

Asynchronous Online Discussions within Multimedia Case-Based Instruction

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Abstract

This study compares the experiences of students and instructors participating in three different asynchronous online discussion formats used to support collaborative and social aspects of multimedia case-based instruction. Data were collected and analyzed from three different universities that implemented case-based discussions as a part of a larger research consortium project. Implementations represented three distinctive formats: open discussions, prompted discussions, and structured chat discussions. Discussion archives were analyzed for number of students who participated, number of postings, average postings per student, and range of contributions per student. Follow-up interviews from each course were conducted with a sample of students to assess perceptions of the benefits and limitations of online discussion groups to augment multimedia case-based instructional approaches in special education teacher training. Results contribute support to prior research findings that online chats and discussions provide opportunities for the students to share, discuss, and modify their case understanding and to sustain each other in using that knowledge to solve case and classroom problems. However, additional practical implications for instructors using discussion groups in case-based instruction were found.

INTRODUCTION

The world of higher education today is undergoing considerable change. The inclusion of online technologies in rich learning contexts are under investigation to determine what factors will impact the quality of learning as well as foster an environment of collaboration. The social-constructivist theory purports that learning occurs through collaborative and cooperative exchanges with others in a social environment (Ferman, Burkett, & Hooper, 2003; Levin, He, & Robbins, 2006). Thus, students involved in a collaborative learning environment would be more apt to apply information

in ways that lead to new insights and understandings. Online discussions are standard formats within most online courses and are increasingly becoming the desired complement to face-to-face delivery. The benefits of online discussions include: potential for bridging the gaps that exist between pre-service and practicing teachers, and general and special education teachers; utilization of computer-mediated discussion groups across times, locations, and student groups limiting isolation; accessibility to instructors and invited experts which can be motivating and instructive; flexibility and convenience of asynchronous participation; and sharing of broader perspectives from multiple locations and diverse populations (Klemm, 2000). As higher education seeks to discover the most effective methods for incorporating online discussion, research is needed that compares different types of discussion and instructor facilitation to investigate the effects on student participation and satisfaction. This study compares three different types of online discussion and instructor facilitation and proposes some tentative conclusions for further research.

LITERATURE

The Virtual Resource Center in Behavioral Disorders—Research Consortium

VRCBD—RC is a three-year research project in the United States focusing on case-based instruction in higher education. The instruction incorporates a series of ten interactive, multimedia cases, the use of performance support tools to enhance transfer of knowledge and skills to real settings, and integration of online discussions to support collaborative learning. The research project is a consortium project involving five universities; it is funded by a Steppingstones Innovations in Technology grant from the U.S. Department of Education. The project (Fitzgerald, Hollingsead, Koury, Miller, & Mitchem, 2004-2006) has been ongoing over the past two years with follow-up investigation during 2007. Information on the series of cases, known as Teacher Problem Solving Skills (TPSS), can be found at the project web site: <http://www.coe.missouri.edu/~vrcbd>.

Multimedia Case-based Instruction

Higher education training programs are frequently accused of being overly theoretical and out-of-touch with the realities of front line teaching. This theory-to-practice gap has contributed to a significant shift towards case-based instruction, a widespread alternative to traditional teacher-directed instruction (Anderson & Baker, 1999; Goor & Santos, 2002; McNaughton & Maccini, 2001). In the advent of digital multimedia technologies, authentic problem-solving cases hold the potential to expand the classroom beyond the paper and pencil case-based activities (Elksnin, 2001). An outstanding case instructional tool can be a catalyst for complex learning applications in socially constructed discussions allowing learners to elaborate their understandings and gain new perspectives (Levin, He, & Robbins, 2006).

The quality of cases used for discussion is critical for the research conclusions. The multimedia case-based instruction used in this investigation involves the use of practice fields. Practice fields focus mainly on situating content in authentic learner activities. In practice fields students engage in solving problems encountered outside of training settings. Preparing practice fields involves creating realistic activities or experiences for the learner. These activities must be genuine, present demands the learner would encounter in the real world, that is, authentic problem solving and engage critical thinking (Barab, Hay, & Duffy, 1998).

