# *Considerations in the Construction of Technology - Based Virtual Learning Communities*

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**Abstract:** This article discusses the construct of learning 'community' for educators and proceeds to examine fundamental issues around the theory and practice of constructing learning communities using communication technologies (virtual learning communities). This concept of community asks the reader to ponder some possible shapes virtual learning communities could take in the future, and the contribution that communication technologies can make to designing powerful learning environments.

**Résumé:** Cet article débute avec une discussion de la notion d'une «communauté» d'apprentissage pour les enseignants, pour ensuite passer a l'examen de questions fondamentales entourant la théorie et la pratique de la construction de communautés d'apprentissage reposant sur la technologie des commumcations (des communautés virtuelles technologtsées) Ce concept dc communauté pousse le lecteur à réfléchir aux formes possibles que pourraient adopter ces communautés virtuelles technologtsées a l'avenu. ainsi qu'a la contribution que la technologie des communications pourrait apporter à la conception de milieux d'apprentissage fertiles.

## A Definition of Learning Community

Communities are collections of individuals who are bound together by shared ideologies and will, so a learning community emerges when people are drawn together to learn. Although learning communities emphasize outcomes in education, their power resides in their ability to take advantage of, and in some cases, invent a process for learning. *In Nichomachean Ethics,* Aristotle explains that community is not so much about unity as it is about harmony (Aristotle cited in Porter, 1997, p. 135). Harmony can exist within social, religious, political and moral frameworks, and as a result, communities can emphasize one or more of these dimensions.

This definition of a learning community is partly woven from Kantian principles emphasizing that people operate from a rational, autonomous will, both as individuals and within groups. Individuals within a learning community (including students, teachers and administrators) have a will to do what is "right" and "good" in accordance with agreed values and ethical principles. For example, if a shared principle is to respect individuals, members of learning communities might attack ideas vigorously, but avoid personal attacks. These relationships exemplify moral reasoning, not instrumental reason. Kantian principles suggest that a learning community emerges when the "I" considers the "We" (Honderich, 1995, p. 439) and this is dependent on open discourse among participants and underlying principles (e.g.- freedom to take risks, unconditional acceptance, shared

responsibility, everybody feeling obligated to do the right thing). To support discourse within the community, this article considers *some ideas outside conventional community research including* "the power of technology to reconfigure social space and social interaction" (Stone, 1992, p. 86). Interaction is key, and interaction can be facilitated by many modes of face to face and mediated (electronic) communication.

Learning communities depend on relationships, and relationships can be built by using many non-traditional (electronic) interactions, not just through face-to-face interactions. For example, we have all experienced developing a telephone relationship with someone in another office, and only attaching a face to the person much later. The relationship probably developed quite naturally over time, based on common concerns or issues. Similarly, learning communities can support the development of virtual relationships if the learning environment encourages individuals to interact naturally. Virtual learning communities are learning communities where learners are separated physically and must rely entirely on communication technology to mediate relationships. "The problem for community architects is to create a system in which people can enter into relations that are determined by problems or shared ambitions rather than by rules or structure" (Heckscher, 1994, p. 24). Community requires a highly interactive, loosely structured organization with tightly knit relations based on personal persuasion and interdependence:

> The networking of individuals from technically [and artistically] separate areas [happens] to the extent that clear external boundaries of the organization [community] become faintly magical (Nohria and Berkely, 1994, p. 1 15).

This definition maintains that a learning community must be open -allowing learners and educators to engage in any learning opportunity with whomever they choose, from among many sources and cultures. This permits everyone to develop relationships with other learners and educators outside the traditional boundaries of the school. With technology, virtual learning communities can be built using both synchronous and asynchronous communications media while the group learns from the construction process itself.

*Designing Learning Communities*

Before we build virtual learning communities, we need to consider the place of a learning community within a theoretical framework that considers the full power of a technologically integrated world. Sergovanni (1996) offers a foundation for building these learning structures by proposing four key considerations.

First, the community should be aesthetically pleasing. Beyond the 'physical' characteristics, forms of communication such as language should be appealing: participants should be able to select a form "that they find most appealing most useful" (Sergiovanni, 1996, p. 32).

Second, designers should consider moral connections within this community where the "I" thinks about the "We". Moral reasoning requires us to teach our learners and ourselves techniques for examining personal values and constructing new values.

