STREAMLINING THREADED DISCUSSIONS IN ONLINE COURSES

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Abstract

The development of computer and Internet technologies offers new opportunities for teaching and learning. With the growing use of online courses and virtual discussions in hybrid and online courses, there is a distinct need for students and online instructors to address the importance and learning value of threaded discussions and to propose tools for assessing and streamlining effective discussions.

KEY WORDS: Threaded discussion, online teaching, effective online courses, streamlining threaded discussions

INTRODUCTION

Online education continues its growth. While the Sloan Consortium suggested last year that online education penetrates institutions of higher learning, it provided more precise data in the 2005 report: Sixty-five percent of schools offering graduate face-to-face courses also offer graduate courses online with almost as many undergraduate schools following this trend. Allen and Seaman state that the overall online enrollment increased from 1.98 million students in 2003 to 2.35 million students in 2004 [Allen & Seaman, 2005]. Consequently, more and more faculty will teach online.

The authors of this paper are particularly interested in the additional learning that could be generated by virtual discussions in threaded discussion forums and ways that faculty can use to facilitate meaningful discussions within a reasonable time limit. On the one hand, threaded discussions create new knowledge that emerges from an active dialog among group members who are sharing ideas and information. On the other hand, the exponentially increasing number of daily postings in threaded discussion forums suggests that there is a distinct need to investigate how to streamline virtual communication. Neither instructors nor students can be expected to spend several hours a day just reading posted messages in an online course.

SIGNIFICANCE OF THREADED DISCUSSIONS

The integration of technology for educational purposes provides universities with powerful tools not only for the delivery of courses to geographically distant students, but also for enhancing classroom learning. Online education should not be understood as the downloading of information followed by the passive and solitary activity of staring at a computer screen. Instead, online education advances the pedagogical principles of constructive learning through providing opportunities for socio-cultural interaction.
Hicks, Reid, and George [1999], for example, considered threaded discussions a learning opportunity by increasing quantity and quality of interactions, increasing independent and ‘democratic’ interaction, increasing personal reflection, and promoting collaborative and group learning.

Bazillion and Brown [1998] described these learning opportunities in even greater detail: (a) students actively construct knowledge by exploring websites, experimenting with search engines or new ways of seeking information, manipulating things, and engaging in discussion; (b) students explore other learning styles and find out what works best for their cognitive abilities; (c) students work not only with the teacher, but also among themselves which leads to additional learning; (d) students improve their critical thinking skills by examining ideas found on the World Wide Web and using the entire class time for critical analysis of a topic rather than information delivery; (e) students gain better understanding of a topic by searching for more web sites and exploring different perspectives of a subject; and (f) students learn how to learn.

Fundamental to every computer mediated communication system is the concept of utilizing technology to simulate the human communication process. Obviously, emphasis should be on simulating constructive human communication between instructors and students and not a traditional lecture in which students are passive recipients of knowledge [Brown, Collins, and Duguid, 1989; Jonassen, 1996]. Over the last few years, some general rules for facilitating virtual discourse (as well as face-to-face interaction) have been established [for example, Baltes, 2001; Gunn, 2001; Graham, Gaglity, Lim, Cramer, & Duffy, 2001; National Teachers Enhancement Network, 1999]:

