Chapter XIV

Online, Offline and In-Between: Analyzing Mediated-Action Among American and Russian Students in a Global Online Class

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Abstract

Online collaborative learning is a situated activity that occurs in complex settings. This study proposes a sociocultural frame for theorizing, analyzing, and designing online collaborative- learning environments. The specific focus of this study is: learning as situated activity, activity theory as a theoretical lens, activity system as an analytical framework, and activity-guided design as a design framework for online learning environments. Using data gathered from a naturalistic investigation of a global online collaborative-learning site, this study reveals how these lenses and frameworks can be applied practically. The study also identifies the importance of design iterations for learning environments.

Introduction

In 1992, Salomon (1992, p.62) had this to say about the design and analysis of effective CSCL, "Given a reasonable of minimum of technological capability, the success or failure of cooperative learning is accounted for by entirely different and far more complex factors." Four years later, Salomon and Perkins (1996) made two more observations:

First, computers in and of themselves do very little to aid learning...[a]lthough it may make the enterprise more efficient and more fun. [L]earning depends crucially on the exact character of activities that learners engage in with a program, the kinds of tasks they try to accomplish, and the kinds of intellectual and social activity they become involved in, in interaction with that which computing affords. [S]econd, it has also become evident that no single *task or activity, wondrous as it may be, affects learning in any profound and lasting manner in and of itself. Rather, it is the whole culture ofa learning environment, with or without computers, that can affect learning in important ways. (p.113)*

In the decade since Salomon made his first observation (1992), there has been a tremendous growth in computing technology and its implementation and use in educational settings. Computer-Supported Collaborative learning (CSCL) has been hailed as an emerging paradigm of instructional technology (Koschmann, 1996), and there is a profusion of literature related to CSCL and online/distance learning (Bonk & King, 1998; CSCL, 1997; EuroSCSL, 2001; Hoadley & Roschelle, 1999; Stahl, 2002). A close examination of this literature reveals that to a large extent the studies have focused solely on the technology and have paid little or no attention to the context in which the technology was implemented.

Online collaborative learning settings are places of complex interactions and outcomes, and I believe that sociocultural theories of learning, particularly Activity Theory (Engeström, 1987; Leont'ev, 1978; Vygotsky, 1978), can be a valuable theoretical lens to study such settings. Moreover, Activity System can be used as an analytical tool to analyze the setting (Cole & Engeström, 1993), and Activity-Guided Design can be used as a framework to design such environments. A common thread running through this chapter is that of mediated-action or activity. As this concept is discussed in detail later, I'll just give a quick introduction here. The primary concept is that cognition takes place as people are engaged in an activity that has a purpose and an object. The activity is mediated by artifacts that they use to act on the object to reach a desired outcome. As Pea (1993) explains,

While it is people who are in activity, artifacts commonly provide resources for its guidance and augmentation. The design of artifacts, both historically by others and opportunistically in the midst of one's activity, can advance that activity by shaping what are possible and what are necessary elements of that activity. (p.50)

The cognition or intelligence required for and the outcome of this activity is distributed across the artifacts and is not the sole property of the individual. "When I say that intelligence is distributed, I mean that the resources that shape and enable activity are distributed in configuration across people, environments, and situations. In other words, intelligence is accomplished rather than possessed" (Pea, 1993, p.50). Before launching into discussion of learning, I'll try to explain two concepts that would appear frequently in my discussion: Online and Collaboration.

Online

By online I mean a setting that uses any or all of the following technologies for communication: discussion software, mailing list or listserv, email, instant messaging; and it has either all classes being held online and no face-to-face interaction among the participants; or it follows a hybrid model, i.e., a mix of face-to-face and online classes.

Collaboration

Collaboration in the context of this study has the following characteristics:

1. Genuine interdependence - Collaboration is distinct from cooperation in that collaboration requires "genuine interdependence" among participants. Cooperation can exist when participants distribute their work and then bring it all together; in return they might not learn anything from one another (Salomon, 1992).
2. Production of knowledge - Another feature of collaboration is the production of knowledge, rather than just its assimilation or distribution. What can individuals do together that they cannot do separately? This is also like the apprenticeship model in some sense since students are expected to learn how to participate in communities of learning, a necessary part of higher education or work place. There is an assumption that there will be some internalization of knowledge as well, and students will learn new things that they can use later (Bruffee, 1984).
3. Self-construction of task - Participants construct their own tasks rather than working alone on instructor-assigned tasks or problems (Cranton, 1996).
4. Construction of joint activity space - Participants should come to a common understanding of what their goal is, and this understanding should develop through their conversations with one another (Peters & Armstrong, 1998).

Learning as a Situated Activity: Sociocultural Perspective

Vygotsky (1978) proposed that all higher order psychological functions, including learning, emerge first on a social or interpersonal plane and then on an internal or intrapersonal plane. Moreover, human activity is mediated through artifacts and man and artifact shape, and is shaped by social and physical environment (Cole, 1996). Sociocultural theorists have advocated the usefulness of studying learning as a collaborative practice and have emphasized the situated and social nature of learning (John-Steiner & Mahn, 1996; Scribner, 1997; Vygotsky, 1978; Wertsch, 1991). They argue that to evaluate and study learning it is important to analyze the role of context, especially communication and collaboration. Moreover, according to Wertsch (1991) a sociocultural perspective presupposes that action is mediated and is inseparable from its context. Furthermore, he states that the goal of a sociocultural approach to mind "is to explicate how human action is situated in cultural, historical, and institutional settings" (Wertsch, del Rio & Alvarez, 1995, p. 11). According to the sociocultural lens then, learning is seen as situated, a part of the activity, context, and culture in which it is developed and used (Brown, Collins, & Duguid, 1989) and "in which practice is not conceived of as independent of learning and in which meaning is not conceived of as separate from the practices and contexts in which they are developed" (Barab, Barnett, Yamagata-Lynch, Squire, & Keating, 1999, p.104).

From a methodological perspective, a sociocultural approach allows researchers to investigate complex environments in their natural settings using multiple modes of inquiry. Therefore, this approach is particularly well suited to studying online collaborative-learning environments (OCLE) since OCLE settings are created on a premise that there will be social interaction among several participants that will be mediated by some technological artifact.