The third consideration is technology. We must consider robust, innovative approaches to technology-enhanced communication that fit the learning community. Utilitarian means-ends theories emphasize linear, hierarchical lines of communication, and they only work where linear relationships exist. However, linear relationships and linear communications seldom exist in reality; the 'grapevine' and communication media mock the idea of hierarchical communication. Designers need to consider the ubiquitous, multidirectional nature of communication when designing virtual learning communities.

Finally, Sergiovanni considers constructivist principles of learning to be the fourth pillar supporting the learning community. Most importantly we should incorporate an understanding of what teachers, parents and students wish to accomplish: "At the root of it [theory] is the simple idea that children and adults construct their own understanding of the world in which they live" (Sergiovanni, 1996, p. 38). When we open up dense, integrated, interactive channels of communication for parents, students, teachers and administrators we open our community to deeper opportunities for learning.

By considering these four major issues we can begin to develop a technologically supported community that is inclusive, open and self-managing. Etzioni reminds us that a collective rationality "can emerge from integrating all of our values, emotions, beliefs and social bonds and that our definition must accommodate this level of integration (Etzioni, 1992, p. 63). Our practice in community building should consider the emergence of such collective rationalities when learners make more decisions about what to learn.

*Building Virtual Learning Communities*

How does one begin a virtual learning community construction project? A necessary step is to explore the structure of learning communities and consider how technology will support the relationships within them.

First, it is important to realize that building community is not an organizational engineering problem - the problem is one of establishing a moral community. If harmony is one of our goals, the process must integrate moral reasoning with technological literacy. Second, research suggests that communities "are organized around relationships and ideas"(Sergiovanni, 1996, p. 48). Builders need to know the nature of the various relationships that exert influence on the group to provide communication venues for participants.

Virtual learning communities need to provide social structures that bond people together in a "oneness" so that a feeling of belonging is shared. A mixture of interpersonal contact (either in 'cyberspace' or in person) is essential to building trust in a community of learners. Sharing and learning within a discourse based on

morals, values and principle conditions can create frequent dialogue possible only when everyone defines these principles with a common moral voice.

Learning communities can be built to encourage people to work together - so that curriculum and instruction can be distributed as part of community discourse without the barriers of the metaphorical 'closed classroom door' and heavily bureaucratic administrative hierarchies. Some key characteristics of this conception of a learning community are outlined in Figure 1.

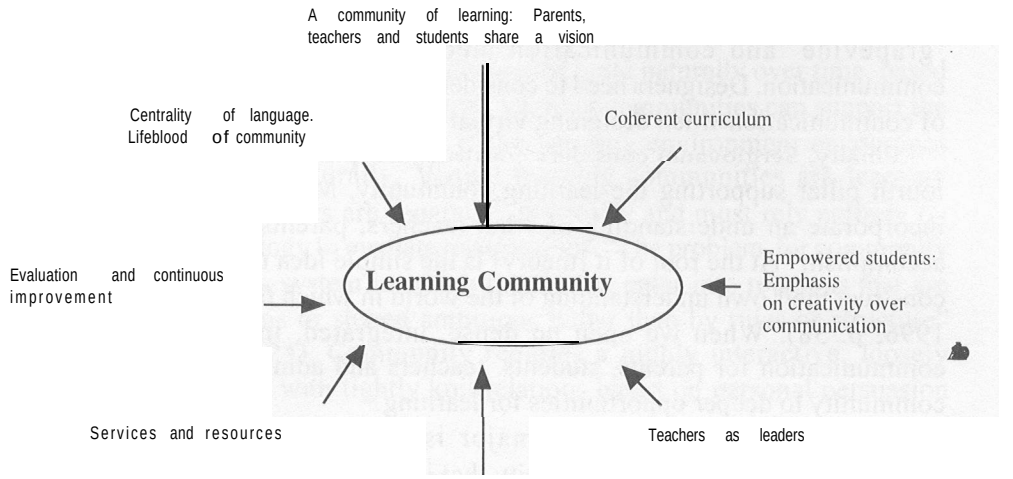


Figure 1: Key characteristics of a learning community

*Types of Virtual Learning Communities*

Virtual learning communities are learning communities based not on actual geography, but on shared purpose emerging from the learning process. Through technology, learners can be drawn together from almost anywhere, and they can construct their own formal or informal groups. As such, virtual learning communities are separated by space, but not time, as communication can be facilitated by technology in real time, partially overcoming geographical inhibitions. Borrowing from the work of Bellah (1985), there are at least four types of virtual learning communities, with concomitant purposes they serve.

