A TALE OF SIX FISH: ACHIEVING SOCIAL PRESENCE THROUGH DISCUSSION FORUMS IN AN OFFLINE LEARNING ENVIRONMENT

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Abstract

It is widely held, through the Socratic tradition, that discussion is at the heart of learning. Moderated discussion forums have been shown to replicate the debate, argument and verbal defence of viewpoints that we have come to expect in face-to-face learning environments and that we generally accept to underpin learning. While much has been written about discussion forums in educational settings, particularly in how to moderate and promote effective interaction with students at a distance, this paper takes a different approach. It looks at how forums may be used to support face-to-face learning in the contemporary context of the massification of on-campus classes. Further to this, it will argue for discussion forums as an indicator of social presence in the learning environment. It will cautiously conclude that, through purposeful design, this form of asynchronous communication has a valuable role to play in creating a positive and supportive environment for students entering university. Discussion forums are tools with a versatility yet to be fully exploited.

Keywords

asynchronous communication, discussion forum, first-year experience

Asynchronous discussion forums are valued in higher education (see, for example, Corich, Kinshuk, & Hunt, 2004; Geer 2003; Vonderwell, 2002). It is usual to expect a study of such forums to be positioned in the context of distance learning or in cohorts of post-graduate students. This paper, however, considers the adoption of discussion forums in a traditional campus-based course of study designed specifically for students at the beginning of their university studies. The course in question was a large first-year undergraduate course in a teacher education degree conducted in an Australian university. The enrolment in the semester that data was collected was approximately 950 students. The course is similar to many in contemporary universities where an increasing "massification" of education has been seen (Dobson, 2001; Guri-Rosenblit, Šebková, & Teichler, 2007). How to involve and engage students in the face of such large numbers is an ongoing issue for universities, particularly, as in the instance discussed in this paper, in first year or beginning cohorts.

What this paper will attempt to show through a simple case study in learning design is that, while discussion forums can contribute to student learning, they can also work towards creating and sustaining a positive social presence in large courses of study (after Gunawardena & Zittle, 1997). While it is assumed that "social presence" is a given in traditional campus-based courses, the experience of large units, particularly for first-year students can be an isolating one (Krause, Hartley, James, & McInnis, 2005; Yorke & Longden, 2008).). The solution attempted here was to

open a number of discussion forums in tandem with on-campus face-to-face activity and thus allow a non-threatening and inclusive communication medium to all students in the course. Its primary aim, as advised by Krause, McEwen and Blinco (2009), was to use technology (e-learning) to enhance first-year student engagement through community building.

Background

The background to the study is presented in two sections: context and theory.

Context

The broad context, as noted, is in a teacher education degree program. This section more specifically details the course of study and also the "six fish" – noted in the title of this paper - which provided the topic for the discussion forum being analysed.

The course of study

The analysis in this paper is positioned within a core undergraduate course entitled *Learning Networks* which is delivered within a 13-week semester with 3 hours of contact each week (with one hour each of lecture, tutorial and computer laboratory session). It is conducted across the university's two campuses – one metropolitan and one semi-rural. To accommodate the large number of students ($N= \sim 900$), lectures are presented 2-3 times in a given week and tutorials are scheduled on almost each weekday. The course website, hosted within a proprietary Learning Management System, is the key communication medium for the course. In the semester where data was collected for this analysis, the subject website had 55,000 hits which was the highest in the university and which indicates its centrality in the conduct of the course. Formal evaluations have also been highly positive.

The rationale for the course of study is prefaced by the statement:

> Learning networks can be seen as both social and technical phenomena. From a social perspective, a learning network involves collective sense-making and knowledge construction by groups of people. In contrast, a technical learning network is one mediated by information and communications technologies. A learning network can be greater than the sum of its parts. To participate effectively in a succession of learning networks throughout your life, you need a toolkit of skills, dispositions, and literacies which should transcend the inevitable obsolescence of contemporary technology.

