Many-to-Many Techniques in Online Asynchronous Environments

by
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Introduction

The goal of this paper is to explore what are 'many-to-many' techniques, and to see why and how they might be used in online asynchronous environments such as forum discussions in WebCt or Blackboard.

Many-to-Many Techniques—What are they?

According to Paulsen (1995), many-to-many techniques are teaching/learning techniques in which, all participants have the possibility to be actively involved. Paulsen suggested that a common characteristic of 'many-to-many' techniques is that "all participants have the opportunity to take part in the interaction." (1995, p 15) These techniques, therefore, have the potential to provide the organizational structure for collaborative learning and group work.

Following is a list of teaching techniques for Computer-Mediated Communications (CMC) provided by Paulsen in his online report on pedagogical techniques for CMC copyrighted 1995:

- Debates
- Simulations or games
- Role Plays
- Case Studies
- Discussion Groups
- Transcript based assignments
- Brainstorming
- Delphi Techniques
- Nominal group technique
- Forums
- Project Groups

More and newer techniques can probably be added to this list and this is where I am interested in getting some of your feedback. I'm interested in finding what instructional strategies instructors use in their online teaching and how it's working. What kind of group work are they using and how it's working? You can send me notes at blepine@bbwebmedia.com. Thanks. To continue with the techniques… we will look at some of them in more details towards the end of this paper.

Many-to-Many Techniques—Why use them?

With the Internet and innovations with technologies, new modes of communication have emerged. With this, new possibilities for teaching and learning have also immerged. As Moore (1989) envisioned it, our thinking and our practices have changed —to adapt to newer technologies, especially in terms of 'learner-learner' interaction. When I think back of the distance courses I took long ago, there was no such tools/devices for communication and interaction

purpose where all participants could communicate and work together. The only interaction I had was with the content and with the instructor.

Parallel to the emergence of this new technology, a new philosophy of learning has also emerged. It is the constructivism philosophy. “Constructivism is not a theory about teaching; it is an epistemological position” (Boulton, 2002, p.3). The main idea of this philosophy is that, knowledge needs to be constructed by each learner.

Following is a definition of constructivism provided by the Web site Funderstanding (2001):

> "Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own "rules" and "mental models," which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences."

The learners must individually discover and transform new and complex information, check new information against old schemata and then revise and adjust the schemata when they no longer work.

Kearsley (1994), referring to Vygotsky’s *Social Development Theory*, stated that, "social interaction plays a fundamental role in the development of cognition." So, if this is in fact the case, then interaction with others becomes necessary perhaps even essential for meaningful learning to occurs.

Garrison & Anderson (1999) argues that, “a crucial component to acquiring meaningful and worthwhile knowledge is [to be part of] a critical community of scholars and learners” (p 58). Ragan (1999) states that, "when learners interact with one another, with an instructor, and with ideas, new information is acquired, interpreted, and made meaningful. Such interactions form the foundation of a community of learners.” (p. 5) So it appears that the learner’s interaction with people and with new ideas is conductive to create significant learning.

Kanula & Anderson (1998) suggested that, “social constructivism is aligned with online learning” (as refered to in Boulton, 2002, p. 5). The online asynchronous environments may be seen as a ‘virtual location’ when learners can meet and interact with others and where thoughts and questions can be posted (shared) and read by everyone creating a ‘bank’ of meaningful learning as well as a support group that can help you when you need it.

Barber (2001) suggest that “creating active learning and collaborative environments … require[s] a shift from static content and individualized activities or assignments to learning activities that require learners to produce knowledge

and work together" (p.1). Activities have to be deliberately designed in a way that learners have to work together (interact together) to create new knowledge. Once more, many-to-many techniques, where learners have the chance to interact with others, have the potential to create that kind of structural setting.

Ragan (1999) also states that, "If students feel they are part of a community of learners, they are more apt to be motivated to seek solutions to their problems and to succeed. [Therefore,] the challenge for distance educators is to design into the instructional situation strategies and techniques for establishing and maintaining "learning communities" among learners separated by space and/or time." (p. 5) Thus, the design of the situation and the techniques used to create and to promote a collaborative learning experience appear to be of the utmost importance.