Activity Theory: A Theorectical Lens

Activity Theory (AT) refers to a line of theory developed by Leont'ev, Vygotsky, Luria and other Russian psychologists at the beginning of the last century (Engeström, 1987; Leont'ev, 1978) and although Vygotsky himself never explicitly examined the concept of activity, he strongly influenced the development of activity theory (Wertsch, 1981). Activity theory sees learning as a situated and social activity and interlinks the individual and social levels (Kaptelinin, 1996; Nardi, 1996). The basic unit of analysis in activity theory is an activity, which includes a context, and activities are directed towards objects by the need to transform the object into an outcome. As Kuutti (1996) points out, activity theory is not a theory per se; rather, it is "a philosophical and cross-disciplinary framework for studying different forms of human practices as developmental processes, with both individual and social levels interlinked at the same time" (p. 25). Over the past decade, activity theory has found application in learning (Barab et al., 1999; Barab, Schatz, & Scheckler, in press), human-computer interaction (Kuutti, 1991; Nardi, 1996),

and work practices (Engeström & Middleton, 1996). From a methodological standpoint, AT accounts for cultural, institutional, and social settings, and therefore provides a holistic macro-analysis. It provides conceptual resources to capture elements of a complex setting, allows for a varied set of data collection techniques, and emphasizes the user's point of view (Nardi, 1996).

What is an Activity?[1]

Activity is the unit of analysis in activity theory and is composed of subject, object, actions, and operations. Leont'ev (1978) proposed a hierarchical structure of activity according to which activities are organized into three hierarchical levels: activities, actions, and operations. Activities are done to fulfill a motive; actions are goal-directed processes carried out to fulfill a motive; and operations are functional subunits of actions that are carried out automatically. He stressed that activity has a collective nature and that the relations between these three central components of an activity are mediated in a reciprocal way (Kuutti, 1996). According to Engeström (1987), activity "is the smallest and most simple unit that still preserves the essential unity and integral quality behind any human activity" (p. 81). In focusing on activity as the basic unit of analysis, emphasis is put on the cultural, institutional, and social settings in which these activities occur. One can thus argue that AT also provides the necessary conceptual resources for capturing essential elements of a complex setting. As Barab et al. (1999) explain: "When discussing activity, activity theorists are not simply concerned with 'doing' as a disembodied action, but are referring to 'doing in order to transform something,' with the focus on the contextualized activity of the system as a whole" (p.78).

Artifacts and Mediation

A key idea in activity theory is the notion of mediation by artifacts. Activity is mediated through the use of artifacts. Every activity has an object towards which the subject's action is directed, and artifacts are tools that the subject uses to complete that action. Wertsch (1991) proposes that mediated action is the key to understanding how human action is situated in context. A common reformulation of Vygotsky's mediational triangle is shown in Figure 1.

Activity System: An Analytical Tool

Engeström has established a simple structural model of the concept of activity and culturally mediated relationships within it (Engeström, 1987; Engeström & Cole, 1993). Engeström (2002) has replaced binary relationships by mediated relationships through the introduction of a third term that carries with it the cultural heritage of the situation, e.g., the relationship between the subject and object is mediated by a tool. In its simplest form, the model contains six elements and three mutual relationships. The relationship between subject and object is mediated by a *tool/artifact*; the relationship between

Figure 1: Mediational triangle (Cole & Engeström, 1993, p.5).

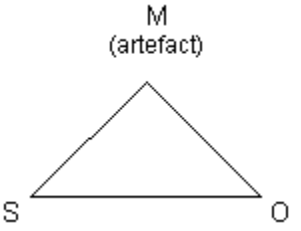
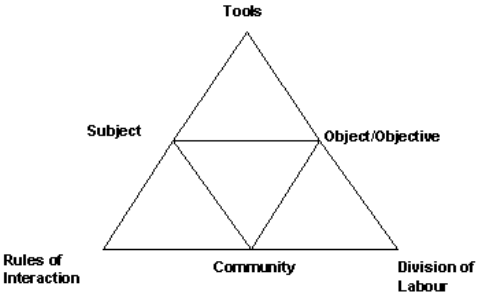


Figure 2: Activity system (Cole & Engeström, 1993, p.8).



subject and community is mediated by *rules*; and the relationship between community and object is mediated by *division of labor* (Figure 2).

Contradictions

Contradictions in AT signify a misfit within elements, between them, between different activities, or between different developmental phases of a single activity. According to activity theory, development occurs when contradictions are overcome (Engeström, 2002; Kuutti, 1996). In activity systems, this contradiction is renewed in "the clash between *individual actions and the total activity system*" (Engeström, 1987, p. 82, italics in original), and it has been suggested that these internal contradictions are what characterizes activity systems (Engeström, 1987; Leont'ev, 1978). Practically, contradictions help us recognize places of intervention and help improve a setting or a system.

Case Study: The Global Classroom Project

I'll now provide an example, from a recent study that I did, to analyze how activity takes place in an online learning environment. The focal premise of the study on which this analysis is based is that a technological system is situated within a complex environment

and that the productive use of that technology, or a lack thereof, is contingent upon the interaction among the different elements of that environment. The study investigated one such technology-supported learning environment-The Global Classroom Project (GCP). The Global Classroom Project is a web-based classroom that integrates online and face-to-face interactions to provide students from Russia and the U.S. a chance to engage in cross-cultural digital communication. The idea behind the GCP is that by engaging in cross-cultural communication students will learn about each other's culture first-hand from native students and also learn how to communicate with people from other cultures. I made a conscious decision not to focus on any one element of the GCP, especially the technology-WebBoard, but to try to look at all (or at least as many as possible) mediating factors and artifacts that could have influenced the learning environment. I believe that technology use is socially and culturally mediated; hence, to understand its use or misuse, one has to look at the context of technology use (Newstetter, 1998).

The Global Classroom Project[2]

The Global Classroom Project (GCP) provides an online distance-learning environment for students from the U.S. and Russia to collaborate on projects to produce text-based documents and/or digital artifacts such as websites or CD-ROMs. In addition to classes that are completely online, the GCP also offers face-to-face classes for students in their respective higher education institutions. The first pilot GCP class was offered in Spring 2000. Since then, a total of seven classes (both graduate and undergraduate level) have been offered over a three-year period. The purpose of the class is two-fold — to teach technical communication skills to the students (such as resume, proposal, and project report writing); and to teach them skills needed to work in a cross-cultural online environment. The learning philosophy behind the GCP is experiential learning, i.e., students learn best by personal experience that the instructors foster by providing them with a setting that emulates the workplace and brings up similar issues and problems.

The Technology

The GCP uses WebBoard, a web forums and chat software, as the platform for student interaction. WebBoard is a message board tool. WebBoard provides support for chat, graphics, archiving, and other technical features. According to its website, some of the leading uses for WebBoard are community building, technical support, online education, project collaboration, virtual meetings, and information management. In the GCP, WebBoard is used primarily as an asynchronous communication medium, to post messages and to exchange documents, usually as attachments. Communication is also supported by the use of email.