- Instructors need to be available to students and stay in continuous communication so that students can feel the presence of the instructor. Recommendations range from logging into the online course at least twice daily on all seven days of the week to one login per day on at least five days of the week.
- Instructors need to develop an open, sharing and collaborative environment among students. This can be achieved through posting biographies, conducting group assignments, and sharing assignments for constructive feedback. Baltes in particular recommended that instructors show their humanness and personality, including humor and authentic concern for the students, rather than trying to hide it behind virtual walls.
- Instructors need to ensure that students are actively engaged in the learning process by designing a course based on constructivistic principles (see above). In a well-functioning online course, instructors start the discussion on a particular topic, but then retreat to the role of facilitator whose primary role is to guide the discussions towards the topic objectives, to entice critical reflection, and to encourage student participation.
- Instructors need to provide prompt and relevant feedback. As we know from face-to-face classrooms, there is nothing worse for students than submitting a written assignment that is returned to them without helpful and constructive comments. Students should be informed about their progress through formal and informal means.
- Instructors need to establish realistic timetable for all learning activities. This might just require fewer group activities than in a face-to-face classroom. The emphasis should be on quality rather than quantity.
- Instructors need to establish, communicate, and enforce high expectations for all learners, especially since in the early years of online learning, students signed up for online courses in the hope for an easier version of the face-to-face course.
- Instructors need to build upon the diversity in experiences and talents that students bring to an online environment.
- Instructors need to communicate privately with students experiencing difficulties, students demonstrating inappropriate behavior, or students not actively contributing to the course discussions. Baltes suggested that instructors keep a tally on the personal information that students share in their introductory biography and throughout the course. In the event of a problem, a more personal and caring approach to solving the problem can be taken (for example, extending the due date due to an illness within the student’s family).

To at least collect some basic data on how well students are communicating online and on ground, one of the authors of this paper taught a course called *Educational Foundations* in the traditional face-to-face situation as well as in an online environment. The course is part of a California teacher-credentialing...
program. To allow for a basic quantitative comparison, the course content, the reading requirements, the assignments, the visuals, etc. were kept the same. Then, the video taped face-to-face discussion about various goals of education was compared to excerpts from the threaded discussion.

The traditional classroom had nineteen students enrolled. The five different goals of education were discussed for two hours out of a forty hours course. In these two hours, only eight students participated in the discussion and all answers or comments were directed towards the instructor.

The online course had 20 students enrolled. The diverse goals of education were discussed for three days out of a four weeks course. In these three days, seventeen different students posted 42 comments about their point of view on the goals of education. The instructor only intervened seven times with leading questions. Some of the students provided Hyperlinks to additional materials on the Internet or discussed examples from their daily school practice.

In the traditional classroom, some students process the presented information immediately and respond with interesting and valuable comments; other students might have interesting comments, but not right away; and some students talk all the time without having anything to say. Asynchronous conversations in an online course, however, allow every single student to participate in the class discussion without being forced to an immediate response, without being interrupted by another student, or being cut off by the sound of the school bell. Students have time to think before responding to their class members’ opinions and they do not have to wait for the next class to express their views, yet they can participate in the communication when they are in “top form” rather than during a preset class hour that follows a long day of work or a long night at the campus party. Since the discussions are text-based, students can easily save entire conversations and access them at a later time.

Overall, it seems that students can benefit greatly from the social and communicative interactions between instructor and student as well as among students [Picciano, 2002]. But if the time commitment becomes overwhelming for either students or instructors, this advantage fades away. Hence, streamlining threaded discussions seems necessary.

STREAMLINING THREADED DISCUSSIONS

Typically, it seems that well organized and well-facilitated threaded discussions are producing effective learning and are worth the time needed. However, many online faculty report that they were surprised about the time it takes to facilitate the threaded discussions [Baltes, 2001; Bonk, 2001; Bourne and Moore, 2003; Thompson, 2004]. Hence, the question remains how the masses of discussion thread postings can be streamlined in an effort to have students and faculty effectively use ones time on the virtual communication.

The authors propose possible ways to enhance the threaded discussion technology to facilitate the evaluation and management of students’ discussions by online instructors [ideas based on thoughts by Baltes and Waligorski, 2004; Donath, Karahalios, and Viegas, 1999]. Some of the concerns in a virtual forum are:

- Civility of the discourse
- Involvement of each student in a discussion
- Quality of each student’s contribution

