DOCUMENT RESUME

ED 470 184 IR 021 626

AUTHOR Wang, C. Y. Janey

TITLE Listen to Me: Four Web-Based CSCL Students' Perspectives and Experiences in Group Collaboration and Knowledge Construction in Cyber Space.

PUB DATE 2001-11-00

NOTE 11p.; In: Annual Proceedings of Selected Research and Development [and] Practice Papers Presented at the National Convention of the Association for Educational Communications and Technology (24th, Atlanta, GA, November 8-12, 2001). Volumes 1-2; see IR 021 504.

PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE EDRS Price MF01/PC01 Plus Postage.

DESCRIPTORS Computer Mediated Communication; *Cooperative Learning; *Distance Education; *Group Activities; Group Discussion; Instructional Design; Nontraditional Education; *Student Attitudes; *Student Reaction; *Web Based Instruction

ABSTRACT

The main purpose of this Naturalistic inquiry study is to explore four ethically diverse Web-based Computer Supported Collaborative Learning (CSCL) students' perceptions of and experiences in knowledge construction and group collaboration. Findings suggest that individual and group successes are interconnected and rely on successful negotiation and construction of shared knowledge among group members. While effective collaboration and knowledge construction among people of diverse backgrounds may be challenging, Web-based collaborative learning among similar populations may pose additional challenges than in face-to-face settings due to the absence or limited non-verbal communication cues. Educators interested in designing online courses for students of diverse backgrounds should not only consider the cognitive but also the social and cultural aspects of communication. Future studies should focus on exploring effective course design to facilitate both cognitive and social aspects of learning and to optimize individual as well as group learning. (Contains 11 references.) (Author/AEF)

Listen to Me: Four Web-Based CSCL Students' Perspectives and Experiences in Group Collaboration and Knowledge Construction in Cyber Space

C. Y. Janey Wang
The University of Texas at Austin

Abstract

The main purpose of this Naturalistic inquiry study is to explore four ethnically diverse Web-based Computer Supported Collaborative Learning (CSCL) students' perceptions of and experiences in knowledge construction and group collaboration. Findings suggest that individual and group successes are interconnected and rely on successful negotiation and construction of shared knowledge among group members. While effective collaboration and knowledge construction among people of diverse backgrounds may be challenging, Web-based collaborative learning among similar populations may pose additional challenges than in face-to-face settings due to the absence or limited non-verbal communication cues. Educators interested in designing online courses for students of diverse backgrounds should not only consider the cognitive but also the social and cultural aspects of communication. Future studies should focus on exploring effective course design to facilitate both cognitive and social aspects of learning and to optimize individual as well as group learning.

Introduction

Assisted by technological advances, Web-based instruction is widely employed in preparing learners for "future responsibilities" and "success in life" (Dewey, 1938). To meet individual learner's needs while optimizing their strengths and talents, Confucius said, instruction should be tailored to meet individual learner's needs.

A plethora of distance-learning research studies have been conducted and Computer Supported Collaborative Learning (CSCL) has been one of the major focuses. However, most CSCL studies have addressed issues regarding tools, design, course impact, and evaluations from instructors', administrators', or instructional designers' observations. Few of these studies, however, have addressed these issues through the lenses of students. I became aware of the importance of studying human interaction (as opposed to focusing solely on technical functionality) from participating in the design of the CSCL course.

Conducted within the constructivist paradigm, this research focused on four ethnically diverse students' perceptions of and experiences in a computer-supported collaborative learning class where a major aspect of the course design was based on constructivist theory. The purpose of the study is to explore students' perspectives on group collaboration and knowledge construction in a CSCL class offered in Fall 2000 at University of Texas.

Naturalistic inquiry was employed as the research strategy for this study. Egon Guba referred to this inquiry method as the "constructivist inquiry. As described by Erlandson et al.(1993), naturalistic paradigm assumes that there are "multiple realities;" affirms the "mutual influence that researcher and respondents have on each other;" and assumes that "total generalization is never possible."

In order to avoid framing interviewees, this study was guided solely by one focus question, "How did you perceive the group collaboration and knowledge construction work in your CSCL 2000 class?" Group collaboration and knowledge construction were focused upon because they were the two essential course objectives.

