

Online Discussion Boards: Impacting the Learning Experience

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Abstract

The availability of technology has seen the development of online asynchronous discussion boards for use in teaching and learning. This paper explores the use of this medium within a second year undergraduate business course at the University of South Australia to supplement traditional delivery methods as well as showing how this medium can be used to enhance the development of communication, critical analysis, problem-solving and collaboration skills.

Keywords: asynchronous discussion boards, graduate qualities

1. Introduction

In recent times there has been a significant increase in the availability of software to assist in the development of online teaching portals to facilitate the increasing use of Information and Communication Technologies (ICTs) in the teaching and learning process. The use of Blackboard and WebCT has become extensive within the tertiary sector together with supportive interactive website supplied by publishing houses (eg Pearson Education and McGraw-Hill).

The teaching and learning strategies at UniSA concentrate primarily on student-centered learning and the seven qualities of a UniSA graduate. These qualities are:

1. being able to operate effectively with and upon a **body of knowledge** of sufficient depth to begin professional practice
2. being prepared for **lifelong learning** in pursuit of personal development and excellence in professional practice
3. acting as an **effective problem solver**, capable of applying logical, critical and creative thinking to a range of problems
4. working both **autonomously and collaboratively** as a professional

5. being committed to **ethical action and social responsibility** as a professional and citizen
6. being able to **communicate effectively** in professional practice and as a member of the community
7. the ability to demonstrate **international perspectives** as a professional and as a citizen

In March 1999 the University of South Australia (UniSA) introduced an online teaching environment (UniSAnet) to add a technologically mediated component to the teaching and learning strategies being used within the University. This on-line environment, created in-house, is now the standard platform throughout the University of South Australia.

ITAC, the University's Information Technology Advisory Committee, identified the purpose of implementing UniSAnet:

- "Develop and maintain a distinctive and cost effective capability in the electronic delivery of courses on campus, throughout Australia, and internationally
- Improve the quality, flexibility, efficiency and effectiveness of teaching and learning
- Provide an effective infrastructure to support the achievement of the University's graduate qualities
- Create opportunities for course delivery, new markets and diverse student groups
- Build its competitive advantage in existing areas and create major new opportunities." (ITAC, 1998, p2)

UniSAnet is made up of both teaching and learning and administrative elements. Reid (2001, p3) describes UniSAnet as "... a low-cost, comprehensive and common medium for the presentation of subjects and courses that is scaleable to any number of programs and students." UniSAnet is distinctive in that "... students and staff can access and work with [it] from anywhere in the world using a Web browser" (Reid,

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2001, p3). The environment includes the following components:

- Home pages for staff, courses and programs;
- Integration of support sites and student information systems with course home pages;
- Authoring tools for online learning resources including interactive websites, asynchronous discussions and quizzes;
- Online course evaluations;
- Assignment submission and return. (Reid, 2001)

Since one of the key purposes of this implementation is to support the students' development of graduate qualities this paper investigates the usefulness of the asynchronous discussion forum component of this platform in the student achievement of graduate qualities, particularly effective communication, problem solving and collaboration skills within a second year, undergraduate business course.

2. Literature Review

Hoadley and Linn (2000, p840) identified that online discussions "... can potentially make students' ideas visible and support collaboration or competition." This is supported by Lawson et al (1997, p5) who found that the Web is "...one of many active systems that can be used to develop critical thinking skills and teamwork". The use of Web-based tools that aid in collaboration and communication have been identified by Jonassen (1998, cited in Reushle et al, 1999, pg 5)) as enabling "communities of learners to negotiate and co-construct meaning for problem solving and knowledge construction."

Traditionally, communication, teamwork, critical thinking and problem solving skills have been developed using face-to-face methods such as role play, group reports, tutorial participation and group projects however Lawson et al (1997, p5) identified that by using the web "...students can work independently as well as in groups. Pedagogical strategies that use computer technology effectively can promote active learning."

The introduction of an online discussion board allows students the opportunity to participate in collaborative sharing and creating of knowledge which they have indicated to be stimulating in both an academic and professional way (Reushle et al, 1999). Students who use this medium may "reconsider prior views, distinguish among alternatives, develop new insights linking prior and introduced ideas, seek new information, promote some ideas over others, coalesce previous distinct notions, or restructure ideas to enhance connections." (Hoadley and Linn, 2000, p840)

Group activities can be used for assessment purposes by setting tasks in which students must participate in order to achieve a grade. Assessment tasks can include commenting on a specific topic, critical analysis of other students' work or reflecting on the process. It has been found that students will contribute more readily

and meaningfully to online discussions when they identify that the discussion is assessable (Reushle et al, 1999,).

