

"Before you snorkel that horse ...":

*A consideration of appropriate tools and community structures to
support online learning*

Robert J. Wall

University of Saskatchewan

Introduction - does my horse *really* need a snorkel?

Online learning is a significant and increasingly utilized means of delivering instruction. Many universities offer classes, if not whole programs, via the Internet; the University of Victoria Department of Social Work, for example, offers a Distance B.S.W. The provincial department of education in Saskatchewan and local boards of education also offer classes online. There are a variety of course management systems available to aid in the online deployment of courses, including well-established systems like WebCT (<http://www.webct.com>) and Blackboard (<http://www.blackboard.com>). There are even thoroughly developed and actively supported open source course management systems such as Moodle (<http://www.moodle.org>). Tools designed specifically for putting classes online are available for all scales of implementation, that meet needs ranging from those of individual teachers to large universities or corporate training departments.

Wiley (2004) points out that replicating a classroom online makes as much sense as playing polo on horses using the same strategies and plays that are used in water polo. Education in schools and universities is organized into classes because that discrete unit has been found to be effective for organizing face to face learning with a much larger number of students than instructors. Duplication of this organizational unit, however, will not necessarily be the most effective use of the Internet as an instructional medium.

Thus although the Internet has been used extensively in distance education as a communication medium for discussion, which, it has been argued, can support critical thinking skills and deep learning, this too replicates the traditional classroom model and misses opportunities for distance educators to benefit from

the Internet's unique attributes in the learning process (Kanuka, 2002, p.71).

Perhaps before we strap the scuba gear onto the horses, we should spend some time thinking about how the process of learning is altered when we place it in a different context. The nature of interaction between participants changes when using computer-mediated communication (CMC), so it is reasonable to assume that the nature of discourse in an online context will also be changed compared to face to face (FtF) communication. This is not a trivial consideration since our experience as learners, both in traditional classrooms and in online settings, depends not only on the course content but also on a sense of positive interactions with others (Kowch & Schwier, 1997). The challenge is to design a learning environment that will provide this sense of positive interaction. In traditional learning contexts this is done by organizing learning into units called courses or classes, which are delivered within the context of a larger community called a school, college, department or university. Design of online learning has concentrated thus far on developing the courses, but has largely neglected the development of true online communities that form the *milieu* within which the courses occur.

A sense of community seems to contribute to our overall fulfillment with the educational experience. For example, student satisfaction with online-learning experiences is positively affected not only by interaction with an instructor, but also with other students (Woods, 2002). We must remember, however, that community and interaction can exist on many different levels. We should not always focus on the class or course as being the archetypal model of a learning community. In school-based learning one engages with others not only in the class, but also outside of the class. In an

undergraduate program, students are actively thinking and discussing not only in classes, but also over coffee or in common rooms of dormitories. In a graduate program, conversations with office mates or with students in different programs can provide novel ideas and viewpoints. It is worth considering that a longer-term, broader community is more useful to support learning than learning communities of a relatively short duration and narrow focus. Longer-term and more diverse communities have a greater opportunity to develop the social capital necessary for promoting more positive and intimate interactions than shorter-term communities.

Online Communication: Even Better than the Real Thing (sometimes)

Communication theorists initially predicted that CMC would be impersonal due to the lack of social cues available. The body of evidence, however, would seem to challenge this prediction. In most cases, interactions through CMC turn out to be no more impersonal than face-to-face (FtF) interactions. It would seem that people have an affinity for interpersonal interactions, whether that occurs through CMC or FtF. There is one notable difference between CMC and FtF interactions in that interpersonal interactions may take longer to develop via CMC. Despite this limitation, given enough time to develop, interactions can grow to be equally as personal over CMC as FtF (Walther, 1996).

. Walther coined the term “hyperpersonal” to describe a mode of interaction that is unique to CMC. Hyperpersonal communication is perceived by participants to be more desirable or of a higher quality than one would experience in daily FtF communication.

Walther attributed this to the unique characteristics of the communication process in CMC. The receiver, having no channels of communication from the sender apart from the text message, tends to over-emphasize the social and personality cues that are contained in the message. If, for example, an e-mail message is articulate and witty the receiver of that message will consider those to be salient personality traits of the sender.