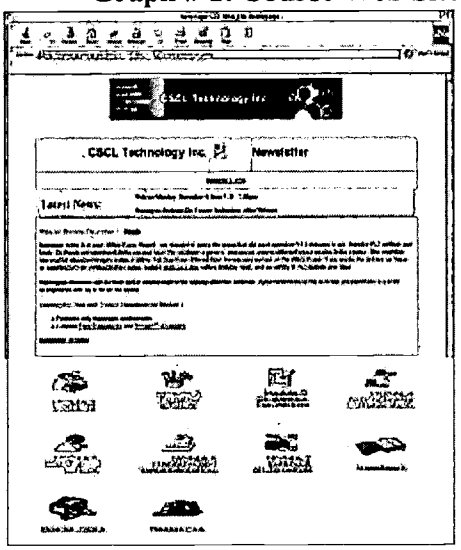
Study Context

CSCL is derived from CSCW (Computer Supported Collaborative Work), which was named after "Office Automation" (a system that aimed at facilitating businesses for efficient and effective work). The main differences between CSCL and CSCW are their contexts and purposes. CSCW focuses on getting work done and is mainly employed in business settings where sectors, departments, and companies collaborate to complete projects and make decisions. CSCL focuses on learning and is employed in educational settings where collaborators in the learning community construct knowledge and accomplish joint projects. Resta, et al. (1999) said CSCL maybe used as the "catalyst for changing teacher practice" as teachers are "continually revising their curriculum design" based on their experiences and "emergent instructional needs" (p. 492). Such curriculum, rather than relying on a set plan to achieve predetermined outcomes, provides a platform for discourse and interaction between and among students, peers, and course-content experts. The CSCL curriculum enables knowledge construction and problem-solving

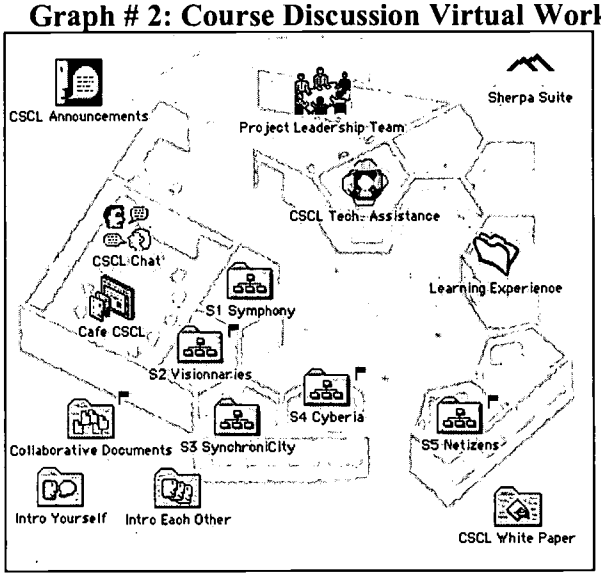
among collaborators of diverse backgrounds. The instructors' role is transformed from that of a "sage on the stage," to that of a "guide on the side."

A major goal of this CSCL 2000 course was to assist learners to understand, create, and reflect through the engagement in projects similar to real-life. A variety of instructional material, resource links, and task instructions were available on the Web via WebCT courseware. The course content was divided into seven modules, a course handbook, a course tool page, and a resource link page (Graph #1). Each module contained tasks requiring learners to work both individually and collaboratively in completing tasks. Collaborative tasks included writing a topic paper, designing a tour in a MOO (Multi-user Object Oriented) virtual environment where users log onto a site to experience a text -based virtual reality environment, designing a WebQuest and working collaboratively with cross-team members to develop a final project utilizing a schedule planning tool for coordination (jointplanning.com). A WebQuest is an inquiry activity that is based on realistic and engaging tasks and the resources drawn by learners are from the Web. Its focus is on "using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis and evaluation"(Dodge, Bernie).

Graph # 1: Course Web Site



Graph # 2: Course Discussion Virtual Workspace



Module One provided an overview of the course goals, objectives, required entry skills, technology requirements, course activity schedule, and other information helpful to the students in preparing to complete the course. Module Two provided opportunities for online socialization through introduction of the course mission, the online environment, and technological tools, while encouraging students to socialize with peers through a class-wide introduction activity. Modules Three, Four, and Five enabled students to exchange information and construct knowledge through online communication, search and exchange information, perform assigned tasks, and provided mutual support and cooperation among online team members. Students worked collaboratively to navigate and explore various network environments, utilizing collaborative tools to plan group projects, schedule meetings, negotiate tasks, develop ideas and concepts, make decisions, and edit finished projects as a group. Participants engaged in building a collaborative team, utilizing collaborative writing strategies, exploring synchronous online collaborative learning, and inquiring skills to develop a WebQuest, a Web-based activity that involves searching, reading, analyzing, and dialoging with peers to solve problems and create Web pages. The course handbook offered a virtual office tour, an organization chart about this virtual company, a directory of both students and staff, tips on working collaboratively, topics for collaborative work, and project examples.

To accomplish course requirements, online socialization and communication were essential. Extensive cooperation and collaboration among learners was necessary. A course discussion virtual workspace (Graph #2) offered students the opportunity to exchange information, discuss tasks, upload files, work collaboratively, and socialize both asynchronously and synchronously. CSCL Technology Company was employed as a metaphor to indicate a real world professional setting. Members of the class were divided into five virtual teams located in suites. There are two to three offices within each suite. Two to three students shared the same office and about six to seven students shared the same suite. Diversity (ethnic background, gender, and on-campus or tele-campus access) was considered when assigning students their suites at the beginning of the semester.