To finish up, Chism (no date) suggests that Electronic discussions can be used:

- for building group among the students.
- for information sharing
- for processing ideas.
- as tutorials.
- to further the communication skills of students.
- to provide feedback to students.

So from these scholars, it appears that interaction within a collaborative environment is favorable to the creation of knowledge. Palloff and Pratt (1999) suggest that, "Electronic pedagogy … is about developing the skills involved with community building among the group of learners." (1999, p.159) Learning online is different than learning in a regular setting. It requires different skills than the face-to-face setting. Palloff and Pratt propose that learning how to learn in this environment is of extreme importance. Students need a clear understanding of what is expected from them and how to approach the material.

Organizational Structure – Points to Consider

What drives learning?

Jonassen, Howland, Moore, & Marra (2003), suggest that it may be the nature of the task. Therefore, according to them, a task should required to be active, constructive, intentional, authentic and cooperative. All of these descriptors should be integrated into the learning activities.

I couldn't agree more with Ragan (1999) when he states that, "the challenge … is to design into the instructional situation strategies and techniques for establishing and maintaining "learning communities" among learners separated by space and/or time." (p. 5)

The challenge is to select techniques or strategies to deliver the learning material in a way that learners need to interact and work together to create new learning. At the same time the choice of activities should promote collaborative and social skills necessary to establish and maintain the community of learners. A culture has to be developed. Students need to feel comfortable to ask questions or to comment on such and such topics or situations or to share their opinions and beliefs. Students need to feel free and empowered to take their learning into their hands and to go with it helping each other's along the way. The sharing of knowledge and ideas promotes that kind of environment.

There are many factors to take into consideration when selecting strategies for online learning. Following are a few briefly addressed:

Time and group size

Palloff and Pratt (1999) suggest that time and group's size are very important factors to take into consideration when designing online course. Time required for participation is higher online than in an F-to-F format so you must be aware of this when choosing activities otherwise you may overload your students with more work that they can possibly do in a specific amount of time.

Group size is another factor "that relate to the ability of the instructor to maintain some modicum of control over the process without subjecting participant to information overload." (Palloff and Pratt, 1999, p. 55) It takes lots of imagination and skills to best use various groups' size depending on what you are trying to accomplish in term of activities. Sometimes small groups are better for working at specific, while a large group is better for sharing.

Learning environment

It's hard to be creative when you don't know the possibility of the environment in which you will be teaching. Please, know the environment in which you will be working! Know the possibility of the environment. It will help you materialize your 'approach'—your techniques and strategies.

New Practices, New Role

New practices are required to adapt to new technologies and new environments. Oblinger and Maruyana (1996), mentioned the need for change and how "educators and policy leaders are envisioning a new approach to instruction based on communications and computer technology, using learning-on-demand and learner-centered instruction"(p.4)

The following Exhibit 2, from Jostens Learning (1995), represents some Educational Practices. On the left lies the 'older' practices while on the right lies

the 'newer' ones. As some of the information in this table suggests, a change in practice is needed.