Correspondingly, senders are able to optimize their presentations within the communication, particularly in asynchronous communication when the senders are able to take time to carefully craft their messages. It may be the case that an e-mail message may be articulate and witty, but it may have taken the sender a great deal of time to compose the message in that fashion. Perhaps because of this, the willingness of someone to use synchronous communication may be influenced by their typing skills (Schwier & Balbar, 2002; Dykes & Schwier, 2003).

It would seem that impression management is much more easily achieved in CMC than FtF communication due to the reduced number of non-verbal cues transmitted in the communication. Further, impression management is more easily achieved in asynchronous CMC than synchronous CMC. Indeed since there are no cues transmitted in text based CMC outside of the text itself, the sender has fewer parallel channels of communication to manage. Participants in CMC may therefore have a greater affinity for each other if the channels of communication are relatively lean, that is, if they offer few social cues other than what can be transmitted within the text. On the other hand, if participants have poor skills communicating via text, they may portray themselves in an unflattering manner. On the Internet, as the saying goes, nobody knows if you are a dog, but they might consider you to be one if all you do is bark.

The Importance of Community

Acknowledging that the nature of discourse is different online, we need to consider how learning will be affected by using an online environment. (Wilson & Lowry, 2000) offers three suggestions for effective use of the web for online learning:

- provide access to rich sources of information;
- encourage meaningful interaction with content; and,
- bring people together to challenge, support, or respond to each other.

Wilson and Lowry's final suggestion is essentially a recommendation that a supportive community is needed to make online learning effective. A sense of community is not an incidental effect of the design of instruction, nor should it be considered as merely a feature of the user interface in a course management system. Community is a necessary element to promote higher-level thinking (Schwier, 2001; Wilson, 2001; Kanuka, 2002). This has been tacitly, and sometimes explicitly, recognized in the design of communities within schools or colleges. Many schools and colleges have rituals and traditions that are part of the "school community" or "college spirit". Online learning also needs the context of a community to support learning. Wilson (2001) points out "Many online instructors have learned that their classes will rise or fall depending on the strong sense of trust, good will, and connectedness among participants." This may be because within a distance-learning situation, a community can serve at least two functions. First, a learning community can serve as an information interchange, providing opportunities for collaborative knowledge building and development of higher order

thinking skills. Second, a learning community can also serve to support its members and to satisfy the self-esteem needs of learners, which can lessen the learners' perceived affective distance (Moller, 1998). This sense of support could be particularly important in enhancing the experience of online students who may not feel comfortable using the technology.

A sense of connectedness can be built within the context of a single online course, however, considering that interpersonal interactions can take longer to develop through CMC, achieving this outcome is a considerable challenge within the limited time frame of a single course. There are other models to look to though when seeking to create a setting for community in online learning. Learning cohorts, academic programs or departments, professional groups and volunteer interest groups are other levels of community in which a student at a physical campus may also have membership. These levels of community could also be fostered in online learning (Wilson, 2001). Since these exist on a longer term, students are more likely to develop a sense of belonging. An online community for an academic program, for example, could support the learning throughout all the courses in that program. It is reasonable to assume that this would enhance learning by providing students with more opportunities to receive the benefits of community membership, and also more opportunities to provide benefits to others.

The Other Ingredients

Communication alone does not make a community although it is a necessary ingredient. Trust and purpose are also needed - communication without these characteristics would not be enough to create or sustain a community. Kowch & Schwier

(1997) list four characteristics of virtual learning communities, which may be seen in any online community - negotiation, intimacy, commitment and engagement. Negotiation implies that the purpose of the community is continually developed by the participants instead of imposed upon them. The presence of personally satisfying levels of intimacy in an online community is consistent with a hyperpersonal mode of interaction. The commitment of participants to the community depends on a sense of shared values and trust amongst participants. Engagement is a function of the ability of community members to interact and communicate in meaningful ways. All of these characteristics are a result of the actions of the participants in the virtual learning community, and not of the online environment itself. However, modes of interaction within the virtual learning community should be selected and implemented to promote these characteristics.

