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THE EFFECT OF THE TYPE OF TASK ON VIRTUAL TEAM INTERACTION IN COMPUTER-SUPPORTED COLLABORATIVE LEARNING

Abstract: Prior research in team interaction within the realm of computer supported cooperative learning has been commonly conducted in an asynchronous learning environment. Few studies were centered on text-based team interaction, fewer on audio-based synchronous team interaction. This brief paper is intended to explore what issues our distance education students as they interacted within their team and what challenges they may have encountered in a team's process and progress. Results of content analysis suggested that four dominant themes emerged: taskwork, teamwork, technology, and sociability. Further recommendations for practitioners and researchers will be addressed.

Introduction and Background

Rooted in social constructivism, computer-supported cooperative learning (CSCL) is a common instructional strategy and process in distance education (Caviedes, 1998; Kreijns, Kirschner, & Jochems, 2002; Zurita & Nussbaum, 2004). As part of CSCL research, this brief paper presentation is intended to delineate the influence of type of team project on learner interaction on the team level in a synchronous Web-based cooperative learning environment.

Prior research on interaction in distance education was concentrated on two major types: learner-content and learner-instructor. Regardless, learner interaction with the peers has received more and more attention due to advanced technologies (Sutton, 1999). In a study by Kelsey and D'souza (2004) where these three types of interaction were investigated, learner-content and learner-instructor types of interaction were found more critical in increasing student motivation than learner-learner interaction. This may have been that learner interaction with the peers was downplayed in the study, where no specific team collaboration effort was required in the intervention due to some logistics issues.

A study on task type's effect on team interaction by Morris (1966) may shed some light on the learner interaction issues. Morris found the type of task affects about 60% of the team interaction in a face-to-face setting. Wholey, Kiesler, and Carley (as cited in Espinosa, Lerch, & Kraut, 2004) found successful teams in non-co-located settings tend to "communicate more intensely at the beginning," but "modestly toward the end" (p. 112). The three researchers also reported that "unsuccessful novice teams communicated too little, where unsuccessful expert teams

communicated too much" (p. 112) and individual accountability becomes apparent only after team members become familiar with each other's skill sets. Unfortunately, there is little research along the lines as mentioned in the CSCL area with a focus on synchronous team interaction.

Using Hackman's taxonomy (1968), team projects are categorized into three major types of group tasks: production, discussion, and problem solving. While these three task types are intellectual in nature, they each have a distinguishable mission (Mennecke & Wheeler 1993; Sorenson, 1972). Production tasks are intended for idea generation that leads to some sort of coherent unity. Discussion tasks are concentrated on idea evaluation, which usually lends themselves to higher order thinking. Problem solving tasks generally emphasize solution formation that is anticipated to (re)solve a given problem.

Two purposes of this qualitative study are first to identify various types of tasks from common practice and then to portrait a vivid picture of how virtual team members interact on a type of task assigned.

Professionals (both professors and researchers) at the higher education level can benefit from this presentation. The audience is encouraged to reflect and share their perspectives and to contribute to the intellectual dialogue.

Method

Design

The present study is a qualitative inquiry that was intended to explore dominant issues that emerged from synchronous team interaction in a CSCL environment.

Participants

One online graduate class in the Summer I semester (four weeks long) of 2006, where thirteen students were divided into groups of three to four, was invited to participate in this exploratory study. The four-week-long summer class was concerned with international technology issues with a concentration on multiculturalism. The grouping process was controlled using the True Color personality test in a hope for heterogeneous teams. These student groups resembled what Johnson and Johnson (as cited in Wong, 2001) called, formal cooperative learning groups. An open-ended team project was assigned to all four groups earlier in the semester, which allowed time for groups to begin their team process. The assigned team project in this class was more of production type of task, where teams were requested to choose a topic of interest and to produce an instructional package or artifact. Majority of the students were K-12 classroom teachers. Most of the class were female. Even though these students had experience of taking online courses, their technical skills varied.

Data Collection

Students were divided into groups of three to four. Thus, four teams/groups were formed. Each team was assigned an open-ended project. The project was classified as a production type of task by two professors of education in the same university. Both professors also served as two independent project evaluators, who graded the four team projects, using a pre-determined rating system set by the instructor. Based on their evaluation, there was no significant difference between these team projects.

