

BETTER TOGETHER: TEAMS AND DISCOURSE IN ASYNCHRONOUS ONLINE DISCUSSION FORUMS

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Abstract

This action research study was conducted in an online asynchronous graduate level advanced educational psychology course, which is part of the teacher education program. Teaching methods used constructivist methods employing instructor-facilitated and team peer-facilitation for asynchronous online discussions. The quantitative and qualitative analysis compared individual participation in the asynchronous forums by type of instruction, type of posting, and changes in the quality of discussions across the semesters. Results show that the use of peer-facilitation in asynchronous online forum discussions increased student participation and content quality, while instructor-only facilitation resulted in longer and more developed individual forum postings. Lessons learned and educational implications for online teaching are presented.

Keywords: online asynchronous teaching; team facilitation; quantitative and qualitative analysis

Introduction

Lately constructivist methods of education have become the dominant view of classroom teaching. According to the constructivist model, learning is the active process of building knowledge, where learners make an effort to build their own knowledge in an organized and coherent fashion (Fosnot, 2005; Gergen, 1995; Mayer, 2003; Pass, 2004). Constructivist models of education are commonly used in the classrooms for face-to-face instruction, where group work and cooperative teaching methods are successful and students are

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motivated and appreciate classroom learning (Barber, Rajaram, & Fox, 2012; Congleton & Rajaram, 2014; Palinscar & Brown, 1984). With the advancement of technology and increasing demands on the level of teacher education programs, more cost and time effective education leads to offering of hybrid and online courses. It is not enough to only teach future or inservice teachers about theories of learning, but courses in teacher education programs should also use them in practice (so to walk the talk), and help preservice and inservice teachers (while taking a course) experience online teaching and learning methods.

Literature Review

The recently introduced Common Core Standards (CCS) for education in K-12 schools, developed by the National Governors Association (NGA) and the Council Chief State School Officers (CCSSO) (2010), had an influence on teacher education programs. Not only K-12 teachers need to align their teaching to the CCS, but college level teacher education courses need to also prepare preservice and inservice teachers to use instructional methods that teach them how to prepare students for college and career readiness. This alignment to CCS can be accomplished by using instructional methods that ask students to use their metacognitive thinking, and develop problem-solving skills (NRC, 2000, 2001, 2012). The NRC report states that “in general, students who are more metacognitive are better students overall, which suggests that the goal of education should be to help students become more metacognitive” (NCR, 2012, p. 154).

There is an increase of online or web based programs that offer instruction for K-12 students (Brummernhenrich & Jucks, 2013; D’Mello, 2013). As a consequence teacher education programs should also prepare educators for online teaching. Bates and Sangra (2011) show that in the past two decades online education changed tremendously, from online courses “correspondence” style to MOOCs (Massive Open Online Courses). As online learning becomes ubiquitous (Andresen, 2009; Kirschner, 2012; Walsh, 2011) at all levels there is still more to learn and improve in what regards online instruction. Teaching the teachers with new and improved instructional methods for online education should also be a target for teacher education programs (Garrison & Anderson, 2003).

Results from comparing face-to-face and online instruction (Schumm, Webb, Turek, Jones, & Ballard, 2006), showed that online courses can improve student learning. Literature on online teaching shows that online discussions have the potential to cultivate and develop student higher order thinking skills, and increase instructor-student and student-student contact (Black, 2005; Garrison, Anderson, & Archer, 2001; Hara, Bonk, & Angeli, 2000; Meyer, 2003; Schwartz & Szabo, 2011; Szabo & Schwartz, 2011; Thomas, 2002; Wu & Hiltz, 2004). Despite encouraging news other researchers (Andersen, 2009; Dennen & Wieland, 2007) show that when it comes to online learning some students are not motivated, do not participate, or lack effective online communication skills.

Lately constructivist approaches are used in online courses as well (Hewitt, 2005; Meyer, 2003; Rourke & Anderson, 2002). Peer-facilitation in online discussions may encourage more participation. Several studies (Baran & Correia, 2009; Hew & Cheung, 2011) analyzed student-led online facilitation strategies used to overcome the challenges of instructor-dominated facilitation (Wang & Chen, 2010). The evidence shows (Baran & Correia, 2009; Holtz, Kronberger, & Wagner, 2012; Newman, Johnson, Webb & Cochrane, 1997), that peer-facilitation enhanced the sense of learning community, helped generate creative ideas, motivated, and encouraged student participation in online discussion. Schellens, Van Keer, Valcke, and De Wever (2007) argue that medium group size (8-10 students) results in the highest level of group interaction. However, this view is not consistent, since most are in favor of groups that consist of four to five students (Ng, Cheung, & Hew, 2009).