A construct that is useful when discussing the negotiation, intimacy, commitment and engagement within a community is social capital. Daniel, Schwier, & McCalla (2003) provide a working definition of social capital within virtual learning communities as being “a common social resource that facilitates information exchange, knowledge sharing, and knowledge construction through continuous interaction, built on trust and maintained through shared understanding”. Social capital is a resource of the community, and it is part of what emerges when a community is created. Social capital can be associated with or vested in individuals within the community in the form of status, recognition, or trust within the community. When those individuals contribute back to the benefit of the community, the net social capital within the community is increased. Virtual learning communities can be designed in a way that explicitly uses a measure of social capital, such as the use of karma on slashdot (<http://www.slashdot.org>) and the use

of mojo on kuro5hin (<http://www.kuro5hin.org>). Karma and mojo are awarded within these respective communities when members contribute in a way that is recognized as valuable by other members. In return, members with higher levels of karma or mojo have a greater influence in the discourse of the community.

Analyzing Virtual Learning Communities

Schwier (2001) discusses virtual learning communities in terms of three types of factors termed catalysts, emphases and elements of virtual learning communities. The core factors are catalysts, factors which allow the community to form and exist. Communication is a critical catalyst for on-line communities, but interaction, engagement and alignment are also required. The emphases of a virtual learning community describe the shared purpose(s) of the community, and Schwier describes five:

- virtual learning communities of relationship emphasize the social connections between community members.
- virtual learning communities of place emphasize a common habitat or locale.
- virtual learning communities of ideas emphasize common interests and shared values.
- virtual learning communities of reflection are based on members' shared past or common sense of history.
- virtual learning communities of ceremony are based around ritual and celebration, such as religious groups.

None of these emphases are mutually exclusive; a specific community can have more than one emphasis.

The final factors are the elements of the virtual learning community. The elements are those factors that will provide continuity and resilience to the community. Specific communities will emphasize some elements more than others, and in any community there will be a complex interaction of the various elements that give the community its unique flavour. Schwier lists seven elements that are common to all communities, whether on-line or terrestrial, and adds three elements unique to virtual learning communities. The ten elements are:

- Historicity - a shared history and culture.
- Identity - a sense of shared identity.
- Mutuality - continuing relationships of interdependence and reciprocity.
- Plurality - community members are also members of other communities, which provide vitality to the virtual learning community.
- Autonomy - respect for and protection of each individual's identity.
- Participation - participation in the community, but with each participant selecting a level of intimacy for interactions with other members or with the group.
- Integration - all the elements in a community should integrate and work together harmoniously, and be supported by community norms, beliefs and practices.

- Technology - technology enables the development and continuation of a virtual learning community, but also limits the growth of the community. Technology access can exclude individuals who cannot access or make use of communications technology. The types of interactions promoted (impersonal, interpersonal or hyperpersonal) may be shaped by the technology used.
- Learning - virtual learning communities are oriented to learning, as the name would imply, but learning can be narrowly defined or more broadly defined.
- Future Orientation - the learning within the community is constantly moving towards a future direction. This direction may change over time depending on the learning goals of community participants.

The last three elements - technology, learning and future orientation - are unique to virtual learning communities.

In a virtual community, the proper combination of and interaction between these elements will not occur randomly. "An important principle to growing a virtual learning community is to deliberate, to think about and do things purposefully to foster community growth" (Schwier, in press). An early part of the design process to create an online community space is to choose the tools and materials that will foster, not hinder, the synergistic relationship of these elements.

Communication Tools

The Internet, particularly the world wide web, provides access to an ever increasing number of communication tools. These tools are used to build the virtual learning community, but in an online setting they have a further role. Since the key catalyst for a virtual learning community is communication, the tools of communication *become* the online community space. As existing tools are adapted and new tools are developed the opportunities to communicate, to interact and to create community will increase. Some of the more established, as well as some emerging, tools are described below, along with a brief discussion of how each offers opportunities to develop various elements of the virtual learning community.

E-mail and electronic mailing lists

E-mail is the most established form of electronic communication; its use predates the inception of the Internet itself (Wikipedia, 2004). Most e-mail systems now use the Internet as a medium to transmit messages, although some e-mail systems still exist independently of the Internet. E-mail is asynchronous, and can be transmitted from one user to another (one to one) or from one user to many other users (one to many). Initially, a dedicated e-mail program was required to send and receive e-mail messages, but many free web-based e-mail services are now available which allow anyone with access to a web browser and Internet connection to have their own e-mail address.

An electronic mailing list is a form of e-mail in which messages are sent to a server running mailing list software. The software then processes the messages either by redistributing the message to all members of the group, or by acting on instructions

contained within the message. In some cases, an archive of the messages from the list can be created.