Interface of WebBoard

The WebBoard follows a predefined structure. The five main components of every WebBoard installation are:

- Boards/Forums: A board is the top level of the hierarchy in WebBoard. It is the name given to contain all of the Conferences, Topics, Messages, and Users for a particular instance of WebBoard. In the GCP, a board is created each semester for all the classes that are offered that semester.
- Conferences: They are the second level in the WebBoard hierarchy. Conferences contain topics. In the GCP, the instructors usually create the conferences. In a typical semester, the conferences may be Class Discussions, Group Discussions, Introductions, Welcome, Class Assignments, etc.
- Topics: They are the next level after Conferences. They are created by users and contain individual Messages. If a user posts a new Message that is not a reply to an existing Topic, it becomes a new Topic and is available for reply. Typical Topics in the GCP might be Thread Arrangement, Proposal Discussion, Project Discussion, etc.
- Messages: The final level in the hierarchy is Messages. Messages can be in the form of Reply to someone else's message, or they can be a New Post, in which case a new Topic will be created. Messages are also called Posts.
- Users: Users are members or people using the Board. There are different levels of users, from Administrators to Guests.

Students and Activity

The total number of students in the GCP class varies each semester and has ranged from 20 to 36 (American = 6 to 24, Russian = 9 to 30). The Russian students are typically graduate students enrolled in social sciences program, whereas the American students are either undergraduate and graduate and range from liberal arts to engineering majors. The major activity of the class is a group project to be submitted at the end of the semester. The groups consist of American and Russian students who are assigned an open-ended topic to research, write a proposal for their final project, and then work together to complete the project based on the proposal. The topics given to the students have ranged from "analysis of propaganda" to "comparison of online greeting cards." Several activities are given to the students that lead to the group project. They are asked to write a resume that is posted online and to come up with a list of annotated bibliographies that can be used for their project. They are also given a list of readings that are discussed electronically on the WebBoard and sometimes in the face-to-face classes.

Research Methodology

The study was ethnographic in nature, and data was collected using in-depth interviews, surveys, participant observation, analysis of online transcripts, and informal communication with participants. A total of 15 participants were interviewed. All the student interviews were face-to-face except one that was over the phone, and each interview lasted anywhere from 45 to 90 minutes. The primary subjects for the interview were American students. Furthermore, the researcher participated as a team member of a group

of six students for a period of eight weeks, took part in all the group activities, projects, and assignments, and also observed the class during that period. Other data-gathering methods included open-ended surveys and informal communication with students and the instructor. Detailed analysis of online WebBoard transcripts provided further data. Data was also gathered from the Russian instructor via email. The data used in this chapter are a subset of the larger data set and consist primarily of interviews and online transcripts.

Analysis

To look at how an activity is performed in an online collaborative-learning environment I've looked at a group of American and Russian students as it worked on a proposal for its final project. The students were supposed to choose a topic that they agreed upon, and they were given some guidelines to help them select a topic. Based on the assignment given to the students and their discussions up to this point, we can draw an activity system of their task to come up with a proposal. The components of the activity system would look something like Figure 3.

Next, let us look at a group, Group P, as it worked through this process. I've analyzed 60 messages sent over a period of five weeks between the American and Russian students and the instructors. The "Proposal Discussion" thread was started on September 29th, and the proposal was due on November 1st. The aim of this analysis is to highlight instances of contradictions or breakdowns[3] that were discovered as part of the analysis of the GCP as an activity system. The objective is also to contextually frame the breakdowns, to interpret them in a meaningful manner, and to reconstruct events as they might have actually occurred.

Figure 3: Ideal activity system for the Global Classroom Project.

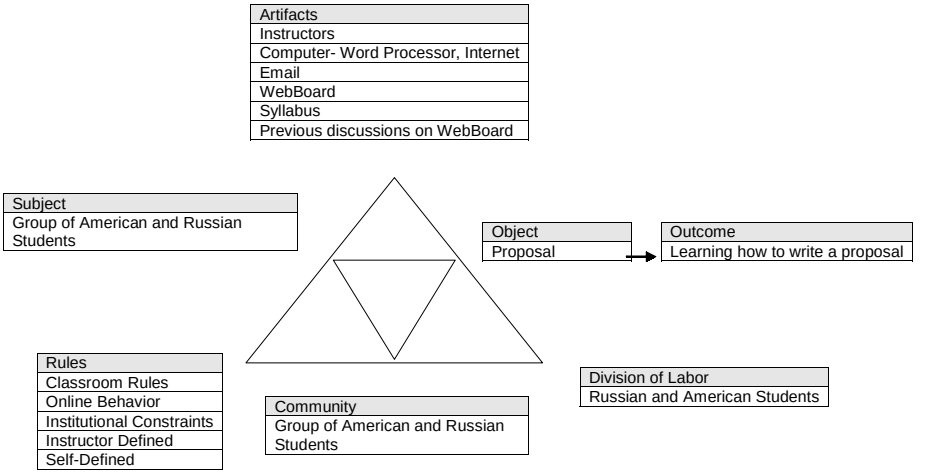
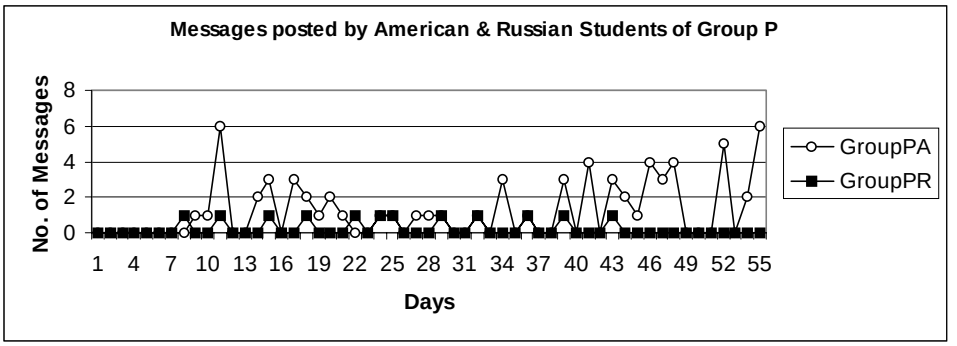


Figure 4: Number of messages posted per day.



Why this group?

To decide which group to analyze, I did a log analysis of one message thread across all of the four groups that worked on the project that semester and plotted the number of messages against the days to come up with the graph that displayed the number of messages across time for the "Proposal Discussion" thread. The graph for the group I've analyzed is shown in Figure 4.

After looking at the graphs and other qualitative characteristics, I decided to focus on Group P because it provided an adequate opportunity to explore a struggle between its members as they tried to come up with a topic for research. I believed this would help me to discern the points and reasons for breakdown among groups and in the GCP. Also, this group had the highest number of messages for the particular thread and time period, and therefore it provided more data. This group is by no means representative of all group discussions that took place between the students but is rather a unique case. The group consisted of four American students and three Russian students, which was typical of all groups that semester. The American group consisted of one graduate student and three undergraduate students. It had two female and two male members. The Russian group consisted entirely of female graduate students. All four members in the American group were from different majors: one was an Information, Design, and Technology graduate student, one was a Building Construction major, one was a Business major, and one was a Computer Science major. Two of the American group members were graduating seniors. The graduate student was appointed as the group leader by the instructor and was responsible for managing the group. The American classes met on Tuesdays and Thursdays, whereas the Russian students met on Tuesdays and Saturdays.