The "learning networks" of the title of the course were enacted by the mediation of social networks by the technical while the technical was humanised and made purposeful by the social (see Lloyd & Ryan, 2005; Ryan & Lloyd, 2003). In short, the course was an introduction to university studies and it aimed to provide an entrée into working with others, frequently in online spaces. Evidence of this lies in the fact that the main assessment item in the course was a variant of the webquest devised by Dodge (1998) which required students to work in groups and to come to terms with working and communicating within virtual spaces. The key to understanding the intention of the course lies in the rationale's description of a "toolkit of skills, dispositions and literacies." Taking part in discussion forums was deemed to be one aspect of the students' toolkit to equip them for future professional interactions.

We also asked students to read, as well as create, online texts. As noted in a previous paper (Lloyd & Ryan, 2005), in designing the course of study, "we 'constructed' the conditions for the social networks but allowed individuals to negotiate their own rules and mores of behaviour. They were to be builders rather than merely occupants of a previously-constructed space" (p. 133). Being a face-to-face course did not prevent our making use of the affordances of online technology. We were guided by the seminal notion that:

> Technology quickly becomes not an exogenous force acting on groups, but rather a web of interpersonal and task interactions. Over time the tools are in fact "enacted" by those who use

them, shaping and shaped by the experiences of the group participants without a high degree of self-consciousness.

(Bikson & Eveland, 1990, p. 285)

By taking part in low-risk discussion forums, students became part of "interpersonal and task interactions" and their experience of the course content and their social interactions with their peers and tutors was shaped by the experience. As advised by Ellis (2001) not to presume prior knowledge, the forums also allowed us to "teach" the use of a standard communication medium, that is, responding to postings and how to thread messages. It is important to note that the discussion forums were not assessed in the course. Participation was voluntary, although, in some cases provided the vehicle for tutorial or workshop activities.

The six fish
An image was created, by the author, of six fish (see Figure 1) through drawing by hand, then scanning, replicating and filtering the original image. This became the iconic image for the course of study and appeared on the website and on the cover of a printed study guide which the students were given. It was not explained but alluded to occasionally in lectures. The initial motivation was simple. The webquest teams were designed to be made up of a maximum of six people who took on roles that represented differing perspectives on the one issue, for example, an historian, economist, ethicist or scientist. These are the fish facing in different directions or who are shown in differing textures or patterns to indicate student diversity. We thought of the pun, a 'school' of fish, somewhat appropriate for a learning network comprising of pre-service teachers.

A discussion forum simply asking "Why six fish?" - one of 36 opened through the 13-week semester - was begun in March 9 and ran, without prompting, for approximately three months, that is, to June 17. It comprised of 70 postings made by 43 individuals including the lecturer (author). The majority of the postings were made in the calendar month of March (n=48, 68.57%) with postings also in April ($n=7$, 10 %), May (n=12, 17.14%) and June (n=3, 4.29%).

In most cases, threads were contained within a period of 1-2 days, but on a few instances, extended over a longer period. An example of this is where a thread begun by the lecturer/author (made on March 16) had three responses dated, respectively, on March 21, March 24 and April 4. Postings were made at various times through the day, but typically, were made outside of class time indicating an engagement of students with the course website both on- and off- campus. As previously noted, participation was not mandatory and formed no part of the course assessment.
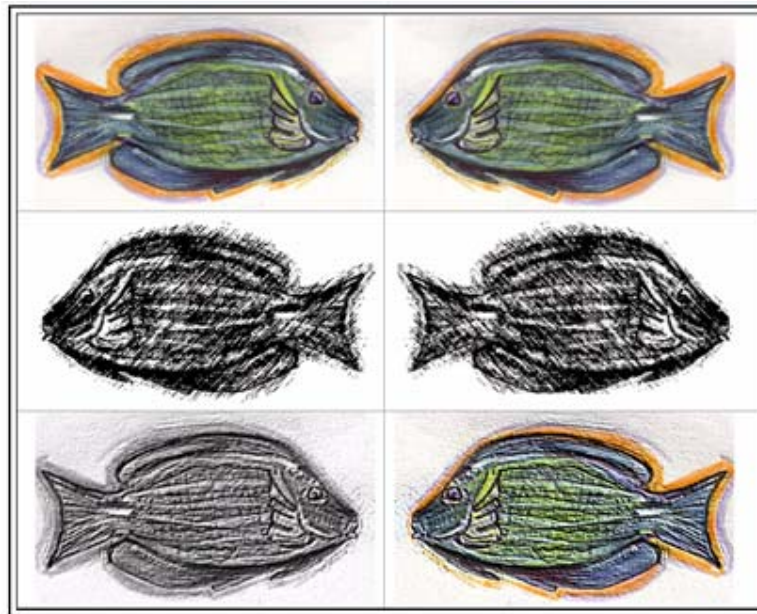
Figure 1. Image for the "six fish" metaphor