Exhibit 2

Long-standing Educational Practices	Preferred Educational Practices
Teachers lecture; students listen.	Teachers guide, coach, motivate, and facilitate. Students are active "doers," presenting, analyzing, solving, constructing.
Working as an individual is prized. Working together is discouraged and even disparaged as "cheating."	Working together is prized because it emulates the way people work most often in real life, within a team. Individual work is given less importance.
Content is balkanized into "subjects" that are treated without much connection to other subjects. Students have no clear idea of relationships between subjects such as history and science.	Subjects are usually integrated, to provide different perspectives on skills and issues, assist in solving problems, or help students relate their interest in one subject to another.
The curriculum is fact-centered. Students often memorize facts and concepts in isolation from the real world and from other subjects.	The curriculum is problem-centered. Students engage in tasks related to the real world in which they must collect and assess information to solve problems.
Teachers are regarded as the primary source of knowledge.	There are many rich resources for learning. Teachers help students access and interpret many sources, including traditional print materials, the Internet, online lessons, and dialog with experts.
Second only to the teacher's words, print media are the primary means of communication; "reading and writing" are the essence of the curriculum.	There are ample opportunities to explore concepts using a variety of media– video, graphics, sound, and speech, as well as print. Students not only master reading and writing but also gain experience in other media and in "multimedia."
Student success most frequently is presumed when students remember what teachers and books say and can report back.	Student success most frequently is presumed when students solve problems, communicate ideas, present information, and learn how to learn.
Schools are insular, largely separated from the rest of the community.	Learning is everybody's business and takes place throughout the community. Computers connect the world to the classroom and the classroom to the world.

Jostens Learning, 1995, http://www.jlc.com/edures/teachers/edforum.html

(Jostens Learning, 1995, as provided in Oblinger and Maruyana, 1996)

In a constructivist approach this may means to provide situations where students can make connections and search for and create new understanding and all of this while dialoguing amongst other students. Norton and Wilburg (2003), suggest that activities need to be authentic, building knowledge, constructing and sharing (p.48).

With these new practices, a shift is also required in the role of the teacher and students. The teacher role is to guide, to coach, to motivate, to facilitate… while the expectation of the students are to be an active 'doers, to present, to analyse, to solve, to construct… (Exhibit 2, Jostens Learning (1995) as provided in Oblinger and Maruyana (1996))

In terms of best practices, McAlpine, Koppi, McLean, Hodgson, Fardouly, and Kinch (2001), suggest the following principles are to be considered *fundamental to best practice* and this regardless the delivery environment. (p.5)

1. Establish clear goals and expectations
2. Ensure alignment of objectives, learning activities and assessment
3. Use active learning methods
4. Create a supportive environment that is inclusive of the diversity of students
5. Enhance generic skills and autonomy
6. Focus on continuous improvement through evaluation and review

The role of the student is changing as well. The emphasis is placed on the learner rather than on the teacher. It's a learner-centered approach. It's the learners' job to interact with the material and with the people and to discuss/exchange information, to reflect and to build new understanding. Learners' autonomy and initiative are accepted and strongly encouraged. The constructivists view knowledge as a constructed entity made by each and every learner through a learning process. Knowledge cannot be transmitted from one person to the other (old model), it needs to be (re)constructed by each person.

Instructional Techniques/ Approaches

In this section we will be looking at some techniques and methods that are seen as being able to foster learning when learners are working together and (hopefully) interacting collaboratively. Such environment is also seen as being favorable for the creation of meaningful knowledge, in other words, *authentic knowledge*.

Authentic knowledge is presumably happening when the learners is creating his/her own knowledge which is happening also during interactions with others. Let's have a look at some techniques that may foster learners to work together and create *meaningful learning*.

Groups Discussion

Group discussions are probably the easiest way to incorporate some interactivity and collaboration within your course. They can be small groups or large group. With a little bit of imagination and some planning, great discussions can be flourishing in your course.

If you where to teach in a face-to-face situation and wanted your students to function in a certain way for some group discussion, most likely you would inform them of the format you want the discussion to be happening and you would probably monitor them once or twice. Well, online environment is no different; students need some guidance and coaching on the format of the discussion too. As Paulsen (1995) remarked, "grouping often necessitates thorough planning and explanation." (p. 19)

Knox (1987, 1988) suggested that the way it works in a 'subgroup' discussion in a regular setting, is that, the "audience [is divided] into small subgroups for discussion of ideas presented, questions for speakers, implications." (as quoted in Paulsen, 1995)

This can be easily done in WebCT. It involves adding private discussions where only the members of the group have access. Later on, these 'private discussions' can become public for the benefit of all.

An important point to remember is to "be there" for your students. Don't set up discussions and never visit them to see what's happening there. The presence of the instructor is very important in online environment.

