Student Self-Review: Impacts on Future Class Discussion

Jim Flowers
Professor & Director of Online Education
Ball State University

Samuel Cotton
Assistant Professor
Ball State University

Introduction

The goal of online education is student learning. However, online instructors don't actually observe learning; we see student dialog, reports, quizzes, and other artifacts from which to infer that learning occurred. Of these, cognitive dialog may be a strong indicator of higher level thinking. We want students to critically engage course material, especially at the graduate level, and many online instructors use class discussion to promote collaborative dialog in a social constructivist framework.

Students are not equally skilled in techniques of online cognitive dialog. Many instructors, therefore, provide feedback to students early in a class with the goal of shaping their behaviors to improve the effectiveness in online discussions. This feedback may often be off-topic for the course, but essential because it helps students benefit from online discussion techniques. This requires much time from an instructor, especially if the feedback is given privately. While some feedback can be shared in a discussion forum, benefiting all students, other feedback is best kept private, which places even greater demands on an instructor's time since it may cause duplication of an instructor's efforts.

The amount of time required of online instruction has been a serious issue for many. Research is needed to explore alternatives that would reduce time demands for online instructors, especially where there is redundancy or off-topic, individual guidance.

We thought one alternative to feedback from an instructor could be for each student to critically evaluate his or her performance in online discussions, though we had found no previous research on this concept. By using the instructor's guidelines for dialog, students who analyze their initial dialog in an online threaded discussion may change their discussion behaviors. Could it be that student self-analysis, even self-categorization, of their individual discussion contributions could allow instructors to instead spend more time on other critical issues where the instructor is more essential, such as giving individual guidance on research projects? Would this intervention have an impact on how students contribute to online discussions?

Method

We attempted to determine how student self-review of online threaded discussion contributions might impact their future cognitive dialog. We looked at one online, graduate course of 20 participants (from 26 students) at a Midwest university. This was a core course in an online master's degree program, where most students were themselves instructors at the secondary or post-secondary level. The class spanned five weeks in the summer of 2004.

During the first two weeks, students engaged in whole-class collaborative discussion activities using the forum feature in Blackboard™. In the third week, while discussing a new topic, students also collected all of their own Week 1 discussion contributions. They judged the quality of those contributions by identifying and counting occurrences within each message of each discussion criterion originally

specified by the instructor, which included items such as "posing a question relative to the current topic…." and "responding or reacting to another participant's question or statement….". They sent this to the instructor along with comments and continued participation in discussions. At the end of the five-week class, they were surveyed on the perceived value of this self-reflection activity.

Analysis

Discussion forum messages from participants during the pre-treatment (Weeks 1 and 2) and post-treatment (Week 4) periods were collected by the researchers and unitized by terminal punctuation (i.e., sentence). These were then coded by two individuals, with ties broken by a third, and three-way ties settled through discussion among coders.

Units were coded according to function, skill, and level, based on an adaptation of schema used by Henri (1992), Henri and Rigault (1996), and Rose (2002). The function of each unit was classified as one of four categories, with those units fitting multiple categories defaulting to the higher function in the hierarchy:

1. Cognitive (highest; engagement with related content)
2. Metacognitive (reflections showing self-awareness)
3. Organization (related to mechanics, logistics, and technical issues of the work rather than the content)
4. Social (including any off-topic discussion)

Cognitive units were further coded according to skill, again defaulting to the higher skill in the hierarchy:

1. Inference (highest; drawing conclusions based on a line of reasoning)
2. Analysis or Elaboration (identifying reasons, assumptions, criteria; also called "in-depth clarification" in the literature)
3. Judgment (passing judgment but without showing a line of reasoning)
4. Cognitive Strategy (suggesting or commenting on a way to learn or to think about the content)
5. Elementary Clarification (sharing information, sources, and questions)

Finally, each cognitive unit was coded as either High Level (showing complex ideas) or Low Level (with a single idea).

In particular, we looked at five measures of cognitive dialog:

1. the total number of units per participant;
2. the percentage of each participants units coded as Cognitive;
3. the percent of each participant's Cognitive units coded as Inference;
4. the percent of each participant's Cognitive units coded as Analysis/Elaboration; and
5. the percent of each participant's Cognitive units coded as High Level.

If this treatment is effective, one might expect each of these indicators to increase in the post-treatment dialog.