CIVILITY OF DISCOURSE

Most online learning systems give the instructor the technical access to delete messages posted by students; thus, addressing concerns of “civility”. Not necessarily on purpose do some online students use inappropriate language or sarcasm that isn’t well received by classmates, sometimes due to the lack of bodily language that might have softened sarcasm or an ironic statement. Even though most universities have a clear policy on the use of Internet facilities of all kinds, many students still use the virtual forum as well as the email addresses of their colleagues and instructors for spam, e-mail hoaxes, or advertisement. Technical tools already exist that screen for inappropriate language in public forums or unsolicited advertisements (for example, the sorting function to BULK in many free email systems), which could also be imbedded in educational forums. Sarcasm and irony are much harder to detect, of course, and as far as the authors of this paper know, no efficient IT tools are available. This leaves the screening to the
online instructor. This means, however, that an online instructor would need to be online several times daily for all seven days of the week – realistically, an impossible proposition.

IN Volvement IN DISCUSSION

Many online learning systems offer the possibility to sort a threaded discussion by author, such partly addressing concerns regarding the “involvement of each student in the discussion”. When sorting a discussion thread by the authors of the postings, an online instructor can see how many postings each student submitted. Additionally, it would be useful if an instructor would have added features such as the number of words per posting and the number of postings per week or per unit to get an idea if the number of postings submitted throughout the online course.

QUALITY OF CONTRIBUTION

To assess student contributions based on their “quality” is by far the most time consuming task for the online instructor, which eventually leads to a fair credit or grade for each participant in an online course. Factors that are deemed necessary for a quality posting are

- Originality
- Language quality
- Relevance
- Evidence of preparation
- Evidence of independent, critical thinking
- Learning benefit from colleague’s contributions

A few of these quality indicators can be assessed with common software tools that could be implanted into a threaded discussion system, such as a spell checker to ensure the language quality or software checking for plagiarism to ensure originality of a student’s thoughts and ideas. The later would have to compare each incoming posting to all earlier postings in the discussion and also look for similar postings on the web. The tool would have to use a pretty smart comparing algorithm to alert the instructor not only about pairs of exactly identical postings, but also about ones sharing only a few paragraphs, maybe a few phrases.

The authors of this paper believe that software can never assess all aspects of the quality of a posting written by a human. Ultimately, the instructor still needs to read a student’s posting and decide how much this posting contributes to student learning. However, smart software could alert the instructor beforehand about certain problems or things that look suspect. For example, the online learning system should scan each incoming posting for keywords from a list prepared by the instructor prior to the discussion. This list would contain words relevant to the topic of the discussion that students would be expected to know from the literature, papers, lectures, and/or other prescribed materials. For example, a list made for a course about educational philosophies would contain words like “constructivism”, “philosophy”, “goals of education” etc. Every posting with a very low number of words from the list would be flagged for the instructor as being suspect of irrelevance. Of course, instructor would still have to read the posting to find out if it was indeed irrelevant or perhaps the student was using his/her own words, or if the student did not read the assigned materials or did not address the discussion prompt appropriately. Postings with a very high count of proper words could be also flagged as being suspect - too good to be true. The degree of preparation of each student could be crudely assessed by looking at the total count of relevant keywords in all postings. One posting would be too little, but many postings could provide some meaningful statistic.

The authors of this paper can hardly imagine a software tool that could assess independent and critical thinking. Artificial intelligence is progressing, but does not provide any tools that could be used in the field of education. One method to assess the postings of an online course would be a peer review. Let’s say, the online learning system would ask each student to name another student (or, say, three other students) who made the best contributions to the discussion. “The best” could mean several things, e.g. the most helpful for me, smartest looking, etc. The software would need to contain some sort of algorithm looking for rigged votes, meaning that if student A votes student B the best AND vice-versa, these votes should be ignored, etc.
Another method of assessing the quality of a posting would be to analyze the structure of a posting and determine its logical correlation between utterances of participants, not necessarily the entire posting. The authors of this paper took asynchronous discussion threads from an online course and attempted to sort and filter postings according to their content and interdependence. The ultimate purpose of this was to obtain a set of statistics or figures of merit that could be used to objectively grade each participant in a discussion and evaluate its overall quality.