The greatest strength for e-mail as a tool within a virtual learning community is its familiarity - it is a technology with which many are already familiar, and it is an easy technology for new users to learn. In addition, e-mail can support the mutuality of a virtual learning community by encouraging interaction between community members. Depending on the content and tone of the messages, identity and participation may also be encouraged by the use of e-mail. A mailing list, if archived, could provide a particularly strong element of historicity.

Usenet newsgroups

Usenet newsgroups are one of the more established methods of computer-mediated mass communication tools, dating back to 1979 (Pfaffenberger, 2003). For many users, newsgroups provide the model for asynchronous group discussion via CMC. Although computer based discussion groups had existed prior to Usenet, they were limited to local discussions. Postings in Usenet newsgroups are distributed among hosting servers so that each Usenet server contains a nearly complete set of all newsgroup postings, as well as some newsgroups that may be specific to a locale. Originally the naming of the newsgroups were unorganized, but the proliferation of newsgroups made this system unmanageable. In 1986, a group of Usenet system administrators decided that a hierarchical naming system was needed in order to deal with the unprecedented growth in the number of newsgroups (Pfaffenberger, 2003). More recently, Usenet newsgroups have been plagued by flamewars, series of messages that are deliberately hostile or

provocative, and by large numbers of off-topic postings, quite often for the purpose of advertising commercial websites.

In their initial stages, Usenet newsgroups provided positive participation, mutuality and plurality. The FAQ (Frequently Asked Questions) posts helped to maintain a sense of historicity and identity within each newsgroup. Many newsgroups even had a focus towards learning. As they grew in size, the nature of the communication on the newsgroups became increasingly impersonal. As the nature of communication changed, newsgroups became less appropriate to a virtual learning community. Usenet newsgroups worked well as a forum for discussion and information sharing at a small to medium scale, and introduced the concept of threaded conversations to many users.

Bulletin and discussion boards

In their original form, bulletin boards were hosted on a computer running a software package known as a bulletin board system (BBS). Users could connect to the BBS computer using a dial-up modem connection. In these bulletin boards, discussions on various topics would be organized by category (similar to Usenet newsgroups). Messaging, online text-based games, file sharing and even e-mail connections to the Internet were also features of many BBS software packages. The discussions were public and asynchronous (sometimes of necessity since only one user could be dialed into the BBS computer at a time). Many BBS communities became highly utilized electronic social forums, foreshadowing the growth of many forms of Internet based communities.

With the advent of the Internet as a communications medium, many dial-up BBS communities have moved to Internet based forms of the BBS, particularly web-based

discussion boards. As many web-based discussion boards have increased in the size and participation of their community, operators have been forced to add features that prevent discussion from degenerating into the anarchy that has consumed Usenet. Slashdot (<http://www.slashdot.org>) is one such highly successful site that began as a discussion board. Several ingenious adaptations have allowed a relative degree of coherence to remain as it scaled up in size. Slashdot and similar communities differ from regular bulletin boards significantly enough that they are considered to be a new category of tool which referred to as Online Self-Organizing Social Systems (OSOSS), discussed below (Wiley & Edwards, 2002) .

The success of Slashdot and other OSOSS does not mean that discussion boards in the original form are no longer useful. Discussion boards can be a useful technology for virtual learning communities at a small scale. The success of a multitude of dial-up BBS sites demonstrates that a discussion board can create the elements of mutuality and participation. Many BBS sites had considerable elements of historicity, identity and autonomy amongst long-time members. These elements can also exist on web-based discussion boards if the communities remain at a manageable size.

Online self-organizing social systems

As the number of participants in a web-based discussion grows, the interaction amongst participants tends to become increasingly impersonal. One solution is to limit the size of the community and place access restrictions on the discussion board, a solution which may be the best choice in many situations. An alternate solution is to evolve a system that allows the relevant information to stand out against all the

background noise. One site that has chosen the latter solution, and is in many ways a model for allowing a discussion board to scale up in membership without being overwhelmed by irrelevant or socially undesirable comments, is Slashdot (<http://www.slashdot.org>).

