

How to structure online discussions for meaningful discourse: a case study

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Abstract

This study examined the impact of structuredness of asynchronous online discussion protocols and evaluation rubrics on meaningful discourse. Transcripts of twelve online discussions involving 87 participants from four sections of a graduate course entitled *Instructional Technology Foundations and Learning Theory* were analysed across four semesters. Protocols and evaluation rubrics guiding online discussions in this course ranged from minimal structure or loosely defined protocols in the first section, to high structure or well defined and comprehensive protocols and evaluation criteria in the fourth section. The analyses revealed that some elements of structure had a significant impact on meaningful discourse. Particularly, guidelines that assisted the facilitation and evaluation of online discussions increased the cognitive quality of student postings promoting a deeper and more meaningful understanding of course content.

Overview of problem

Asynchronous communication is a form of computer-mediated communication (CMC) that supports information exchange and group interactions through a variety of electronic communication tools such as electronic mail (email), bulletin boards, class listservs, and online discussion forums (Bodzin & Park, 2000). In a 2000 National Education Association (NEA) survey, 62 percent of distance learning faculties reported using asynchronous communication tools in their courses to support student–teacher interactions and class discussions (National Education Association, 2000). Despite a growing body of research on the instructional benefits of asynchronous communication

(Vonderwell, 2003; Bodzin & Park, 2000; Jonassen, Davidson, Collins, Campbell, & Bannan-Haag, 1995; Henri, 1992; Kaye, 1992), there is little research about the impact of the protocols and criteria that guide online discussions on meaningful discourse.

Meaningful discourse is defined in this study as the ability of learners to demonstrate critical thinking skills by (a) relating course content to prior knowledge and experience, (b) interpreting content through the analysis, synthesis, and evaluation of others' understanding, and (c) making inferences. Meaningful discourse is one of the main goals of constructivist learning because it supports knowledge construction through articulation, reflection, and social negotiation (Jonassen *et al.*, 1995). In web-based or online learning environments, articulation, reflection, and social negotiation can be promoted through asynchronous online discussions (Dabbagh & Bannan-Ritland, *in press*). Initial studies on the instructional benefits of asynchronous online discussions indicate that the protocol or structure of an online discussion has a significant impact on the quality of the discussion (Hewitt, 2003; Vonderwell, 2003; Swan, Shea, Fredericksen, Pickett & Pelz, 2000; Vrasidas & McIsaac, 1999). Yet, the research literature does not discuss what type and degree of structure is most effective in promoting meaningful discourse. Therefore, a major challenge facing the instructor in distance learning settings is how to structure online discussions in order to engage students in meaningful discourse.

Theoretical framework

Meaningful discourse can be defined as a process of collaboration and social negotiation where the goal is to share different viewpoints and ideas and collaborate on problem solving and knowledge building activities (Duffy & Cunningham, 1996). When students are engaged in collaboration and social negotiation, they are articulating what they know by explaining it to others, and reflecting on what they know by analysing their performance and comparing it with that of experts and peers (Collins, 1991). Articulation and reflection support knowledge construction by allowing students to relate course content to prior knowledge and experience and interpret content through the analysis, synthesis, and evaluation of others' understandings. As Jonassen *et al.* (1995) contend 'knowledge construction occurs when students explore issues, take positions, discuss those positions in an argumentative format and reflect on and re-evaluate their positions' (p. 16). Additionally, articulation and reflection allow students to make inferences by generalising their understanding and knowledge so that it is applicable in different contexts (Collins, 1991).

To encourage articulation, reflection and social negotiation, instructors are increasingly using asynchronous communication technologies to augment in-class discussions about course topics and readings with online dialogue allowing students to continue these discussions beyond the classroom context. Gunawardena, Lowe and Anderson (1997) describe asynchronous communication as an important pedagogical tool that 'enables groups that are separated in time and space to engage in the active production of shared knowledge' (p. 410). An important instructional benefit of asynchronous communication therefore is its potential to support the co-construction of knowledge through discourse.

In addition, Hara, Bonk and Anjeli (2000) reported that the asynchronous or delayed capabilities of electronic communication tools provide opportunities for reflective learning and meaningful processing of information. This finding is further supported by Tiene (2000) who found that students responded positively to the asynchronous aspect of online discussions because ‘it allowed them to participate at their own convenience when they had the time to read the comments and the time to develop their own responses’ and ‘there was also time to think about the point made by their peers and time to decide how they felt about certain issues’ (p. 382).