The intention was for this particular discussion forum to be one the "sandpit" spaces for the other – more serious – forums of the semester. There was no "right" answer to the question posed and the students learned to begin and respond to threads in this non-threatening non-judgmental space. Many responses were humorous and students quickly adopted the spirit of the discussion. It was an informal and arguably atheoretical space for student communication and one that sat in rather stark contrast to other discussion forums and in-class discussions conducted in the course of study.

Theory
The theoretical background to this paper lies within two independent fields. The first is Computer-Mediated Communication (CMC) while the second is social presence. It should be noted that these are substantial fields of research and this paper can do little more than briefly define them and explain how they fit within the analysis at hand.

Computer-mediated communication (CMC)
According to Wozniak and Silveira (2004), CMC "is one technology that has received considerable attention for its ability to promote deeper learning and collaboration between students" (p. 956). Discussion forums, a well-known and widely-used form of asynchronous communication, are a clear enactment of computer-mediated communication (CMC) and there is a body of literature concerned with the role and nature of forums in teaching and learning.

For example, an early attempt to clarify the role of the teacher in CMC was made by Feenberg (1989, 1993, 1999) who summarised the teacher as online moderator whose functions were: (i) contextualising, that is, to open and orient the discussion; (ii) monitoring, that is, to recognise individual 'posters' and to prompt participation; and (iii) "meta", that is, to comment and remedy problems in context and weaving discussion. The lecturer (author) in this instance was aware of these functions and strived to achieve these by making deliberate decisions when and when not to intervene or to add to student postings. This was clearly aligned to broader course objectives previously articulated around notions about building spaces and then allowing these beginning students to find their own voices within them. And similarly of teaching by modeling the tenor and nature of communication in this medium.

Social presence

Theories of "social presence" date back to the mid 1970s where it was described simply in terms of the salience between two communicators using a communication medium (see Lowenthal, 2009, for a history of social presence theory in online learning). An oft-quoted definition is that social presence is "the degree to which a person is perceived as a 'real person' in mediated communication" (Gunawardena, 1995, p. 151). This aligns with later extant definitions (for example, Garrison, Anderson & Archer, 2000; Rourke, Anderson, Garrison & Archer, 2001; Tu & McIsaac, 2002). The focus is on human – and humanised/natural - communication being possible in online communication medium.

There are two definitions of social presence critical for the analysis in this paper. The first is that social presence in an online course "refers to a student's sense of *being in and belonging in* a course and *the ability to interact* with other students and an instructor" (Picciano, 2002, p. 22, emphases added). The second is from Garrison (2009) who offered that it is "the ability of participants *to identify with the community* (e.g., course of study), communicate purposefully in a *trusting environment*, and develop inter-personal relationships by way of projecting their individual personalities" (p. 352, emphases added). The first is critical because of its reference to "being in and belonging" which has particular relevance to the first year experience with its known issues of student isolation. The second has relevance because of the notions of trust and relationships it raises. These, in turn, align with the course of study's intention to create "learning networks" where these characteristics, that is of belonging, trust, interaction and identification, are essential to the network/community's success.

It is important to mention, and acknowledge an inability in a paper of this length to expand upon, the 'community of learning' model as first described by Garrison et al. (2000) which positions social presence in an educational setting. This model encompasses interaction of three core components: cognitive presence, teaching presence, and social presence.

