Using IT for Active Student Feedback in the Learning Environment

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ABSTRACT

This paper describes the use of a web-based groupware product (specifically a Lotus Notes™ & Domino™ discussion database), as a means of gaining direct and regular feedback from students on the progress of a course. Some of the pitfalls and issues are discussed, including motivation for use, barriers to effective feedback, the value of anonymity and appropriate netiquette. Some recommendations are made for others wishing to use such a feedback mechanism, and for those who do not have Lotus Notes installed, how a feedback system such as this might be implemented in some other web based product.

Keywords

Web-based groupware, student feedback, GSS, Lotus Notes, educational technology, course appraisal, CMC

1. INTRODUCTION

Inherent in the teaching and learning process at most Institutions is some form of mechanism for students to give feedback regarding the course. This may consist of a process of informal dialogue between teacher and class, it may occur through the standard formative assessment processes of good teaching and learning practice, or via the formalised course and lecturer appraisal processes of the institution. But the very nature of the teacher/ student relationship contains an imbalance of power. As teachers we have the right to arbitrate upon the quality of student work and assess whether they pass or fail the course. This power differential mitigates against free, frank and undistorted communication. Students are often too timid to voice concerns or make suggestions and in some cases (even with our student-friendly teaching body!!) may fear victimisation. However by the use of group support systems there is a technology option now available which offers the possibility of frequent, frank and open student feedback regarding the course. This paper will discuss the issues involved in adopting web based groupware for this purpose.

2. SOME ISSUES WITH WEB-BASED GROUPWARE

While the promise of new information technologies is always enticing, the reality often falls short of initial claims. To effectively introduce a new technology into an existing context requires a managed change process. To understand the capabilities of a technology, communicate those effectively to the user community and actually realise the potential of that technology in use, can prove challenging.

Groupware and computer mediated communication bring their own sets of challenges.

2.1 Pros and Cons of Computer Mediated Communication

Contradictory findings regarding the suitability of Computer Mediated Communication (CMC) in the virtual classroom context have been acknowledged by Benbunan-Fich, & Hiltz, (1999). They found that the quality of work produced by groups was higher when using a CMC, but subjective satisfaction was lower. A key problem appeared to be the "nature of asynchronous interaction, characterized by delayed feedback…and login-lags…Apparently groups working in an asynchronous environment had more difficulties coordinating the distribution of work and had to work harder than face-to-face groups…Since no other means of communication was allowed, it was up to each team to decide when to stop waiting for absent members…For these reasons, groups who used the ALN [Asynchronous Learning Network] were the least satisfied with the process" (Benbunan-Fich, & Hiltz, 1999). A brief overview of the pros and cons of this form of learning depicted in the table below may explain the frustrations inherent in these environments.

For students using the discussion database some of these issues would have been relevant. While anonymity may have reduced "group process losses" by encouraging greater participation, the students appeared to perceive limited "incentives for participation". Since students did not need to work together on the task, some of the procrastination problems with "log-in lags" may not have been such an issue. Yet we have observed that procrastination in filling in course reviews is a noted problem in off-line contexts, and response rates drop considerably in mail-out or other situations requiring self motivated after the event responses. Karsten (1999) has also noted "the take-off of a groupware application seems to depend on how it is embedded in the 'local context', i.e. the local work practices". The standard practice of course review at AUT is by informal interaction with the teacher and by students filling in paper forms usually at the end of a course. This new process of course feedback via a discussion database required a fresh set of habits to be learnt. The students would need to regularly post issues or questions, and the teacher would need to regularly read the postings acknowledge the issues raised and demonstrate responsiveness. This need for timely and substantial response has been observed as critical to developing trust in asynchronous online environments. "Responding behaviors are as critical as initiating behaviors and members have to explicitly verbalize their commitment, excitement and optimism" (Jarvenpaa & Leidner, 1999). The barriers to embedding such a seemingly sensible and simple practice such as anonymous any-time any-place student course feedback should not be underestimated. Some of the issues may be put down to usability problems, others due to the need to remember both the URL for the database and the need to undertake the task. More generally it has been claimed that "CSCW radically changes the status of the computer". Until now, the computer has been used as a tool to solve problems. With CSCW, the computer/network is a medium: a means to communicate with other human beings, a vector for information rather than a box that stores and crunches data. If we look at the history of technology, new media have been much more difficult to invent, create and operate than new tools. From this perspective it is not surprising that CSCW has not yet realized its full potential, even in the research community" (Beadouin-Lafon, 1999).

