EFFECTIVE USE OF ASYNCHRONOUS DISCUSSION GROUPS: EXAMPLES AND ANALYSIS

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ABSTRACT

This paper examines the effective use of discussion groups for the purposes of education. As a starting point, criteria for judging effectiveness are presented. A taxonomy of uses, induced by the author from his own experiences, is then presented. Finally, pedagogical and technological challenges facing instructors who use discussion groups are identified.

Keywords: distance learning, discussion groups, asynchronous, course management software

INTRODUCTION

Asynchronous discussion groups are acknowledged to be a promising tool for educators intending to move part or all of their course content online. The underlying technology occupies a prominent position in existing course management applications, such as Blackboard and WebCT. They are also widely used for providing technical support in the high tech industry and are the core of user communities (in the form of Internet newsgroups) that exist for virtually every interest area.

As a consequence of their ready availability and widespread use outside of education, we could reasonably expect uniformly glowing reports relating to discussion group use in education, both supporting the traditional classroom and for distance learning. While such enthusiastic reports certainly exist, there is also evidence of disillusionment. Even when the technology is available, many instructors do not take advantage of it [1]. Instructors that do may be disappointed with participation [2]. Student satisfaction with such groups is not necessarily high [3]. Even some of the "success" stories would not appear to represent unqualified triumphs. Is a discussion group that attracts two posts per student (on average) over the course of an entire semester [4] successful?

In this paper, we examine the effective use of discussion groups for the purposes of education. As a starting point, criteria for judging effectiveness are presented. This is followed by a comparative analysis of different discussion group uses and a taxonomy of such groups. Induced criteria for success are then presented. Finally, pedagogical and technological challenges facing instructors who use discussion groups are identified.

WHAT MAKES A DISCUSSION GROUP EFFECTIVE?

Prior to examining specific uses of discussion group technologies, it is useful to consider what makes a discussion group successful. At the heart of the matter, of course, is the question: does the use of such groups enhance the education process? Unfortunately, such enhancement is very difficult to measure and existing tools to measure educational effectiveness—such as student evaluations—often yield results that can be quite misleading when discussion groups are employed, as they can easily become a referendum on distance learning as a whole, rather than a

measure of specific effectiveness. As a consequence, any measure to be used will, at best, be an approximation. Fortunately, however, there are many measures that can be acquired.

Perhaps the most critical factor that influences effectiveness measurement is whether or not participation is voluntary. If it is voluntary, then usage rates—pure and simple—provide a strong case for success, just as they would for any other form of information technology [5]. It should also be noted that for some uses—such as groups used to answer student questions about a course—access (observation) and not just contribution rates need to be measured if a true picture of effectiveness is to be established. Student satisfaction with the groups, if measured, can also be used as an indicator of effectiveness. Naturally, measures of educational outcomes, such as test performance, are always a useful indicator—particularly powerful if they can be shown to correlate with measures of discussion group use on a student-by-student basis.

If use of a discussion group is not voluntary, usage measures are more likely to measure the instructor's level of control over the class than provide proof of effectiveness. In such situations, the impact on educational outcomes needs to be gauged—a far more daunting task. Measures of student satisfaction and perceived process effectiveness (e.g., do participants in a mandatory discussion feel they are learning from their peers?) can also be illuminating.

A special category of discussion groups is those established to accomplish a very specific task, such as implementing an online signup sheet. The effectiveness of such groups can largely be judged in terms of whether or not they succeeded in helping to accomplish the task. Before dismissing such groups as irrelevant, however, it should be noted that they may also serve an important subsidiary purpose—that of generating traffic to the site that may then lead to participation in other groups.

Type	Description of Discussion Group	Examples
Support	Provided to answer questions in a public forum. Can be general (e.g., "General Questions") or focused (e.g., "Assignment 3") in nature. Provides efficient alternative to two-way communications, such as e-mail or phone. Nearly always voluntary, may or may not be moderated.	Assignment questions Vendor tech support Newbie newsgroups
Participative Discussion	Provided to host a discussion, usually on a focused topic. Can be graded (in an academic setting) or established as a way of discussing common interests. Where quality is of concern, will typically be moderated.	Online case discussion Internet newsgroups
Collaboration	Provided to assist groups collaborating on a particular task. Public discussion groups often provides a convenient workspace, but may also be incorporated into a private group area.	Collaborative research GDSS applications
Workflow Management	Provided to allow assignment and tracking of workflow, such as allowing an instructor to monitor progress on an assigned activity.	Project software
Administrative	Provided to accomplish administrative tasks, such as scheduling, signup sheets and distributing assignments.	MS Exchange

Table 1: Activities Performed Using Asynchronous Discussion Groups

CATEGORIES OF DISCUSSION GROUPS

In his own classes, the author has found discussion groups typically fall into 5 use categories, summarized in Table 1. This type of breakdown bears some resemblance to breakdowns by

content type proposed in the literature (e.g., [6]). It differs, however, in its assumption that different forms of content will tend to be the focus of different types of users and settings.

