilities created by altering the time sequence of teacher-learner and learner-learner interaction, attention must be directed toward the development of a community that provides necessary support to the learners (Cathcart, Samovar, & Henman, 1996; Kember, Lai, Murphy, Shaw & Yuen, 1994).

A community in a distance-learning situation functions similarly to any community in that its two prime functions are to provide (a) social reinforcement and (b) information exchange. More specifically, community plays an integral role in successful asynchronous distance learning by providing the learner with three different types of support: (a) academic, (b) intellectual, and (c) interpersonal. (See Figure 1.) This article first describes the two functions of a community followed by a description of the three types.

FUNCTIONS OF COMMUNITY

Community as Social Reinforcement

The first function of community is to provide a social membership or reinforcement. Community, through social reinforcement, provides a vehicle for satisfying the basic human need for self-esteem. This encourages one of the internal conditions necessary for a learner to be ready and able to learn (Maslow, 1954). According to Maslow, satisfaction of self-esteem leads to feel-

Figure 1 ☐ Learning Community
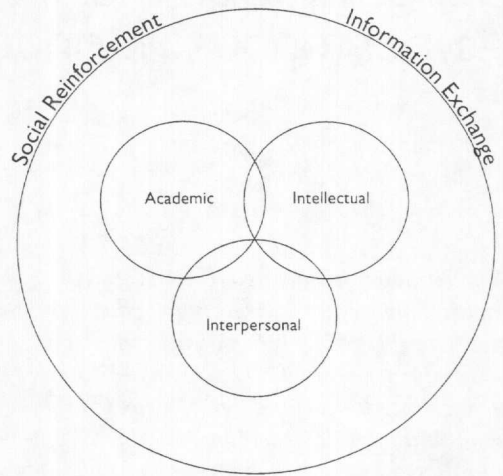
ings of self-confidence, capability and adequacy, among others. Maslow goes on to say that the loss of feelings of recognition, attention, importance or appreciation—all results from a lack of community—leads to feelings of inferiority, weakness and helplessness. Such feelings are hardly prescriptive for successful learning. McIsaac & Gunawardena (1996) appear to support the significance of social reinforcement as an issue in distance learning by stating that social presence, the degree the person feels, or is seen by others as real, is a significant factor that affects satisfaction and achievement. Social reinforcement is a natural and positive outcome resulting from others in a community who contribute a sense of identity through shared values, norms and preferences (Cathcart et al., 1996). According to Cathcart et al., cohesive groups "usually enjoy low turnover and higher participation because members desire continuation of the group and its commitment to goal accomplishment." This may be of particular significance for distance learners given the anxiety often created within new learning situations (Jegede & Kirkwood, 1994). Dropout, a significant problem within the distance educational field, could be lessened through increasing the feelings of community among isolated learners.

Community as an Information Exchange

Information exchange, the second primary function of a community, is concerned with collabo-

ration and the resulting knowledge building. According to Jonassen (1998), "computer-supported collaborative learning allows physically separated learners to create and share knowledge." The exchange allows alternate information and perspectives to be considered and learners to actively analyze or organize their own thoughts (O'Malley & Scanlon, 1990; Woodruff, 1996). Neilson (1997), in advocating collaborative learning through technology for organizational learning, found evidence of groups' outperforming the best member in complex problem solving, sharing knowledge as a critical element in success, and leveraging knowledge in a rapidly changing environment, as advantages of belonging to a community for information exchange.

As collaboration relates to learning, Gay and Lentini, (1995) and Ahern et al. (1992) state that research has demonstrated the necessity of peer interaction as an essential learning strategy. In a study of 150 Open University physics and math students, O'Malley & Scanlon (1990) tentatively concluded that a "fairly high proportion" of learners found value in group activity. Presumably, the value was at least partially caused by increased learning. Certainly, the increased learning that is the result of knowledge-building or information exchange and the corresponding interactivity is not limited to asynchronous distance learning and should be designed into all learning encounters. However, two points need to be clearly stated. First, asynchronous learning environments may present the best opportunity to fully maximize the "thinking" aspect of knowledge-building, by providing flexible time control to engage in discourse; investigate related information; and construct, communicate, and refine ideas. Second, asynchronous distance learning is likely to be less successful if specific efforts are not directed at facilitating information exchange, which is the basis for the previously mentioned opportunity.