**FIGURE 1**

**STRUCTURE ANALYSIS OF A THREADED DISCUSSION**

By analyzing the structure of a virtual discussion thread, a number of useful metrics can be obtained, for example, the number of positive responses per participant. A possible grading rubric was presented by Edelstein and Edwards [2001] and is adopted based on criteria of the authors of this paper.

The rating scale ranges from 1 to 4 with 1 being indicative of student participation, which is less than acceptable for the development of a progressive learning community. A score of 4 in any category represents the attainment of the highest standard of participation and reflects a bonafide contribution to the learning community.
<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Originality</strong></td>
<td>Primarily repeats presented or published materials or comments from classmates</td>
<td>Repeats presented or published materials or comments from classmates</td>
<td>Makes a significant contribution through adding a new perspective and original ideas</td>
<td>Makes a significant contribution through adding a new perspective and original ideas</td>
<td></td>
</tr>
<tr>
<td><strong>Language quality</strong></td>
<td>Does not express opinions or ideas clearly; no connection to topic</td>
<td>Unclear connection to topic; minimal expression of opinions or ideas</td>
<td>Opinions and ideas clearly stated with majority connected to topic</td>
<td>Opinions and ideas expressed in a clear and concise manner with obvious connection to the topic</td>
<td></td>
</tr>
<tr>
<td><strong>Relevance</strong></td>
<td>Short/irrelevant remarks; postings do not relate to the discussion</td>
<td>Some posts are irrelevant; most are short and offer no insight</td>
<td>Frequently posts are related to the discussion; prompts further discussion of topic</td>
<td>Consistently posts are related to the topic; cites additional related references</td>
<td></td>
</tr>
<tr>
<td><strong>Evidence of preparation</strong></td>
<td>Postings are neither spell-checked nor proof-read; did not follow directions</td>
<td>Postings are neither spell-checked nor proof-read; not well-written</td>
<td>Postings are spell-checked and proof-read; generally well-written</td>
<td>Postings are spell-checked and proofread; well written; might include media</td>
<td></td>
</tr>
<tr>
<td><strong>Evidence of independent, critical thinking</strong></td>
<td>Translates, comprehends, or interprets information based on prior learning</td>
<td>Selects, transfers, and uses data and principles to complete a problem or task</td>
<td>Analyzes and hypotheses the posting and continued the thinking process</td>
<td>Critiques and justifies the posting and continued the thinking process</td>
<td></td>
</tr>
<tr>
<td><strong>Learning benefit from colleagues</strong></td>
<td>No effort to participate in postings; seems indifferent</td>
<td>Some meaningful comments on group’s effort; marginal effort to be involved with group</td>
<td>Interacts freely; many attempts to direct the conversation and to present relevant viewpoints</td>
<td>Aware of needs of the group; frequently attempts to motivate the discussion; presents creative approaches to topic</td>
<td></td>
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Online learning courses with the accompanying virtual discussions are spreading like wildfires. The authors of this paper strongly believe that virtual discussions are more beneficial to student learning than traditional face-to-face courses. However, without proper technical solutions to allow the facilitation of threaded discussions in a reasonable amount of time, it seems almost impossible to take full advantage of the potential of online learning.

The possibilities of conducting different kinds of online discussions exist because of the development of Internet based communication technologies: email, newsgroup, chat room, and videoconference. It is important to note that these were not developed with education in mind. Currently, most online education platforms use generic, mainstream versions of these technologies. There has been little Research & Development effort put into creating specialized versions for education.

The authors suggest the augmenting of generic versions with education-specific add-ons, which could substantially increase the usefulness of the above technologies to educators and students. The authors believe that there is a strong feedback relationship between this kind of Research & Development and the adoption of information technology in education.

REFERENCES


Baltes, B., Online-Lernen (Huber Verlag, 2001).


Jonassen, D. H. Handbook of research on educational communications and technology (Scholastic, 1996).