Although asynchronous communication tools have the potential to support knowledge construction, there are few research-supported models to assist instructors in the design of effective online discourse. Brannon and Essex (2001) suggest that instructors ‘provide students with clear communication protocols’ and ‘clear requirements for posting and reading discussion entries’ to guard against potential pitfalls of asynchronous communication such as ‘feelings of social disconnection’ that could result from (a) lack of immediate feedback, (b) lack of daily participation in discussions, and (c) lack of time necessary for students to develop thoughtful discussions (p. 36). This study addresses these issues by examining the impact of the structuredness of online discussion protocols and evaluation rubrics on meaningful discourse in order to inform instructors how to effectively design asynchronous online discussions. Figure 1 summarises the theoretical framework for this study. Figure 1 suggests that in order for meaningful discourse to occur, an effective interaction between structuredness, asyn-

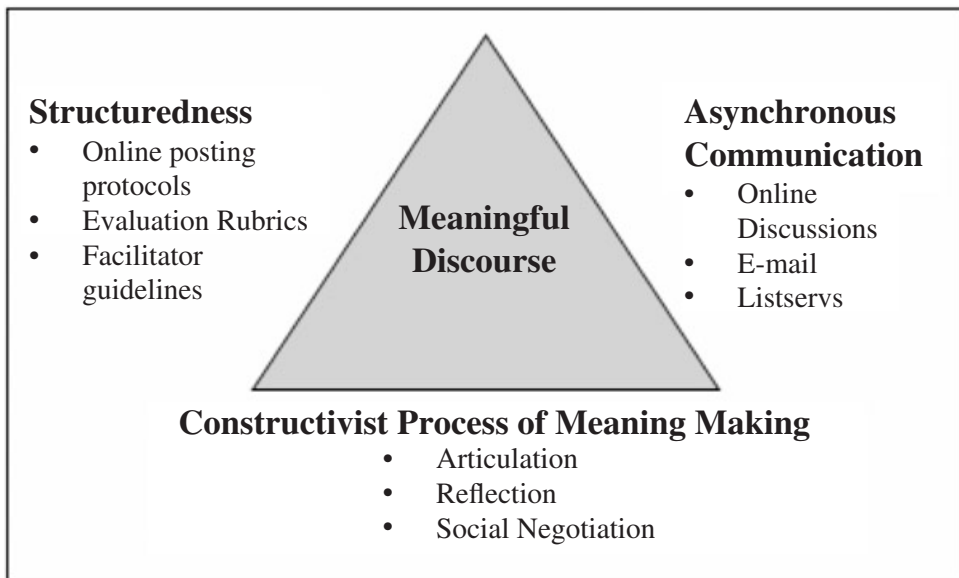


Figure 1: Factors influencing meaningful discourse in online discussions

chronous communication, and the constructivist process of meaning making must take place.

Purpose of study

This study examined whether the degree and type of structure imposed on participants in online discussions impacted the cognitive quality of student postings. The main research question addressed in this study was: How does the structuredness of online discussion protocols influence meaningful discourse in asynchronous online discussions? More specifically, how does the structuredness of online discussion protocols influence the ability of students to (a) relate new knowledge to prior knowledge and experience, (b) interpret content through the analysis, synthesis and evaluation of others' understanding, and (c) make inferences? Structuredness is defined in this study as the instructional design elements that guide asynchronous online discussions. These include facilitator guidelines, posting protocols (eg, number of postings required, length of posting, pacing of postings), evaluation criteria, grade weight, nature of topic discussed, number of participants, length of discussion, and degree of instructor or facilitator participation, among others. Three elements of structure were particularly relevant in this study: (a) facilitator guidelines, (b) posting protocols, and (c) evaluation criteria.

To examine the impact of these three elements of structure on meaningful discourse, three specific research questions were formulated: (1) how does the addition of facilitator guidelines influence meaningful discourse in asynchronous online discussions? (2) how does the addition of posting protocols influence meaningful discourse in asynchronous online discussions? And (3) how does the addition of evaluation rubrics influence meaningful discourse in asynchronous online discussions?