In looking at the third column of Table 1, it is evident that the first two uses—support and participative discussion—are what could be termed *primary uses* of the technology. What this means is that asynchronous discussion groups tend to be the tool of choice to support these activities in the "real world", even when other technologies are available. The remaining three categories are what might be referred to as *convenience uses*, meaning that groups are adequate for the purpose even though better technologies (e.g., use of project management software for coordinating project tasks, use of a public calendar for making appointments) might be available. Convenience uses should not be discounted, however, since they can serve to build traffic, as previously noted.

Increasing discussion group effectiveness frequently requires changes to classroom processes and course design. In particular, four qualities seem to be a prerequisite to effective discussion group use: *openness*, *efficiency*, *encouragement of collaboration* and *sense of safety*.

Openness: If students are to participate in discussion groups voluntarily, they need to feel that there are few, if any, constraints on what they can post. As an example, in a programming course taught by the author, students are allowed to post complete functions (i.e., answers to assignment questions) in their attempts to elicit feedback. Allowing such openness without loss of rigor required many changes to the course design, most notably the implementation of an assignment validation system to ensure students fully understand what they are handing in. These policies are in sharp contrast to those of many introductory programming courses (including those offered by the Computer Science department of the instructor's institution), where students are not allowed to collaborate with each other on assignments and may even be required to sign affidavits to the effect that they are handing in their own work. In such a constrained environment, it is hard to see what a student could possibly ask that would constitute a "legal" question on a discussion board. Moreover, there would be absolutely no motivation to read anyone else's postings. This is not to say that such a course design is necessarily bad. It simply means that instructor-hosted discussion groups aren't like to generate much interest with such a restrictive set of course ground rules.

Efficiency. Particularly when participation is not mandated, the effectiveness of a discussion group is likely to be greatly enhanced when it is viewed to be the most efficient means of acquiring needed support. Such a perception is built up in two ways. First, replies to posts need to come rapidly. During 2002, for example, the median response time for student questions in the previously mentioned programming course was just under an hour. Second, the efficiency of acquiring information by other means should be reduced. For example, if a student sends a question by e-mail, the instructor can post it to the discussion group, along with the answer, then inform the student where to look for the answer. Such a practice dramatically reduces subsequent e-mails.

Encouragement of Collaboration. A sense that one's contribution to the "pool of knowledge" will not put the individual at a disadvantage is critical if discussion groups are to succeed. This means that significant course redesign may be required in situations where

students feel they are competing with each other. For instance, the author has students prepare for debate exercises in one of his classes using online discussions, posting their sources for all to see. Their motivation to do so would likely change dramatically (for the worse) if a winner were to be selected for each debate. Instead, he takes great care to emphasize that such debates are graded purely on basis of the quality of the classroom interaction that they generate, and on the amount of useful knowledge that they offer to the non-participants.

Even with guarantees to students that they are not in competition with their peers, there may be some students who are uncomfortable with such collaboration. In each of the last two semesters, the author received one of more e-mails from programming students asking questions about code they had written. In each case, the student explained that he or she had spent a great deal of time on writing the code, and did not want others using it. Fortunately—in terms of the amount of e-mail traffic the author needed to answer—relatively few students felt that particular sense of protectiveness about their intellectual property.

Sense of safety: To achieve voluntary use of discussion groups, students need to have confidence that they will not be hurt by their participation. In the author's programming course voluntary discussion, this was accomplished in three ways: 1) by assuring students that they would not be hurt by anything they posted (within the limits of civil behavior), 2) by making sure that replies to all posts were as respectful and helpful as possible—no matter how badly the initial post violated the laws of common sense, and 3) by allowing anonymous postings. The last of these can become quite frustrating, since the context of the question (e.g., previous questions that the same student may have asked) cannot be determined if many students post anonymously. Nonetheless, some students will never post voluntarily unless they can do it anonymously. Thus, while such postings can be discouraged, they should not be prohibited.

CHALLENGES OF ONLINE DISCUSSIONS

Inasmuch as using online discussions effectively may require course redesign, a faculty member considering adopting the technology should be aware of some challenges likely to be encountered when using them. These include both pedagogical and technical challenges.

Pedagogical Challenges. The key pedagogical challenges associated with use of asynchronous discussion do not necessarily relate to concessions in quality of learning. Indeed, the author has found that learning appeared can be enhanced by their effective use, particularly in a hybrid model [7]. Instead, the faculty member employing this technology is likely to be staggered by two other predictable outcomes: impact on workload and impact on self esteem.

The workload impact is felt most heavily in participative discussion courses. Whereas traditional classroom discussions are automatically time-constrained by the schedule, the amount of time that can be spent in participative discussions is virtually unlimited. In addition, the time required to assess and grade student contributions is much higher than for a classroom situation—made worse by limitations in many of today’s tools (to be discussed shortly). For example, in a case discussion course, the author found that the time required to conduct an online discussion was roughly three times that of an in class discussion; even students reported it taking about twice as much time.