The participatory action research study presented in this paper was conducted with the purpose to improve an asynchronous online educational psychology course in a graduate education program at a small private college in Northeast of United States. It is argued that, for online asynchronous discussions, the size of discussion groups is not as important as how the discussions are structured, and the type of forum discussions. This study was based on the comparison of two instructional strategies that used asynchronous online discussion forums: instructor-facilitated and peer-facilitated forum discussions. This participatory action research sought to respond the question, if peer-facilitated instruction in asynchronous online forums improves discussions quality.

Method

Participants

Participants were graduate teacher education students from a Northeastern college in the United States, enrolled in an advanced educational psychology online course. The course is a core course required for all students in the masters program. This action research study took place across three fall semesters. There were 23 students (20 female and 3 male) in Fall 2010; 18 students (17 female and 1 male) in Fall 2012; and 11 (9 female and 2 male) in Fall 2013. The male/female proportion in each semester is representative of the entire program population. Most of the students held elementary education teacher certification, with several holding secondary education teaching certificates. All participants have completed previously at least two online courses, and all were familiar with the course online management system (Sakai based iLearn). The instructor was a full time faculty with many years of experience in teaching online, hybrid, and face to face graduate level courses.

Procedures

In all semesters in the study the course covered the same content, and students were assigned the same weekly tasks: students were to post one larger (over 800 words) initial reflective response on the readings, followed by a minimum of two comments posted to two different colleagues' initial response. Each week the content covered a chapter from the textbook and assigned supplemental readings. This action research had three phases across three fall semesters.

In Fall 2010 the group of 23 students was divided in two smaller groups of 11 respective 12 students, while the two groups had separate discussion forum each week they had the same task to post one initial reflection on the readings, followed by at least two comments to other colleagues. Asynchronous discussions were instructor-facilitated in both groups. Across the semester it became evident that there is a large amount of repetition in forum discussions not only across the forums in the two groups each week, but from week to week. Given that the task was for each student to post one initial reflection on the weekly readings, the task itself did not allow much variation. There were only minimal individual differences in the examples that each student posted as application of the content learned. The repetitive nature of discussions was even

more evident for me as instructor who read all postings across the two group forums. By end of semester I decided to change and “shake up” the course to allow for more variation and individual difference and choice for each student. This required an action: instead of individual forum participation, I decided to use team work for facilitation of discussions along instructor facilitation, and individual work. This would parallel the face-to-face classroom teaching and teacher-student and student-student interaction.

In Fall 2012 students were divided in five discussion facilitation teams (3 or 4 students), each team one time per semester designed four or five content-based discussion questions, and facilitated the online asynchronous discussions in the respective week. The instructor had a participant-facilitator role contributing each week to the forum discussions and responding to the initial reflections and comments, and guiding the discussions in a new direction if necessary. At the end of each week the facilitator team completed a summary of discussions and posted it on the forum. The instructor provided a general feedback to the students, posted to the forum of the week. This method paralleled what in the classroom environment would take place by having teams post their discussion summary on flip charts for class presentations.

The third phase of the action research took place in Fall 2013, when the model of team-facilitation was again implemented with the exact same structure of requirements for teams and individual participants. The difference was that the instructor now provided individualized weekly feedback to every student using the Messages in the iLearn. This helped to point out needed individual improvements and also in forum discussions.

Each semester a mid-semester survey was completed where students self-evaluated their learning, set up future learning strategies, and provided feedback on the instructional methods used in the course. An end-semester overall reflection was completed by all students across the three semesters (top three most preferred topics, how did the course affect their teaching practice, and any challenges).

Data Analysis

There were two types of analysis: quantitative and qualitative. To compare the two teaching methods and to control for students’ improvement of online discussions skills across the semester, six discussion forums were chosen for analysis (two from each: beginning, middle, and end semester). Postings

within each semester were separately analyzed: initial postings vs. comments posted in reply to other discussion participants.

Quantitative analysis. Quantitative analysis was conducted only for 2010 and 2012 semesters to observe for changes in the instructional methods, only student-posted discussions were used (in Fall 2012 discussions summaries were not counted). Instructor postings will not be presented in the analysis, but a count of number of postings did not show statistically significant difference in the number of postings within and between the two semesters. The quantity of forum postings by students (counts of postings) does not necessarily transpose in quality of postings (higher levels of posted discussions). To compare forum discussions across the semesters two methods of analysis were used: the first method was counting the number of actual postings in each semester, by type of posting (initial reflection response vs. comments to peers), and the second method was to evaluate the content of all postings by level (using a rubric based on Bloom's Revised Taxonomy, see Appendix A).