To record group activities, both synchronous and asynchronous types of communication tools were used with synchronous tools as the primary communication mode. Team meetings were archived for data analysis in this study. Participants met in Horizon Wimba Live Classroom (a conference management system), a building block made available within Blackboard (a course management system) on a group-determined schedule. They also used asynchronous tools, such as email, to carry out their group deliberations.

Data Analysis

The recorded/archived data were analyzed using content analysis. Major concepts and their related sub-concepts were sought and tallied in terms of each concept's frequency of occurrence in the recorded. Four predominant constructs emerged: taskwork, teamwork, technology, and sociability.

Preliminary Results/Major Aspects

Content analysis permitted us to detect four convergent themes: taskwork, teamwork, technology, and sociability.

1. Both synchronous and asynchronous communication tools were used to a varying degree in an effort to produce the culminating project, despite the fact that the students were encouraged to meet in Horizon Wimba Live Classroom group deliberation rooms. In addition to Horizon Wimba Live Classroom, the primary tool, text-based chat (in Horizon Wimba), telephone conversation, and face-to-face conference (used by one team) were adopted. Asynchronously, email was widely used by all four groups.
2. Team process (interaction) seemed to start with taskwork, which pertains to components of their given task. In this case, the assigned task is more of the production type of group project. Teammates' behaviors included areas, such as team mission identification and team brainstorming. Concerning team work patterns, our results suggested that there was always one teammate who compiled a draft of team effort in the first place. This team member tended to be more technologically prepared than the others.
3. As the teams progressed, their teamwork began, after their members acquired the scope of the assigned task, to emerge and included sub-constructs such as division of labor, scheduling, protocol-setting, and coordination.

4. Technology is also a recurring theme in the archive. Two of the dominant phenomena are talking on each other and receiving audio feedback echo.
5. The sociability construct was ubiquitous throughout the team process. In one team, teammates would begin with job classification and education background. In another team, team members could start the conversation with other course matters and professor's expectation in general. Despite being noticeable, sociability may have only taken up the smallest part of the total interaction, compared to the other three constructs aforementioned.
6. Overall, taskwork and teamwork accounted for the majority of the synchronous interaction, followed by technology and then sociability.

Discussion and Summary

Prior research in team interaction within the realm of computer supported cooperative learning has been commonly conducted in an asynchronous learning environment. Few studies were centered on text-based team interaction, fewer on audio-based team interaction. The audio-based team interaction is the focus of our investigation. Thirteen graduate students from a fully Web-based Educational Technology class participated in the investigation in the Summer I semester of 2006 in a southern state university. The four-week long class dealt with international technology issues, with a concentration in global eLearning. Team process or interaction was recorded using the archive feature of Horizon Wimba Live Classroom. Teams were requested to recorded all the scheduled (mandated) and unscheduled (voluntary) team meetings for content analysis. Our initial results of the analysis suggested that a team interacted more on both taskwork and teamwork issues than technology and scalability. This may not be endorsed by Huang and Wei (as cited in Carabajal, LaPointe, & Gunardena, 2003), who reported that more than half of the team process was off task. This may suggested that these virtual or non-co-located teams in this graduate class may have been more conscientious (or anxious) to accomplish the assigned task than other teams in industry or corporate, where a working relationship or a mutual trust tends to be sought and established prior to pursuing taskwork and teamwork (Pauleen, 2001; Webber, 2002). Findings of the present paper are intended to reveal what issues exactly our distance education students as they interacted within the team and what challenges they may have encountered in the team's process or progress. Further recommendations for practitioners and researchers will be addressed in the later version of this paper.

Presentation Format

This brief paper will be presented via PowerPoint slides and narration in about 10 minutes, with the latter reinforcing and embodying the bulleted content addressed in the paper. The strategy resembles "fill-in-blank." A handout will be created and distributed with a URL given to download. To plan an intellectual dialogue, questions will be designed in a manner to elicit critical thinking and solicit information

from audience on current practices, as in a community of practice. The last five minutes will be planned for all imminent issues from the live presentation.

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