In a traditional classroom environment, the community is "built-in" to the instruction and occurs to some degree with little or no additional planning or effort. In asynchronous learning environments, communities have to be specifically designed, developed, and implemented. By default, an instructor may deperson-

alize an asynchronous distance learner since a traditional relationship is not formed. However, that attitude is detrimental to learning achievement, and the learner, although separated by space or time from others, still needs to be supported and to feel a sense of belonging. That sense of belonging results from being a member of a community and sharing in the benefits of collaboration (Cairncross, 1997; Kember, Murphy, Siaw, & Yuen, 1991; McIsaac & Gunawardena, 1996; Moore & Kearsley, 1996).

TYPES OF COMMUNITIES

Academic Support Community

Significant learning occurs when learners establish connections between the presented content and individual prior knowledge, and transfer it to new and relevant situations (Moore & Kearsley, 1996; Garrison, 1990) Academic support for these tasks is provided through additional interaction between the learners and informational facilitators. These facilitators may be teachers, content experts, or trained learning tutors. (See Table 1.) The teacher is transformed from a knowledge giver to a facilitator by providing in-depth dialogue to a learner, and thus prompting reflective thought on issues relating to application of the content. Dialogue may also redirect the learner in previously unanticipated directions or facilitate discourse on the learner's logic-rationale (Garrison, 1990). Dialogue can take the form of questions, assistance in forming hypotheses, constructing arguments, or all three. This may be particularly significant with adult, nontraditional learners, who are a large proportion of distance learners. These learners tend to be highly motivated, with specific and personally relevant goals (McIsaac & Gunawardena, 1996). The nature of asynchronous communication combined with a dialogue-based approach enables a high degree of individualization, which can lead to the learner's feeling a sense of control. This feeling of control, combined with teacher support and the resulting goal achievement, may be a significant factor in learner persistence and course completion (McIsaac & Gunawardena, 1996). Dialogue, as used here, reflects a view of the teacher evolving from an initiator and controller

of instruction to a partner in an interactive communications pattern that relies on the learner as an active constructor of knowledge, and encourages learner-generated investigation and discussion (Ahern et al., 1992; Brown, 1994).

In distance education, a content expert may be incorporated easily into some discussions to provide real-world examples, case studies, feedback, or alternate perspectives. These allow learners to explore situations beyond the presented content and are directly relevant to their individual learning goals. Content expertise also provides limitless knowledge and up-to-date resources that allow additional learner-generated investigation (Guzdial, Rappin, & Carlson, 1995). The ability to include content experts or other resources easily and practically, without the constraints of a timed class period, expands the learning environment to include the world, as contrasted with the constraints of a classroom. Furthermore, having the student actively instigate the involvement of the content expert reinforces the concept of learner control when the learner assumes responsibility to make instruction relevant.

Table 1 ☐ Academic Support Relationships

Source	Provides
Teacher	Feedback Guidance Prompts Dialogue & Reflection
Content Expert(s)	Real-world Examples Modeling Performance Enrichment Opportunities

Intellectual Support Community

Meaningful learning, as previously discussed throughout this paper, requires the learner to be actively engaged in cognitive manipulation of the instructional content or information. As described in the previous section, learning occurs, to a degree, within the teacher or content expert-learner exchanges and dialogues. However, as Moore and Kearsley (1996) point out, learner-to-learner interaction is sought-after for its educational advantages. They go on to describe this type of intellectual exchange as invaluable for the application and evaluation of learning. Gay and Lentini (1995) confirm this assumption by writing, "learning is fundamentally built up through conversations between persons or groups; involving the creation and interpretation of communication." Furthermore, they argue, conversations are the vehicle for people to collaboratively develop their beliefs and meanings, and identify their differences. Jonassen (1998) supports and expands this position by stating that "humans are social creatures who rely on feedback from fellow humans to determine their own existence and the veridicality of their personal beliefs." Thus an individual's membership in a community creates the opportunity for ideas and knowledge to be shared and influenced by others within the community who posses their own beliefs and values because of their differing experiences. Furthermore, "since no two people can possibly have the same set of experiences and perceptions of their experiences, each of us constructs our own unique perspective that we use to make sense of encountered phenomena and to share with others" (Jonassen, 1998). It is evident that while our own views and beliefs are individually held, our views are in fact influenced and expanded by information we receive from other perspectives, and thus we are more able to enlarge our own beliefs and more likely to take risks when supported by a community of other learners (Grabinger, 1996).