There were five Webcasts (video-conferences) throughout the semester. On-campus students had the opportunity to attend on campus while tele-campus students attended through the Web. Additional modes of participation included telephone call-in and synchronous chat.

The product of the course was the accumulated contributions from learners through an emphasis on collaborative learning. Learners engaged in a variety of projects in order to understand the CSCL environment, create projects utilizing tools for collaborative learning, and reflect their own learning through personal journaling. Hence, course success resided completely on the students' success in collaboration.

Method

Naturalistic Inquiry

Naturalistic inquiry was employed as the research strategy for this study. Egon Guba (1981) referred this as the "constructivist inquiry." Guba pointed out that the "naturalistic inquiry is not equivalent to qualitative inquiry." Naturalistic inquiry utilizes "human instrument" – the researcher, with findings "created" through the interaction between the researcher(s) and participants (Erlandson, et.al., 1993 p. ix-xv). The naturalistic paradigm:

1. **Assumes that there are "multiple realities"** – While the Positivist view holds that there is a single objective reality, the naturalistic view assumes that "all the 'parts' of reality are interrelated.
2. **Affirms the "mutual influence that researcher and respondents have on each other"** – Naturalistic theorists asserts that "mutual simultaneous shaping" (the interaction between researchers and respondents) is unavoidable and the researcher must find ways to "control the biases that do not inhibit the flow of pertinent information (p. 15).
3. **Assumes that "total generalization is never possible"** – Unlike most scientific studies which seek to generalize findings, naturalistic inquiry seeks to include "thick description of one set of interrelationships in one social context" to allow "transfer of understanding" for readers across social contexts (Guba, 1981).

Guba, (1981) said that quantitative and qualitative methods can both be used in a naturalistic paradigm but qualitative research method is "generally preferred." He said that while "relevance" and "rigor" are both important, "relevance" is more important in the naturalistic paradigm. In the naturalistic paradigm, "emergent theory" is preferred," according to Guba. While all researchers use a variety of instruments to obtain data, in the naturalistic research, the "primary research instrument is the researcher" and is conducted in a "natural setting" rather than a "laboratory or controlled setting."

Constructivism

The philosophy behind the design of the CSCL course is Constructivism. The philosophy behind the design of the current naturalistic study is also Constructivism. Fosnot (1996) said Constructivism is a theory about knowledge and learning that explores both "what knowing is and how one comes to know." This theory, he said, describes knowledge as "temporary, developmental, nonobjective, internally constructed, and socially and culturally mediated." Constructivists view learning as a self-regulatory process in which learners constantly make meanings to construct and gain new knowledge and insights.

Jonassen (1994) identified the following elements of constructivist design: (1) multiple representations of reality, (2) representing the complexity of the real world, (3) emphasizing on knowledge construction instead of knowledge reproduction, (4) emphasizing authentic tasks in a meaningful context rather than abstract instruction out of context, (5) preferring real world settings to predetermined sequences of instruction, (6) encouraging thoughtful reflection on experience, (7) knowledge construction based on both content and context, (8) knowledge construction arrived at collaboratively rather than competitively.

As Duffy and Jonassen (1992) indicated, "Constructivism provided a very important vehicle for establishing the dialogue ... the information age and the technological capabilities have caused us to re-conceptualize the learning process and to design new instructional approaches." (p. ix) Constructivists believe that "there are many ways to structure the world, and there are many meanings or perspectives for any event or concept. Thus there is not a correct meaning that we are striving for." (p. 3)

The study of human settings and interactions is a complex task. No two humans hold identical realities or experiences. It is my purpose to better understand what CSCL students have encountered, how they reacted or responded to certain situations, how they interacted with each other, what they perceived as worth knowing and learning, what particular incidences they perceived as worth discussing, and any other reflections they have had.

Participants

Purposeful sampling method to achieve as maximum a variation as possible within the study population was employeded in recruiting participants. As described by Merriam (1998), purposeful sampling is based on the assumption that the researcher wants to discover, understand and gain insight from participants. Therefore, selecting a sample that researcher can learn the most from is important (p. 48).

Study participants were recruited on a volunteer basis. This study focused on four female graduate students including a 47-year-old Caucasian, a 24-year-old Asian, a 36-year-old Hispanic American, and a 32-year-old Indian who were all enrolled in a graduate Web-based CSCL (Computer Supported Collaborative Learning) course offered in Fall 2000 at the University of Texas (UT) College of Education. These participants, registered through UT-Austin (on-campus students) and UT-Brownsville (Tele-campus students), participated in two interview sessions and numerous e-mail communications with the researcher from mid-October to mid-December, 2000.

Data Collection

For data triangulation, three data sources were obtained: transcripts of interviews; participants' concept maps and explanations; online course data; and transcripts of follow-up telephone or e-mail communications. Additional data were derived from the researcher's observation notes and the reflective journal. Primary data sources include interview transcripts, participants' explanations of their concept maps, and documents obtained directly from participants. Secondary data include online course data chosen by participants, researcher's transcript summaries, and researchers' observation notes and research journal.