Online Discussions

With the belief that all knowledge is socially constructed, learners must have opportunities to share, discuss, and modify their own understandings based on others' perspectives and experiences (Wang

& Bonk, 2001). It is in the discussion of cases with peers that the quality, form, and content of a student's thinking can contribute to a community of professionals (Mitchell, 2003). Reflection and mentorship become part of the dialogue within the student centered discussions. In this way, learners, instructors, and practitioners can discuss cases and real problems that engage the professional society. Through technology, 'anytime-anywhere' learning is available and contributes to the promise for prosocial behaviors as well as social construction of knowledge and transfer across participants (Ferman, Burkett, & Hooper, 2003).

Beyond use in initial training programs, practice field systems can be utilized in ongoing professional development offerings through face-to-face or web-based professional communities of practice. Researchers have noted that asynchronous online discussion may support critical thinking as it provides a learner-centered environment and allows time for learners to reflect and respond to issues being discussed (Harvard, Du, & Olinzock 2005); however, these authors also note the need for the instructor to facilitate online discussion if "deep learning" (p. 126) is to occur. What type of facilitation should the instructor provide to promote transfer or deep learning? Moor and Marra (2005) compared students' contributions to the online discussion of an instructional design case study under two different conditions: in the first, students followed a constructive argumentation approach, in the second, students had less structure for their postings. The authors found that the argumentation protocol, or more structure, may have negatively affected students' quantity and quality of implementation. However, it was not clear as to whether these results were related to the protocol's lack of suitability to the task. The authors noted the need for further research to improve understanding of how to design and scaffold effective online discussion in case-based learning.

The goal of this research was to compare three different discussion formats on students' participation in and satisfaction with case-based instructions using a mixed methods design. The questions guiding this research included:

1. How do different discussion group formats affect students' participation in and patterns of discussion?
2. Did the different discussion group formats affect student satisfaction?
3. What are the implications for instructors who are selecting and designing online discussion formats in case-based instruction?

METHODOLOGY

Discussion Group Formats

Data were collected from three different universities that implemented case-based discussion as a part of the research consortium. The implementations represented three different discussion group formats: open discussions, prompted discussions, and structured chat discussions. All discussions were asynchronous learning opportunities.

- In the *open discussion format*, students responded to discussion threads relating to cases with initial prompts provided by the instructor to discuss possible solutions; the instructor facilitated the open discussions through questions and prompts. The discussions were unstructured within each discussion thread.
- In the *prompted discussion format*, the instructor played a large role in opening and guiding discussions related to assigned readings, cases, and use of computer intervention tools. The discussions were partially structured and closely guided by the instructor.
- In the *chat discussion format*, the instructor placed students into small discussion groups and assigned roles to simulate a "staffing", which is a conference. Each student presented the

case from their role. Students were provided a discussion guide to complete and submit for points within the class grading structure. The instructor did not prompt or participate in the chat discussions.

Descriptive Data

Because the three implementation formats differed in their organization, instructor role, and requirements, descriptive data for each implementation were analyzed separately. For each discussion format a range of data sources were used. The online discussion archives were analyzed for number of students who participated, number of postings, average postings per student, and range of contributions per student. These data were used to examine the diversity of participation rates by students across the different discussion group formats.

Satisfaction Data

Follow-up interviews were conducted with a sample of students from each course. Semi-structured interview questions focused on student perceptions of the benefits and limitations perceptions of asynchronous online discussion groups to augment case-based learning in special teacher training courses. Questions were included to describe the discussion organization, instructor role, requirements, group membership, benefits, concerns, and recommendations to improve the use of online discussion groups. Interviews were audiotaped, transcribed, and brought into the qualitative data analysis program, *NVivo*, for coding and theme analysis (Richards, 1999). Using a grounded theory approach, codes for the interview responses emerged from the data and were then organized for interpretation into the themes of: value of the online discussion, group membership, role of instructor, and recommendations for improving online discussions (Creswell, 1998). The responses were coded for each implementation separately prior to overall interpretation.