Qualitative analysis. Disregard what the numbers would be showing in results from the quantitative analysis, as instructor of the course I knew that my action (transforming the forums from an individual student based participation, into a team-based along with an individual participation), was successful! A second analysis was conducted on students' forum postings as qualitative content analysis, which looked at the change across the semester and any difference between the semester when the instructor was the sole facilitator (Fall 2010), to team facilitation along with the instructor facilitation, and instructor providing only weekly general feedback on the forums (Fall 2012), compared to when the instructor provided weekly individual student feedback via Messages (Fall 2013).

Results

Quantitative Analysis Results

From the count of the number of individual and team postings by semester (see Table 1), results show that when peer-facilitation was used there were more forum postings.

Table 1. Frequency of Postings by Semester

Type of posting	Fall 2010	Fall 2012
Total postings	432	770 (531 total class + 239 team postings)
<i>Individual</i>		
Initial responses	137	197
Comments	295	239
Responses to comments		89
Follow-up questions		6
<i>Team</i>		
Initial discussions starters		27
Follow-up questions		50
Comments		162

Comparisons of total counts between the two semesters (controlling for team postings), show a statistically significant difference in the number of postings on the discussions forums ($F(1, 622)=55.49$; $p<.001$), more postings were done in Fall 2012. Results regarding discussions by chapter, within each semester (Fall 2010 and 2012), were not statistically significant different. This means that students were consistent in their forum participation from beginning to end of semester.

A second analysis regarding the type of postings compared the content of all postings by level in the two instructional methods (instructor-facilitated vs. team-facilitated). A two-dimensional rubric, based on the Revised Bloom's Taxonomy levels (see Appendix A), was used to analyze the content of each forum posting (Anderson et al., 2001). Forum postings were prepared (participants' names were removed and numeric codes were given for each participant). Individual postings were also attached a numeric code by the type of posting (initial response or comments). Two raters scored all postings (the author and a graduate assistant). Initially for the training phase ten forum postings were scored by each separately; then results were compared and discussed. This discussion was followed by another batch of 20 forum postings scored separately and then compared and discussions followed to smooth out the reminder incongruence in scoring. Finally raters scored independently all the rest of postings and an inter-rater correlation was performed (correlation coefficient of .88). Each posting could earn a maximum of 24 points (6 points

for cognitive levels, by 4 points knowledge levels; see Appendix A). Mean scores by knowledge levels and total scores were computed (see Table 2).

Table 2. Knowledge Level Mean and Total Scores by Semester

Semester	Factual	Conceptual	Procedural	Metacognitive	Total
Fall 2010	5.68	5.19	3.54	1.13	15.54
Fall 2012	4.36	2.96	1.85	0.53	9.71

Comparison of scores within the same semester on the six forums in the study showed no statistically significant difference in quality of postings within the semester. However, there was statistically significant difference between scores from forum discussions between the two semesters. Interestingly, despite the higher number of postings in the peer-facilitation model (Fall 2012), results show that level of postings with instructor-facilitation (Fall 2010) were statistically significant higher ($F(10, 1057)=17.33$; $p<.001$). This is possibly due to the fact that in Fall 2010 students were asked to post an initial reflection on the weekly readings, show how they would apply the content in their teaching, and come up with a new idea of how to use the content in instructional practice. Evidently this task calls for a deeper initial reflection compared to team-facilitated forum discussions where the 4-5 initial questions posted by the team were responded targeting the question, and if the questions were at lower level the responses also were comparable with the question asked. These results show that the actual number of forum postings (count of postings) increased in the team-facilitated model, but the level of posting did not improve (actually was lower than in 2010).

The evidence from my results prompted me to also think of the question *Why* this was happening, when I had the knowledge (but not evidence from results), that my students have a richer discussion in 2012 compared to 2010. Analyzing the instructional procedures I used in Fall 2010 and 2012 I decided to make a new change, and continue my action research with phase three. Fall 2013 instruction was similar to the instructional model from Fall 2012 however, teams were required to submit to me their forum discussion starter questions, and also have at least one question with attached supplemental readings (teams could choose from the Resources I provided in iLearn course site). If it was necessary I edited the text of discussion prompts, and in several cases added supplemental readings. Also, instead of a general

feedback posted to all on the weekly forum discussions, I provided weekly individual feedback to each student in the Messages of the iLearn (a Sakai LMS), by giving detailed feedback on what was *good* in his/her weekly posting, what was a *weakness*, and gave a detailed prompt on how to *improve*. This method was then applied in the Fall 2013 maintaining the team-facilitation and instructor participant-facilitator role. The quantitative analysis comparing 2013 with the other two semesters was not performed because the change in the instructional methods was only regarding details.