Six students were initially requested to participate. Four students among the eight agreed to participate. These participants represented divergent levels of commitment in class as measured by students' online interaction and attendance from September 1st to October 1st 2000. Informed consent forms were sent to participants via e-mail with the request that they read the form carefully. The consent form that explained the purpose of the study, participation procedures and methods, study timeline, benefits and any known risks of participation, and estimated time involved in the two interview sessions and e-mail communications. The researcher collected and securely filed these forms for future reference.

Prior to the first interview, participants were provided the study focus question: "How did you perceive the group collaboration and knowledge construction work in your CSCL 2000 class?" The participants were ensured of their anonymity in the study and the right to withdraw at any time during the study; participants were continuously asked if they would like to add, delete, or make comments.

Participants were interviewed separately. To ensure that participants' stories remained the sole focus, I explained the basis of naturalistic inquiry prior to the interview, reminded them that their perceptions and experiences were the sole focus of my study, and assured them that they could express themselves freely. To assure that my understanding matched what they had hoped to express, I asked for clarifications and explanations. I asked them to expand and provide examples based solely in response to what they had said and refrained from framing their thoughts by using any pre-determined questions. Throughout the interview, I also summarized what they have said. This emergent interview method shared certain similarities with the active interview process described by Holsten and Gobrium (1995).

To further supplement my understanding, I sometimes drew pictures based on what participants were saying and used to check for clarity and understanding. Holsten and Gobrium discussed a goal of "creative interviewing" techniques as being "a set of techniques for moving past the mere words and sentences exchanged in the interview process." I made sure that the participants could "share their own thoughts and feelings" not only through words, but also symbols (p. 12).

Data Analysis

Naturalistic inquiry utilizes the researcher as "human instrument." The benefit of this is that data can be collected and analyzed non-linearly and interactively. In this study, data analysis occurred even during the interview. Two interviews per informant were conducted at agreed-upon locations, approximately 2-3 weeks apart. Each interview took approximately one hour. The interviews were audio-taped, transcribed, and organized into summaries. At first interview, participants were presented a printed version of their class online messages and were asked to select messages of their choice and explain the significance. During the first interview, participants expressed their perceptions and experiences based on the focus question and probing questions for explanation, expansion; examples were drawn from participants' responses. At first interview, each participant was asked to

draw a concept map based on the focus question and to present this drawing at the second interview. The first interview summary was sent to participants prior to the second interview.

Interview tapes were first transcribed word-for-word. They were then unitized and coded from either words or phrases used directly by participants or from representative words for the unit information. Two types of coding methods were utilized for each interview transcript. The first method involved detailed frequency counting of particular ideas and subsequent grouping of these ideas into sub-themes. The second coding method was based on concepts that emerged. These two codes were then compared to discern cross-participants' shared themes. Six shared themes emerged and were defined based on the context.

Trustworthiness & Authenticity

Lincoln and Guba (1985) refer to trustworthiness and authenticity as two essential sets of criteria in constructivist research. Trustworthiness (the truth-value, or quality of the findings) refers to the validity and reliability of research issues. It ensures the research methods are correctly conducted. Authenticity refers to fairness, educative, and resulting actions arising from the research (p. 213).

Various methods are often employed to ensure "one has carried out the research process correctly" (Manning, 1997) and increase "the degree of confidence in truth" (Erlandson et al., 1993). The methods I employed to ensure trustworthiness included: writing a "researcher as" statement, purposefully sampling study participants, engaging with participants for an extensive period of time, obtaining more than one data source for data triangulation, forming a peer-debriefing group, and obtaining verifications of participants' interpretations.

To ensure authenticity in my study, informed consent was provided to participants prior to the first interview. In the consent form, participants were informed of the risks of and benefits from participation in the study, as well as their right to withdraw at any time. Prior to the interview, I explained to participants the nature of the study and their rights to freely express any opinions and concerns they may have.

Prior to conducting this study, I composed a "Researcher-as-Instrument Statement" that reflected upon the possible preconceptions or experiences that may possibly have influenced my conduct of this research. In this statement I stated that I was aware of my past notions regarding group work, my personality that may unconsciously influence my expectations and reactions, and my experiences with online learning that may be potentially create bias. Nevertheless, I stated that I expected to remain open and flexible to reassessment of any assumptions that may arise throughout the inquiry process. Cognizant of my interpretations that create sense of my world, I was equally cognizant of my duty to refrain from using words to "frame" participants during the entire research process. I stressed my research position to informants prior to interview. As a sherpa, I had the opportunity to extensively observe online activities, participate in a few group chats, and study the same course materials as all CSCL members. I observed and experienced participants' frustrations, confusions, stresses, and joys.

