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BOLLOJU, Narasimha; DAVISON, Robert

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Learning through Asynchronous Discussions

Experiences from using a discussion board in a large undergraduate class in Hong Kong

Narasimha Bolloju
Dept of Information Systems
City University of Hong Kong
Tat Chee Avenue
Kowloon
Hong Kong
isnarsi@is.cityu.edu.hk

Robert Davison
Dept of Information Systems
City University of Hong Kong
Tat Chee Avenue
Kowloon
Hong Kong
isrobert@is.cityu.edu.hk

Background

In recent years, web-based electronic discussion tools have become widely available, indeed almost commonplace, in educational contexts, both in schools and universities, and in organisational contexts. These tools enable the support of activities such as brainstorming, idea organisation, voting, group authoring and matrix analysis. While these tools can be deployed in both face-to-face and online contexts, much of the literature describes applications in face-to-face settings involving synchronous (i.e. same time) communications. In large classes, however, such a set-up is impractical - seldom are 100 or more PCs available in a single room. Nevertheless, as we demonstrate in this article, the technology can enable significant learning when applied in an asynchronous, distributed setting, i.e. when participants access the tools at a time and place of their choosing.

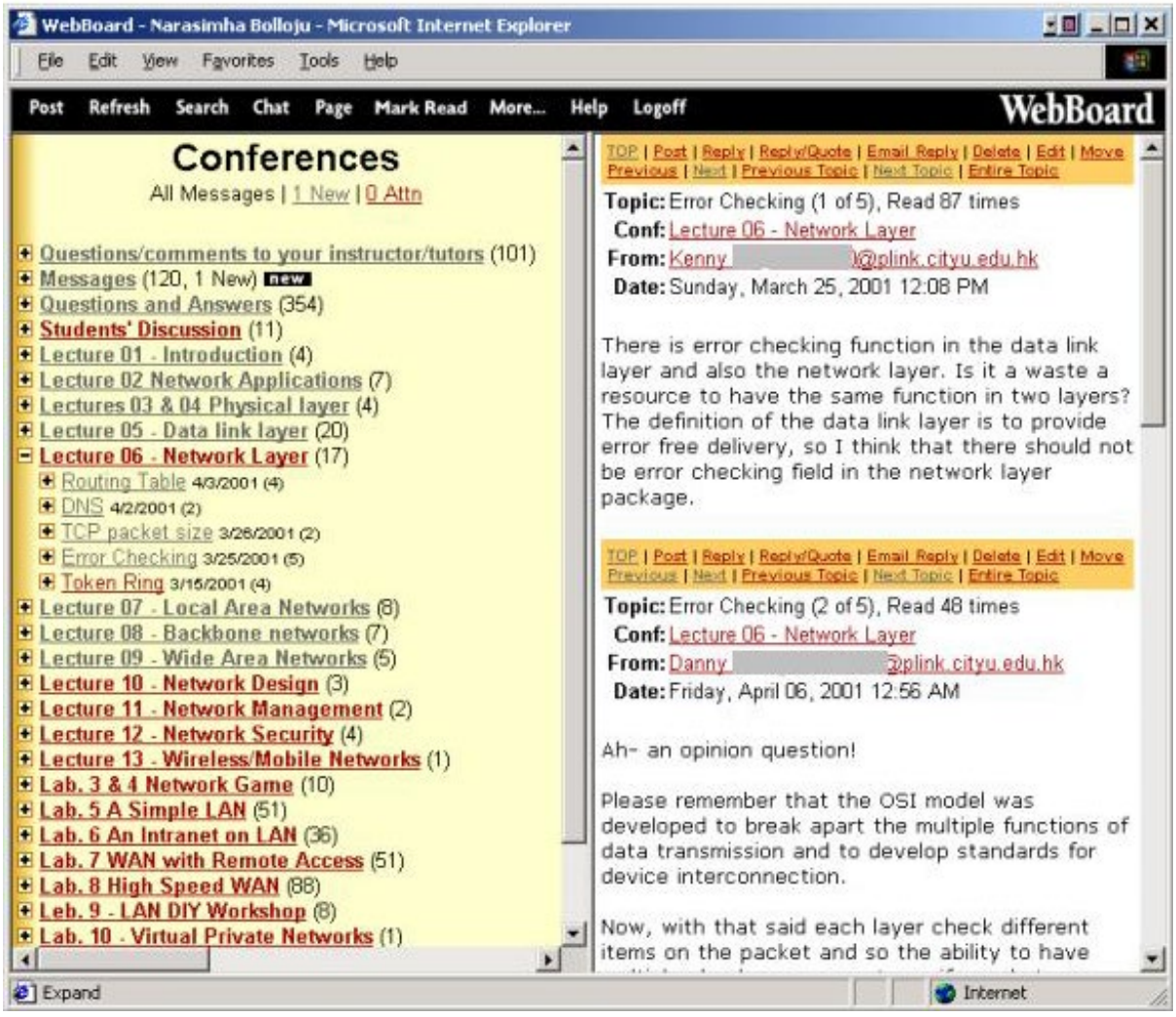
The integration of IT into education and training to support an objectivist model of knowledge transmission and/or a constructivist model of learning is well documented [1]. Asynchronous learning networks promote student-instructor interaction, emphasize student-to-student collaboration and generate active participation; however, "challenges remain in terms of software to adequately support relatively large learning communities" [2]. This is a particularly pressing problem in large undergraduate classes where opportunities for student-instructor interaction and for student-student collaboration are limited and it is difficult (if only for reasons of limited air time [3]) to obtain active participation. By supporting collaborative learning in large classes through asynchronous online discussions, constructivist learning is enabled, while lecture sessions facilitate objectivist learning. Using a discussion board in large classes can be quite a daunting task for instructors, due to difficulties associated with handling large numbers of messages and simultaneously ensuring that the discussion really does assist in the learning process.