Subgroups for discussion purpose can be easily be added and managed in WebCT. Another example of its use could be to have a guest (an expert online) who has access to the small groups and could answers questions generated by the group. Again these 'private discussions' could become public for the benefit of all, for the sharing of the knowledge.

Forums

Forums are another techniques to get some interaction and collaboration going between your students. A description of a forum can be explained as a method where "participants question and discuss the presentation as a total group." (Knox 1987, 1988, as quoted in Paulsen, 1995)

Another definition is: "an open discussion carried on by one or more resource persons and an entire group. It is used when large groups of twenty-five persons or more meet for the purpose of diffusion of knowledge, information, or opinion. The forum tends to be semiformal in nature and is directed by a moderator. The moderator is responsible for guiding discussion during which the audience is encouraged to raise and discuss issues, make comments, offer information, or ask questions of the resource person(s) and each other." (Sisco 1990, 285, as quoted in Paulsen, 1995)

As you may see, this can be easily integrated and with variations. Forum can also be used when you build your course using Cases. Forum discussions can be set up where students have the possibility to discuss and ask questions relating to the case.

Rourke & Anderson (2002), suggest using *peer teams* to lead online discussion as a way to get the students to work together and share knowledge.

Debates

Kanuka (2003) in her March workshop presentation suggests that debates are good strategies to use if you want your students to explore both sides of an issue. Debating is a good technique to engage and challenge students, as they need to interact, discuss and form a position (even if contradictory to theirs) to debate against the other side. Debates also require critical thinking and creative thinking in order to come up with solid arguments to support ones position and to attack the opponents' positions. The desired learning outcome of a debate is to force learners to confront conflicting phenomena that challenge the learner to acquire better understanding.

Following are two definitions of what is a debate:

> "A debate is structure discussion during which two sides of an issue are presented and argued by two or more individuals within a given time period." (Seaman and Fellenz, 1989, as quoted in Paulsen, 1995)
>
> "A debate is a structured argument or dispute. Two sides speak alternately for and against a particular contention usually based on a topical issue." (Mammy's debate FAQ, 2001)

Kanuka (2003), suggests the following points when facilitating a debate.

- Establish a few ground rules before beginning
- Structure and formal debates have a tendency to be more successful online than less structured and informal debate
- Need a moderator and need a judge
- Class size: a minimum of 10 to a maximum of 30 students
- Equal number of student each side
- Topic related to course content
- Keep secret which sides people are until it's time to debate
- Try to have students ague on side they don't agree (when creating groups)
- Keep a tight schedule for the presentation of positions, counter arguments and concluding remarks

Case Studies (discovery learning)

A case study can be described as a "discussion of a prepared case situation, which helps participants understand and practice problem-solving and decision-making procedures." (Knox 1987, 1989, as quoted in Paulsen, 1995)

Another description of case study is that "generally [it] refers to a description of a real and relevant situation that is complex enough to warrant analysis. (Seaman and Fellenz 1989, 111, as quoted in Paulsen, 1995)

Cases usually consist of 'three interrelated components':

- a case study or report, [or problem to be studied]
- case analysis,
- and case discussion. (Marsick, 1990, p.226 as referred to in Paulsen, 1995)

The use of case studies in conjunction with the discussion tool for the analysis and discussion create an interesting learning environment where learners can ask others for their point of view and discuss specific issues of a case. The sharing of various points of view helps seeing a bigger picture.