As suggested by Erlandson (1993), "The researcher should step out of the context being studied to review perceptions, insights, and analyses" (p. 31). Prior to forming my focus question, a peer-debriefing group was formed. The group composed of three peers who were knowledgeable of naturalistic inquiry and who shared similar interests in topics of inquiry. They helped me reconsider, refine, and revise my study, which added to the credibility of this study. We also read each other's transcripts, assisted in evaluating codes and themes during the data analysis process, read the draft version of the study, and provided feedback for revision prior to completion of the study. With their assistance, some decisions and actions were altered through insights gained. We provide each other with both task and emotional support. Often acting as devil's advocates, we met weekly to challenge and assist each other. Detailed minutes of the meetings were kept and served as a resource to be referred to during our inquiry processes.

To ensure that my understandings and interpretations were not biased, three levels of member checking were conducted throughout the inquiry process. The first member check was conducted during the interview process when participants were asked to clarify, explain, expand, and give examples. The second member check was conducted within a few days of each interview when participants were ask to verify the summaries of interviews transcripts. The grand member check was conducted after completion of case reports but prior to submission when participants were asked to confirm the final product. In addition, member checks were also conducted through informal conversations over the telephone and through e-mail. During the entire inquiry process, I also maintained a reflexive journal to record decisions made, reasons for those decisions, actions taken, questions that arose during the process, possible emerging patterns of analysis, and reactions to particular situations.

Findings

To ensure confidentiality, names and locations are changed to preserve the anonymity of the participants. The social relationships documented within remain true to life. The following cases are based on the data obtained from participants in Fall, 2000.

Participant information

Agnes, a 47 year-old Caucasian doctoral student, works part-time at a computer company. She was born and raised in America and has a theater and art background. She received her Master's degree in England. Although Agnes had a few small-scaled online collaborative learning experiences prior to entering CSCL 2000 class, she had never collaborated online.

Nancy, a 24 year-old Taiwanese master's student, works full-time at a primary school in Austin. She was born in Taiwan, but was raised in South America. She moved to America alone when she entered college. She is interested in Computer-Based Training and Assistive-Technology. She had one online collaborative learning experience prior to entering CSCL 2000 class but she thought it was a lot less intensive than this CSCL class.

Elizabeth, a 36 year-old Hispanic-American master's student, works full-time at a primary school in Austin as an Assistant Principal. She was born in Columbia and was raised in America. She is married with a kid and is expecting a baby in 6 months. She had some pervious online learning experience prior to entering CSCL 2000 class but have never collaborated online with a group of people. She said she has lots of opportunities to collaborate with colleagues in the face-to-face settings at work.

Angel, a 32 year-old Indian master's student, studies full-time at the University of Texas (U.T.), Austin. Fall 2000 is the first semester for her at U.T. and in America. She already received her Economics master's degree in India prior to entering U.T. and had worked as a high school teacher. She had no previous online learning experience and not much collaborative learning experience.

Emerged Themes Across Case

Six themes emerged through the process of data generation, analysis and comparison of participants: relationships; environment; communication; roles and identities; feelings; and personal variables. Emerged themes were listed in the order of importance as defined by the frequency being discussed.

Relationships

Relationship received the most attention among six emerged themes. For Agnes, group collaboration is a "process." Agnes' group had six people. "You are looking for connections with people," said Agnes. She thought that building relationships online was different because, "connection is often established one way." Agnes conceived that "interpersonal relationships" were important in the dynamics among her knowledge construction, group collaboration, and self-identity (as illustrated in her concept map, Graph #3).

Similar to Agnes, Elizabeth also emphasized much on relationships. During the interviews, Elizabeth repeatedly emphasized the importance of "being responsible for others." She said she did not want to "let down" her group mates. She thought if a person does not have "strong sense of responsibility for others" s/he would not succeed in class. Elizabeth thought it is important to build relationships and friendships in a collaborative learning class where members are held accountable for each other and they had to rely on each other in accomplishing tasks. She described her excitement at the beginning of the semester when she first "met" her virtual officemate online. "Every time I get online, I would check to see if she is there," said Elizabeth. She said the friendship she established with her officemate would last beyond the class.

Nancy and Angel also mentioned about relationships but not emphasized as much as Agnes and Elizabeth. Angel thought everyone has different needs for relationships. She thought that in a collaborative learning course like CSCL, learners are seeking both intellectual as well as emotional connections, however, when there are too many trivial tasks, students tend to just focusing on getting the tasks done rather than learning socio-emotional aspects of learning. Angel said that she was too busy trying to learn different tools and getting use to a new learning environment, she did not spend much time socializing with others.

Similar to Angel, Nancy did not perceive interpersonal relationships as important for her success in class. "The tasks are short, and they have no implications for the future," said Nancy. She said the relationship in class is temporal rather than long-term. Nancy thought interactions in temporal relationships are usually superficial rather than deeper understanding of each other. She thought that people usually react to things differently if they know they are going to have the work relationship for only a few months (a semester).