Broad Interaction Patterns: Some Visual and Numerical Data

Before I delve into in-depth analysis of the group, it would be helpful to look at some broad interaction patterns in the group. The network diagram (Figure 5) represents the group dynamics in terms of flow of messages. The arrows in the diagram represent

messages originating from a member of the group, both American and Russian, with the thickness of the arrows being proportional to the number of messages. It can be seen from the figure that most of the Russian messages were posted as a group, whereas American students posted individually, and most of the messages for the Americans came from the graduate student who was also the group leader.

Another important observation is that American students posted messages for other American students, whereas Russian students only posted messages for the American students. This means that American students were using the WebBoard to discuss a topic among them and to have a dialogue, whereas Russian students were using the WebBoard just to send messages to the American students.

Table 1 shows the number of messages per week for the students and the instructors. Some broad patterns that emerged are:

- The overall activity was highest in Week 2 and then tapered off for the next two weeks before picking up again in the fifth week. A closer analysis shows that this pattern was a result of the activity of the American students.

Figure 5: Network diagram for Group P.

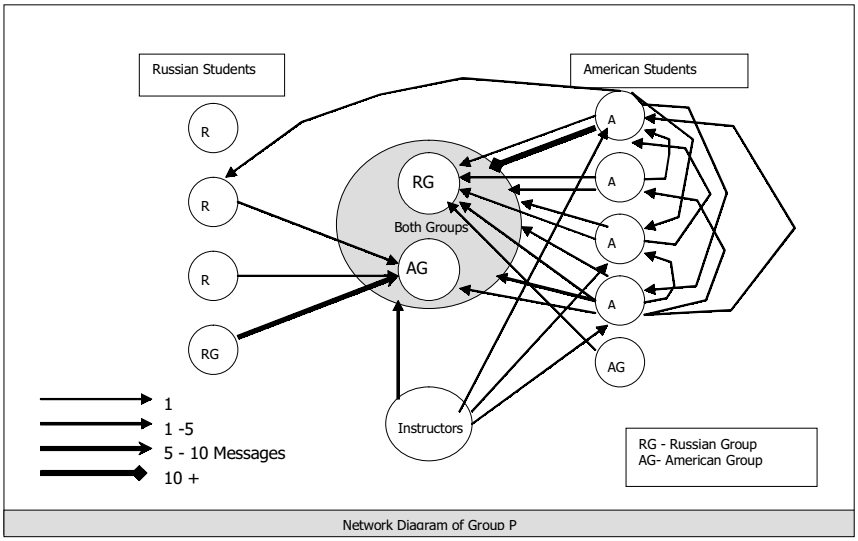


Table 1: Number of messages per week.

Week	Number of Messages			
	American Students	Russian Students	Instructors	Total
Week 1	6	2	3	11
Week 2	15	2	1	18
Week 3	4	3	0	7
Week 4	6	2	1	9
Week 5	11	3	1	15

- The Russian students were consistent with their postings and posted two or three posts every week. A look at the graph presented in Figure 4 would show that the Russian students also posted at a regular interval.
- The instructors posted very few messages within this thread, three in the first week and, at the most, one message in other weeks, although they met the students face-to-face.

Week 1 (Sept. 29 - Oct. 05)

During Week 1, 11 messages were exchanged in the "Proposal Discussion" thread, six written by American students, two by Russian students, and three by the instructors.[4] There were several contradictions that emerged as the activity unfolded over the week. To start with, a couple of American students were not able to follow the discussions since they were reading other threads and realized only later in the week that they had to follow the conversation in the "Proposal Discussion." The Russian students posted their message as a group, i.e., they signed off each message with the names of all the group members. The American students could never understand why the Russian students did this. A practical reason for this could be that the Russian students had limited access to computers and could only post during their class times. The effect of this behavior on the American students was greater than is apparent on the WebBoard discussions. The American students were disappointed and frustrated, and during an interview, one student commented that there was no incentive for her to post anything back since they only got back one post for every four posts they put up, and added that it should feel more like a conversation.

This brings us to another important distinction between the model of communication for American and Russian students. The American students look at electronic communication as conversation, an attitude they have no doubt acquired because of fast access speed and the use of Instant Messaging (IM) (the group reported that they had used IM during their brainstorming sessions, and all of them used it frequently). On the other hand, the Russian students used WebBoard more like traditional mail. Moreover, Russian students engaged in face-to-face group work since they had to meet during class to use the computers. On the other hand, the American students interacted only using electronic medium: WebBoard, emails, and Instant Messaging.

Week 2 (Oct. 06 - Oct. 12)

Week 2 had a total of 18 messages: 15 by American students, 2 by Russian students, and 1 by the instructors. A number of breakdowns occurred during this week. The Russian students were frustrated that the American students were not working together, and the American students were still frustrated with the lack of individual response from the Russian students. Within the American group, a division started based on the priority of the group members. The graduate student in the group was appointed the unofficial "leader" of the group by the instructor and was concerned more with logistics of the group work and the delivery of the final product compared to the topic at hand. Another

American student had become really frustrated with the whole exercise, and his comments show that he was used to making quick decisions and moving on (even if it meant that not everyone in the group could be happy), whereas here the decision- making process was taking a long time. After this message, he only posted three times during the next three weeks. But his comment leads us to something more significant that became apparent when I interviewed other students—the Engineering students did not work well together with Liberal Arts students and vice versa, since for the engineering students the class was required, whereas the Liberal Arts students pursued it because they were interested in the class. Therefore, the interest level and commitment of the students was different. Another difficulty arose for the American students when they tried to meet face-to-face. At least one student in the group had enrolled in the class precisely because he did not want to come on campus and wanted to participate electronically. Therefore, scheduling a face-to-face meeting became almost impossible. Another breakdown was the lack of knowledge of the American group about what the other American groups in the class were doing (there were three other groups) because the class met face-to-face infrequently. The Russian students in the group were concerned that they might interfere with what the other groups in the class were doing for their projects and therefore wanted to focus their topic based on this input. They had changed the context of their work from a group project to a class project.

Week 3 (Oct. 13th - Oct. 19th)

During Week 3, only seven messages were posted on the WebBoard: 4 messages by American students and 3 by the Russian students. The American students, frustrated by the lack of responses from the Russian students, only posted 4 messages during the week compared to15 messages the week before. Also, the division in the American group was more apparent, with the graduate student desperately trying to divide the work between the group members and trying to get everything together. The graduate student also made an attempt to explain to the Russian students what Americans thought about collaboration and that they were deliberately making an attempt to include everyone in the discussion.