Slashdot was created by Rob Malda (known by his online pseudonym, Commander Taco). Community membership requires free registration, and it is necessary to be a registered user before one can contribute or comment on a news item. Originally, Malda filtered all of the content himself, but as the site became increasingly popular, a variety of levels of filtering have been put in place (Malda, 2000). At first, Malda enlisted the help of 25 assistant content managers who would moderate each comment on a scale of -1 to +5. Registered readers were able to filter all the posts that were below the level of their choosing. As the site continued to grow beyond the ability of a small group of content managers, Malda devolved the power to moderate comments to the user community. Any registered user who is a regular Slashdot reader, who is willing to help, and who makes positive contributions to the site (measured by the user's karma) is placed in a pool of potential moderators. Individuals in the moderator pool will occasionally be given short-term moderator status; infrequent moderator status for any individual is seen as a way to prevent the job from becoming too onerous for an individual, as well as preventing any single moderator from skewing the rating system. Registered users can also meta-moderate, or check on moderation given to comments to see if they were done judiciously. Originally used as a method for verifying the effect of moderation, meta-moderation has become part of the feedback mechanisms within the site that amplifies desirable content over undesirable content (Malda, 2000).

The combined effect of moderation by the community as a whole and selective viewing based on comment rating is not trivial.

"Set your quality threshold to four or five, however, and something miraculous happens. The overall volume drops precipitously - perhaps by an order of magnitude - but the dozen or two posts that remain will be as stimulating as anything you've read on a traditional content site where the writers and the editors are actually paid to put their words and arguments together. It's a miracle not so much because the quality is lurking somewhere in the endless flood of posting. Rather, it's a miracle because the community has collectively done such an exceptional job at bringing that quality to light." (Johnson, 2001) - p. 156-7

Slashdot has provided a practical example how a community can make the transition beyond the ability of a single person, or even team of people, to manage it. As the number of readers of the site grows larger, the nature of the interactions grows increasingly impersonal, and thus the likelihood of a specific comment being of value becomes increasingly smaller. Slashdot, and many similar sites that have followed its model, provide a mechanism whereby the lower quality material is filtered out. The technology, in this case the software that provides for moderation and filtering, and the community desire for high quality content are deeply integrated. This model may be useful for a large scale virtual learning community, but the success of the moderation system is dependent on the participation of a large number of community members. Smaller virtual learning communities can use Slashdot and other OSOSS as models of how growth can be managed by the community as a whole. It is also worth noting that the elements of historicity and autonomy may be more difficult to maintain in the context of

a larger community.

Chat rooms and instant messaging

The tools examined so far have all made use of asynchronous CMC, but not all communication online needs to be asynchronous. Chat rooms and instant messaging are tools that allow for synchronous text communication, and sometimes sound and video, to be exchanged between two or more users. A chat room is an online forum in which users can communicate via text messages. All users in the chat room can usually see the messages being sent to all other users; the conversation in chat rooms is very public, although some chat rooms allow for private messages to another specific user. Chat rooms may be moderated, but most often are not. Recent innovations include the inclusion of two- or three-dimensional graphics, as well as the use of avatars (graphical representations of users, which may or may not be animated).

Instant messaging is another form of synchronous CMC. In contrast to chat rooms, instant messaging relies on client programs on the user's computer connecting directly with one or more other users. Instant messaging is therefore a private interaction between users, and messages are only visible to those who are in the conversation. MSN Messenger, AOL Instant Messenger, ICQ and Yahoo Messenger are all examples of commercial instant messaging tools. Open source tools like GAIM are also available. Instant messaging clients require the user to have an account with an instant messaging service, but accounts are available free of charge when downloading the commercial instant messaging tools. Newer instant messaging tools are capable of incorporating sound, including voice, as well as video if the client has the correct hardware tools.

When utilized within a virtual learning community, chat and instant messaging can provide a more intimate sense of participation. The immediacy of the interaction reinforces mutuality, especially if members of a community are in contact with each other frequently. The technology element can be a limiting factor in text-based chat if users have, or feel that they have, poor keyboarding skills. With voice or video based chat and instant messaging, however, this is less of a limitation although it does increase the technological skill required by the users. A virtual learning community could allow opportunities for contact via chat or instant messaging, but should not be a core method of interaction between community members. Some members may feel excluded from chat rooms by the need for keyboarding skills or overwhelmed by the fluid nature of conversations in chat. Instant messaging may work well for promoting interaction between members of the virtual learning community, but under most circumstances these conversations will be ephemeral and lack any element of historicity unless participants decide to archive the conversations.