Method

Participants and context

Participants were 87 students. The participants were enrolled in a graduate course entitled 'Instructional Technology Foundations and Learning Theory on Student Learning'. Twenty three in the spring 1999 course, 28 in the fall 1999 course, 21 in the fall 2000 course, and 15 in the spring 2001 course. The instructional objective of the course is to enable students to understand the foundations and evolution of the field of instructional technology by investigating the cognitive processes underlying learning behaviour and the relation of these processes to the design of instruction. The course readings centre around learning theories such as behaviourism, cognitive information processing, meaningful reception learning, schema theory and constructivism, and their implications on instruction. The course is a requirement for students completing a master's degree in instructional technology at a large mid-Atlantic university. The course meets face-to-face once a week, however, a comprehensive course web site delivered through the course management system WebCT™ supports all course activities. The course implements a variety of learning tasks including group presentations on relevant topics, individual research papers, and in-class and online discussions designed to support students' ability to think about the psychology of learning and its application

to instruction. The online discussion activity entails students working in pairs to share the responsibility of facilitating and synthesising one online discussion that supports the topic of the week's readings.

The instructor began integrating asynchronous online discussions as a learning activity in the spring of 1999. Given the complex and ill-structured nature of the course content and an average enrolment of 20 students per semester, the instructor felt that asynchronous online discussions would provide students with a more effective venue to discuss the course content. WebCT™'s discussion forum feature was used to implement the asynchronous discussions. In the spring 1999 course, the instructor did not impose formal or comprehensive guidelines and protocols for participating in online discussions. The guidelines consisted primarily of a statement in the syllabus under course requirements that read, 'Early in the course students will sign up in pairs for a week to lead and facilitate an online discussion on the readings associated with that week. The students will facilitate the online discussion, facilitate the class discussion, and provide a wrap-up synthesis in class.' Student facilitators were required to post two questions from the readings assigned for that week to the class discussion forum area and elicit responses from their peers. All students were expected to participate in the weekly online discussions and were graded (10% of the course grade) on the number and quality of their contributions. However, no explanation was provided as to what the 'number and quality of contributions' meant. To assist students in their facilitation responsibilities, the instructor modelled the first online discussion. The instructor also participated, though minimally, in all student-facilitated online discussions.

Additional and more specific guidelines were provided in subsequent semesters based on student feedback from formative evaluations conducted by the instructor. For example, in the fall of 1999, two guidelines for facilitating an online discussion were provided (see Table 1). In the fall of 2000, specific protocols for posting messages were provided. Lastly, in the spring of 2001, a comprehensive evaluation rubric was developed to inform students how their online contributions would be graded. The addition of new and more specific guidelines progressively increased the structuredness of this learning activity across the four semesters, from minimal or low structure with loosely defined guidelines and protocols, to a high degree of structure enforced through a well-defined and comprehensive framework for facilitating and participating in online discussions. In addition, the percentage of the course grade was increased from 10 to 15 percent in the spring 2001 course. For the purposes of this study, the spring 1999 course was labelled *minimal structure*, the fall 1999 was labelled *low structure*, the fall 2000 course was labelled *medium structure*, and the spring 2001 course was labelled *high structure*.

Research design

Since there were multiple sections of the course under investigation, the research design was a multiple case study design in which the unit of analysis is a single course (Yin, 1994). Therefore, there were two layers of data analyses, course-by-course analysis and cross-course analysis. Three online discussion transcripts from each course were selected for this analysis resulting in a total of 12 transcripts. Specifically, the first, mid,

Table 1: Structuredness of online discussions protocols

<i>Protocol items</i>	<i>Description of protocol</i>	<i>Spring 1999 (minimal structure)</i>	<i>Fall 1999 (low structure)</i>	<i>Fall 2000 (medium structure)</i>	<i>Spring 2001 (high structure)</i>
<i>Statement in the syllabus under course requirements</i>	Students were required to participate in weekly online discussions as a percentage of their total semester grade.	X	X	X	X
<i>Link to 'The Role of the Online Instructor/Facilitator' article</i>	This web-based resource explained the various roles in an online discussion providing more structure and guidelines for facilitators.		X	X	X
<i>Criteria for facilitating an online discussion</i>	The instructor provided a five-item description of how student facilitators would be evaluated. The criteria addressed the discussant, ability to demonstrate knowledge of the subject, synthesise student postings, and respond to peers.		X	X	X
<i>How do I post my article successfully?</i>	This web-based resource provided 13 tips for successful online discourse.			X	X
<i>Protocol for posting threads</i>	The instructor provided guidelines about the frequency and pacing of posts to the discussion forum.			X	X
<i>Weekly online discussion rubric</i>	The rubric gave a point value to excellent, good, average and poor postings. These categories were based on how well students followed the criteria of timely discussion contributions, responsiveness to others' postings, knowledge and understanding of assigned reading, and ability to follow the online discussion protocols.				X