According to Scardamalia and Bereiter (1994), intellectual support communities are a "means for redefining classroom discourse to support knowledge building in ways extensible to out-of-school knowledge advancing enterprises." These authors support their argument by reporting that "evaluations of CSILE (computer-supported intentional learning environments) students greatly surpass students in ordinary classrooms on measures of depth of learning and reflection, awareness of what they have learned or need to learn, and understanding of learning itself. Moreover, individual achievement, as conventionally measured, does not suffer." After their study of 80 undergraduate students, Ahern et al. (1992) reported that asynchronous computer-mediated communica-

tions improves the acquisition and application of knowledge without a teacher-centered orientation. Furthermore, their review of the research has shown "that this type of interaction is not merely noise in the instructional context, but essential to the cognitive development of the students."

In other words, an intellectual support community designed to facilitate learner-centered communication can increase peer interaction and learning effectiveness by first engaging the learner in a manner that is more active than is likely found in traditional education. This occurs in several ways:

- By raising the learning expectations through the instructional design, and supporting the learners through the technology and time flexibility.

- By promoting an opportunity for meaningful learning, which requires and allows for thinking and reflection.

- By increasing cognitive development through argument construction, communication of those ideas, and critical analysis of new ideas.

- By expanding the range of ideas and capitalizing on the possibilities of brainstorming or collaborative idea generation.

- By providing emotional support for growth or intellectual risk-taking behaviors.

Although Jonassen (1998), Scardamalia and Bereiter (1994), and others are not advocating asynchronous distance education per se, the argument is particularly relevant to such an educational environment given the pragmatic issues of time, the nature of the learning potential, and student aptitudes and abilities. It is also significantly more practical to expect this to occur in an asynchronous learning environment than in a classroom with its various practical limitations.

Interpersonal Support Communities

In addition to supporting the learner in academic and intellectual development, learners also need and expect interpersonal encouragement and assistance (Moore & Kearsley, 1996; Gunawardena, 1991). Typical distance learners share many of the same difficulties as other non-traditional learners in that they are likely to be integrating their education or training with other aspects of their life. However, unlike non-traditional learners in a face-to-face environment, the asynchronous distance learner may not have easy access to support systems, does not have the same opportunities to observe others with similar problems, or develop shared values, which assist in resolving the problems. In addition, the distance learner has unique difficulties that arise from the technology itself.

Learners who are unsuccessful at adapting or overcoming these difficulties are less likely to continue to persist toward their educational goals (Kember, et al., 1991; Kember, et al., 1994). Among those who do not drop out, anxiety or lack of confidence in a successful completion will negatively effect their motivation which, in turn, will diminish the expended effort and the resulting learning achievement (Moller & Russell, 1994). According to Gunawardena (1991), ". . . student support services play a crucial role in the integration of these technologies into distance education systems." Garland (1994) supports the criticality of support systems to distance learners, concluding that a learning environment that is responsive to student needs assists students in program completion. She goes on to describe issues, including time management, poor study environment, family conflict, and competing responsibilities, among others, which can become barriers. It is unrealistic, given real-world conditions, to suggest elimination of barriers, yet with proper guidance and support the negative effect of many obstacles can be managed.

In the asynchronous environment, support can be provided formally from the host institution, in the form of on-line tutorials or frequently asked questions, live help desks or counselors to provide guidance, time management techniques, and technology training or assistance. However, support can also occur informally from other learners in the community who can share advice, experience, and generally speaking, offer a level of comfort and acceptance. For example, Hillman, Willis, and Gunawardena (1994) state, "learners need to possess the necessary skills to operate the mechanisms of the

delivery systems before they can successfully interact with the content, instructor, or other learners." It is likely that the abilities to significantly participate in intellectual or academic dialogues and feel part of the community are functions of the learner's having both something to say and the ability to technologically communicate. Thus support services such as tutoring or technical help become an essential aspect of support.