Communication

The second most discussed theme is communication. Agnes perceived that in online communication context, people do not "have a sense of each other as people." She said she had to "make efforts to individualize" her messages according to the different perceptions. Agnes saw herself as the "focus of the group" and her group did not "see itself" except in relation to her. She said she would intentionally "disappear for a while" so that her group would put her "in perspective again."

Agnes thought that an over-reliance on interpretations and assumptions may "mess us up in a terrible way" because in the online situation, they often "try to make meaning immediately by transferring facts and information and make assumptions." She said some classmates do not express much and they just use some "little symbols" to show their emotions and sometimes it is difficult to really know how they feel. As an example, Agnes recalled when she mistakenly thought a female group member was a man based on the name and the reason that she communicated more fact than emotions. Prior to confirming this "faceless" individual's gender, Agnes said she had perceived this team member as having a very strong personality and was not moved to confirm this person's gender until that person issued an apology which was not consistent with the image Agnes held for that person.

Elizabeth perceived positive feedback as an important method for online communication. She said she found herself transferring her communication style in real life to the online learning environment. She said because her role as an assistant principal at work, she often stressed the importance of "team spirit" and showed her appreciation, encouragement, supportive by giving personalized notes to her group mates via private mail. Elizabeth thought that people build relationships through communication and this relationship is reciprocal. "I may not go that extra mile for someone who I feel does not go that extra mile for the group," said Elizabeth. Similar to Elizabeth, Agnes also mentioned about the reciprocal communication, she thought asynchronous online interaction really lacks immediacy and intimacy.

Communication was Nancy's major focus among the six themes emerged across participants. Nancy thought the main difference between online and face-to-face collaborative learning was the "sharing of personal lives" and the chances for misunderstandings. She said limitations include: the need for clarifications seemed exponential; miscommunications seemed rampant due to individual interpretations and assumptions; group members seemed to lack an awareness of each others, communication methods seemed to have limitations; misunderstandings seemed to arise from missing cues (verbal, facial, and tone of voice); communication styles and skills seemed to vary widely among members; and communication tools seemed to present challenges of functionality.

Nancy recalled an example where her group was chatting online and some members of the group kept talking about football rather than tasks. As the team leader for that particular task, she tried to get their attention by typing, "Hello, there....!" Surprisingly, one of the group members said she was shouting and the other interpreted the situation as the "cultural gap." "It had nothing to do with culture, I understood what they were talking about and I have been exposed to football all my life, but let's just get back to the subject, will we?" said Nancy. "Everything you type in chat is in the middle of my conversation with the others," Nancy added. She said she did not want to spend many hours online chatting without getting tasks done and as the project leader, she felt responsible to keep the meeting effective and efficient.

Angel also mentioned about people misunderstood her but she said it is important to clarify and negotiate meaning. "It may take some time to get your message across or to understand what others have to say," said Angel. But she thought if everyone is sincere and sensitive to others' needs, the trust that build in the group will save a lot of time in later tasks. Similar to Nancy, Angel also observed different types of communication styles in this CSCL environment. They both mentioned that in the online environment, some people are more active while the others are more passive; some are assertive while the others just go with the flow; some feel more comfortable revealing their feelings while others do not reveal their personal lives in the online settings; some were formal while the others were very casual and made jokes or communicated with others through art forms.

Roles and identities

How members of the group identify themselves in the group affect how they act and communicate. For Agnes, knowledge construction and group collaboration are interrelate to herself as a person. Identity is "who I am to myself and what I would take with me no matter what," said Agnes. She said that there were "very strong identities" in her group and for any given collaborative projects, group members would "jump right in and grab" the tasks they prefer doing. Agnes thought it was good to rotate leadership role in collaborative teams, but guidelines for group leaders should be directed. She stressed that being "assertive" was one of the most important

characteristics that online leaders should possess. She also said these leaders should be, "very organized," consistent; "responsible," and "active in participation," and one who "keeps others organized to a certain level."

Nancy said that roles and responsibilities within the group should be well-defined. "Collaboration should be done in a way that everyone knows their roles," said Nancy. Nancy said there were some "overlapping work and gaps" in her group. She thought that it is very important to "align people and their roles very carefully." Nancy said that in a group, "people are from different kinds of backgrounds" but "diversity works well only if everyone knew his or her roles and responsibilities" and if they have "positive attitudes." She said that a successful group should have strong leadership. Nancy recalled her experience being the project leader for one module and said one of the most challenging things was that "everyone's concept of time is different" and being at the forefront having certain responsibilities in "making sure everything is fine," she said it required certain skills. She said if a leader tried to "control" and hold "power" rather than "lead," then that person was "not doing a leader's job." Rather, the person was "doing authoritarian work." Similar to Nancy, Angel thought it was important to have well-defined roles and responsibilities. She said the course did not give clear guidelines because the course expect students to take turns performing leadership roles while everyone holds different concepts and expectations toward leadership role. She said that one of the big challenges in any group collaboration is the distribution of work. Those who are leaders will naturally take on more work while others may just laid back and become less involved.