Advantages	Disadvantages
Increase group process gains	Procrastination
Decrease group process losses	Frustration due to login-lags
In depth reflection on topics	Pressure to meet deadline
Higher quality decisions	Impersonal medium
Integration of external expertise	Incentives for participation

Table 1: The advantages and disadvantages of using ALN's to support the solution of case studies (from Benbunan-Fich & Hiltz, 1999)

2.2   The Role of Anonymity

From their inception Group Decision Support Systems (GDSS) have been designed with certain features to overcome problems or needs of decision making groups. The role of "anonymous input of ideas and votes" in GDSS is to overcome the "reluctance of some members to speak due to their shyness, low status or controversial ideas" (DeSanctis & Gallupe, 1987). Web-based groupware with Lotus Notes and Domino can provide for either anonymous or identified contributions. For student course feedback anonymity is appropriate, as it may enable shy students to have a voice, or give students the confidence to give robust feedback or present "controversial ideas" without fear of victimisation. But the need to protect individual rights is also a two way street. In a previous semester I had conducted a similar exercise seeking student feedback and some students had entered disparaging comments into the database about a lecturer who was co-teaching the course. This enabled us to discuss with students the issue of what comments were course related, versus what comments were lecturer related, what information was group and shared information, versus what information was private. This then led to a discussion about the standard appraisal practices of the Institution, and the ability of a new technology to reinforce or counteract those standards. Therefore this very real example of inappropriate use of the database reinforced the dangers of "flaming" (abusive online behaviour) and the importance of "netiquette", a topic covered in the course text (Turban & Aronson, 1998).

3.   STUDENT FEEDBACK ONLINE

Since semester two of 1998, in teaching students of AUT's Intelligent Business systems course, I have used a standard Lotus Notes & Domino discussion template, to enable students to give feedback on the course as it has progressed. This web enabled discussion database permits student entries to be made anonymously, a feature which has been exploited to provide for student feedback on the course. The database supports threaded discussions, in which a message is entered under a topic heading, and users of the database build up a discussion by responding to a selected message or the last message in the thread. Discussions thus retain their history online, and contributions are made into a shared workspace. Lotus describe the database in these terms.

"To get started, a user can simply browse through discussion topics and responses that others have contributed. This is particularly useful for new workgroup members who need to come up to speed on important issues that the group is working on. The history of discussion about these issues is preserved in the group's discussion database. A user can also take a more active role in the discussion by composing his/her own responses to others' comments and by proposing new main topics for discussion. You can think of a discussion database as an informal meeting place, where the members of a workgroup can share ideas and comments. Like a physical meeting, each member of the workgroup listens to what others have to say and can voice his/her own opinions. However, unlike a physical meeting, the participants do not have to be in the same room at the same time to share information. People can participate when it is convenient for them to do so. And because it is easy for them to share information, they will do so".

Two discussion threads were set up to enable students to give feedback on the course. One thread to give feedback on course positive aspects, and another to give feedback on course suggestions/improvements. There were two streams of the class one day stream and one evening stream so the topics had to be set up for each stream. The introductory messages, which I posted for either topic are shown below:

Topic Heading - Course suggestions/ improvements sem 1 2000 day class: First entry - "this topic thread allows for entry of suggestions regarding the course; ways to improve it, make it more easy to understand, or more satisfying and enjoyable"

Topic Heading - Course Positive Aspects - sem 1 2000 evening class: First Entry - "this topic thread allows for entries regarding positive aspects of the course, and things that we should continue, or give more emphasis to" I also modelled use of the database to students by posting a sample response to my own first message.