Week 4 (Oct. 20 - Oct. 26)

During Week 4, a total of 9 messages were posted: 6 by American students, 2 by Russian students, and 1 by the instructor. The American students removed the emphasis on "image of enemy," an idea forwarded by the Russian students from the proposal. The Russian students always took for granted that it would be the focus of their study, and the American students thought it was just one of the ideas forwarded by the Russian students that was open for discussion. Neither group talked about it specifically, and it was removed from the proposal. This left the Russian students in the dark, since they were no longer sure of the aim of the project.

Moreover, interaction among the different Russian groups in their class influenced their collaboration with the Americans. The American students did not really know what the other groups were researching other than what they could see on the WebBoard, as

expected of them by the Russian students. During this week, the American students replied as a group to the Russian students for the first time since the start of the discussion; however, it is important to note here that when the American group replied to the Russians students as a group, the post was signed off by three American students instead of all four. This suggests a breakdown among the American students in terms of group work.

Week 5 (Oct. 27 - Nov. 04)

A total of 15 messages were posted during the fifth week: 11 by American students, 3 by Russian students, and 1 by the instructor. The message by the instructor tried to please everyone, and it wasn't really clear on how the students should proceed. It failed to provide the direction that the students needed at that point. Something really interesting was happening at this point. The American graduate student ended up working on the proposal all by herself and was frustrated by the lack of response from the undergraduate students. So she decided to "scare the shit out of them" and purposely did not come to class the day the proposal was due.

In the last posts, the students mentioned that they should distribute the work and that the purpose of the distribution of work was not to limit collaboration but to move forward quickly as the deadline was approaching. Yet, it was obvious that the group work no longer required collaboration among the Russian and American students, since they had decided to split the work so that the American students worked on Art section, and the Russian students worked on News section, and then put it all together in the final paper.

Table 2 shows a list of contradictions identified from this analysis. Table 3 lists the total references to propaganda made by the students during the five weeks.

Table 2: List of contradictions for Group P.

No.	Contradiction	Element(s) of Activity System
1	Major of students in a group (Liberal Arts/Engineering)	Community/ Division of Labor
2	Means of communication (WebBoard/Email/IM/F2F)	Tool
3	Software (WebBoard/Email)	Tool
4	Structure of Task/Assignment (Open-ended/Closed-ended)	Tool/Object
5	Reason for taking the class (Required/Not Required)	Division of Labor/Community
6	Group Size (Small/Big)	Community/Division of Labor
7	Readings (Pertinent/Not useful)	Tool
8	Schedule (American/ Russian)	Rule/Tool
9	Interaction time (Small/Large)	Community/Division of Labor
10	Discussion on WebBoard (Project based/Personal)	Community/Object
11	Nature of classes (F-2-F/Online)	Rules
12	Discussion (F2F/Online)	Tool/Rules
13	Grading (Group/Individual)	Rules/Object/Tool
14	Communication Frequency (Frequency/Infrequent)	Rules
15	Communication Norms (Group email/Individual email)	Rules

Table 3: References to Propaganda.

Total References to Propaganda
1. Propaganda tools
2. Propaganda styles
3. Character of propaganda
4. Propaganda during
5. Type of propaganda
6. Use of propaganda
7. Transformation of propaganda
8. Area of propaganda
9. Propaganda through artwork
10. Progress in propaganda
11. Analysis of tools and content of propaganda
12. Technological metamorphosis of propaganda
13. History of propaganda
14. Development of propaganda
15. Means of propaganda
16. Attributes of propaganda
17. Change in propaganda
18. Evolution of propaganda
19. Categories of propaganda

Reflections: Learning to Collaborate and Collaborating to Learning

The American and Russian students were involved in two mutually co-existing activities: they were learning to collaborate using an online environment and simultaneously collaborating with one another to learn from each other. They had to work together to reach a decision about what they would do their project on, and also work on their communication and collaboration skills. This did not prove to be an easy task for them. They had to understand the *affordances* of the tools and artifacts available to them and use them in a meaningful manner. As has been reported in other studies, the students either failed to grasp the "affordances" of the learning environment, or they embraced them in ways that the designers of the environment had not foreseen (Halloran, Rogers, & Scaife, 2002; Holland & Reeves, 1996; Newstetter, 1998).

The Becoming of An Activity

Every activity is in a constant state of flux. A tool/artifact becomes the object, an object becomes the activity, and the activity changes, since an activity is only a sum total of its parts and if a part changes so does the activity. Therefore, an activity is always in the *becoming* rather than in the being. For instance, the definition or a common understanding of propaganda was seen as a tool at the start of the activity. As the activity progressed, it was apparent that the students had to come to an understanding of propaganda, so it became an object. Similarly, the instructions given by the instructors to the students were supposed to be a tool, but they also became an object, and the students tried to make sense of what the instructors were trying to say. Also, an activity may be composed of other activities and so it is more like a network of activities rather than a single activity. Halloran, Rogers, and Scaife (2002) have proposed the concept

of Activity Space to capture these dynamics, and Hyppönen (1998) has proposed the concept of Network of Activity.

Some Design Implications

Let us look at some implications for design that emerge from this analysis.

Nature of Tasks

The structure of the task has a profound impact on how the activity progresses. Let us look at two specific examples to understand the role of the structure of tasks in the GCP. In the first case, in Fall 2000, students in GCP were assigned a narrowly defined task where they had to compare Russian and American greeting cards on two websites. The project was to go to an online e-postcards site determined by the instructors and compare the Russian and American postcards. When I asked American students from this semester if they had any problems working with their Russian counterparts, they said they had none. From the transcripts on the WebBoard and from the interviews, it is evident that groups in this class had an easier time in completing their tasks as compared to other groups in some other classes.

On the other hand, Group P in the example above was tackling a task that had no boundaries. It was a true ill-structured task - "come up with an analytical report and a digital artifact," in an ill-structured domain - "propaganda," and ill-structured tasks in an ill-structured domain influenced collaboration and learning, and are closer to a real-world problem (Koschmann, Kelson, Feltovich, & Barrows, 1996). The groups in this class ran into various communication and collaboration problems. So what went wrong? Why did the group have so many problems? The biggest problem faced by the group was that the technology proved to be a hindrance in synthesizing the multiple perspectives forwarded by the group members:

1. Less access to technology meant a communication lag that resulted in almost no feedback from the Russian students.
2. Complex structure of the WebBoard led to decreased usability and resulted in students posting and reading the wrong thread.
3. Students had different expectations of collaboration and communication, which are influenced by experience with technology.

This observation highlights a recurring tension that has profound implications for the design of online collaborative environments. If you design tasks that are open-ended, you have to make sure that tools available in the setting afford the communication and collaboration needed for the task; and if you design tasks that are too close-ended, collaborative-learning opportunities may be lost.