Qualitative Analysis Results

A qualitative content analysis was performed on the same six forum postings (two from each: beginning, middle, and end semester), selected across each semester (Fall 2010, 2012, and 2013). Each semester postings were analyzed considering separately the initial postings and the reply comments to other participants (instructor postings and team forum summaries were not included). To be consistent with the quantitative analysis conducted by using Bloom's Revised Taxonomy, the content of all postings were categorized using the same knowledge levels as in Bloom's Taxonomy (factual, conceptual, procedural, and metacognitive). Then in each level of knowledge further categories were made to represent "use of content" vs "evaluation and creation of new content". These results were then compared to results from the quantitative analysis using Bloom's Taxonomy. Then each semester postings separately were analyzed and a narrative conclusion drawn. The last step used the conclusions from the three semesters and they were compared.

Results from qualitative analysis show that despite the quantitative results which show that initial individual forum postings were at a higher content level in Fall 2010, overall the content discussed in Fall 2012 was much richer and spread across many more domains of Bloom Taxonomy, and categories from the content analysis. The same comparisons show that overall discussions in Fall 2013 used richer vocabulary and discussions were mostly at application and analysis level, using mostly metacognition and procedural knowledge examples compared to 2010 and 2012 forum postings. In 2010 initial individual postings were focused more on the chapter content, with additional application examples, however were not many debates about educational and instructional application of the content learned. There were also more repetitive responses in Fall 2010 compared to Fall 2012 and 2013,

which had more diverse individual responses. This can be explained by the fact that in 2010 all students had to post their initial reflection on the same chapter, while in 2012 and 2013 the initial reflection was posted as a response to a defined discussion prompt. In Fall 2012, by using targeted and multiple questions with team facilitation, individual postings were shorter as length, but more reflective, practice related, presenting more words that show reflective and critical analysis of the content, as well as debates on instructional applications, evidence that students were merging content studied with the teaching practice examples. Fall 2012 presents many more categories and ramifications of responses than what is encountered in Fall 2010 postings. In other words Fall 2010 are more focused in content, but Fall 2012 and 2013 discussions show more critical analysis, and are richer in reflective thinking. Replies were more focused on conceptual knowledge and examples were also discussed in light of the content, and there were more references to resources and literature.

In Fall 2013 because the instructor supervised (and edited if necessary) the actual discussion prompts posted to the forum, there were more postings, more interaction, and the most often levels for posting were application, analysis, and evaluation. Initial reflections became more balanced and targeted on the content analysis and examples in addition as demonstration. Replies of all types were more focused on analysis and evaluation of examples and course content. Conceptual postings were grouped in three categories: (1) Analyzing the theoretical content; (2) Analyzing a posted example; and (3) Evaluating and creating new content using critical thinking. Discussions resembled more of a debate and evaluation of content discussed, and more constructive feedback was offered on the forums. Use of reflective thinking and metacognition in postings from Fall 2013 was evident.

Reports from mid-semester survey in both teaching formats (across all three semesters) showed that students enjoyed the topics that were learned. In Fall 2010 they found a bit repetitive the discussions (responses which are supported by the qualitative results); and in Fall 2012 with team work students reported better understanding of content, and appreciation of shared practice examples among colleagues. Reports from Fall 2013 similar to Fall 2012, show that 96% of students have confidence in the quality of learning and progress toward reaching the student learning outcomes set forth, and an interest in the

content studied. While in Fall 2013 they also reported liking the choice of questions for each chapter, and found the supplementary readings helpful.

Students also completed an end-semester reflective assignment (top three most preferred topics, how did the course affect their teaching practice, and any challenges). In Fall 2012 and 2013 more students (80%/2012 and 86%/2013) than in Fall 2010 (67%), reported that they learned from peers and thought about instructional methods used in the course; also they reported a better understanding of content application to their classroom instruction. However, in Fall 2012 students also reported frustration working in online teams; while in Fall 2010 frustration came from the too repetitive initial posting and difficulty to come up with new ideas not yet presented by others. In Fall 2013 because the team formation was more structured and students completed a team agreement form and a team self-evaluation at the completion of team work they reported that actually team work was fair despite some communication issues common to online learning.