"The use of case studies in the instructional process provides a leaning environment that seeks to present complex reality of any issue with its concomitant ambiguity and multidimensionality, thus providing a strong image of the multifaceted nature of most subject areas." (Kanuka, 2003) Writing good case is not easy however. Abell (1997), suggest ten ingredients to look for when writing one. Here they are:

1. Make sure it is a case and not just a story
2. Make sure that the case tackles a relevant, important issue
3. Make sure that the case provides a voyage of discovery – and even some interesting surprises
4. Make sure that the case is controversial
5. Make sure the case contains contrasts and comparisons
6. Make sure the case provides currently useful generalizations
7. Make sure the case has the data required to tackle the problem – not too many and not too few
8. Make sure the case has a personal touch
9. Make sure the case is well-structured and easy to read
10. Make sure the case is short

Role Plays (experiential learning)

Role-play can be described as "a range of methods in which trainees put themselves in dramatic situations and act out scenes like actors in a play.... There are essentially two kinds of role play: structured and spontaneous.... Structured role play is based on a case study.... Spontaneous role plays are based on momentary experiences." (Rothwell and Kazanas 1989, 415, as quoted in Paulsen, 1995)

VanMents (1989), proposed that:

> "the idea of role-play, in its simplest form, is that of asking someone to imagine that they are either themselves or another person in a particular situation. They are then asked to behave exactly as they feel that person would. As a result of doing this they, or the rest of the class, or both, will

> learn something about the person and/or situation. In essence, each player acts as a part of the social environment of the others and provides a framework in which they can test out their repertoire of behaviours or study the interacting behaviour of the group." (as quoted in the Alternative Modes of Teaching and Learning website, 2000)

Role-playing is a great technique to engage student in interactive and collaborative behavior in pretend situations. It's a kind of simulation, which requires the learner to become an active participant in this 'make believe' situation.

The website *Alternative Modes of Teaching and Learning* (2000), propose the following advantages and disadvantages of using role-playing.

Some advantages:

- Provides opportunity for interpersonal and communications skills practice and development
- Provides opportunity for exploring another person's perspective
- Facilitaties integration of theory and practice
- Engages the 'whole' person in the learning process

Some disadvantages:

- May be experienced as artificial
- May provoke unexpected personal response

Role-playing can provide situations otherwise not available. It can challenge one's thinking and provide new views for new understanding.

Collaborative Learning

The information in *The Development Process* website (1997-98), suggest that collaborative learning can be found under various names in the literature such as cooperative learning, group learning, peer learning or team learning.

Panitz (1999), defines collaboration as such:

> "Collaboration is a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect the abilities and contributions of their peers." (p.1)

Schrage (1991), as quoted in Smith (2000), defines collaboration in the following terms:

> "Collaboration is a purposive relationship. At the heart of collaboration is a desire or need to solve a problem, create, or discover something within a set of constraints, including expertise, time, money, competition, and conventional wisdom" (p. 36)

So, as these scholars suggest, collaborative learning involves some sort of working-together "methodology." So, for learner-learner interaction and communication to occur, group work of some sort is needed to involve the students. It's also important to create a willingness to participate in small and large groups. The sharing of information/ideas, the collaborating in the forum discussion and in small groups most likely will help create a bigger range of views and therefore most likely will broaden everybody's understanding of specific topics.

I have a tendency to think that there are various possibilities in terms of the purpose of collaborative learning and also many possibilities to achieve it. I also think these possibilities are still being 'discovered' for the online learning environment. My view on it is, to share expectations with students just like one would do in a F-to-F situation, and refined techniques as needed.

Group Projects

Group projects are group work that are centered on a shared product and that provides the setting for collaboration and interaction. In Andersen et al (1987, 15), "A project [is] defined as a human endeavor which creates change, has composite goals and objectives, is unique, is limited in time and scope, and involves a variety of resources, with different skills, responsibilities, and competence." (Andersen et al, 1987, 15, as referenced in Paulsen, 1995)

Group projects are good to create ownership and develop team-buillding. They engage learners. The learner is an active participant, he is at the center of the action. Working in small groups can also help developing social interaction and develop support system (a community) between leaners. The ideal is to create a general environment/culture open to diversity where many views can be shared and where the attitude of the learners is collaborative and supportive to help 'knowledge construction' for everyone.

There are different types of group learning. In this paper, we are looking at three approaches. They are: *Project-based Learning*, *Problem-based Learning*, and *Inquiry-based Learning.* I must point out that sometimes they are use interchangeably on the Internet and in literature.