Weblogs

As a genre of web page, weblogs (blogs) have been around since the beginning of the web - Tim-Berners-Lee's "What's new" web page listed new sites and descriptions in the infancy of the web in 1992 (Winer, 2002). Other forms of web pages became predominant as the web grew from a space for the technically minded into a more established mainstream medium (Blood, 2000). In 1999, tools specifically designed for what would now be recognized as weblogs - Blogger, Pitas, GrokSoup and EditThisPage - were released, providing opportunity for anyone with web access to create and maintain

a weblog. The web began to change from a primarily read-only medium to one more suited to two way communication.

There are many characteristics common to weblogs. Paquet (2002) lists five key characteristics of a weblog; personal authorship, hyperlinks to other web pages, free access to the content for the public, frequent entries displayed in reverse chronological order, and the automatic archiving of older entries. Personal authorship of a weblog could encourage autonomy of community members, perhaps more strongly than any other form of CMC. Weblog authors tend to craft their entries very carefully since their online identity is strongly connected to the weblog, and this tends to encourage quality in the tone of weblogs. Paquet (2002) notes “The other factor that helps quality emerge in weblogs is personal ownership. Although webloggers participate in a community, the contents of a weblog is not a communal space; it is under the sole responsibility of its editor”

In addition to the strong degree of personal authorship of the weblogs, there are elements of historicity, plurality and participation. Historicity is encouraged because older entries are archived by the weblogging software. Older postings linger around to support or sometimes haunt a weblog author instead of disappearing as new material is entered on the weblog. Most weblog software provides the ability to create a link to a web page as one is browsing, thus allowing the weblog author to share other ideas he or she encounters online. Additionally, most weblog software allows interactive participation by allowing readers to attach comments to an entry or by providing a hypertext link to a comment entered onto another weblog. Weblogs therefore manage to balance between personal autonomy for the author and participation of others in the

discourse.

Wikis

Wikis, short for wiki webs (wiki is the Hawaiian word for quick, according to the initial wiki developer Ward Cunningham (*EtymologyOfWiki*, 2004)), are web pages that are freely editable by anyone, although some wiki pages require a password in order to be edited. Editing is done via the web browser, so other tools are not required. Text shortcuts, analogous to shortcuts for taking shorthand, are used when editing in order to format the text on the final page. Although editing is convenient since it is done through the web, the necessity of needing to use a wiki code to format text can be challenging to some users. Some wiki software makes use of a WYSIWYG interface similar to a word processor. Perhaps the most ambitious wiki-based project is Wikipedia (<http://wikipedia.org>), an online freely editable encyclopedia. As of this writing, Wikipedia includes over 300 000 articles.

Although the openly editable nature of wikis might lead one to believe they would quickly be deluged by undesirable content, this tends not to be the case. Unlike Usenet newsgroups, hostile comments or links to commercial sites can quickly be deleted by anyone. As in OSOSS, the ability to control content is devolved to all members of the community. "Wiki pages represent consensus because it's much easier to delete flames and spam than indulge them" (*WhyWikiWorks*, 2004). Wikis may therefore be ideal tools for archiving the knowledge of a virtual learning community, and participation in building the wiki encourages historicity and identity.

Conclusion

Online learning and classroom learning share many of the same objectives involving a change in students' behaviour or understanding. Similarly equestrian polo and water polo share the same objective involving scoring more goals than the opposing team. Most people would recognize that relocating a game played with horses into the water is an absurd notion. Why then is the notion that "online education is just a matter of putting classes online" not recognized as equally absurd?

Perhaps the absurdity is not recognized because we often forget the characteristics of schools and universities that promote learning. Much of the attention and focus is on classes and classrooms, but schools would be very poor learning environments if interaction only occurred in classrooms. Educational settings, such as secondary schools and institutions of higher education, provide opportunities for learning not only through directed, curricular instruction that occurs in classrooms, but also incidental learning that occurs within classrooms and within the larger context of the school community. As students increasingly make use of online education for part or all of their program, there is a need to find an online context that re-creates the school community. Although community cannot be created or built, the context or environment for such a community can be successfully constructed using online communication tools that are currently available when the tools effectively maintain a balance between the various elements that make up a virtual learning community. What we need to re-create online are not only the classes or even just the classrooms, but the larger school community. There are appropriate tools, such as discussion boards, wikis and weblogs, that can create rich and supportive virtual learning communities. Let us look toward such tools and avoid the

ones, like snorkels on horses, that are patently absurd and unhelpful in meeting our objectives.