- Cognitive presence is defined as the extent to which participants in a community construct meaning through sustained communication.
- Teaching presence considers the interactions of teachers and students as they formulate questions, expose ideas and answer questions.
- Social presence deals with declarations of the students or tutors where the creation of a dynamic group is promoted, including social relationships, expressions of emotions, and affirmation messages.

The three "presences" were worked into a Model of Community Inquiry (Garrison, Anderson & Archer., 2001) which is typically shown as intersecting circles. This can be seen in Figure 2.
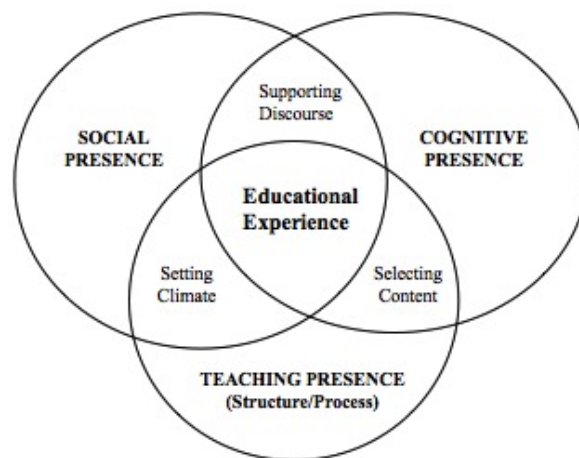

Figure 2. Model of community inquiry (Garrison et al., 2001)

The spaces where social presence intersect in Figure 2 with the other "presences" are of interest to this study. These are (i) setting the climate (where social presence intersects with teaching presence), and (ii) supporting discourse (where social presence intersects with cognitive presence).

Methodology

The research in this paper can be simply described as a qualitative case study drawing its findings from two analytical tools. These are: (i) content analysis; and (ii) social network analysis. As participant observer as course lecturer, the author is further able to bring personal experience to the analysis. The data sources used were the transcript of the forum and author observations.

Content Analysis

Applying content analysis to computer-mediated communication (CMC) such as discussion forums has been well documented (Hara, Bonk & Angeli, 2000; Harasim, 1990; Henri, 1992; Hiltz, 1990; Kuehn, 1994; Levin, Kim, & Riel, 1990). Kuehn (1994) suggested that content analysis could be used in two ways in this context, that is, either to describe a communication phenomenon or to test a hypothesis. The purpose in the analysis described in this paper is more properly the former but could also be said to be testing the notion that discussion forums can facilitate social presence.

The content analysis framework adopted in this paper, that is by Hara et al. (2000), was one of several adapted from the initial research of Henri (1992) who from a cognitive perspective, suggested five categories, aimed at revealing the learning process behind the message. These were: participative, social, interactive, cognitive and metacognitive. In Hara et al.'s (2000) analysis framework, messages are classified into five categories: elementary classification, in-depth classification, inferencing, judgement and application of strategies. A sixth – "not categorised" –is also allowed. The five categories can be explained as follows:

1. *Elementary clarification* - identifying relevant elements, reformulating the problem, asking a relevant question, identifying previously stated hypotheses, simply describing the subject matter.
2. *In-depth clarification* - defining the terms, identifying assumptions, establishing referential criteria, seeking out specialised information, summarising.
3. *Inferencing* - drawing conclusions, making generalisations, formulating a proposition which proceeds from previous statements.
4. *Judgement* - judging the relevance of solutions, making value judgments, inferences, "I agree, disagree…"
5. *Application of strategies* - making decisions, statements, appreciations, evaluations and criticisms, sizing up.

It is interesting to note that the online discussion under review here – as with other forums in the course of study – overlapped into offline or face-to-face interactions. The forums, with the "six fish" discussion in particular became a "running gag," an ongoing meme of connection, within the course. There was a keen sense, in the daily conduct of the course of study, of a blurring of the edges between on- and off- line activity.