Elizabeth said she identified herself as a part of the whole group. She described her feeling of "togetherness" and having mutual goals helped her get focused. "Our suite is a little society and out chat is kind of like the town meeting," said Elizabeth. She said that because the group "struggled together" in completing tasks throughout the semester, they build that sense of "togetherness" and "team cohesiveness." Elizabeth thought the term, "leader" should be called something else in the online collaborative learning environment because there could be multiple leaders in a group. She said some members are better at making decisions while others may be good at communicating with others; some are good at finding resources while others may be good at organizing various ideas; some are good at keeping members on track while others may bring the group joy and cheer everyone up when the group is stressed.

Environment

Participants referred "environment" as the course virtual workspace and the people involved. Agnes thought that the "patterns of relationships" have strong connection with the environment they find themselves in and that this CSCL environment was largely crafted by the instructor and technology. She said, "Life imitates art." Agnes believed that, "all thought internal is first modeled through the relationships occurring externally." She thought our "consciousness comes after relationships" and "dialogue comes before internal monologue." Agnes suggested that CSCL instructors, when designing their courses, should "create a safe environment" so that students would not "just project their meanings on everything" but would "take risks" and "experience the new meaning and new structures." Instructors should also consider their own "values" because instructors are "part of the big environment" and their values impact how students experience the process, she said.

Elizabeth perceived the course environment as a place where people "come together" to make friends and accomplish tasks. Due to the various tools used in the course, Elizabeth perceived environment as multiple places. She said she was often confused by too many places to go to interact with others and to work through assignments. Angel perceived the environment as a very structured place where students learn, interact with others, and accomplish tasks. Nancy viewed the environment as a "big open communication space" where people just come together and collaborate on a variety of projects. She said, "supervision is required." Students need to "have enough guidance" rather than just being "left alone" and there should be "some kind of facilitator or mediator to solve conflicts" and to "encourage people to be more honest with each other."

Angel said the course was very well-structured and there were many intensive tasks they had to accomplish. The course expected students to log-on everyday and arranged one "sherpa" in each team. However, "sherpas" have different styles, knowledge, status, and access to specifications about the course. When members of the group encounter problem, they look up to "sherpas" to answer their questions immediately and take the leadership role to guide their work. She said her group "sherpa was very encouraging and cheerful" but she said most class members expect to have more frequent and consistent feedback from sherpas and they need feedback on their progress from the instructor. The course designed many interactive activities for members to collaborate, but there seemed to be lack of interaction between students and sherpas and between students and the instructor.

Feelings

Participants expressed feelings of uncertainty, stress, frustration, and alienation. Agnes said she felt "alienated from others" and "unbelievably stressed" because of the "tight schedule" and the "nature of the work." Agnes said she likes to "be around people" but her frustration came from needing "to be with people" and "to do works that have meaning." Agnes expressed her hopes, fears, and worries: "I worry that we are bringing our old solutions to the new forms." She challenged Web-based instructors to deliberate on a question: "Will people realize their potential for humanitarian action or be seduced by the flavor of power and reduce further our chances to create a joyful world?"

All participants shared similar feelings of stress and uncertainty in this Web-based CSCL class. Agnes said that she did not know what others were thinking and feeling because feedback was either delayed or non-existent. "There are many things that you can't predict," said Nancy. She said she was not sure that "true feelings" were routinely expressed online. "People would be greeting each other or whatever, but you don't know if they meant it or just typed it," Nancy added.

Elizabeth and Angel expressed feelings of confusion and frustration. Elizabeth said, "You have to go to different places to get one piece of information sometimes." She suggested that the navigation should be as simple as possible for users rather than offering multiple—and confusing--paths for users. Angel recalled her difficulty accessing the computer. She said because it was her first semester in a foreign country, she did not have a computer. The University libraries often close on holidays so she could not do the work. Angel said she sometimes became frustrated when some TeachNet functions did not access from the Web or when the server would go down.

Personal variables

Agnes thought personal factors influence understanding, thinking, and experiences in any given setting because, "Everything is a system. A person is a system. When they enter a relationship or an environment, they bring in wherever they are at." Agnes described her group as a meeting place where "the full personality drama" occurred and where everyone diverged in their "working and writing styles." Agnes thought, "some people are more comfortable with patriarchal hierarchies" which, she said, is not based on ethnicity or gender. Like Agnes, Nancy also perceived that personal variables influenced online collaboration. She observed differences in personalities, preferences, interests, values, cultural backgrounds, communication styles, and working styles. Nancy said that she tried to "guess" what others' personalities were and attempted to "accommodate" their personalities based on "their contributions." She observed that everyone in her group differed in their priorities, in their reactions, and their modes of thinking, collaborating, communicating, and writing. Nancy thought her family upbringing also affects how she interacted with others. "I prefer people do what they are comfortable with," said Nancy. She thought that, "there should be one person taking the lead and others follow."