References

- Blood, R. (2000). *Weblogs: A history and perspective*. Retrieved January 18, 2004, from http://www.rebeccablood.net/essays/weblog_history.html
- Daniel, B., Schwier, R. A., & McCalla, G. (2003). Social capital in virtual learning communities and distributed communities of practice. *Canadian Journal of Learning and Technology*, 29(3), 113-139.
- Dykes, M. E., & Schwier, R. A. (2003). Content and Community Redux: Instructor and Student Interpretations of Online Communication in a Graduate Seminar. *Canadian Journal of Learning and Technology*, 29(2).
- EtymologyOfWiki*. (2004). Retrieved August 7, 2004, from <http://c2.com/cgi/wiki?EtymologyOfWiki>
- Johnson, S. (2001). *Emergence: The Connected Lives of Ants, Brains, Cities and Software* (First ed.). New York: Touchstone.
- Kanuka, H. (2002). A Principled Approach to Facilitating Distance Education: The Internet, Higher Education and Higher Levels of Learning. *Journal of Distance Education*, 17(2), 70-76.
- Kowch, E., & Schwier, R. (1997). Considerations in the Construction of Technology-Based Virtual Learning Communities. *Canadian Journal of Educational Communication*, 26(1), 1-12.
- Malda, R. (2000). *Slashdot FAQ*. Retrieved July 17, 2004, from <http://slashdot.org/faq/com-mod.shtml>
- Moller, L. (1998). Designing Communities of Learners for Asynchronous Distance Education. *Educational Technology Research and Development*, 46(4), 115-122.

- Paquet, S. (2002). *Personal knowledge publishing and its uses in research*. Retrieved February 17, 2004, from <http://radio.weblogs.com/0110772/stories/2002/10/03/personalKnowledgePublishingAndItsUsesInResearch.html>
- Pfaffenberger, B. (2003). "A Standing Wave in the Web of Our Communications": Usenet and the Socio-Technical Construction of Cyberspace Values. In C. Leug & D. Fisher (Eds.), *From Usenet to CoWebs: Interacting with Social Information Spaces* (pp. 20-43). London: Springer-Verlag.
- Schwier, R. A. (2001). Catalysts, emphases and elements of virtual learning communities: Implications for research and practice. *The Quarterly Review of Distance Education*, 2(1), 5-18.
- Schwier, R. A. (in press). Virtual Learning Communities. In G. Anglin (Ed.), *Critical Issues in instructional technology*. Englewood Cliffs, CO: Teacher Ideas Press.
- Schwier, R. A., & Balbar, S. (2002). The Interplay of Content and Community in Synchronous and Asynchronous Communication: Virtual Communication in a Graduate Seminar. *Canadian Journal of Learning and Technology*, 28(2).
- Walther, J. B. (1996). Computer-Mediated Communication: Impersonal, Interpersonal and Hyperpersonal Interactions. *Communication Research*, 23(1), 3-43.
- WhyWikiWorks. (2004). Retrieved August 16, 2004, from <http://c2.com/cgi/wiki?WhyWikiWorks>
- Wikipedia. (2004). *Electronic mail*. Retrieved August 10, 2004
- Wiley, D. A. (2004). *The Polo Parable*. Retrieved July 20, 2004, from <http://www.reusability.org/blogs/david/archives/000518.html>

- Wiley, D. A., & Edwards, E. K. (2002). Online Self-Organizing Social Systems: The Decentralized Future of Online Learning. *Quarterly Review of Distance Education*, 3(1), 33-46.
- Wilson, B. (2001). *Sense of Community as a Valued Outcome for Electronic Courses, Cohorts, and Programs*. Paper presented at the VisionQuest PT3, Denver.
- Wilson, B., & Lowry, M. (2000). Constructivist Learning on the Web. *New Directions for Adult and Continuing Education*, Winter 2000, 79 - 88.
- Winer, D. (2002). *A History of Weblogs*. Retrieved January 17, 2004, from <http://newhome.weblogs.com/historyOfWeblogs>
- Woods, R. H. (2002). How much communication is enough in online courses? - Exploring the relationship between frequency of instructor-initiated personal email and learners' perceptions of and participation in online learning. *International Journal of Instructional Media*, 29(4), 377-394.