Witmer (1998, cited in Salter and Hansen, 1999, p3), found that "...some students who are reluctant to participate in online conferences opt out because they feel it is 'not pertinent to their classroom learning'." It is therefore important to structure the use of the discussion board to be relevant not only to the assessment task but also to the other teaching and learning strategies being implemented in the particular course.

Harrod and Townsend (1998, p196) have identified that the benefits of asynchronous technology-based learning include:

- Empowered learners determine where and when
- Self-motivated learner sets the pace (leading to faster assimilation of coursework)
- Courses are delivered close to needs and are inexpensive to deliver
- Foster learning by doing
- Assess learning by performance (simulates job the student is doing)
- Benefits from consistent delivery

These advantages are linked to UniSA graduate quality 2 (GQ2), preparing for lifelong learning, and graduate quality 4 (GQ4), being able to work autonomously and collaboratively, as the technology promotes a remote working environment with the ability to connect with other students as well as increasing the students' ability to work with and understand the many uses of this type of technology.

King (2001, p345) found that participants in asynchronous discussions identified the following as benefits of the process:

- Time and ease of participation
- More in-depth contributions
- Opportunity for all to participate (including shy and less-articulate)
- Collaboration between educators and students
- 24/7 availability
- Identifying a sense of community
- Allowing students to direct the discussion given a sense of student-centred learning
- Increased access and responsiveness to one another
- Information remains posted for long period of time
- Threaded conversations allow for multiple topics to be covered

- Ability to improve writing and comprehension skills
- Achievement in using technology.

These student-identified benefits identify that they are accepting the technology as a tool for assisting in collaboration (GQ4), improving communication skills (GQ6), inclusivity (GQ5) and lifelong learning (GQ2).

However, King (2001, p346) also identified a number of issues, which could “interfere with the educational process when using Web conferencing”. These included:

- Differing access to technology
- Level of technical ability required to participate
- Technological problems with online connections
- Lack of immediate delivery and response
- Lack of face-to-face connection for body language and expression
- Lack of emotion and spontaneity
- Additional layer of separation between educator and students
- Unsure if anyone is reading what you post
- Reduced personal contact
- Text-based learning can disadvantage learners not comfortable with this learning style.

Hoadley and Linn (2000, p852) discovered that when using asynchronous discussions “students can read comments without also wondering what to say next and that students can compose their contributions to discussion more carefully.” This is in stark contrast to in-class discussions where even those students that participate regularly in discussions can take time to identify the issues being discussed and even then do not regularly recognise that the alternate views being posed.

The structure and content of asynchronous discussion boards are essential to maintaining active and interesting dialogue as well as encouraging maximum student participation. (Laurillard, 1993, cited in Clark and Scott, nd, p2; Salter and Hansen 1999, p3) The introduction of strategies such as small groups, anonymous submission and assessable components also appears to have a major impact in this regard Salter and Hansen (1999, p3).

3. The Course

Data Management for Administrators (DMA) is a first semester, second year course offered in internal, external and offshore modes. The course concentrates on data management, systems development theory and small-scale database construction using Microsoft Access. Internal students are required to attend a 1-hour lecture, and a 1-hour tutorial each of the 13 weeks as well as a 1-hour practical session for the first 10 weeks. Lecture notes are made available to external

and offshore students. Students studying in the offshore mode attend lectures over 4 evenings (for a total of 20 hours) twice a semester as well as attending fortnightly practical sessions in which they are able to learn components of the software. These students study in their home country where lectures are delivered by staff from the City West Campus of UniSA (Adelaide) and local tutors deliver practical classes. The course is taught using case studies written in consultation with business, or based on the industrial experience of the staff working on the program.

The students enrolled in this course are end-user developers, ie not Information Systems specialists, who will develop and implement a database using Microsoft Access as the end-user application generator. Students are required to use only the wizard-based features of Microsoft Access, as the course is not sufficient in length to develop any programming skills in VBA.

Case studies used in these course alternate between service and manufacturing business sectors as this is where the majority of graduates find employment. The content of the case study centres on the information needs of a small business or one department within a larger organisation. Students are required to understand the information needs of the department being studied however they should also be aware of the corporate structure in place and an outline of the information needs of the organisation as a whole to understand the context of the database they will develop.

The course is assessed using 50% exam and 50% assignment. The assignment is split into two sections over which the students develop a small-scale database for the business described in the case study. These assignments are undertaken using group work to develop the students’ ability to work in teams, which is inherent in a systems development exercise. The first section asks the students to identify the information requirements of the business. The second section requires students to implement the needs of the business into a functioning database with tables, data entry forms, queries and appropriate reports. They are also required to implement a menu system that allows the business to navigate efficiently throughout the database.