Project-based Learning:

- *Project-based Learning* is "an approach to learning focusing on developing a product or creation. The project may or may not be student-centered, problem-based, or inquiry-based." (Lamb, 2000)

There are variations in the format how Projects-based Learning are presented. They can come in different forms. Still, making the project relevant to the students and using real issues to motivate are central to all. In other words, learning by doing in authentic situations is the way to go. (Direct Experience)

The Instructional Module: Project-based Learning website from the George Lucas Educational Foundation (2003) provides an account of Project-based learning. Here it is:

Project-based learning

- helps students develop skills for living in a knowledge-based, highly technological society.
- and the use of technology bring a new relevance to the learning at hand.
- lends itself to authentic assessment.
- promotes lifelong learning.
- accommodates students with varying learning styles and differences.

Problem-based Learning:

- *Problem-based Learning* is "an approach to learning focusing on the process of solving a problem and acquiring knowledge. The approach is also inquiry-based when students are active in creating the problem." (Lamb, 2000)

New skills are needed for future generation. Being able to work efficiently in a team, search for new answers and to communicate well are all very important skills nowadays. "Students [need to] work in small teams, acquiring, communicating, and integrating information in a process that resembles that of inquiry." (Duch, Allen, & White, 1998, p.1) Students need to develop their collaborative and communicative skills to successfully find answers to common problems. Learning must be situated in a real setting and involving real activities. (Situated Cognition)

Inquiry-based Learning:

- *Inquiry-based Learning* is "a student-centered, active learning approach focusing on questioning, critical thinking, and problem-solving. It's associated with the idea 'involve me and I understand.'" (Lamb, 2000)

- "The inquiry approach is more focused on using and learning content as a means to develop information-processing and problem-solving skills. The system is more student centered, with the teacher as a facilitator of learning. There is more emphasis on 'how we come to know' and less on 'what we know.' Students are more involved in the construction of knowledge through active involvement." (Disney Learning Partnership, no date)

Inquiry-based Learning is an investigation method. It definitively requires more preparation from the teacher point of view, as they need to come up with good questions that will motivate and sparks interest for the inquiry. Inquiry-based Learning is great to work in team. As a process, students can engage in discussions, question themselves and discover new information. (Discovery Learning) Groups situation are great for sharing ideas, asking questions, helping each other and working together. Case studies are an example of inquiry learning and so are WebQuest.

Conclusion

The goal of this presentation was to explore many-to-many techniques and see what they were, why and how to use them in online asynchronous environments such as forum discussions in WebCt or Blackboard. I hope this presentation helped you to discover a bit more about them and that you developed an interest in using them successfully in your courses. If you wish to communicate with me, please do so. Thanks. BL

References

Books, Articles

Abell, D. (1997). What makes a good Case? ECCHO: The Newsletter of European Case Autumn-Fall, 4-7. Electronic version located at http://www.ecch.cranfield.ac.uk/europe/pdffiles/obtain/Writepdfs/Whatmakes.pdf

Boulton, J. (2002) Web-Based Distance Education: Pedagogy, Epistemology, and Instructional Design. Unpublished manuscript. Electronic version located at http://www.usask.ca/education/coursework/802papers/boulton/boulton.pdf or http://www.usask.ca/education/coursework/802papers/boulton/.

Duch, B., Allen, D., & White, H. (1998) Problem-based learning: Preparing students to succeed in the 21st Century. Electronic version located at http://www.ulib.iupui.edu/teaching_excellence/vol9/v9n7.htm

Garrison, R. & Anderson, T. (1999). Avoiding the Industrialization of Research Universities: Big and Little distance education. American Journal of Distance Education 13(2).

Jonassen, D.H., Howland, J., Moore, J., & Marra, R.M. (2003) Learning to solve problems with technology: A constructivist perspective, 2nd. Ed. Columbus, OH: Merrill/Prentice-Hall.