Context

The specific context of this article is a large class (n=161 students) on 'Enterprise-wide networking' offered as part of a BBA programme over a single, 14-week semester, with most students majoring in Information Systems. The class has a 2-hour lecture and a 1-hour lab session, with the students split into six groups of ~25-30 students. Outside class time, students are encouraged (and rewarded) to use a web-based discussion board tool

'WebBoard', which supports conferences (topics) and threads under each conference. They can access the WebBoard either from terminals on campus, from home or from any other location with Internet access. The number of messages and new messages is evident. There are facilities for sending periodic email notifications to students, chat tools, etc. See Figure 1 for a sample screen from the WebBoard programme. For this class, four general topics were created on the WebBoard, with twelve specific topics corresponding to different lecture sessions, and seven topics for lab sessions. We observed that the number of postings peaked during the middle of the course. The 'questions and answers' conference (354 messages over the duration of the course) was by far the most popular one, representing a source of information for students concerned about exam questions.

Figure 1: WebBoard



Suggestions for Practice

Our suggestions and recommendations are based both on our own 'instructor perspective' in designing and administrating the WebBoard tool in a number of courses, and on the 'student perspective', as gleaned in feedback with respect to their motivation, extent of

participation, role in using WebBoard, learning experiences and overall satisfaction. These student perceptions were gathered in four focus-group sessions conducted using a group support system (cf. [3]). Our suggestions are organized according to the different phases in the lifecycle of using a WebBoard system: planning & organization; initiation; usage; and conclusion. We note that while these suggestions are derived from, and so primarily apply to an online learning environment that essentially exists over many weeks, many of them may also be considered relevant in the more temporally restricted, face-to-face, synchronous context - subject to customisation for particular class settings. It is also important to consider the appropriateness of different types of tool. The examples presented here employ a web-based conference facility with multiple threads that works well for idea generation and question/answer formats. Other tools that encourage different communication styles may also be considered, depending on the nature of the interactions. These include tools that enable categorization of the materials, voting on items in an attempt to achieve consensus, group authoring of documents, matrix analysis, and electronic surveys of participants on a range of issues associated with both the content matter and the process of the interactions.

Planning & Organization Phase

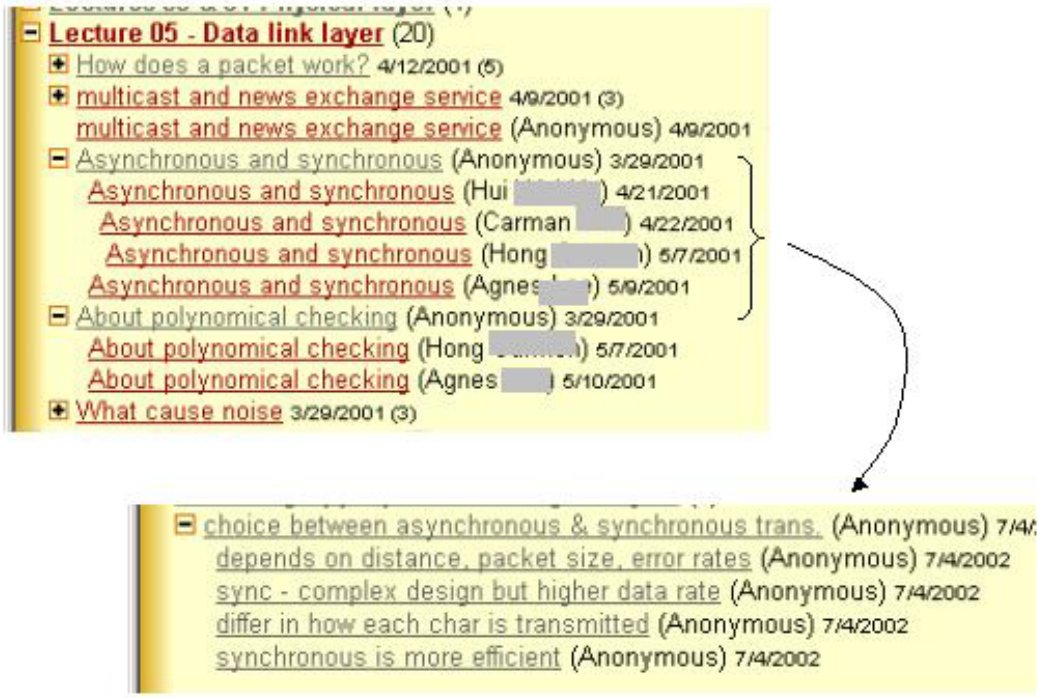
- Horizontal segmentation: Segment the entire discussion board according to topics (e.g., for each lecture and tutorial session) with some special topics such as questions to instructors/tutors; messages; questions and answers; etc., so as to provide a natural structure and to minimize efforts required for administration.
- Vertical segmentation: Provide different conferences to separate (and possibly restrict access to) the discussions that could start at different times in a week among students attending different lab sessions. This type of segmentation will also minimize message overload and help address the specific concerns of individual groups.