In support-oriented forums, the need to maintain low response times can also be unexpectedly demanding on the instructor. Traffic builds up alarmingly when groups aren't checked several times a day. Or, even worse, it stops building up altogether once students conclude the discussion group is not the most efficient mechanism for getting help (and transforms itself to e-mail or phone calls). Fortunately, one characteristic of most support groups is that much of the monitoring can be delegated. Thus, should enrollments justify the hiring of teaching assistants, the instructor demands of covering the groups can be reduced dramatically. In his programming course, the author also found that some students enrolled in the course seemed to enjoy taking an active leadership role in supporting the discussions—in one case answering more posts than he did over the course of an entire semester. Such altruism can and should be rewarded with extra credit or as the starting point for identifying future TA candidates.

The other pedagogical issue often encountered by instructors is the perception, on the part of students, that the creation and nurturing of a support or participative discussion board is not actually a form of teaching. In the author's case discussion course, for example, the perception of instructor involvement reliably declined with increasing online content. In his programming course, "discussion groups" were rated over a full point higher than the instructor (in terms of helping the learning process) on a 1-5 scale. Furthermore, such perceptions can also be reflected in lower student satisfaction with the course [3], which can translate to lower evaluations. Thus the faculty member engaging in the technique could possibly—even predictably—encounter a situation where students are learning more in a course, yet rating the course lower.

Technological Challenges. In addition to pedagogical issues, instructors may also encounter some technological issues that make effective use of discussion groups unnecessarily tedious Over the coming years, it is anticipated that vendors will remedy these deficiencies. Perhaps that process can be accelerated, however, if they are listed here. (Except where noted, the capabilities referred to are not currently available on Blackboard, nor were they described in the current WebCT instructor's reference manual).

1. Better identification of posts. Particularly in participative discussions, it is often useful to be able to refer to previous postings—nearly impossible to do without some sort of unique post identifier. One tool (SiteScape, formerly AltaVista Forum) provided an excellent system based on that used in many legal documents, e.g., the third thread is 3, the second reply to thread 3 is 3.2, the first reply to 3.2 is 3.2.1, and so forth).

2. Mechanism for private acknowledgement and grading. Participative discussions can place heavy demands on the instructor. Some of those demands could be reduced if the instructor did not have to acquire and reread posts in order to grade them. Effectively, what is needed are private communications channels within public threads.

3. Mechanism for public acknowledgement or feedback. The types of non-verbal feedback—the nod, the smile, the look of incredulity, the stern glance—that can be used to guide classroom students towards effective discussion techniques are not available in asynchronous forums. Even the simple ability to assign star ratings to strong posts or to express a sense of confusion could help the students better understand what the instructor is looking for.

4. Performance tools. The ability to compute performance metrics, such as mean response time to a question post, could be extremely useful in determining if adequate discussion group support is being provided.

5. Vendor-neutral archival format. Discussion groups tend to act as a sink for valuable information that should be retained. While tools generally offer archive capability, and all allow boards to be printed (making it possible to archive them as .pdf files), vendor neutral archival formats are—for the most part—inaccessible to instructors. This lack of easy access to vendor-neutral archival formats (the term "easy" is of critical importance here, since such formats do exist) makes it difficult to save discussions or support information from semester to semester. It makes it difficult to exchange discussions with colleagues. It makes it nearly impossible to move information between platforms—only copying from course to course within a platform is relatively easy. Finally, it makes it nearly impossible to extract specific posts and incorporate them into new discussion groups (e.g., to create an evolving FAQ section).

6. Special purpose group designs. Web-based development tools, such as MS FrontPage, have long provided wizards to allow for the rapid generation of special purpose web sites (including discussion groups). These tools reduce the time required to create content and provide the developer with features that experts have found to be useful. Many routine activities—such as a signup sheet or schedule—can be accomplished using the discussion group approach, but would benefit from customizations specific to the need (e.g., a “schedule group” might allow the instructor to specify times, rather than manually posting a thread for each slot, and to limit the number of responses to each time thread).

CONCLUSIONS

Discussion groups can be extremely effective in enabling learning. The gains in learning made possible by the technology, however, do not come for free. “If you build it they will come” is a romantic notion, and makes for a good movie plot, but it does not apply to discussion groups. Substantial course redesign may be required, because openness, collaboration and sense of safety must all be present if students are to use the technology voluntarily. And if such groups are not perceived to be the most efficient way for students to get the information they need, they are dead in the water. Instructors also need to be aware of the demands that using such groups will place upon them and their students. If the instructor is unwilling to meet these demands, then perhaps it is best to stick with the classroom.

Current web-based discussion group technologies remain rather primitive. Indeed, their structure differs little from the pure-text BBS forums of the 1980s from which they evolved—with their typical response time only being slightly worse than that of their 1200 baud predecessors. There are, however, many enhancements that are possible. Such enhancements, inevitable if faculty members identify and demand them, will make the technology ever-more powerful and less cumbersome to use. It is hoped that the capabilities identified in this paper will serve as a useful contribution to this exciting process of technological evolution.

REFERENCES

Available from the author on request