Scaffolding

A related issue is scaffolding. If things are not moving in the right direction, when should the instructors intervene and what should be the nature and level of scaffolding or intervention? Koschmann et al. (1996) summarize the requirements for instruction in an ill-structured domain with ill-structured activity:

[I]nstruction should facilitate adaptability in all these respects: It should build upon preexisting foundations, monitor for and encourage correction when misconceptions are identified, and foster the development of cognitive flexibility so that the learner's efforts toward learning have the greatest possible effect. (p. 91)

For instance, in my example from the GCP, there was little or no scaffolding provided by the instructors. Their intervention was either encouragement or logistical direction, but not help in bridging the misconceptions between the Russian and the American groups. The American students never found an answer to: How did their view of propaganda differ from the Russian students? Why did the Russian students reply as a group, and why did they want the American students to reply as a group too? The instructors were well aware of the problems encountered by the students, yet they didn't directly intervene because they believe in the teaching philosophy of "experiential learning" — the best way to learn about something is to experience it first-hand. They also believe that by going through the whole cycle of working on the project and by dealing with their problems, the students will be able to apply the knowledge and experienced gained in the real world if they face a similar problem later on. This may or may not work, and as can be seen from this example, scaffolding, especially about cross-cultural differences in the understanding of "propaganda," would have been an important lesson.

Technology

I believe there is an important lesson to be learned here in terms of how technology can influence collaboration in an ill-structured domain with an ill-structured task. The lesson is that mediation by technology might not always be useful in such a scenario and may actually obstruct interaction among students. Of course, on the surface the solution seems very simple - increase the access to computers for Russian students and all problems of communication and collaboration will go away. But that may not necessarily be the case. Through the interviews and through participant observation, I've realized that, in certain cases, face-to-face collaboration *may* be essential for open-ended and ill-structured tasks. The American students actually realized this by the end of the semester, and their face-to-face interaction increased substantially. One student reported having met for 15 hours straight with her group in order to get her work done and regretted that they did not meet face-to-face before. To alleviate communication and collaboration problems, a lot of the American student groups in the past have tried using instant messaging in addition to WebBoard and emails, and even though that helped, it did not eliminate the need for face-to-face meetings. The participation by Russian groups can

also serve as proof that face-to-face meetings lead to more productive collaboration as synchronous or asynchronous online communication.

Groups

For a group to work together on a task there needs to be what Salomon (1992) calls "genuine interdependence." Speaking from his personal experience, Salomon asserts that there is little success between collaborative teams in terms of pooling together their abilities, in terms of true collaboration, and in terms of learning outcomes. Cohen (1994) argues that when designing a task for cooperation, it is important to make sure that there is a reason for the group to interact:

One may give a group a task, but, unless there is some reason for the group to interact, students may well tackle the task as individual work. This is especially the case if each individual must turn out some kind of worksheet or report. This is also the case if the instructor divides the labor so that each person in the group does a different part of the task; the group has only to draw these pieces together in sequential fashion as a final product. The consequence of either of these patterns is that there is comparatively little interaction; people do not gain the benefits of using one another as resources, nor is there any basis for expecting the prosocial outcomes of cooperation. (p.11)

Since the tasks in the GCP are open-ended, the students themselves decide what role each of them will play and regularly divide the work among them based on their skill-sets. Invariably, the division was into a web designer, a researcher, and two writers. The engineering students took web designing, and the liberal arts students preferred writing. Neither learned much from the other and lost a valuable opportunity. In some instance, a single student ends up doing the majority of the work since the other students didn't finish their parts of the task.

Therefore, the way the instructors set up the problem, suggest procedures, and specify roles can do much to create interaction that is markedly superior to that produced by simply asking a group to reach consensus. The dilemma is that if teachers do not structure the level of interaction, they may well find that students stick to a most concrete mode of interaction, and if they structure the interaction too much, they may prevent the students from thinking for themselves and thus gaining the benefits of the interaction.

Scheduling and Logistical Factors

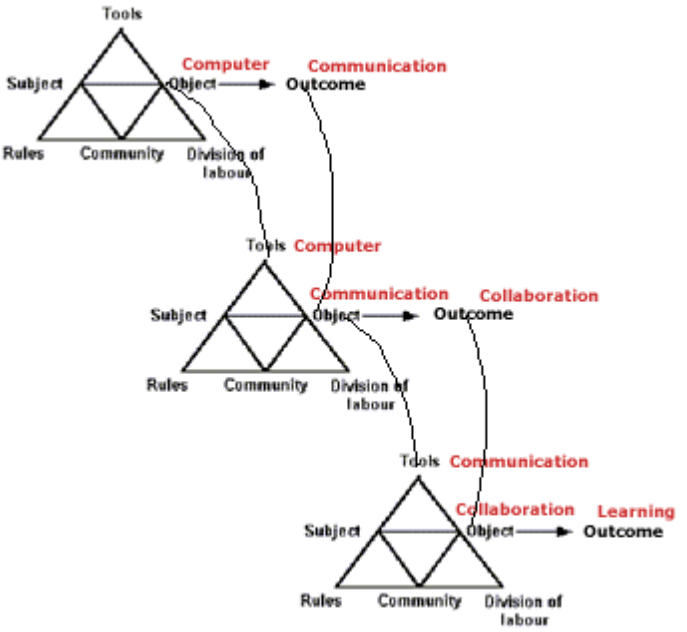
A number of factors not in the control of the instructor play a crucial part in an environment like the GCP. For instance, the schedule of classes, the class timings, the course number under which it is offered, and the length of interaction were some factors that were determined by the department through which the class was offered. This in turn determines the class size, the class composition, and to some extent the prior knowledge of the students coming into the class, and their expectations from the class. These factors play a far more decisive role in combination than the instructors would prefer, but there

is no way to control them. The only way to curb their influence is by design iterations - learn by experience how each factor influences the setting and then modify elements of the setting to make them work together (Miller, Trimbur, & Wilkes, 1994). Monitoring a discussion software can also prove to be a daunting task for the instructors once students start posting in different conferences and threads.

A Framework for Online Collaborative Learning: The Waterfall Model

The Global Classroom Project and most other web-based distance learning classes rest on a technology-driven supposition: computers will lead to communication; communication will lead to collaboration; and collaboration will lead to learning. Even though this is a simplistic interpretation, it can be extremely helpful in analyzing an online collaborative-learning environment. Using the Activity System as an analytical tool, we frame each step described above as an activity (Figure 6). As can be seen from Figure 6, the computer, which is an object in the first system, becomes the tool in the next activity system, and communication, which is the outcome of the first activity system, becomes the object in the second system leading to collaboration. In the succeeding activity system, communication is the tool, collaboration is the object, and the outcome is learning.