Students are given copies of the reports currently being used by the business, currently used methods of data collection (eg index cards) and a basic outline of the business function. They are then required to ask questions of the business through the online asynchronous discussion board to determine any information that may be missing from the reports.

To date the discussion board has only been made available to internal and external students taking this course. It is anticipated that this will be available to offshore students in the upcoming January semester.

The case studies used in this course exposed the students to the problems faced with not knowing or understanding the business type they are assessing. The lack of knowledge of the business processes

particularly in the manufacturing industries initially causes the students major concerns as they not only have to understand the nature of the business but also the problem to be solved.

4. Using The Asynchronous Discussion Board

As this is a second year course, it is assumed that students will have been exposed to this technology during their first year, core courses. However, due to the status system available within the program of study, this may in fact be one of the first courses being taken by students. The students are required to post questions on the online asynchronous discussion board, which has been password protected to ensure that only students enrolled in that particular semester have access to the facility. These questions allow students to interact with the ‘business’ to determine the information, which has not been included in the case study documents, clarify details they are unsure of, question the need for particular information currently being collected and/or reported and identify the particular layout the business requires from the database.

The use of the discussion board in this course is in line with that of Clark and Scott (nd, p4) where they highlight that “[t]he bulletin board was used primarily to respond to specific student questions that had been transmitted by electronic mail. These questions typically concerned current homework or programming assignments. Most of the postings consisted of the student’s question and the instructor’s response”.

The course coordinator posts answers to the questions and any repetition is referred to previous answers. This experience is designed to simulate the information-gathering phase of database development and is also the one which students have the most difficulty approaching and understanding. The student’s major difficulty in this area is identifying and discarding irrelevant information and are unsure how to handle ambiguous information in the case study.

5. Student Experiences

At the completion of the recent offering of this course, internal students were surveyed to identify, among other details, the effectiveness or otherwise of the discussion board. This is an initial survey, which will form part of a longitudinal study. A summary of the relevant results of this survey can be seen in Table 1.

Question	SA	A	N	D	SD
12	12 (14%)	58 (68%)	13 (15%)	2 (3%)	0
13	26 (30%)	51 (60%)	5 (6%)	3 (4%)	0
14	14 (17%)	41 (48%)	22 (26%)	7 (9%)	0

Table 1: End of Semester Survey Results (Internal students only, n=85)

Key

Q12: The Case study simulated a “real life” situation which was beneficial to my studies

Q13: The discussion board was a useful tool

Q14: I would have preferred to be able to meet with the business in a face to face situation

SA = Strongly agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

NOTE: Students were given the opportunity to include comprehensive comments to supplement their responses to questions 13 and 14.

From the results above it can be seen that 90% of these students identified that the discussion board was considered either useful or extremely useful in the context of the assignment. The most overwhelming comment from the students was that this was an extremely efficient method of communicating answers to the questions asked. A number of students also noted that the board was useful in that it answered questions, which they had not previously thought of. Formal presentations from the students, in class, also identified that the discussion board was an essential form of communication for this assessment which would have been better if supplemented by face-to-face discussions or clarifications of answers posted on the board.

Students also commented that they had problems interpreting answers to questions posted. This came about primarily when students posted questions of a vague nature as though they were fishing for specific information without knowing exactly what they were asking for. The ‘business’ usually responded with a naïve approach asking the students to be more specific in their question or stating that they did not understand what the students were attempting to find out. Many students identified that they became frustrated with the delay in clarifying a particular issue due to the asynchronous nature of the discussion board.

These comments highlight the need for a more rigorous discussion regarding communication via electronic media is required in future offerings of this course to ensure that students formulate their questions more carefully and design them to the level required by the business. This would then assist in the development of the student’s written communication skills (GQ6).

Since the intent of running with a case study is to introduce students to ‘real life’ situations a conflict was identified between actual practice of information gathering and the method used for this assignment, as the discussion board was open to all students enrolled in the course. Interestingly, no student commented that there was a disadvantage by making all questions and answers public knowledge.

Another interesting result from the survey was that 65% of the students identified that they would have preferred face-to-face contact with the business however an analysis of the student comments revealed

that almost 20% of these students identified that this would be more time consuming for both staff and students and decided that the discussion board was a suitable alternative.

One of the major issues identified was the time component of the assignment. Students discovered that the ability to access the questions and answers on the discussion board on a 24/7 basis was essential. However they were also frustrated by the unreliability of access to the technology, particularly in the evening and on weekends when the University regularly undertakes maintenance on the web servers.

Overall, students identified the approach as a successful one and this is borne in the students' results for the assignment component of the course. Many students commented that the discussion board made an excellent avenue for information gathering and certainly should continue to be utilized as part of an integrated approach to the assignment. Students' realized through the use of the discussion board the need for clear and concise communication as well as the requirement to collaborate with all stakeholders in order to produce a database that will be useful to the business.