and last discussion transcripts from each course were selected to accommodate for any perceived changes in discussion patterns that could result from either increased familiarity with the format of this activity or the learning content. The topics for discussion for each of the three transcripts selected involved the learning theories of behaviourism, constructivism and motivation.

The two researchers (the authors of this paper) independently examined a randomly selected transcript and created a coding scheme based on their understanding of whether the students were (1) relating new knowledge to prior knowledge, (2) interpreting content through the analysis, synthesis and evaluation of others' understanding, and (3) making inferences. The researchers then discussed their individual coding schemes and converged on a single scheme, which was later used to code the rest of the online discussion transcripts using nVivo software for qualitative data analyses. This process provided convergence on data to ensure that any inferences were valid and viable (Winegardner, 2001). A sufficient number of codes were developed (see Table 2) in order to make meaningful distinctions between the data (MacNealy, 1999). Additionally, the codes were mapped to Bloom's taxonomy (Bloom, 1956) with Reading Citation (RC) corresponding to the knowledge level, Content Clarification (CC) and Prior Knowledge (PK) corresponding to the comprehension level, Real World Examples (RW) and Abstract Examples (AE) corresponding to the application level, and Making Inferences (MI) corresponding to the analysis, synthesis and evaluation levels. Each student posting was then coded using these categories. Multiple codes could be assigned to a single posting, however, one instance of a code category in a posting was sufficient to assign that code. In addition to the six cognitive codes describing student postings, four codes identifying facilitator and instructor postings were developed. These codes included: Facilitator Question (FQ), Facilitator Response (FR), Facilitator Clarification (FC), and Instructor Posting (IP). See Table 2 for a complete list of the codes used in this study.

In addition to coding the 12 online discussion transcripts using this coding scheme, a sample of eight discussion threads, two chosen at random from an online discussion transcript from each section of the course, were further analysed qualitatively to examine patterns that emerged from the coding of the transcripts. The purpose of this emergent analysis was to determine whether the levels of interactions in a thread were a factor in triggering a more complex thought process in a student's posting. The results of coding the transcripts (discussed in the next section) revealed a potential interaction between the number of thread levels and the number of facilitator responses and follow-up questions. The results of coding the transcripts also revealed that student postings with instances of MI also contained instances of CC, PK, RW and AE, suggesting that making inferences is a complex thought process requiring the integration of several cognitive processes. These issues were examined in the emergent analysis.

Results

Table 3 summarises the total number of postings for each online discussion across the four courses whereas Figure 2 shows the percentage of student, facilitator, and instructor postings per course. Figure 3 represents the total number of facilitator postings for

Table 2: Categories for coding online discussions

Code	Name	Definition
RC	Reading Citation	Citation of weekly readings, eg, the learner specifically cites the article or chapter when making a point.
CC	Content Clarification	Personal interpretation of the content or content knowledge comprehension, eg, paraphrasing concept or principles in one's own words
PK	Prior Knowledge	Prior knowledge and outside resources, eg, the learner uses prior knowledge or outside resources to support a statement or an understanding
RW	Real World Example	Personal experience, professional/academic experiences. Providing examples that demonstrate the application of knowledge to a real word context
AE	Abstract Example	Use of analogies, metaphors or philosophical interpretations to support one's understanding of a concept or principles
MI	Making Inferences	Going beyond information given. Beyond comprehension, analysis, synthesis, evaluation-adding or constructing new knowledge
FQ	Facilitator Question	Questions posted by the facilitator of discussion thread
FR	Facilitator Response	Response posted by the facilitator of discussion thread
FC	Facilitator Clarification	Clarification message posted by the facilitator of the discussion thread
IP	Instructor Posting	Messages posted by the instructor of the course

Table 3: Total number of postings per discussion

Discussion forums	Spring 1999 # of postings	Fall 1999 # of postings	Fall 2000 # of postings	Spring 2001 # of postings
Behaviourism	87	55	106	109
Constructivism	103	69	119	100
Motivation	71	90	137	106

the three categories (FQ, FR and FC) across the four courses whereas Figure 4 represents the total percentages for each of the cognitive codes (RC, CC, PK, RW, AE and MI) across the four courses. Figure 4 demonstrates that some codes increased while others remained fairly consistent or decreased as elements of structure were introduced. Below we discuss the implications of these descriptive statistics in terms of each research question and the results of the emergent analysis.