Figure 6: Waterfall Model of Online Collaborative Learning



Theoretically, the implementation of the GCP follows this model closely but not entirely. In the next section, I've identified several factors that result in a breakdown in the process and their possible solutions.

Triangle One: Computer/Technology as the Object

Contradictions

In the GCP, the breakdown starts in the first activity system. The use of computer is mediated by access to technology. For the Russian students, this is a problem because they have limited access to computers. Restriction in access proves critical since it creates a communication lag between American and Russian students, which in turn restricts collaboration. In addition, the Russian students also have to overcome a language barrier since English is not their native tongue, which inhibits synchronous communication.

Possible Solutions

The easiest solution to suggest is to increase access to computers for the Russian students. It would also be helpful if American students were told beforehand that Russian students have restricted access to networked computers and that synchronous communication is not feasible due to low access and language barrier.

Triangle Two: Communication as the Object

Contradictions

The use of computer as a tool also has some inherent contradictions, the first of which is the use of WebBoard. The use of WebBoard creates a learning curve for both the American and Russian students. At the start of their projects, when the students are deciding upon a topic to investigate, using the WebBoard creates a lag in communication. A lot of American groups therefore supplement the use of WebBoard with face-to-face meetings. American students find this especially discomforting since they are so used to emails, and they don't see a reason for using WebBoard. Another problem with using WebBoard is that it does not lend itself well to all kinds of discussions. There are other technical and usability problems associated with the use of WebBoard that were discussed in a previous section.

Possible Solutions

One possible solution is to test other software for feasibility and usability for use in the

class. Training students on using WebBoard can also curtail problems associated with the usability of WebBoard.

Triangle Three: Collaboration as the Object

Contradictions

The use of communication as a tool for collaboration is influenced to a large extent by group size and the nature of the assignment. If the group size is small, communication and collaboration are easier. Also, an assignment that has been tailored to involve all the group members leads to a more fruitful collaboration. Since the goal is to learn through interaction, the more students interact with one another, the more opportunities there will be for learning. Collaboration is also influenced by differences in communication styles. For example, Russian students post as a group whereas the American students post individually. In a sense, the American students look at communication from a conversational point of view, something they have learned from using chat and IM. On the other hand, for most of the Russian students email is still an extension of normal/snail mail. This difference is also visible when you compare the posts of Russian and American students. The posts from the Russian students are invariably longer and more formal in writing style since they first discuss a topic among themselves and then post it. To compensate for their formal style, the Russian students use a lot of smileys and emoticons. In some classes, communication is also impeded by a difference in class schedules. For instance, one semester, the American students met on Tuesdays and Thursdays, whereas the Russian students met on Saturdays and Tuesdays. This was coupled with the fact that there is an eight-hour time difference between Russian University and American University.

Possible Solutions

Collaboration among students is determined by the nature of the assignments given to the class and upon the extent of communication required to complete the assignment. Since the activities in the GCP are typically open-ended and require a large amount of communication, collaboration usually suffers. Changing the nature of the activity can drastically change collaboration among students. If an activity requires limited communication between Russian and American students, which can be achieved given the current constraints, student satisfaction will increase. Giving individual assignments or specific breakdowns of group work among the members can enhance individual learning among students. Learning how to work with groups, especially with students from other cultures is the goal of the class. Readings that specifically discuss these aspects can be assigned to the students. Students can be given scenarios to work on where they can apply this knowledge - similar to case studies. After doing the case studies, when they interact with other students in their group-both in their respective countries and with students from the other country-there will be a greater chance for learning to take place.

Activity-Guided Design: A Framework for Design

Use of Activity Theory in design of educational technology and CSCL has been proposed and examined before[5]. Bellamy (1996) proposed that:

Activity Theory can inform our thinking about the process of designing educational technology to effect educational reform. In particular, through emphasis on activity, it becomes clear that technology cannot be designed in isolation of considerations of the community, the rules and the divisions of labor in which the technology will be placed. (p.127)

Bellamy (1996) also proposes three principles for the design of educational environment based on Vygotsky's work: authentic activities, construction, and collaboration. Barros and Verdejo (2000) show how activity theory can be used to model learning experiences and for designing software to support collaborative discourse (also see, Verdejo, Barros, & Rodriguez-Artacho, 2001). Gifford and Enyedy (1999) proposed the idea of Activity-Centered Design (ACD). They explain that:

Instead of placing either the teacher or the students at the center of the model, we propose that the focus should be to design activities that help learners develop the ability to carry out socially formulated, goal directed action through the use of mediating material and social structures. From this perspective both the social actors, and cultural tools are seen as resources that the students coordinate during activity. In the Activity-Centered Model, as students move through the activities they progress from being partial participants, heavily dependent on the material mediation of tools, to full participants, able to more flexibly use the cultural tools of the normative practice. (p.193)

Enyedy and Gifford propose the ACD as a framework for both the design and analysis of CSCL environments.

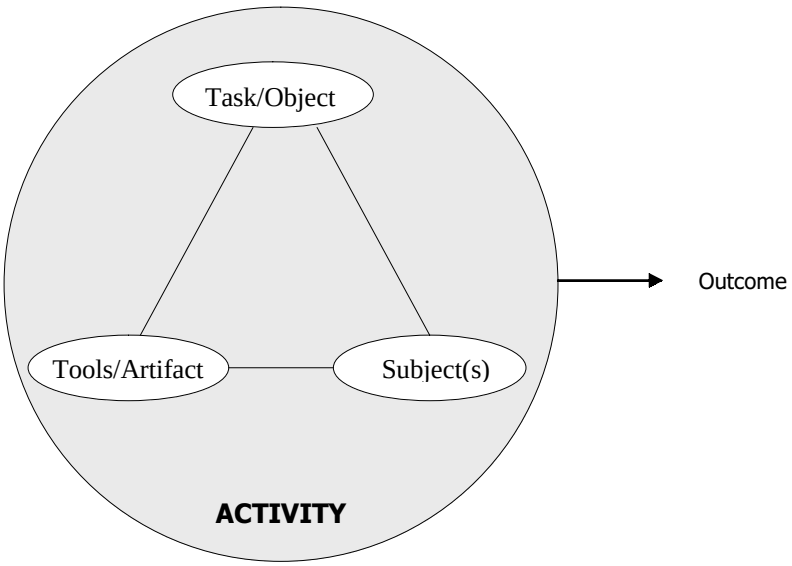
Although the theoretical principles underlying ACD and Activity-Guided Design (AGD) are largely the same, there are some significant differences in the framework I propose. In AGD, activity is not at the center of the framework but is the context for the overall design (Figure 7). As a matter of fact, no element is at the center, but they together make up the whole activity. As Nardi (1996a) explains:

Activity theory, then, proposes a very specific notion of context: the activity itself is the context. What takes place in an activity system composed of objects, actions, and operation, is *the context. Context is constituted through the enactment of an activity involving people and artifacts. (p. 76)*