Discussions

Results from this action research show that peer-facilitation resulted in an increase of quantity of participation in forum postings. Despite that the required minimum number of forum posting was the same both semesters, when peers facilitated the forums students participated more often in forum discussions.

However, when the quality of postings was studied another story could be told. In the Fall 2010 semester individual initial responses were more elaborated, while in peer-facilitation model, initial responses were somewhat shorter. These results suggest that peer-facilitated discussions seem to help the frequency of postings, but the discussions when peers facilitate seem to be more superficial (results which support Andresen, 2009). Results also suggest that students developed more elaborate and higher order initial reflections when the instructor facilitated the discussions, discussed more the content of readings, and evaluated the content while presenting appropriate examples from education application. This is in contrast with initial reflections writing style in the Fall 2012 semester when online forums were lead by teams in peer-facilitation. It was observed that with peer-facilitation initial reflections focused more on application and examples, which then were related and explained the content from the weekly readings. Despite that in all semesters the instructor

was present and had comparable participation (the difference in count of instructor forum postings across the semesters was not statistically significant), it seems that peer-facilitation shifted the type and level of forum discussions. However when the instructor monitored the initial discussion question prompts posted by the teams then the quality of discussion was at the highest between the three semesters. Across all semesters grade point average was comparable (no statistically significant differences in grades). The results from this study support similar research results using constructivist methods and group work (Garrison, Anderson, & Archer, 2001; Roseth, Saltarelli, & Glass, 2011; Sitzmann, & Ely, 2010), showing that instructor facilitation along with teams as peer-facilitation improves online asynchronous forum discussions (De Wever, Van Keer, Schellens, & Valcke, 2010; Schellens & Valcke, 2005, 2006; Schwartz & Szabo, 2011; Szabo & Schwartz, 2011).

Reports from mid-semester survey and end-semester reflection in both teaching formats showed that students enjoyed forum discussions. In Fall 2013 specifically they reported that as semester progressed they developed better time management and task management and a personal style in discussions, possibly also due to the weekly individual feedback provided by the instructor. However, in Fall 2012, 2013 when team work was used, students reported better understanding of the content, and 96% of students show confidence in the quality of learning and progress toward reaching the student learning outcomes. Like for any action research conducted in a course a limitation of this study is the small number of participants, and that the same instructor taught all course sections in each semester, and also conducted the data analysis.

Lessons Learned and Educational Implications

Subsequent semesters the online instructional methods were adjusted and improved based on results from this study. At the present (Fall 2014 and 2015) team peer-facilitation continues to be used. However, the teams are required to formulate the questions based on Bloom's Revised Taxonomy (Appendix A), and present the questions to the instructor before they are posted. This insures that the level of initially posted tasks for discussion are at higher knowledge level and give the opportunity to be responded at higher levels also. Specific forum participation instructions and detailed participation rubric is presented to students at the start of semester. Instructions require

individual participants (as they post their initial reflections) to discuss the content of readings, provide application examples along with justification how the examples relate to the content of weekly readings, and require students to always bring support from the readings, or provide supplemental literature. Weekly evaluation is materialized in scores for participation, and the instructor provides weekly individual feedback.

The following lessons learned could be pointed out:

- The use of teams as peer-facilitation in asynchronous online courses seems to provide a larger participation on the forum discussions along with student motivation to learn
- The instructor should be an active participant in the discussions and monitor the initial tasks posted by teams to the discussion forums
- Detailed and specific requirements for the quantity and quality of forum postings should be provided to students in advance along with rubrics for evaluation
- Weekly evaluation of forum postings and individual feedback will help the instructor monitor forum discussions and help the student improve where necessary.

Conclusions

The results from this action research study show that asynchronous online teaching can use successfully constructivist instructional models and team work. Peer-facilitation seems to improve the frequency of forum participation, and instructor monitoring of initial discussion prompts posted will increase the quality of discussions. Weekly feedback is important to help students improve their forum postings. This study brings more evidence to the field of education that instructional methods used successfully in the classroom can be adapted to the online environment with similar success.

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Appendix A

Scoring Rubric based on Bloom's Revised Taxonomy

Knowledge Levels (4 points)	Cognitive levels (6 points)					
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
Factual						
Conceptual						
Procedural						
Metacognitive						

Note:

One point for each combination level (Knowledge x Cognitive)

Total points = 4 x 6 = 24 points

Received March 07, 2015

Revision April 15, 2014

Accepted May 3, 2015