Topic Heading - Course Positive Aspects - sem 1 2000 day class: Response Message description - Response from Tony Response Message Entry -"I think its great, but then I would!! Tony"

In a session of the class relatively early in the semester, students were notified about the database, and the URL through which it could be accessed via a standard web browser. I used the datashow in class to demonstrate to students how to create a discussion entry, by selecting and responding to a message in the thread. Time was then set aside in class for students to enter feedback on the

course, under the two topic headings. Results from this for the day stream, which I taught, were 6 postings regarding suggestions/improvements and 2 postings including my own regarding positive aspects of the course. One further posting appeared to have edited my original posting concerning positive aspects of the course in error, to replace it with a student suggestion for improvement. This indicates a degree of confusion on the part of this student in using the system. Thus for a class of 20 students there were 8 responses posted, representing a response rate of 40%. These postings were all made on the same date, being the day of the class. For the evening class response rates were lower - 1 response only or a 5% response rate.

The effectiveness of this exercise then, can be questioned. Response rates were not high and activity levels were low. However it could equally be asked whether a purely voluntary traditional course appraisal would differ greatly in response. I know that in off-line mode we specifically set class time aside for course appraisals and actively encourage and reinforce form completion by students. Often a degree of success in our teaching also breeds complacency. If students are satisfied with a course they may well have little comment to make, whereas if they are dissatisfied they will actively demand an appraisal and have a large number of comments to make. In this area the "no news is good news" syndrome typically prevails. But the positive aspect of the exercise was that I was able to identify during the course, issues about which students had concerns. I could take early action to improve parts of the course e.g. demonstrate examples of previous student work to indicate expectations, or in some cases discuss my intentions behind parts of the course and why I would make no changes.

It could be argued that communication between students and teacher within the course was sound and that students were generally satisfied with the course. This may explain the low rates of initial response and subsequent posting activity. However, the other likely factors, discussed above, are those which relate more directly to the nature of asynchronous communication and web-based groupware.

4. SUGGESTIONS FOR ORGANISING ONLINE STUDENT FEEDBACK FORUMS

In eliciting feedback from students there are some key factors to consider. Firstly the need to actively and consciously structure the process, secondly the need to establish and communicate norms of acceptable online behaviour, thirdly selecting and administering a suitable technology environment.

In a threaded discussion forum the moderation and facilitation process requires some care. The choice of topic names, description and content for each thread is important. For instance my first entry (repeated below) lacked an explicit request that students enter a response. Topic Heading - Course suggestions/improvements sem 1 2000 day class: First entry - "this topic thread allows for entry of suggestions regarding the course; ways to improve it, make it more easy to understand, or more satisfying and enjoyable" This instruction could have been improved by adding a more explicit sentence: "Please make your entry by 1) selecting a new response, 2) choosing a descriptive document title for your entry (it will show in the view for others to see) and 3) entering your suggestions". It is surprising how prescriptive one needs to be in web-based groupware applications, but this electronic communication may be the sole mode of communication available. Nunamaker (1997) has observed "we know that geographically distributed and asynchronous communication must be much more explicit than sametime/sameplace verbal interactions". Thus explicit instructions, demonstrations of the application, encouraging trial uses by students and providing exemplars are all ways to reinforce use. To reduce the difficulty for students of locating the database (piece of paper containing the URL lost, forgotten URL or omitted to bookmark it on browser), it is recommended that a group email message be sent including the URL of the feedback database. This notification could also define some ground rules to encourage use of the application on whatever basis might be determined, (e.g. postings by a given date or once every Friday in which students give feedback on the course).

Norms of online behaviour need to be clarified, and rules of "netiquette" and acceptable use should be spelt out explicitly. The nature of a shared workspace such as this, is that unlike the essentially private communication mode of email, all messages are shared and thus open to all viewers of the database. The privilege of anonymity

also brings with it both rights and responsibilities. Of course, depending upon the technology supporting the discussion forum, more sophisticated security levels may be implemented (e.g. with different access privileges operating at group, or role levels).

The range of technology options for an electronic discussion forum are now increasing. Sawers & Alexander (1998) have compared the features of distributed learning frameworks. While this paper does not intend to conduct an exhaustive survey of products, their list of browser based products with discussion facilities included: TopClass, Learning Space, WebCT, CourseInfo, WebMentor, Convene, WebCourse in a box and Real Education. Since then other competitive products have joined the list, MySmartforce (cf. http://www.smartforce.com) would be one example. Selecting a suitable product which is affordable, well designed and supported and able to be installed and administered effectively by the institution's technicians is a key consideration. Smaller scale teacher administered options may prove adequate in trial mode, but will not prove scalable for the "multi-tasking" computing teacher as application usage levels increase. Therefore institutional support, a good relationship with technical support staff, an ability to administer groups, mail address lists and security locally, combined with a solid IT infrastructure for the product will be key considerations.

