Lively Discussions: Using Linking to Enrich Threaded Discourse

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Abstract: In recent years, distance education has grown rapidly in popularity. One of the more common instructional strategies in online courses is to provide an asynchronous threaded computer conference, where students can share ideas and discuss course concepts. However, asynchronous discourse is limited in some respects. Over time, threaded discussions can become large and unwieldy, branching off in many different directions. The current research investigates an effort to provide students with a linking tool for drawing together ideas. Using a mixed-methods approach, the research examines two courses in which students used hundreds of links to connect notes in dozens of different threads. The research examines students’ experiences with this tool and the culture of linking that emerged in these courses.

Objectives

Online learning environments, such as Moodle and Blackboard, use ‘threading’ to impose structure on electronic discourse. A thread is defined as “a hierarchically organized collection of notes in which all notes but one (the note that started the thread) are written as ‘replies’ to earlier notes. Indented text is often used to depict the ‘reply’ relationships” (Hewitt, 2005, p. 2). The asynchronous nature of the discourse allows students to sign on whenever they like, read recently added notes from their classmates, and post their own ideas in response (Swan, 2005). Thus, threaded discussions provide learners with a time-independent and place-independent means of collaborating, while simultaneously retaining a rich, historical record of people’s interactions (Hammond 1999; Swan, 2005).

Although threaded discourse is generally viewed as a valuable tool for distance learners, researchers have identified a number of problems with the medium. Perhaps the most serious of these is the phenomenon of “divergence”. Online discussions tend to branch over time, becoming progressively more fragmented, making it difficult for a community to consolidate its ideas (Hewitt, 2001; Dringus & Ellis, 2005; Thomas, 2002; Scardamalia & Bereiter, 2006). Some researchers have explored (with mixed success) the possibility of using graphical representations to help address this phenomenon (Suthers, Vatrapu, Medina, Joseph, & Dwyer, 2008). However, the heart of the problem is that such environments tend to prompt individuals to reply to individual notes (usually using a button labeled “Reply” or “Respond”). Such an interface precludes the possibility of replying simultaneously to many notes (Hewitt, 2001). To foster convergence, rather than divergence, computer conferencing interfaces must be designed to support multiple links to earlier work.

In an effort to make progress on this problem, we developed a new online learning environment called “Pepper”. Pepper is a computer conferencing platform containing a variety of specialized knowledge building features and social networking tools that allow people to engage in community-wide discussions. One of the key facilities in Pepper is a tool that allows learners to create links to other people’s work using simple drag-and-drop functionality. When a link is created to a learner’s note, the learner is automatically notified of this event by email. The goal of the current research is to examine students’ use of linking
functionality in an online graduate course. Specifically, the following research questions are posed:

1. What were students’ experiences of using links? What did they perceive to be the strengths and weaknesses of the linking tool?
2. How do “linked notes” (i.e., notes that contain many links) differ from notes that don’t contain links?

Through this analysis, we hope to better understand how to foster forms of threaded discourse that are less fragmented and more integrated than has been previously been the case.

Theoretical Framework

We approach this research from a social constructivist perspective. Fundamentally, learning is a process in which “individuals create their own new understandings on the basis of interaction between what they already know and believe and ideas and knowledge with which they come into contact” (Richardson, 2003, p. 1624). Social discourse is viewed integral to meaningful learning and the fostering of deeper understandings. Researchers have found that, within distance education environments, “successful online interactions with peers have been found to result in more effective learning” (Hiltz as cited in Thurston, 2005, p. 356). Asynchronous threaded discourse is thought to be effective because it “supports learning by exposing students to other people’s ideas, and by providing them with an opportunity to articulate their own ideas and receive peer feedback” (Hewitt, 2005). It is through this process of negotiating ideas with others, and engaging in communal dialogue, that new knowledge is constructed (Comeaux as cited in Ehrhardt, 2010).

Distance learning has a number of distinct educational advantages. Perhaps most significantly, it offers learners the flexibility of working from home and at times of their own choosing (Hewitt, 2005; Hammond, 1999; Swan, 2005). This is especially attractive to individuals who have busy lives, such as stay-at-home parents and full-time workers. The asynchronous aspects of online learning offer other benefits as well. Everyone has an opportunity to contribute and share their views (Eastmond, 1995; Hewitt, 2005; Swan, 2005), and they can do so without worrying about interrupting a classmate (Hammond 1999). Some researchers hypothesize that shy students participate more frequently online, since they don’t have to compete with others for “air time” (Hewitt, 2001; Harasim, 1990). In general, asynchronous interaction offers more opportunities for learner reflection (Hewitt, 2005; Hammond 1999; Swan, 2005) because students can take their time composing a post before making it public (Hewitt, 2001, Hawkes & Romiszowski, 2001). Learners are thus more aware of what they are writing, who they are writing for, and the ways that it connects to their own understanding (Garrison, 2003; Hewitt, 2001; Poole, 2000; Clark & Brennan, 1991). Unlike a traditional classroom, where the teachers voice is dominant, students in a computer conferencing course have access to the collective ideas and views of the entire class (Hewitt, 2005; Gunawardena, 1995; Vrasidas & McIsaac, 1999).