Social network analysis

A conceptual understanding of social network analysis (SNA) is inherent within its name. It is the process of analysing networks, that is, nodes, edges, links and connections, between human beings (see Freeman, 2006; Wasserman & Faust, 1994). Its roots lie in the seminal work of J. A. Barnes (Barnes, 1954) and, although not without its critics, it has been used over time in the social sciences to interpret complex bounded groups and social categories. It is typically used to show interdependence and can be said to reduce or represent social relationships in terms of network theory.

Software has been developed the relationships in computer-mediated communication. In the broader community, SNA software has been used productively to map such things as the transmission of communicable diseases. It has also been used somewhat idiosyncratically to map the spread of happiness (see Fowler & Chrisakis, 2008).

Findings

The transcript of the discussion forum was analysed using two tools, as described in the previous section. These are: SNA mapping and content analysis.

SNA mapping

In the analysis of this paper, SNA software has mapped the connections in the "six fish" discussion forum. The connections are shown in Figure 3, redrawn to remove student names and thus preserve anonymity. An SNA diagram (as in Figure 3) is typically read in terms of its metrics, which include: betweenness, centrality, centralisation, closeness, clustering coefficient, cohesion, degree, radiality, and structural equivalence. In Figure 3, the nodes (agents), as represented by black circles, are individuals who posted to the forum and who received a response. Additional circles – outlined in red - have been added as a graphic device in Figure 3 to highlight the centrality, or "social power" of four individuals who appear to be instigating discussion. These are: the lecturer (author), Student A, Student B, and, although a subset of Student B's discussion, Student C. Student A and B might be seen to be equally influential in leading the discussions.
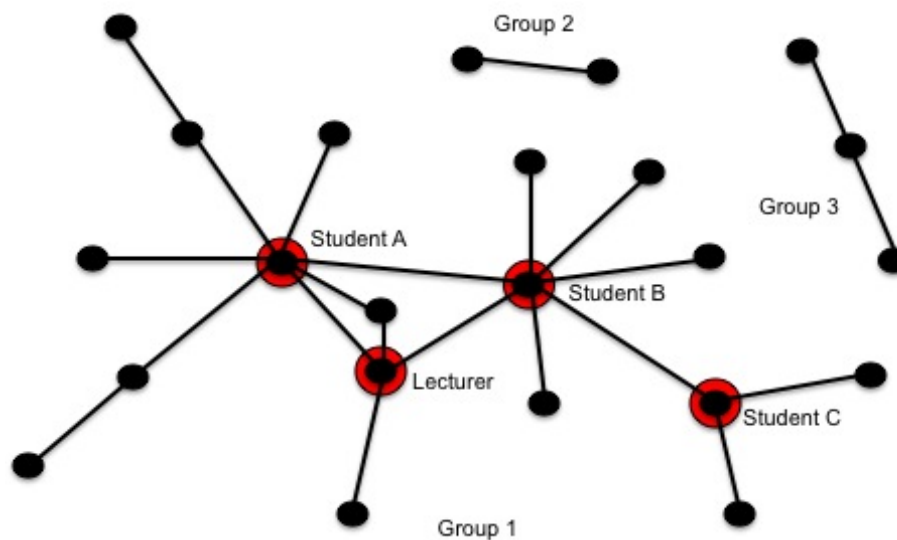

Figure 3: The SNA mapping of the "six fish" forum

The connecting lines in an SNA diagram are more properly referred to as edges and are used to show relationships between the nodes. In this mapping, no directionality is shown and it should be noted that, in most cases, the interaction was two-way. That is, one line/edge may represent more than one message.

The mapping in Figure 3 shows a clear grouping, that is, cohesion, into three separate sub-groups mapping the actions and interactions of 28 individual participants. Group 1 (with 23 nodes) is by far the largest and contains the four noted central nodes. The other two groups, Groups 2 and 3, with two and three nodes respectively, are smaller and indicated closed discussions of particular

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ideas. Overall, there were 43 participants in the "six fish" forum. Of these, 34 individuals began a thread which elicited at least one response. Six of these individuals also responded to the postings of others. Thirteen participants responded to others rather than initiating a new thread.