*Virtual Learning Communities of Relationship*

A community built on relationships promotes special kinds of connections among people, less hierarchical interconnections that result in a peculiar harmony similar to that found in families or collections of people (Senge, 1994, p. 217). These connections might be based on a shared concern; issue or learning problem, but in each instance, the emphasis is on the relationships built among participants.

Issues of commitment, trust and values are inherent in any relationships that emerge in and around the community.

Many robust examples of this type of community exist, but one of the most powerful has been the emergence of support groups for women on the World Wide Web. Women have developed web sites for dealing with abuse, single parenting and harassment in the workplace, for example, and have used them as places for sharing experiences, discussing problems and pondering advice.

*Virtual Learning Communities of Place*

Individuals in communities of place enjoy a common habitat or locale. Sharing place with others can offer a sense of security, commonality, and heritage. The place need not be physical, however, and in virtual communities, places are by definition not physical. People from several countries can gather in one virtual place on the Internet, for example, as easily as people can gather for a meeting in a school building (perhaps easier). Nevertheless, the location can be as real as the imagination and technology allow. The World Wide Web houses thousands of virtual store fronts, for example, each of which exists metaphorically as a place.

An example of a virtual community of place is "Marathon," a computer-based network game, in which participants meet in a virtual location and exploit it in a competition. The virtual world is housed centrally, and individuals enter it from any location on the network. They can develop common strategies, team with or against other players in real time, and the actions of any player influences the game dynamically. Players can also construct their own environment, and invite other participants into that "place." Marathon is a game with few, if any, learning outcomes attached, but it illustrates some of the characteristics of virtual learning communities of place. Virtual places could also be designed around shared learning adventures, say, the physiology of the brain, or the House of Commons, and participants could interact dynamically in the places.

*Virtual Learning Communities of Mind*

Communities of mind reinforce people's commitment to other people, to common goals, shared values and shared conceptions of being and doing. This can be as trivial as a shared interest in making wine, or as profound as a shared search for truth in scripture. The two most distinguishable features of a community of mind are sharing and ideas, however they may be expressed interpersonally or technologically.

Examples of learning communities of mind are often found in academic settings, where researchers come together to grapple with a shared research issue or problem. But this type of community, as with other types, is not always positive or pro-social. Many dark examples of this type of community can be found on the Internet in web sites and chat groups that focus on hate. The World Wide Web is replete

with hate mongers who promote intolerance toward all manner of religious, ethnic and political groups.

*Virtual Learning Communities of Memory*

A virtual learning community of memory is based on a shared past or a common sense of history. This type of community promotes connection between people who might otherwise be alone, and also provides a focal point for interpreting and understanding commonly experienced events.

A very powerful example of this is found with the Holocaust survivors' network on the Internet. Survivors and descendants of survivors can engage in discourse with others whose lives have been touched by this tragedy. Through virtual discussion, they have an opportunity to understand the causes and effects of the Holocaust, and provide support to other people in the community who share the memory. By participating within a community of memory, we are effectively managing our temporal learning environment.

## Characteristics of Virtual Learning Communities

In order to understand the nature of the contribution technology can make to building virtual learning communities, it is necessary to distinguish between traditional conceptions of technology and the kinds of contributions technology can make to building learning communities. Traditionally, when people think of technology, they think of conventional instructional media-television, film, and computers – as means of delivering or presenting material (Ely, 1995, p. 55). Certainly traditional media have made many contributions to education. schools, communities and ultimately, learning. Most school divisions have developed extensive libraries of resources, and everything from a set of maps to a complete trigonometry course on videodisc have been used by teachers to support instruction.

But the reader may have noticed that this paper refers only tangentially to the hardware and software commonly labelled as "technology" by educators. The type oftechnology we are talking about in this paper emphasizes technology as a medium for expression and communication. Used as a communication tool, technology offers opportunities for extending learning beyond the boundaries of classroom, province and country, and this in turn promotes the development of a rich tapestry of formal and informal learning communities. A virtual learning community employs technology to communicate; therefore, it can, and does, happen anywhere, and it can be constructed anywhere. anytime. The idea of construction is central to the notion of virtual communities. as what the community creates becomes the collective product and process of its individual members. In order to satisfy our requirements for a virtual learning community, a technology must permit each of the following conditions:

*Negotiation*

While virtual communities are often built around central themes, ideas or purposes, the organizing principles are not externally imposed. Participants construct purposes.

intentions and the protocol for interaction. Systems within the community-allow open and unrestricted access based on individual interests, and dialogue "across the boundaries of formal power and status" (Heckscher, 1994, p. 142)

*Intimacy*

Participants can achieve personally gratifying levels of intimacy with other participants, and can select the level of intimacy appropriate for any negotiated relationship with another participant. Anonymity is possible, but as the sense of community develops, it is unlikely that a participant would choose to remain anonymous.