Question 1—How does the addition of facilitator guidelines influence meaningful discourse in asynchronous online discussions?

The spring 1999 course, or the course with *minimal structure*, was the only course in which the instructor did not provide guidelines for facilitating online discussions. In the three subsequent courses, two items were provided to assist students in facilitating

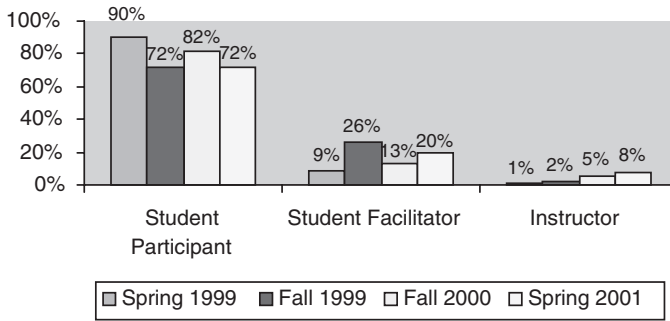


Figure 2: Percentage of student, facilitator and instructor postings per course

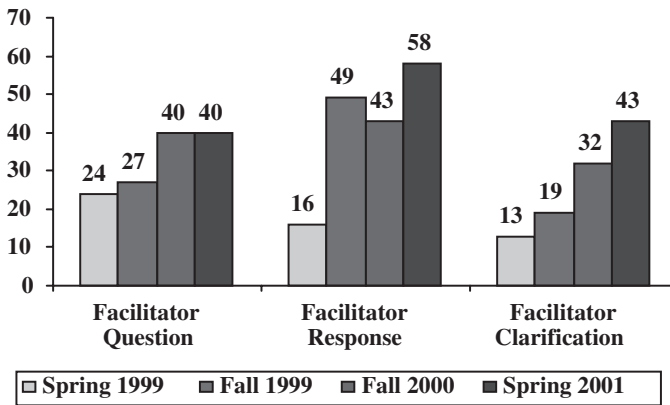


Figure 3: The nature of facilitator interaction across the four courses

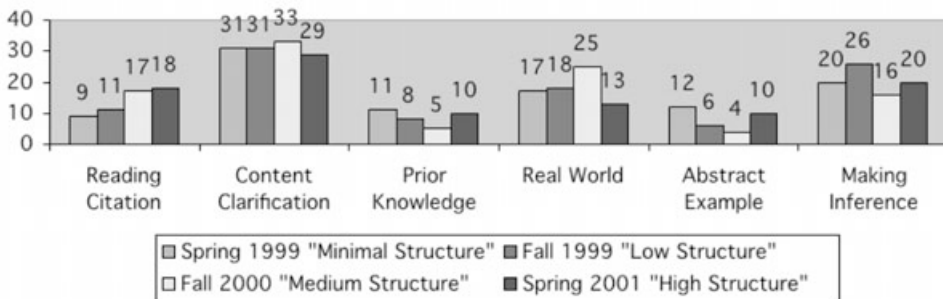


Figure 4: Total percentage of postings per coding category

online discussions. These included (a) an article entitled 'The Role of the Online Instructor/Facilitator' and (b) a document specifying criteria for facilitating an online discussion (see Table 1). The results of the individual case analysis and the cross case analysis demonstrated an increase in both the number and type of student facilitator postings. Specifically, the average number of facilitator postings across all spring 1999 online discussions comprised 9 percent of the total postings. The average number of facilitator postings in the three subsequent semesters rose significantly to 26 percent in the fall 1999 course, 13 percent in the fall 2000 course, and 20 percent in the spring 2001 course (see Figure 2). The type of the facilitator postings also increased substantially (see Figure 3). Facilitators actively responded to students (FR), clarified the subject matter (FC) and asked follow-up questions (FQ).