5. DESIGN AND FUNCTIONALITY FOR A "DO-IT-YOURSELF" OPTION

The list of minimum features proposed by Sawers and Alexander (1998) to facilitate a range of learning designs (e.g. public and private discussions, debates, role play/simulations) included the following:
♦ Private email.
♦ Threaded discussions.
♦ Anonymous discussions.
♦ Multiple discussions
♦ Open and closed discussions (esp. for debates and other learning activities).
♦ Browser based.

The Lotus Notes template used in 3 above to support student feedback supported most of these features:
♦ **Threaded discussion**s - with options to create new topics, enter new postings or respond to a selected posting. View options included views by various categories (by topic, by date or by author), and views of discussion entry and response trails. A full text search feature was also provided.

♦ **Anonymous discussions** - users who were not security registered could all be identified as "anonymous web users" a general class of user within the Notes and Domino environment. This of course nullified the "view by author" option since they were all the same (anonymous). However as a registered user, if I made an entry myself via the Notes Client it was acknowledged by my user name.

♦ **Multiple discussions** - supported by multiple topics.

♦ **Open and closed discussions** - supported by a "mark expired" option for entries or in drastic cases a "delete" option for entries.

♦ **Browser based** - The Domino server supports both Notes clients and standard browser access. The Notes client tends to be used for application design purposes, and for the database manager to set up security groups and access rights for the database, whereas the browser tends to support data entry mode

♦ **Private email** - this aspect of the database was not fully functional. While Notes can support mail quite capably, this was not a design feature in this database template. Students had their own separate mail systems anyway - either Pegasus Mail at AUT and/or another mail system at home via their ISP. The database did however allow each user to set up an individual user profile. Through their profiles users could indicate preferences for email notification of new postings 1) by selected users, 2) on a selected topic, or 3) containing predefined or new user defined keywords. When one of these conditions were met a mail agent would operate to send a mail notification to the user. However since all our users were anonymous web users, we were unable to take advantage of this feature.

Relatively sophisticated web-conferencing products such as WebBoard (cf. http://webboard.oreilly.com/) offer the following list of options:

More Options

1.	Edit Your Profile	Edit your personal profile.
2.	Address Book	Manage your address book.
3.	Mailing Lists	Subscribe to mailing lists.
4.	Email Notification	Receive notification of new messages.
5.	Search Users	Search the user database.

6.	Current Users	View users who are logged in now.
7.	Today's Users	View users who logged in today.
8.	Top 10 Users	View the top 10 users by logins.
9.	Top 10 Posters	View the top 10 message posters.
10.	Mark All Read	Mark new messages as read.
11.	Today's Messages	View messages posted today.
12.	Conference Profiles	View conference profiles.
13.	List Boards	View a list of available boards.
14.	Login Again	Login as a different user.

This brief review of two web based conferencing environments demonstrates the range of possible features. Several of these (such as a full security model and email equivalent functionality) are relatively sophisticated and technically challenging to implement. But a less ambitious design may still be worthwhile, and enable anonymous feedback by students, in the active course feedback model proposed here.

A cut down application capable of being developed in a web-based development product with a backend database would include the following features:

1. The ability to enter a new topic for a discussion.
2. A threaded discussion message and response hierarchy enabling new messages to be entered and responses, as well as response to response messages as required
3. Two levels of security privileges - instructor and student. The instructor would have amend/delete rights over all database entries - to delete/remove unsuitable postings, or to edit/delete topic or discussion entries. Batch delete or expiry rights for flagged entries would be a useful feature. Students would have rights to post or read entries only. Delete rights are problematic if students are to remain truly anonymous. If individual logins are enforced, to enable amend and delete rights for own entries then students would be known to the system and postings would be inherently traceable. This might be useful for malicious and abusive postings, but would make the design more complex, add the overhead of security registration and password management to the process and possibly inhibit active use. A simpler design would require the teacher as moderator of the discussion to delete entries deemed unsuitable.