Results

The number of units (i.e., sentences) decreased after treatment from 48.7 to 35.6 per person, with the average unit length decreasing from 17.3 to 13.2 words. Thus, the quantity of overall dialog decreased. The percent Cognitive function significantly decreased from 90 to 83 percent following treatment (Table

1).

Table 1. *Function*

Function	Pre	Post	p
Cognitive	90%	83%	.018*
Metacognitive	7%	5%	.143
Organizational	2%	5%	.003*
Social	2%	7%	.001*

The highest two cognitive skills were another measure used to indicate the quality of cognitive dialog. These two skills both decreased significantly (Inference from 10 to 6 percent, Analysis/Elaboration from 18 to 7 percent), as seen in Table 2.

Table 2. *Cognitive Skill*

Skill	Pre	Post	p
Inference	10%	6%	.049*
Analysis/Elaboration	18%	7%	<.001*
Judgment	16%	29%	<.001*
Cognitive Strategy	1%	5%	.024*
Elementary Clarification	55%	54%	.417

The final measure of cognitive dialog, percent High Level, decreased significantly from 13 to 8 percent (*p*=.007*).

Discussion

As noted, when students reviewed their discussions in this study, the result was a decrease in the quantity and quality of their cognitive dialog. One possible reason is illustrated by the following student comment:

> *"In some ways, I find the rubric limiting in that I feel I must consciously pay attention to how much I am posting and of what type I am posting. I think I would post more if it were more free-flowing and not proscribed."*

This intervention drew attention to the notion that dialog would be critically evaluated, both by the instructor and by others in the class, and a reluctance to post messages that would be subjected to this scrutiny may be a natural reaction. Therefore, instructors who wish to improve online students' cognitive dialog or to use a substitution for some instructor feedback should avoid this student self-analysis intervention.

However, information from the comments provided during the self-analysis activity and from the survey at the end of the course uncovered conflicting views of students' perceived value of this activity. There was evidence of increased awareness: "After reading my postings, I realized that I did not go as in depth as I would have liked to." Some participants indicated a benefit from the activity: "… I feel my thought process is changing and my responses are improving in quality." However, even for those who indicated such a benefit, analysis of their discussion contributions did provide evidence of this.

Further research should explore other alternatives, possibly with research designs characterized by: control groups; longer courses than 5 weeks; multiple courses; additional time for acclimation to

discussion strategies; and practice with successive feedback to shape behavior.

References

Henri, F. 1992. Computer conferencing and content analysis. In A. R. Kaye (Ed.), *Collaborative learning through computer conferencing: The Najaden papers* (pp. 117-36). New York: Springer-Verlag.

Henri, F., & C. R. Rigault. 1996. Collaborative distance learning and computer conferencing. In C. O'Malley (Ed.), *Advanced educational technology: Research issues and future potential: Computer and Systems Sciences* (Vol. 128), (pp. 146-61). New York: Springer-Verlag.

Rose, M. A. 2002. Cognitive dialogue, interaction patterns, and perceptions of graduate students in an online conferencing environment under collaborative and cooperative structures. Ed.D. dissertation, Indiana University, Bloomington.

Notice

This presentation was based on an manuscript on this work submitted for publication in *The American Journal of Distance Education*, which is copyrighted by Lawrence Erlbaum Associates, and this summary is included with permission from LEA. Readers must contact LEA for permission to reprint or use this in any form.

Biographical Sketches

Jim Flowers is a Professor and the Director of Online Education within the Department of Industry and Technology at Ball State University. He teaches online and oversees the implementation of two online Master of Arts programs in Technology Education and Career & Technical Education.

Address: Ball State University
Applied Technology 130A
Muncie, IN 47306
E-mail: jcflowers1@bsu.edu
URL: http://jcflowers1.iweb.bsu.edu
Phone: 765.285.2879
Fax: 768.285.2162

Samuel Cotton is an Assistant Professor within the Department of Industry and Technology at Ball State University. He is the lead instructor for the online Master of Arts program in Career & Technical Education, teaching six online graduate courses.

Address: Ball State University
Applied Technology 130A
Muncie, IN 47306
E-mail: scotton@bsu.edu
URL: http://scotton.iweb.bsu.edu/home.htm
Phone: 765.285.5640
Fax: 768.285.2162