Therefore, when I talk about Activity-Guided Design, I'm thinking of an activity as the context or "collaborative contexts," as Hoadley (2002) calls them, i.e., "activities and cultural structures that support collaboration leading to learning." Second, I propose AGD as a framework for design *only* and not as a framework for analysis. I believe that the Activity System (Cole & Engeström, 1993) does a better job of analyzing an activity. I do not propose this framework as the only way or even the "right" way to design a learning environment but as an alternative to learner-centered (there is no one or "typical" learner) or knowledge-centered (there is no knowledge "there" but it is produced) design that can be especially useful for online collaborative-learning environments. The design of a task or assignment requires attention to the tools that will be used, the participants that will collaborate, and the outcomes of the task. The idea is to design an activity in the sense of cultural-historical activity or at least to make an attempt in that direction based on a model that can attempt to predict the outcomes. There will always be trade-offs in design (Pea, 1993), and iterative design of learning environments (Bruckman, 2002) and design experimentation (Brown, 1992; Hoadley 2002) can provide means to find the optimum solution.

The real test of the success of any educational technology starts once the technology is used in its natural setting and environmental factors start interacting with the technology. One obvious solution to implement the technology successfully would be to try to control as many factors as possible every time the technology is used. This is neither feasible nor desirable. The other alternative is to design for change and provide multiple affordances for students. In addition, it is essential to continually evaluate the environment after it is implemented and iterate to find the optimum solution. Moreover, as projects are scaled up to real-world context, factors that can affect a class may not always be predictable, and the pragmatic solution is to design for change, catalogue all possible influences, and improve upon them every semester. This case study of the GCP identifies the importance and need for iterative design of learning environments.

Figure 7: Activity-guided design framework.



Conclusion

Within the realm of sociocultural theories of learning, I've identified Activity Theory as a theory that can be successfully applied to understand a complex learning environment and an Activity System to analyze it. I've also attempted to explain how the concept of activity can be used to design a learning environment. During my analysis, I've made a conscious effort to try to present evidence from both the micro and macro level of activity, therefore, the emphasis on the message-by-message interaction among the students on the one hand, and the Waterfall Model on the other; as McDermott (1993) proposes, "By institutional arrangements, we must consider everything from the most local level of the classroom to the more inclusive level of inequities throughout the political economy (preferably from both ends of the continuum at the same time)" (p.273). The Global Classroom Project is an outcome mediated by online activities such as emails and postings on WebBoard; offline activities such as face-to-face interaction and class discussions; and the interaction of online and offline activities—the in-between activities—emails that lead to face-to-face interaction or postings that extend class discussions; and, also things that are left unsaid or unacknowledged.

In a simplistic manner, several findings from the study can be identified: the affordance of the computer for communication may not be sufficient for ill-structured and open-ended tasks, and the affordance for communication needs to be supported by access to computers, user-friendly software, and by designing tasks that can be supported by the technology that is available. Groups that show a natural tendency to breakdown their tasks into easily manageable parts that can be supported by the current technology usually succeed in completing the tasks, and groups that fail to recognize the limit placed on collaboration by the technology are less successful at their tasks.

One topic that I've not talked about much is "what were the learning outcomes of the GCP?" It has been hard for me to identify specific learning outcomes in the study, as I started out with research questions that encouraged a contextual investigation and led me to explore factors that would lead to learning, namely, communication and collaboration, and failing which there can be little expectancy of learning outcomes. The use of computers (WebBoard), communication using the WebBoard, and the collaboration resulting from that communication are elements of the environment that got my attention as precursors to learning outcomes.

Salomon (1992) has differentiated between effects *of* technology and effects *with* technology. According to him:

Effects with *are the changes that take place while one is engaged in intellectual partnership with peers or with a computer tool, as, for example, is the case with the changed quality of problem solving that takes place when individuals work together in a team . . .and [E]ffects* of *are those more lasting changes that take place as a consequence of the intellectual partnership, as when computer-enhanced collaboration teaches students to ask more exact and explicit questions even when not using that system. (p.62)*

I believe both of them are essential if learning is to take place. Let us look briefly at some effects *of* and some effects *with* technology in the GCP.

Effects with technology are easy to identify: communication among students and instructors using WebBoard, discussions on readings on the WebBoard, exchange of documents among students, sharing of resources among students, e.g., URLs. Effects of technology are usually difficult to identify (Kolodner & Guzdial, 1996), but here are a few examples:

- Jason, who just graduated and is now working fulltime, says that he learned how to collaborate across time differences from the GCP. His work requires him to work on a project where a part of his team is on the West Coast. He has realized how important it is make sure that the other team gets his part of the work in time and is able to complete their work without any problem.
- Amy, another graduating student, says that she learned a critical lesson the hard way. She has realized that social interaction, especially upfront, is essential for productive group work later on.
- Cathy, who wants to be a high school math teacher after she graduates, believes that she has learned lessons in cross-cultural communication that will certainly help her in dealing with the diversity in her class.
- Many other students mentioned that they learned how to work in a group, although they learned it the hard way.

Changes in the Global Classroom Project

Over the years, several changes have been made to the GCP based on the feedback the instructors have received from the students and from their own experiences. The ratio of face-to-face classes has been increased. "Ice-Breaker" questions have been introduced at the start of online collaboration to increase social interaction. Students now have to sign a contract among themselves describing group responsibilities and promising to fulfill their roles. Student photos are put on the Web so that students can put a face to a name.

Since this study, two notable changes have been made: The assignments have a narrower focus so that they can be completed within the timeframe of the class, and pointed instructions are given to students on how to conduct research and the instructor meets privately with the students to help them in their research.

The findings further identify the benefits of continually evaluating an environment after it is implemented in a natural setting and of designing the learning environment flexibly. We have to think of a learning environment as an activity system, and the activity system as a distributed intelligence system. This has implications for both the analysis and design of a learning environment (Pea, 1993). During the analysis, we have to look for instances of intelligence that are distributed in the environment—in the artifacts, the students, and the rules. While designing the environment, we have to make sure that there is a process in place for the distributed intelligence to take place and for students to accumulate it.

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Endnotes

[1] The term Activity, when used in this chapter, has this specific meaning; whereas task, assignments, projects, and goals represent the object of the activity.

[2] To protect the privacy of participants, I've withheld some key information about the project. All the names of people used in the paper are pseudonyms.

[3] I've used contradictions and breakdowns interchangeably here, although they have slightly different connotations (see Bødker, 1996).

[4] It is not possible to reproduce the messages in the "Proposal Discussion" thread because of length restrictions for the chapter.

[5] Michael Cole (1996) proposed the idea of using Activity Theory to design learning environments. My focus here is on studies specific to technology-supported and CSCL environments.