Clark and Scott (nd, p1) found that "[b]ulletin boards as a learning tool may be expected to have both logistical advantages and potential pedagogical benefits. Unlike classroom discourse students have more time to ponder their questions and comments, and the act of writing them rather than speaking may increase understanding. Peer interaction, a greater feeling of control and choice, and a more active learning environment might be expected to contribute to student satisfaction and performance." This was certainly identified by the student feedback in the survey. One student commented "*I prefer this forum to open discussions as some people don't want to ask anything in group forum. It gave me a chance to think about what I was asking.*"

Lawson et al (1997, p5) found that "[t]he Web enables the teacher to eliminate power struggles and role expectations, and interaction that is not face-to-face can encourage reticent students to participate more fully in teamwork. Accepting feedback and criticism may be less threatening to students due to reduced personal contact."

6. Conclusion

Reushle et al (1999, p7) found that "...as with face-to-face teaching, relationships online can be established with others based on common interests, beliefs, senses of humour, and so on. This in turn does appear to influence the quality and quantity of interaction, enthusiasm and participation."

The results of this study are preliminary and should be considered as an initial comment on the usefulness of these medium of communication and collaboration. A thorough review of the questions in the survey is currently being undertaken so that ambiguities can be addressed for the next cohort of students. However, the

results tabled to date have identified that by taking this course students found that they collaborated not only within their own groups but also with other groups through the use of the online discussion board. This collaboration led to an overall increase in their understanding of the requirements of the task at hand and allowed them to experience the difficulties inherent in a business project of this type. They also discovered that communication, teamwork and problem solving are essential skills when dealing with a problem of the magnitude they were presented with in this course.

The students' experience in this course has identified that the use of technology can assist in the development of the skills that comprise the UniSA Graduate Qualities, particularly those of communication, collaboration and lifelong learning. They have discovered that the discussion board, although not the most preferred method of communication, is a useful tool in a project such as the design and implementation of the database. The introduction of a formal training session in the use of the technology is being implemented in the coming offering of this course. It is anticipated that this training will lead to an even higher acceptance of the tool as a valid method of communication and collaboration.

In conclusion it can be seen from this project that students recognise the contribution that can be made by the use of online discussion boards within their studies however they highlight that the medium should be used in an integrated way with other teaching and learning strategies.

7. References

CLARK, R.A. AND SCOTT, L.W. (nd) Assessing the impact of course-related electronic communications on student performance in an introductory programming course, *Journal of Information Systems Education* Vol 7 (1), online accessed 19/07/00
www.gise.org/JISE/Vol7/v71_2.htm

HARROD, W.L. AND TOWNSEND, L.A. (1998) Distance learning in a changing environment at Lucent Technologies, *Career Development International*, 3(5):194-198.

HOADLEY, C.M. AND LINN, M.C. (2000) Teaching Science through online, peer discussions: SpeakEasy in the Knowledge Integration Environment, *International Journal of Science*, 22(8):839-857

ITAC (1998) *On-Line Teaching and Learning Report: Establishing UniSAnet: The On-line Environment of the University of South Australia A Proposal*, accessed online 28/08/02 www-i.unisa.edu.au/its/itac/9803/9803olt.asp

KING, K.P. (2001) Educators Revitalize the Classroom 'Bulletin Board': A Case Study of the Influence of Online Dialogue on Face-to-Face Classes from an Adult Learning Perspective, *Journal of Research on Computing in Education*, Summer 2001, 33(4):337-355

LAWSON, P.B., ALPERT, E., BLAND, C.G., CARSWELL, L., CIZMAR, D., DEWITT, J., DUMITRU, M., FAHRAEUS, E.R., SCOTT, K. (1997) The Web and distance learning: what is appropriate and what is not, *Working Group reports and supplementary proceedings SIGCSE/SIGCUE ITiCSE '97*

REID, I (2001) Strategic Collaboration for Online Delivery, *Proceedings of the Educause 2001 conference*, accessed online 22/12/01
www.gu.edu.au/ins/its/educause2001/papers/Ian_Reid.doc

REUSHLE, S., DORMAN, M., EVANS, P., KIRKWOOD, J., MCDONALD, J. AND WORDEN, J. (1999) Critical Elements: Designing for Online Teaching, in the *Proceedings of the 16th Annual Conference of the Australian Society for Computers in Learning in Tertiary Education*, Brisbane, Queensland University of Technology

SALTER, G AND HANSEN, S (1999) Modelling New Skills for Online Teaching, in the *Proceedings of the 16th Annual Conference of the Australian Society for Computers in Learning in Tertiary Education*, Brisbane, Queensland University of Technology