Initiation Phase

- Guidance: Give illustrative guidelines on message structure (message subject, length of the body, contribution of the message) and on how to start new threads and append to existing threads. Most students do not bother to select an appropriate message title for their postings (e.g., see Figure 2). The message titles in the lower section of Figure 2 have been created by synthesizing the key ideas from the five messages indicated in the upper section (titled 'Asynchronous and Synchronous'), thereby illustrating how appropriate message titles can add value. Conducting a short practice session during the first week (for each lab class) can greatly help in this regard.
- Communication: Communicate expectations and rules of the game (frequency of instructors'/tutors' participation; expected number of postings from each student during the semester; how participation is rewarded; etc.)
- Initiate: Initiate a few threads (under the first couple of topics) to start the discussions. Despite all the guidance and communication, most students require further help, encouragement and pressure. Destructive criticism of early postings

will negatively affect participation. Therefore, it is essential that feedback is positive and constructive.

Figure 2: Message Titles



Usage Phase

- Monitor and control: Monitor participation patterns and any sudden drop in interest. Cut off irrelevant threads with justification. Post participation scores or grades (e.g., list of top 10 contributors based on the quality of contributions made) on a regular basis.
- Praise and Caution: Commend messages that are interesting and useful for discussion but also send warnings or cautions through direct email to specific students.
- Anonymous postings: Allow anonymous postings selectively and occasionally (either in the first couple weeks and/or on specific threads – for example to collect feedback).

Conclusion Phase

- Summarize threads: Close threads with summaries at an appropriate time. Students often complain that they are not certain about the correctness of comments and/or solutions offered by other students. Drafting the summaries could be delegated to student teams, but confirmation and endorsement of their content by the instructor is essential.

Implications

Asynchronous discussions supported by IT can play a prominent role in the learning process of students even in large classes. The extended nature of these asynchronous discussions, often lasting several weeks, represents a significant advantage over the more commonly reported face-to-face, synchronous discussion context, where there may be insufficient time to engage students in the various phases of the interaction process, viz.: planning & organization, initiation, usage and conclusion. In particular, we draw attention to the critical importance of meticulous planning/organization, detailed initiation and constructive concluding; usage may take up 90% of the overall time, but without the critical introductory and concluding stages, there may be little value in the interaction. Our experiences indicate that while a minority of self-motivated students take active advantage of these communication tools throughout a course, the majority tend to be rather passive, using the tools primarily as an online information resource for difficult topics and in the run up to exams. Clearly it is critical that the tools should be adequately prepared in advance, so as to guide students in the right direction and thereby assist in the facilitation of appropriate learning. While active students will always benefit, the passive ones can also be encouraged to participate and take a more active role that their individual profiles might predict, given the inherently 'safe' nature of anonymous online communications.

The issue of culture is one that must also be considered in the deployment of these tools. As alluded to in the introduction, it is often difficult to get all students to participate actively - but this may be particularly a problem in contexts where students are using a second (or third) language, or where the culture of the local education system has discouraged student participation in the past (see [4] for a discussion of asynchronous interaction across cultures). Tools that promote simple idea generation are likely to be easier to implement in these contexts, but students who are naturally more vocal and willing to express their ideas may also reap significant benefits from participation with tools that require more critical thinking. This is as much an issue of available time, since students who are relatively slow to express their ideas may not have sufficient time in a synchronous, 50-minutes session to gain significant benefits, particularly if a variety of tools are to be used, each of which needs familiarization and competence development before successful usage can be achieved. In this respect, as noted earlier, the unrestricted nature of asynchronous communication contexts offers many benefits. The role of the instructor or facilitator will also change in different cultures - for example with respect to the cutting off of streams that run at a tangent to the topic of the class, and dealing with flaming or abusive contributions. Certainly sensitive facilitation is essential and facilitators may like to adjust the level of structure that they provide to students - depending for example on the degree of experience with either using the tool or discussing the topic (see [5]).

Overall, asynchronous communication tools have much to offer the learning process, not only inside but also outside the traditional classroom context. We commend them with the caveat that they need to be applied in a culturally and contextually sensitive fashion. The role of the facilitator is very much akin to that of a master craftsman - we all have to start somewhere, but experience will develop surely over time.

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Author Information

Narasimha Bolloju is an Associate Professor in the Department of Information Systems at the City University of Hong Kong (isnarsi@is.cityu.edu.hk).

Robert Davison is an Assistant Professor in the Department of Information Systems at the City University of Hong Kong (isrobert@is.cityu.edu.hk).