FINDINGS

The results are organized and will be presented in session by the different implementation group formats. Additionally, descriptive data and satisfaction data will be presented in session for each implementation, followed by discussion of results across the three analyses. Each analysis provides results on participation rates, discussion patterns, student satisfaction data, and instructor reflections. Due to length constraints, only the final implications and recommendations of the findings will be shared in this written documentation. The presentation with the full findings can be found on the Teacher Problem Solving Skills (TPSS), project web site:

<http://www.coe.missouri.edu/~vrcbd>

Open Discussions around Course Topics and Cases

“Behavioral and Emotional Problems of Children” was offered as a three-semester hour graduate credit course in two formats. One was on-campus in a classroom setting; the other was in an off-campus setting located in a school district. The on-campus classroom consisted of seven students. Some of the students were full time, others part-time. Participants varied in programs from school psychology, school counseling, community counseling, and special education. The reason for enrollment in the course was degree completion for career advancement.

The off-campus classroom consisted of ten part-time students, two of whom dropped the course leaving the enrollment at eight. These students were enrolled in a special education program and were employed full time as special education teachers in an urban low-SES school district. None of the participants were qualified by the state to teach special education in the settings in which they were employed; they were enrolled in the course for the purposes of degree completion and career advancement.

Both on- and off-courses required the use of two cases from Program I: *Perspectives on Emotional and Behavioral Disorders*. Students worked on the cases of Zach and Shawn independently and then participated in on-line discussion activities. [See case descriptions at <http://www.coe.missouri.edu>].

Prompted Discussions around Course Topics, Cases, and Intervention Tools

“BD Online” was offered as a three-semester hour summer course completely online with students from four states around the U.S. This was a graduate methods course with 20 students enrolled. Demographic data were collected for 11 students. All of these participants had teaching experience ranging from 3 to 24 years with a mean of 12 years. The primary reasons for course enrollment were personal interest in course content or professional development for career ladder advancement. Course requirements were built completely around the CD cases plus two additional readings. Students were required to participate in three types of discussion groups during the course. Students could receive five points for each of the five discussion groups (out of a course total of 100 points).

Structured Chat Discussions around Cases

“Classroom Behavior Management” was offered as a three-semester hour graduate course using the University’s interactive video network on alternate weeks supplemented by the same number of web-based modules for the off weeks. A total of 78 students were enrolled in the course in five sites across the state; demographic data were collected for the 20 students enrolled at the research site. Eight of these participants had teaching experience ranging from 1 to 17 years, with a mean of 4.5 years. The primary reasons for course enrollment were personal interest in course or career ladder advancement. All 20 students were enrolled in preservice preparation in special education to gain special education certification. Course requirements included the use of two CD cases from Program III: *Instruction and Management in Emotional and Behavioral Disorders*. All students completed the case of Amy independently and then had a choice of either the Martelle or DeAngelo case. Students completed each case study exploration as the assignment for the web-based week.

After individually exploring the case, Amy, and completing embedded activities, students were assigned roles in small groups. Each group included five students. Students were told to meet with their group in a chat room and conduct a simulated staffing in which they were to develop a programming and placement plan for Amy. Students could receive a total of 50 points for these activities; 30 points for the individual case assignment, and 20 points for the simulated staffing.

IMPLICATIONS

The use of discussions and chats provided opportunities for collaborative and social learning to take place in practice field environments. Learning and participation go hand and hand. It is through this engaging set of overlapping experiences that meaning extensions occur (Barab & Roth, 2006).

Student interview responses were positive about their participation, primarily valuing multiple perspectives gained from group members. They viewed the interactions as helping them revise their own thinking, understand other points of view, learn from each other, work together on solving the case problems, gain confidence in putting forth their own ideas, and extend learning from the cases to real classroom situations. These reflections support the belief that knowledge is re-constructed and manipulated in a social communities; these online opportunities provided students a forum to share, discuss, reflect, and modify their case understanding and to engage in student centered activities requiring critical thinking to find solutions for authentic classroom problems.