4. Views of discussion entries and response chains within topics, in descending date order.
5. Views of discussion entries and response chains in descending date/time order.
6. Login screen/prompt.

Suggested definitions of specific entities in the database hierarchy:

1. For the grandparent "Topic" entity attributes could be: author; topic category, date & time entered, topic message description, topic message body.
2. For the parent "Discussion Message" entity attributes could be: author; topic category, date & time entered, message description, message body.
3. For the child "Response Message" entity attributes could be: author; topic category, date & time entered, response to (prior message or response in the thread), message description, message body.
4. For the User entity attributes could be: type (instructor, student) Topic entity rights (enter/amend/delete/read combination), Discussion Message entity rights (enter/amend/delete/read combination), Response Message entity rights (enter/amend/delete/read combination), password (simple hard-coded two password option).

Possible development options would include products such as MS Active Server Pages and SQL Server (or even Ms-Access for small scale uses) or Cold Fusion with a suitable backend, Jade, Delphi and Interbase or Java with a suitable backend, PERL or Javascript and CGI scripts might also be viable options. Before attempting development it would be advisable to confirm the performance features desired, the security level necessary, the scalability and technical feasibility of any chosen option. The scope of intended use should be established and a plan considered for moving from trial to production mode in the event of success with the initial trial stage. More advanced implementations could include setting up mailgroups and automatically sending mail messages to remind users to check or add new postings, or notify that additional posting have been made. The URL of the discussion database would be a useful item in the signature of the email message as it reduces the overhead for students in locating and using the conferencing database.

8.   CONCLUDING REMARKS

This paper has described the use of an online Lotus Notes & Domino discussion forum to elicit anonymous student feedback upon a course. The practice has had partial success, and some potential reasons for this are explored. Further work is required to determine how to encourage more active feedback via this mode. The absence of feedback in this case may in fact positively indicate the successful progress of the course. Therefore this mechanism may only be a form of safety valve. By spreading the practice to a larger sample of courses and improving the moderation process for these forums, results of a more conclusive nature may be determined. The functionality required for a successful discussion forum for student feedback is described. The paper concludes with some recommendations for developing a simple web-based discussion forum. It is hoped that this will enable institutions without commercial conferencing products to experiment with including active student feedback in the conduct of their courses.

9.   REFERENCES

Beaudouin-Lafon M., (1999), (Ed.,) Computer Supported Co-operative Work, Wiley, London, Retrieved June 06, 1999 from the World Wide Web: http://www.daimi.au.dk/~mbbl?Trends-CSCW/preface.html

Benbunan-Fich R., Hiltz S., (1999), Educational Applications of CMCS: Solving Case Studies through Asynchronous Learning Networks, Online Journal of Computer Mediated Communication, 4; 3 Retrieved April 10, 2000 from the World Wide Web: http://www.ascusc.org/jcmc/vol4/issue3/benbunan-fich.html

DeSanctis G., Gallupe R.B., (1987), A Foundation For The Study Of Group Decision Support Systems, Management Science, 33, 5, 587-609

Jarvenpaa S., Leidner D., (1998), Communication and Trust in Global Virtual Teams, Online: Journal of Computer Mediated Communication, 3; 4 Retrieved April 10, 2000 from the World Wide Web: http://www.ascusc.org/jcmc/vol3/issue4/jarvenpaa.html

Karsten H., (1999), Collaboration and Collaborative Information Technologies: A Review of the Evidence, The DATABASE for Advances in Information Systems, 30;2 Spring, pp. 44-65

Nunamaker J., (1997), Future Research in Group Support Systems, International Journal of Human-Computer Studies, 47 pp. 355-356

Sawers J., & Alexander S., (1998), A Centralised Approach To The Adoption Of A University Wide Web Based Learning Tool, Proceedings of the ASCILITE '98 Conference, University of Wollongong, pp. 609-615

Turban E., & Aronson J., (1998), Decision Support Systems and Intelligent Systems, 5th Ed'n, Prentice Hall, New Jersey, ISBN 0-13-740937-0