As the SNA diagram accounts for only 28 individuals, it is not a full record of the forum interaction. Individual or standalone postings were not mapped. This may or may not be a disadvantage as the purpose of the SNA diagram is purely to map interactions. It does, in this instance, cover the majority of messages posted (n=49, 70%). It is perhaps important to note that this was but one forum in the course of study and over all, the majority of students did "speak" at least once through the semester. The case study in this paper is of but one of these forums.

Content analysis

Classifying the postings (N=70) in the "six fish" discussion forum according to Hara et al.'s (2000) framework proved to be a useful strategy. The content analysis using this framework has shown that all postings could be classified. The findings from the analysis using the Hara et al. (2000) framework are summarised in Table 1.

Table 1: *Classification of postings (after Hara et al., 2000)*

Reasoning Skills	# (%) (N=70)	Example (subject header, date posted)
Elementary clarification	9 (12.86%)	*I think there are six fish because in this unit we are learning to work in groups, having each member bring a different talent forward. The six fish clearly swim together and rely on each other like networking.* (I know, April 5)
In-depth clarification	7 (10%)	*Hey guys. In the top right hand corner, the fish is doing the opposite to all the other little critters. I think [the lecturer] is trying to tell us that not all of us are nodes on a network. We have to communicate with each other to be linked. For us all to be truly connected, we must conform to the six elements of the framework so that we are all striving to achieve the same things.* (Communication, May 12)
Inferencing	15 (21.43%)	*Fish are relatively dull when it comes to learning so for fish to pass exams they would need at least 6 fish as 2 (male and female) provide one objective only from each, 2 pair would offer more insight though an even number of males and females.6 however is 4 or more (4 or more to create a network) with an odd number of each gender so less likely to say that they agree with the other fish (as fish tend to do)* (Fish are relatively dull when it comes to learning, March 9*)* Response: *That's why the collective noun is a "school" of fish* (Re: Fish are relatively dull when it comes to learning March 11)
Judgment	22 (31.43%)	*There are six fish so they're not lonely. Someone stated that in the first week there was only one fish and now they're increasing over the weeks. Well for most people they are by themselves... all alone in the first lecture they attended. Over the weeks they gradually get to know ppl and they make friends... growing by the opening weeks and suddenly they're not lonely any more. Their friendly bonds grow as well as their confidence of uni life. So the reason is simply this... they're lonely... and we must be severely bored I think to discuss something as lame as this in such depth Ha ha! Let's stop analysing and enjoy the presence of the fish =) Poke* (The reason is simply this... March 17)
Application of	17	*Those six fish have nothing to do with the unit. It is a ploy to make us*

strategies	(24.29%)	*think, so everyone, don't believe in the hype... the fish are there for decoration, simple!* (The fish aren't really! March 23)
Not categorised	0	

The majority of messages were categorised as *judgement* (*n*=22, 31.43%) which is perhaps not unexpected given the nature of the topic. There were similarly high and comparable levels of *inferencing* (*n*=15, 21.43%) and *application of strategies* (*n*=17, 24.29%). The lesser, and again comparable, responses were classified as the two types of clarification: elementary (*n*=9, 12.86%) and in-depth (*n*=7, 10%).

In most instances and noted by the low frequency of elementary clarification messages (*n*=9, 12.86%), students opted to attempt to analyse and think through this seemingly simple discussion topic. This could be interpreted as evidence of the intersection of Social and Cognitive Presence in Garrison et al.'s (2001) Model of Community Inquiry and its specific role of supporting discourse as noted in Figure 2. Further evidence of this comes through the connections the students attempted to make with their burgeoning understanding of the educational theory they were learning in this and other contemporary courses of study. These included references to:

- Bloom's Taxonomy: *Blooms Texonomy. (Not Sure on the spelling there) is a theory of learning which has 6 phases. Fish learn in schools??? Food for thought...*
  (Six fish and Bloom's taxonomy, April 21);

- Multiple intelligences: *Are the six fish a metaphor the multiple intelligences or smarts? Verbal, Linguistic, Music, Visual, Interpersonal, Intrapersonal, Kinaesthetic, Naturalist.*
  (Multiple Intelligences? March 23); and,

- Theory of learning networks: *Why didn't I guess that????? It was so obvious - the six fish representing the six characteristics of a learning network. 1. Shared purpose 2. Theory of learning 3. Literacies 4. Communication 5. Interaction and 6. Technologies.*
  (Oh - six characteristics of a learning network! May 4).