Elizabeth and Angel also expressed how their family upbringing affected their online behavior. Elizabeth said her family emphasizes responsibility and the importance of maintaining public decorum. She said living with extended family members is part of her culture, and from being exposed to various family members with multiple perspectives, she learned to accept and respect others' point of views more readily. Angel said in India, men and women are normally separated throughout primary and secondary education and the society is structured hierarchically. She said that because she often had to solve problems by herself while growing up, every time she encountered difficulties in the CSCL class she would attempt to solve problems by herself rather than seek help.

Conclusion and Future Implications

The findings of this study suggest that participants perceived communication and interpersonal relationships as two major areas of concern in the online group collaborative learning environment. Future studies should focus on the social aspects of interactions in the Web-based computer supported learning environment. Further, the implementation process should be closely examined in order to gain a better understanding of how various learners define knowledge, how knowledge is communicated and negotiated among learners of diverse backgrounds, and how knowledge is constructed as the result of communication and negotiation.

Due to the nature of collaboration and the necessity to negotiate toward shared meanings, online collaborators reported spending a considerable amount of time attempting to understand, check, confirm, coordinate, and negotiate with group members. Future studies should focus on strategies utilized by experienced on-line collaborative learners to facilitate and ensure effective and efficient communication. In this study, participants suggested that in order to make the group decision-making process easier and results more meaningful, individuals should clearly state their expectations, be cognizant of the various cultural and individual notions of time and

responsibility, be sensitive to others' perspectives and needs, and communicate frequently with group members to resolve conflicts.

Based on my findings and observations, the following is a list of eight suggestions for Web-based instructors to consider as they design online collaborative learning courses:

1. **Assumptions and Interpretations:** Both students and the instructor should be cognizant of their preconceptions, expectations, and possible assumptions. Our focus of attention and our behavior are both heavily influenced by what we know and how we know it.
2. **Social Aspects of Learning:** The social aspects of learning should be emphasized as much as the cognitive/ intellectual aspects of learning. The course instructor should understand the importance of designing activities that facilitate social interactions as well as the importance of constantly providing to and requesting feedback fro m learners.
3. **Positive Attitude** : Members of the community should maintain positive attitudes and strive to be open and flexible while understanding that learning is an ever-evolving process.
4. **Modeling**: The instructor should guide, coach, and facilitate learning by providing instant feedback. If the instructor expects learners to check-in everyday, he/she should do the same. Instructor and staff policies should be consistently applied to all members of the community.
5. **Real and Humanized Instruction**: The main emphasis of learning tasks should be on humans, not tools. Tasks that require students to mechanically perform procedures may not offer meaningful learning to learners.
6. **Process and Product**: The process of knowledge acquisition and group interactions should be evaluated as stringently as the final product. Since the human mind evolves through a process of perceptions altered by experience, how learners undergo knowledge construction and group collaboration are as important as the resultant product.
7. **Performance Assessment**: Learners should be held accountable—but accountability should be consistent and justifiable. How process can be evaluated should be incorporated and considered in performance assessments.
8. **Safe Environment:** An environment of fear, envy, and anger is detrimental to learning. Conversely, an environment of joy, mutual respect, and sympathy is conducive to learning. Learning is promoted in an environment where students are ensured free expression, are enabled to make mistakes because mistakes are explicitly viewed as acceptable inevitabilities in knowledge construction, are inspired and encouraged by peers and instructor, and are intellectually challenged.

References

Dewey, J. (1938). *Experience and education*. New Jersey: Collier Book.

Erlandson, D. A., Harris, E. L., Skipper, B. L., Allen, S. D. (1993). *Doing naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Resta, P. E., Christal, M., Ferneding, K., Puthoff, A. K. (1999). *CSCL as a catalyst for changing teacher practice.* Paper presented at the Computer Supported Collaborative Learning, Palo Alto, CA: Stanford University.

Dodge, B. *Site Overview: WebQuest*. Available: http://edweb.sdsu.edu/webquest/overview.htm [2001, Nov. 1].

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal, 29*, 75-92.

Fosnot, C. T. (1996). Constructivism: A psychological theory of learning. In C. T. Fosnot (Ed.), *Constructivism: Theory, Perspectives, and Practice*. MA: Teachers College, Columbia University.

Jonassen, D. *Constructivism*, [World Wide Web]. Available: http://www.coe.uh.edu/~ichen/ebook/ET-IT/constr.htm [2001, June 29].

Duffy, T. M. J., D. H. (1992). *Constructivism and the technology of instruction*. New York: Lawrence Erlbaum Associations, Publishers.

Holstein, J. A., Gubrium, J. F. (1995). *The active interview*. CA: Thousand Oaks, Sage Publications.

Lincoln, Y. S., Guba, E. G. (1985). *Naturalistic inquiry*. CA: Beverly Hills, Sage Publications.

Manning, K. (1997). Authenticity in constructivist inquiry: Methodological considerations without prescription. *Qualitative inquiry, 3*(1), 93-115.

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

X	This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.
	This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").