*Commitment*

The quality of participation depends on individual and shared commitment or relevance of the substance of the community. Commitment depends on shared values in the community and "earned respect" for particular skills and knowledge; where participation represents an ethical choice and influence among those who share goals or needs (Nohria and Berkley. 1994, p. 1 OS). The valence of the commitment need only be strong enough to maintain participation in the group, but stronger commitment generally leads to the development of stronger, more flexible communities.

*Engagement*

Participants interact with each other and have the capacity to conduct discourse freely and meaningfully. III order to fit our definition, engagement must have immediacy not be significantly delayed in time or space. Interaction must be effervescent. and based on influence among participants rather than power relationships.

Each of these components is necessary for meaningful communication to take place between and among individuals, and we suggest that communication, in the form of legitimate discourse. is central to the notion of building learning communities. In order to examine how these components contribute to the development of virtual learning communities, we will examine a few examples of virtual learning communities, and also look at some technologies that might be mistaken for virtual learning communities.

One of the simplest examples of a virtual learning community is a conference telephone call. Requiring only a telephone for each participant and a bridge to connect them, it allows participants a full range of negotiation, intimacy, commitment and engagement. A teleconference (n-way video and audio) accomplishes the same purposes as a conference telephone call. but also permits visual communication. Desktop video allows participants to mount inexpensive video cameras on computers and transmit slow scan video and telephone quality audio over telephone lines, and establish a connection between two computers. The image of each participant appears in a small window on the computer screen

of the other participant. Special software can be used to establish a reflector site, which acts like a video bridge for several participants at the same time.

A chat room is another technology available forjoining several participants in a community of discourse. Simply speaking, chat rooms are locations on the Internet that gather keyboard input from two or more individuals as they type. Everyone logged into the chat room can view the posted material and respond to the comments of others. Chat rooms are usually organized around a specific topic or area of interest, and the topics are as wide-ranging as the imaginations of the participants. Participants can use their own names or pseudonyms, personally controlling whatever is a comfortable amount of intimacy. In crowded chat rooms, interaction can become quite confusing, as one participant responds out of sequence to an item presented much earlier in the on-screen discussion among several people. So it is common for individuals to pair off and agree to meet in another, private room. It all sounds quite seductive, and certainly can be, but in most cases, private rooms are used to pursue a specific conversation more intensely with another individual. Chat rooms are often moderated by an individual who monitors discussion and facilitates interaction. Participants typically monitor discourse too, and are quick to isolate an individual who contributes inappropriate or unsavoury material. In this way, protocol is constantly negotiated. Chat rooms provide a rich example of technology that facilitates negotiation, intimacy, commitment and engagement. How can they be turned into virtual learning environments? First, teachers can build chat rooms around specific topics of discussion and help moderate and participate in discussions. Classroom activities and projects can be designed to encourage students to use chat rooms to collaborate with other students in problem-solving activities. Teachers can also help students develop skills in framing arguments, conducting on-line discussions, and understanding the protocol and etiquette of communicating through this technology. In some cases, it may be necessary for educators to closely monitor the chat rooms, to help keep the focus of discussion on learning activities, and even to remove intruders who enter the room to cause mischief.

There are, of course, limitations to each of these examples. One of the most dramatic, is access. Each technology, even the most modest, requires some hardware and budget to support interaction. Some technologies introduce specific barriers. For example, access to chat rooms require keyboarding skills. Poor typing skills limit the amount and quality of the interaction, and probably test the patience of other participants

At the same time, the examples illustrate how inclusive such communities can be. Individuals with disabilities, those living in remote or rural areas, and those who have difficulty participating in groups can all be part of virtual communities.

There are several technologies which appear to support virtual learning communities, but which do not. There are many websites which offer excellent material to educators, but which do not make any of promoting negotiation or engagement. Perhaps the most prevalent, and growing example of this, can be

found in the array of university courses now available on the web. Most provide an electronic version of a print-based correspondence course, and challenge the learner to read material and extract information. These sites can have great value, but they should not be confused with learning communities, as they do not permit discourse. Some websites pretend intimacy and engagement, but merely simulate actual conversation rather than engage in discourse with the user. For example, psychic hotlines are available which give the impression of real, intimate and engaged discussion, when in fact, the conversation is not negotiated by the participants as it is controlled by the "host."