The increase in the number and type of facilitator postings also increased the level of interaction between students. The emergent analysis of the eight online discussion threads (two from each course) revealed a progressive increase in discourse between the student facilitators and the student participants over the four sections of the course. This was evident in the progression of discussion threads from single to multiple levels. For example, instead of responding to each other once within a thread, students would also respond to facilitator questions and clarifications creating multiple levels of indentation within a thread. In addition, more instances of MI were evident in the fall 1999 course (low structure) in which the two facilitator guidelines were first introduced. The fall 1999 course also had the highest average percentage of MI codes, 26 percent (see Figure 4). Therefore, it can be inferred that the addition of facilitator guidelines positively influenced meaningful discourse in asynchronous online discussions.

Question 2—How does the addition of online discussion posting protocols influence meaningful discourse in asynchronous online discussions?

Participating in the weekly online discussions was a graded course requirement for students in all four sections of the course. Students were instructed to contribute to the online discussion forum in WebCT™, however, detailed guidelines on how to post (eg, number of postings required, length of posting, pacing of postings) were not provided to students until the fall 2000 course. In this semester, two items, an article titled, 'How do I post successfully', and a protocol for posting messages were provided (see Table 1). The results of coding the transcripts revealed a drop in MI instances from 26 percent in the fall 1999 course to 16 percent in the fall 2000 course (see Figure 4). In addition, the coding results of the spring 1999 and fall 1999 transcripts, which had no formal posting protocols were compared with the coding results of the fall 2000 and spring 2001 transcripts. The average percentage of MI instances in the spring 1999 and fall 1999 courses was 23 percent, whereas the average percentage of MI instances in the fall 2000 and spring 2001 courses was 18 percent. Therefore, the addition of posting protocols may have negatively impacted the cognitive quality of student postings.

The coding results of the other cognitive codes support this conclusion (see Figure 4). For example, the percentage of reading citation (RC) codes, continued to rise over the four courses. RC instances increased from 9 to 11 percent, 17 percent and 18 percent

respectively across the four courses. In addition, the percentage of content clarification (CC) codes was higher than all other codes across the four sections of the course, with a total average of 31 percent. This trend of rising RC instances and consistently higher CC instances could be attributed to the addition of the posting protocol items. In one of these items, the instructor instituted a one-paragraph minimum and two-paragraph maximum for each posting and required students to use specific examples from the course readings to substantiate their postings. These criteria may have inhibited students from making inferences (MI) because students may have been more concerned with citing the reading and clarifying their understanding of the course content than with constructing their own understanding of the content by making inferences.

The emergent analysis also supported this argument. The emergent analysis revealed that postings with instances of MI often exceeded the two-paragraph limit imposed by the posting protocols, and contained multiple codes. More specifically, these MI postings began with instances of content clarification (CC) or reading citation (RC), followed by instances of abstract examples (AE) or real world examples (RW), and ended with making an inference (MI), demonstrating a progressively complex thought process leading to higher levels of understanding based on Bloom's taxonomy of learning outcomes. This evidence suggests that restricting the length of online discussion postings and requiring reading citations may inhibit students from meaningfully engaging in online discourse.

Question 3—How does the addition of online discussion evaluation rubrics influence meaningful discourse in asynchronous online discussions?

The online discussions in all four sections of the course contributed to the overall class participation grade, however, a specific evaluation rubric for online discussion contributions was provided to students in the spring 2001 course, the course labelled *high structure* (see Table 1). This rubric gave a point value of excellent, good, average and poor to postings for each weekly discussion. The points were based on how well students followed the criteria of: (a) timely discussion contributions, (b) responsiveness to discussion and demonstration of knowledge and understanding gained from assigned readings, and (c) the student's ability to follow the online discussion posting protocols provided in the earlier sections of the course. Item (a), timely discussion contributions, was the most significant rubric item that would impact the quality of the online discussions. This rubric item required students to contribute 5–6 postings distributed evenly over the six-day discussion period to achieve a grade of excellent. This item was introduced because the instructor observed an irregular pattern in students' postings in the previous three courses. Students would often only contribute to the discussion on the last day rather than consistently engaging in discourse over the entire discussion period. It is also important to note that in this course, the percentage grade of online discussions increased from 10 to 15 percent.