Despite the many advantages of threaded discussions, researchers have identified a number of problems with conventional computer conferencing environments. First, there is a tendency for threaded discussions to branch and diverge. Online environments tend to focus students on replying to a particular note (i.e. a single note focus) rather than fostering more sophisticated discursive processes that require a multiple note focus, such as summarizing and synthesizing (Hewitt, 2001). Over time, branching fragments the
discussion and the attention of the class. The phenomenon can undermine student learning. In this proposal, we explore a potential solution to the divergence problem: the use of an advanced linking mechanism that students can use to draw together different lines of inquiry.

Methods and Data Sources

This study focuses on two graduate-level distance education courses taught at a major North American university. The two courses, which were taught by the same instructor, are concerned with different aspects of educational technology. One course was theoretical in nature, while the other was geared more toward teacher practitioners. Both courses made heavy use of student-moderated threaded discussions. In Course A (15 students), 1303 notes were written over a 12-week period, 1078 of which were “replies” to other notes. In this course, an additional 752 note-to-note links were created to help pull together the discussions. In Course B (15 students), 1444 notes were written over the same period, 1094 of which were “replies”, augmented by 696 links. Thus, in both courses, students worked to create many links between their notes.

The research involved the collection of both quantitative and qualitative data. To learn about students’ experiences with links, an anonymous online questionnaire was distributed. Follow-up interviews (45 minutes in length) were conducted with five graduate students (four were interviewed face-to-face and one student responded to researchers’ questions via email). The interviews were transcribed, coded for patterns (Charmaz, 2010), and then compared to one another so that conceptual categories and themes might emerge (Braun & Clarke, 2006; Glesne, 2011).

As a compliment to the qualitative analysis, we also conducted a quantitative study that compared the features of linked notes to notes without links. The goal in this portion of the research was to determine whether the two types of notes differed with respect to:

- length (i.e., number of words);
- the sophistication of the vocabulary (using Flesch-Kincaid grade level as a metric);
- the number of people who read each note;
- the number of “Likes” received from classmates (the Pepper environment includes a “Like” feature that is similar to the one used by Facebook and other forms of social media).

Results

Research Question 1: What were students’ experiences of using links? What did they perceive to be the strengths and weaknesses of this tool?

An analysis of the qualitative data suggests that graduate students used the linking notes feature for various purposes: to challenge an idea, to support their own idea, to give classmates credit for their contributions, and to synthesize ideas. They felt the tool was valuable for building on ideas and fostering collaboration. They also felt it provided the discussion thread with more “flow” because they could better connect their notes with those of their peers. From an affective perspective, many students remarked that they felt happy when their classmates created links to their notes; they felt their contributions were valued. On the other hand, students whose notes were not linked felt their contributions were being ignored, or worried that their ideas were of lesser value.
From a logistical point of view, students described several ways in which the linking tool reshaped and affected their online participation and contributions. First, they felt it allowed them to easily refer back to (and review) older posts, which allowed them to better understand a concept or argument. Second, linking encouraged students to build on their peers’ ideas, which decreased repetition and provided recognition to the original author. This led to a greater sense of connectivity across the discussion. Third, students believed that the linking notes feature allowed them to become better critical thinkers because they were constantly revisiting and re-reading both old and new posts.

Some students were critical of linking in some situations. They felt some students “over-linked”, creating unnecessary connections to previous work rather than focusing on key ideas. When over-linking occurred, students felt overwhelmed and suggested that the excessive links distracted readers from the argument. Some students reported that they simply ignored over-linked posts and moved on to a new discussion or new thread.

**Research Question 2.** How did notes that contain many links differ from notes that don’t contain links?

The results from the quantitative analysis revealed a number of statistically significant differences between notes that contain links and notes that don’t. Notes with links were significantly larger ($p < 0.05$), with an average size of 357 words compared to non-linked notes, which had an average size of 202 words. Linked notes were also written at a higher grade level. This difference was also statistically significant; notes with links were written at a grade 12 level on the Flesch-Kincaid Grade Level scale, while non-linked notes were written at a grade 9 level. Third, linked notes drew in more readers. They were read more frequently at a rate of 31.52 times, whereas non-linked notes were read 23.42 times on average. Finally, linked notes attracted more ‘Likes’ from students, at an average of 0.842 times, while notes without links were only ‘Liked’ 0.453 times on average.

**Scholarly Significance**

Linking is a tool that can potentially reduce the problem of divergence and fragmentation in threaded discussions. This study suggests that students (generally) appreciated the ability of the linking mechanism to draw together ideas in the discourse. In the quantitative analysis, we found that notes with links tended to contain more text and were written at a higher grade level. Moreover, they would require the author to revisit and re-read many old notes. Collectively, these findings suggest that linked notes were more time-consuming and effortful to produce. This raises an important question: Why did students continue to invest this additional effort throughout the course? Why did they keep creating links?

To some degree, students may have created links because they appreciated their ability to organize ideas in a threaded discussion and reduce divergence. However, it’s hypothesized that there may have been other factors at work. Students were approximately twice as likely to receive “Likes” from their peers when their notes contained links. For some, this social recognition may have served as an incentive of sorts, or at least provided them with partial compensation for their additional effort. In addition, students received email messages whenever someone else linked to their notes. This may have fostered a class expectation that “Linking” is an expected part of the course. Pepper’s email notifications about links would serve as a constant reminder of their value, thus helping perpetuate a culture of linking in the two online courses.
References