McAlpine, I., Koppi, A., McLean, J., Hodgson, L., Fardouly, N., and Kinch, S. (2001). Teaching Quality Principles and Guidelines for the Application of Educational Technology. Educational Development and Technology Centre (EDTeC), UNSW. Electronic version located at http://www.edtec.unsw.edu.au/inter/dload/flex_ed/tqpgl.doc

Moore, M. (1989). Editorial: Three types of interaction. The American Journal of Distance Education, 3(2),1-6. Electronic version located at http://cdl.panam.edu/dayoung/professional/moorethreetypesofinteraction.htm

Norton, P. & Wiburg, K. (2003). Teaching With Technology. Orlando, FL: Harcourt Brace.

Oblinger, D. G., and M. K. Maruyama. (1996). Distributed Learning: Need for Change. CAUSE Professional Paper #14. Electronic version located at http://www.educause.edu/ir/library/pdf/PUB3014.pdf

Palloff, R. & Pratt, K. (1999) Building Learning Communities in Cyberspace: Effective strategies for the online classroom. San Francisco: Jossey-Bass Publishers,

Panitz, T. (1999). Collaborative Versus Cooperative Learning: A comparison of the Two Concepts Which Will Help Us Understand the Underlying Nature of Interactive Learning. Electronic version located at http://home.capecod.net/~tpanitz/tedsarticles/coopdefinition.htm

Paulsen, M. (1995) The Online Report on Pedagogical Techniques for Computer-Mediated Communication. Electronic version located at http://www.nettskolen.com/pub/artikkel.xsql?artid=123

Ragan, L. (1999). Good teaching is good teaching: An emerging set of guiding principles and practices for the design and development of distance education. CAUSE/EFFECT journal, 22 (1), Electronic version located at http://www.educause.edu/ir/library/html/cem9915.html

Rourke, L., & Anderson, T. (2002). Using peer teams to lead online discussion. Journal of Interactive Media in Education, (1). Electronic version located at http://www-jime.open.ac.uk/

Smith, K. (2000, November). Collaboration in Learning and Design: Executive Summary. Paper presented at Interprofessionalism Conference (IPC2000). Collaborating Across Professional Boundaries: From Education to Practice November 2-3, 2000 Chicago, Illinois. Electronic version located at http://www.stuart.iit.edu/ipro/papers/execsum/smithsummary.htm

Web Sites

Alternative Modes of Teaching and Learning Website (2000). Role Play. Located at http://www.csd.uwa.edu.au/altmodes/to_delivery/role_plays.html

Chism, N. (no date) Goals for the Electronic Discussion. Handbook for Instructors on the Use of Electronic Class Discussion. Located at http://www.osu.edu/education/ftad/Publications/elecdisc/pages/choice.htm

Disney Learning Partnership, (no date) Inquiry-based Learning: Explanation. Located at http://www.thirteen.org/edonline/concept2class/month6/index_sub1.html

Funderstanding, (2001). About Learning: Constructivism. Located at http://www.funderstanding.com/constructivism.cfm

George Lucas Educational Foundation website (2003) Instructional Module: Project-Based Learning. Located at http://www.glef.org/PBL/whypbl.html

Kearsley, G. (1994). Social Development Theory (L. Vygotsky) Located at http://tip.psychology.org/vygotsky.html

Lamb Annette. (2000). Project, Problem, and Inquiry-based Learning. Located at http://annettelamb.com/tap/topic43.htm

Mammy's debate FAQ (2001). What Is a Debate? Zagreb Law Debate Club created by TM 2001. Located at http://www.debata.f2s.com/debatewhat.html

The Development Process (1997-98) Teaching strategies: Collaborative Learning Located at
http://www.clt.soton.ac.uk/neptuno/english/ODLlab/develop/where.htm

Presentations:

Barber Sandi. (2001). How Does Building Community Help Learners Learn? (p.1) Presentation at the Interface 2001—http://interface2001.uleth.ca/

Kanuka Heather (2003) Facilitating Inquiry-based Learning in an Online Environment. Learning Commons Workshop, March 2003.