The individual and cross-case analyses revealed that the spring 2001 online discussion forums had the highest number of postings per student (17.3 postings), compared to the spring 1999, fall 1999, and fall 2000 courses, which had a combined average of

9.1 postings per student. In addition, the number of MI instances rose to 20 percent compared with 16 percent in the fall 2000 course. Although the spring 2001 online discussion forums did not have the highest percentage of MI instances (fall 1999 had 26% MI instances), the emergent analysis of the spring 2001 course revealed that these MI postings contained multiple code categories. The emergent analysis also revealed that there were significantly more student participant and student facilitator interactions than in the previous three semesters. As discussed earlier, the increase in thread levels (interaction) coupled with evidence of multiple codes in the MI postings that exceeded the two-paragraph limit, resulted in a progressively complex thought process leading students to make inferences and reach higher levels of understanding. Therefore, the addition of online discussion evaluation rubrics, in particular, the even distribution of postings' requirement and the increase in the overall grade percentage, positively influenced meaningful discourse in asynchronous online discussions.

Discussion

The main research question addressed in this study was how does structuredness of online discussion protocols and evaluation rubrics influence meaningful discourse in asynchronous online discussions? The analyses revealed that certain protocol items and evaluation criteria positively influenced meaningful discourse in asynchronous online discussions, whereas others may have had a negative impact. The three elements of structuring online discussions that significantly impacted meaningful discourse in the online discussion forums examined in this study were, (a) facilitator guidelines, (b) evaluation rubrics; (c) posting protocol items.

The first element of structure, facilitator guidelines, was shown to increase the number and type of student facilitator postings in the online discussion forums. As a result, the online discussion threads increased to multiple levels in the sections of the course in which facilitator guidelines were provided. This enabled students to discuss the course material in greater detail leading to more meaningful discourse (Tiene, 2000). Similarly, the second element of structure, evaluation rubrics, specifically the requirement of even distribution of postings and increase grade weight, had a positive impact on online discourse. The number of postings per student significantly increased leading to increased interaction between students and hence a deeper processing of the course content. In addition, both of these elements of structure led to higher instances of making inferences (MI) and multiple codes in MI postings demonstrating a progressively complex thought process resulting in meaningful learning.

The third element of structure, postings protocols, specifically, limiting the length of a posting and mandating reading citations, was shown to have a negative impact on meaningful discourse. The analyses revealed a significant drop in MI instances in the course in which these protocols were introduced (fall 2000 course) and that student postings for the fall 2000 and spring 2001 courses mostly comprised reading citation (RC) and content clarification (CC) instances, which demonstrate lower levels of cognitive processing according to Bloom's taxonomy of learning outcomes. Therefore, posting protocols should not limit the length of student postings but rather, they should

encourage students to develop their thought processes beyond citing the course readings in order to meaningfully engage in online discourse.

Conclusion

A major challenge facing the instructor in web-supported or online learning settings is how to structure asynchronous online discussions in order to engage students in meaningful discourse. This study demonstrated that certain elements of structure positively influenced meaningful discourse whereas others proved to be deterrents. This study is significant because it provides researched guidelines that instructors can use to effectively integrate asynchronous online discussions in their teaching practices. According to Funaro (1999), planning for effective integration of asynchronous communication tools in web-supported or online courses is the most influential variable affecting student learning. We acknowledge however that the results cannot be generalised to a larger audience due to the limitations of the case study research design (Yin, 1994). Additionally, further research is needed to determine whether other variables may have impacted meaningful discourse. These include:

- How does the student's familiarity with online discussion communication technology influence meaningful discourse in asynchronous online discussions?
- How does the student's access to online discussion communication technology influence meaningful discourse in asynchronous online discussions?
- How does the student's prior knowledge of content influence meaningful discourse in asynchronous online discussions?
- Is meaningful discourse influenced by whether a student or an instructor leads an online discussion?
- How does the nature of the discussion question or topic influence meaningful discourse in asynchronous online discussions?

In order to address these questions, information about students' backgrounds such as their knowledge and experience both in the content area and use of technology and other individual characteristics (eg, cognitive learning styles, epistemic beliefs and the degree to which students can self-regulate their learning) should be collected and factored into the overall analyses. Additionally, follow up interviews with students and facilitators about their experiences and perceived advantages and disadvantages of the pedagogical use of online discussions should be conducted. Lastly, this study analysed online discussions in a course with complex and interpretive subject matter. Future research should examine different content domains to better identify the types of topics that lend themselves to this type of discussion format.

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