Televised distance education programs with fax and phone callback are among the easiest educational innovations to confuse with virtual learning communities. In these programs, a teacher typically teaches a class to the camera or to a group of students in the studio. Students at remote locations can interrupt the instructor with comments, questions or faxes, but unless the instructor is highly skilled at conducting mediated discussions, there will be little actual give-and-take in the conversation. This can provide a serious source of frustration to teachers who usually depend on classroom discussion to carry a class, as the technology can serve to isolate learners from the teacher. As an aside. we suspect that this is precisely why some distance education initiatives fair because the technology promotes transmission of information rather than the construction of learning communities. It is not the fault of the teleteacher or the technology, yet it is a natural outcome of the interaction between the two.

Listserves and electronic mail are also easily mistaken for virtual learning communities. A listserv is a location for posting mail messages on a particular topic to subscribers to that listservice. It is very similar to a chat room, with one important difference: participants in the listserv are not in the location at the same time. Listserv participants drop mail into a location; chat room participants drop into a location and type messages in real time to each other. Thus, the engagement is not immediate and negotiated. Listserves and e-mail have important contributions to make to education and learning, but they are not examples of platforms that promote the development virtual learning communities. Although they may be useful for supporting learning and learning communities, they do not provide the quality of intimacy and engagement necessary to promote relationships. The point is not that virtual learning communities require only synchronous communication technologies, but rather that synchronous communication technologies are better suited to providing the immediacy, intimacy, negotiation and engagement that nurtures the development of a sense of community among learners.

## Questions Raised by Virtual Learning Communities

Virtual learning communities don't just happen; they are designed and built. They are not unique in the sense that they are different from other types of learning communities. Rather. they attempt to mimic the vibrancy of "real" learning communities by using technologies in a way that promotes the development of

relationships among learners. If educators choose to support the development of virtual learning communities, a number of new issues arise concerning management, pedagogy and content liability. On the surface, the most imposing barrier appears to be financial. Technology requires hardware, software, and access, and these elements can be expensive However, other issues are just as important, and in some cases, more difficult to deal with in supporting this type of intervention. Most organizational and instructional design thinking has been constructed on premises that discrete learning activities occur in some temporal sequence and within groups "housed" within specific organization structures. We present a few of these issues in the form of questions which educators will need to address.

- What are the shared values and commitments that enable a virtual learning community to become a community of mind?
- What are the patterns of mutual obligations and responsibilities that emerge in virtual learning communities?
- How can teaching and learning settings be arranged to support learning communities that extend beyond the walls of schools?
- What kinds of pre-service preparation and professional development opportunities do educators require to adopt new roles demanded by technology-based interventions?

## Concluding Thoughts

In summary, the construction of virtual learning communities is a purposeful act, and one that requires an intimate knowledge of the needs of the participants, and the capabilities of emerging communication technologies and design concepts. Building virtual learning communities invites one way to think about finding some answers to curricular challenges faced by most educators and especially those in rural communities today. Some of the strongest objections to many distance education initiatives charge that they are expensive, they are difficult to manage, and they fail to provide the type of interaction and engagement among students necessary to promote a high level of learning. At the same time, rural educators are confronted with the option of supporting a smaller local school population by supplementing the curriculum with traditional distance education courses, versus closing smaller schools and moving students to larger centres which can support a broader range of specialized programs. The argument between the benefits of smaller schools and larger programs continues to percolate and the argument carries implications for all education organizations and virtual community builders today:

> In order to build a caring community, students need continuity in their school residence. They should stay in one school building for longer than two or three years. Children need time to settle in, to become responsible for their physical surroundings, to take part in maintaining a caring community. When we have to choose between highly specialized programs for a narrow range and a continuity of place, we should choose the latter. Continuity of place is easier to achieve in smaller schools. (Noddings, 1992)

The choice between specialized programs and continuity of *time* or place presents a false dichotomy; it is an either-or proposition that deserves to be challenged. Of course, using technology to support the development of virtual learning communities will not provide definitive solutions to the many challenges faced by schools. Many students are technologically literate, and many already participate in informal virtual learning communities, yet curricular problems persist. However, educators are challenged to find ways of using technology that are consistent with constructivist changes underway in the schools and school administration, and recognize that virtual learning communities can contribute to the way we respond to those challenges.

We must be able to catch the ball that the child throws to us, and toss it back to them in a way that makes them want to continue the game (of learning) with us... developing, inventing new games as we go along. (Filipinni. 1990)

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