There was some difference of opinion related to the idea of structure. Students clamored for more structure and wanted to know exact requirements. When greater structure was provided, discussions appeared shorter, more focused on the case at hand, and less rich in terms of students relating what they learned in the cases to their own experiences. When specific requirements for participation were defined, some students only met the minimum and failed to fully engage in dialog. The less structure students perceived, the more they struggled with the assignment but the richer the discussion and the more creative their responses. When instructors prompted students to apply their understandings to paper and real cases, students found the discussions even more meaningful and real.

Although the participation data varied across the discussion settings, they were consistent with these conclusions. Regardless of the size of group or degree of structure, some students failed to become engaged beyond the minimum requirements while other students took on the task and read and responded regularly at high levels. The discussions held in the summer course were closely tied to course requirements and instructor prompts. Participation was higher early in the course, and waned towards the end. Although these students were positive about the discussions, the messages did not go far beyond the required topics. Somewhat of a different pattern was seen in the small size, structured groups. Students had a more even level of participation and this may be due to the nature of the discussions as being time specific and level of structured. The highest level of participation was seen in the off-campus discussion group in the open discussion format where students were prompted to extend case learning to paper cases and their own real teaching situations, as well as to use the discussion group for feedback on their projects (Klemm, 2000). These students were currently employed as teachers and were able to transfer learning from the cases to actual classroom practice.

Students were successful in holding discussions independently when the structure had clear guidelines or opening prompts. However, most students felt more secure when there was a higher level of instructor participation. They liked getting feedback on their ideas, having instructors answer questions and keep them focused. More experienced students were able to recognize shifting roles of instructors as they moved from being the “information provider” to the “facilitator” helping students apply new knowledge and skills to teaching settings and experiences. These reflections emerged in longer-running discussion groups that focused on transfer of learning.

There were some interesting insights into discussion management when looking at group membership. In general, smaller groups were favored if all members participated in the discussion; there were problems in small groups where some students did not actively engage. Large groups were viewed as problematic when the number of messages needing to be read and/or answered became unwieldy. Levin, He, and Robbins (2006) actually recommend 6-8 participants in a grouped asynchronous case discussion. There was a unique point of view toward group membership from

students who were highly experienced teachers. They expressed some irritation with fellow students who did not have teaching experience trying to “grandstand” and impress the instructor. Some of these express points of view before “taking over” and “giving the game away.” These seasoned teachers suggested limiting the range of experience in a group.

This desire to maintain homogeneity in experience levels in the group reveals a tension between student desires and instructor intentions. When building a learning community, “novices” and “experts” are typically grouped together to provide opportunities for learning from each other and expanding perspectives. Similar to issues in cooperative learning, not all students like participating in mixed-level groups, particularly when requirements and grading practices are not described to the extent students want them defined. Students are uncomfortable with ambiguity and want specific guidelines on how much and how often they must participate and how their contributions will be evaluated. Students are unsure about group participation and open-ended discussion. They want to know the point of the discussion and not venture far into broader topics unless guided by the instructor. Compromises may be necessary to make students comfortable in mixed-experience level groups through structure and clear participation requirements, while at the same time, providing the open-ended, constructivist learning opportunities desired by instructors (Althaus, 1997; Mitchell, 2003).

SUMMARY

The practice field discussion group typically established in an online supported course does not become a true community until the participants understand a sound reason for the sharing and mutual problem solving involved in such a case driven pedagogy (Ferman, Burkett, & Hooper, 2003). Practice field discussion groups can become true communities when learners go beyond course requirements and become engaged in authentic issues of professional practice. Instructors can facilitate the development of a professional practice community by careful design of structure and discussion requirements, group formation, discussion activities, and open ended prompts, and by balancing their roles as leaders, information providers, and facilitators. There are no “one-size fits all” recommendations for successful use of online discussion groups and chats in the implementation of multimedia case-based instruction. One must consider the level of the learners and the goals and purposes of the discussions and activities. Also careful monitoring of the group progression as a community will be necessary with appropriate intervention as needed (Levin, He, & Robbins, 2006). A community of practicing professionals is not likely to emerge without thoughtful design and careful attention to the process by the instruction. The greatest impact occurs when learners can use newly reconstructed knowledge and skills in critically relevant life applications (Barab & Roth, 2006).

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