In another example, a learner may become discouraged because of typical anxiety or frustration over a difficult problem or assignment. By hearing from others of their own frustration, the learner will likely understand that these feelings are typical and not abnormal, and thus will be able to continue to work toward the educational goal. As discussed earlier, being part of a community involves shared goals. Completing an educational activity is a shared goal, especially in the collaborative environments discussed here. Thus encouragement from others within the community with whom the learner can identify, as well as the individual's commitment, will increase participation. However, this is only possible if a mechanism is created to share information and feelings relevant to interpersonal issues.

CREATING THE COMMUNITIES

Developing the communities is a potential outcome of the symbiotic relationship of instructional design and technology. Use of technology does not spontaneously cause communities to occur; communities of learners must be planned. However, technological tools allow instructional designers to use specific strategies to create the communities. Following a traditional instructional-systems-design process, the four stages of (a) analysis, (b) assessment, (c) design, and (d) development must be either emphasized or adapted for the communities to develop.

Within the *task analysis* phase, the designer first locates typical problems or applications encountered by practitioners. Detailed subskill analysis would reveal the richness and complexity of such applications, including identification of the variables and context for the problems selected. The analysis would also include identi-

fying what criteria are required for a successful solution or application: in other words, all the information that is necessary to replicate a real-world situation that would be typical task of a practitioner.

In the *assessment* stage, in addition to the consideration given to the evaluation of the answer, evaluation of the learning and communication processes must also be considered. For example, the assessment must include rubrics for collaboration and rationale-logic of the answer. It is by examining how learners were able to develop their solutions and adapt their logic that the facilitator can evaluate the intellectual change. More pragmatically stated, what weight does that instruction place on collaborating and communicating ideas? If there is no pragmatic advantage, it is likely the learner may assign a corresponding value and effort. For example, a course requirement would include learners' evaluating and critiquing other learners' responses, and also the quality and quantity of the information sharing.

In the *design* phase, corresponding objectives are developed that reflect, for the instruction, mastery of higher-level objectives. These objectives need to mirror the previously analyzed tasks and require community support for completion. It would be hard to justify the added effort or use of other resources to accomplish recall-type learning objectives. Part of the design stage involves constructing an instructional strategy incorporating assignments and educational experiences that are prompted by questions and dialogues. For example, providing a case study using realistic or real-world problems allows learners to analyze and synthesize information and develop a logic system as part of their response. Furthermore, collaborative exercises need to be incorporated in order for the community to find a focal point in common issues. Thus the goal of the instruction is to solve the problem with an idea that is acceptable to the entire community. Learners are then prompted to share ideas and information toward finding a solution as their common goal. In other words, it is erroneous to assume that, while much of the goal of intellectual growth is learner controlled, the dynamics will "just happen." Purposive actions are required for the community to gain focus.

As part of the *instructional development*, the instructor needs to provide opportunities and tools that support the community. These tools include creation of Web pages, multiple bulletin boards for differing functions, and archiving capabilities, where community members can openly and easily communicate and see examples that model the desired behavior. Learners are likely unfamiliar with the pattern of argumentation and discourse and thus may require demonstrations and guidance. These electronic community gatherings are also the gateway to connect with previously identified content experts and other resources. (Those sources should also be expanded by the learners.) In addition to the methods for distributing the instruction, conferencing software, or chat rooms, can be created for small-group conversations, with archiving for asynchronous learners.

CONCLUSION

The potential for technology breakthroughs to improve learning can only be realized if educators understand and use the capabilities of that technology. Simply recreating the present in a more efficient manner seems wasteful when the status quo is of questionable effectiveness. By itself, technology in education is a benign force; it is not the answer. However, when tools and educational strategies are combined and constructed in ways that expand our potential to learn, we have given meaning to that technology. Technology carries information; but it is people who learn. And humans are social creatures, who traditionally encourage, communicate, and share among ourselves. It is these qualities that provide the foundation of a society. It is those same traditions that need to be present in all situations, including asynchronous distance education.   ☐

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