It was similarly encouraging to note the informal and friendly tone adopted in the posted messages. Students were learning indirectly to operate cooperatively within a learning network and to offer ideas in a low risk environment. The tenor of the messages was purposeful but light-hearted. The three examples where educational theory was offered were written in a relatively unselfconscious way although these were beginning students unused to using these concepts in their everyday thinking or language.

There were also several humorous interchanges which indicate considerable confidence and comfort in student-student and student-lecturer relationships. Figure 4 shows a three -message interaction between Student A (see Figure 3) and the lecturer (author) which might be interpreted as evidence of "setting the climate," that is, the intersection of Social and Teaching Presence (Garrison et al., 2001).

Heading: **You are joking aren't you!**
Added By: STUDENT A
Date: Thu, Mar 24
You think we had nothing better to do with our time.

Respond

Heading: **Re: You are joking aren't you!**
Added By: LECTURER
Date: Mon, Mar 28
There is nothing better in life than to think.

Respond

Heading: **Re: You are joking aren't you!**
Added By: STUDENT A
Date: Wed, Apr 6
So you've never been snowboarding then?

Figure 4: Postings indicating an interaction between lecturer and Student A

This interchange warrants a second consideration. If these words are considered just as words on a page, they may be misinterpreted. For instance, the first posting, "you think we had nothing better to do with our time" might be seen as a statement of defiance or anger. The second in retaliation might be seen as rather pompous or dismissive. The third and final might be seen to be irrelevant. But this would be out of the context of the tenor of the parallel on-campus interactions where humour was frequently used to explain or diffuse potential misunderstandings. The challenge in the first statement made by Student A was not his first posting (see SNA diagram, Figure 3). He was active in the discussion and was clearly enjoying the interaction. This was said as a tongue in cheek remark which the learning network/community interpreted as such. This is confirmed by the final retort about snowboarding. This interaction perhaps shows that the meaning is in the micro in analysis of human interactions. It might also, more importantly, be evidence that a discussion forum inside an on-campus or face-to-face course of study has considerably more scope for social presence than those conducted at a distance where words on a screen are disassociated from patterns of interaction set in place in the 'real' world.

Discussion

The sense that the course overall was well received by students during the semester was apparent. The discussion forums were perhaps a tangible indication of student involvement and engagement through the "belonging and being in" the communication of the course. They were similarly, as shown in the one small example described in this paper, providing the teaching team with evidence that our aims to create a learning network and to assist students in developing their toolkit to communicate in online spaces were being achieved.

That a discussion forum can invoke reflective thinking or a cognitive presence was evident in the following posting:

> *Perhaps the 6 fish are there to incite a poststructuralist reaction by the student body: there is no understanding, we all develop our own meanings from cultural and sociological perceptions instated by our individuality, upbringings and experiences. You may think you know the meaning...but you don't, there is no meaning, there is no significance, because there is more than one way to read these...."Fish" ...*
>
> *All is wrong and right at once ... there is no truth ... there are no fish?*

> (You're all right...for there is no fish, March 23)

Similarly, one student invoked the CARS checklist (Harris, 2010), a strategy for assessing Internet resources, which had been deliberately taught in the course. CARS is an acronym for Credibility, Accuracy, Reasonableness and Support. The message implies that the student has approached the "six fish" question as an intellectual or research activity. The student posted:

> *Well we have already found the answer, but it is which source you decide to take you answer from, none pass the CARS test, and really, no academic person has published a paper on why six fish? These posts have been a great meaningful waste of thought. I wonder if the students who do this unit next will have as much fun as us?*

(Re: Will we ever know the answer, June 17)

Interestingly, this was the very last posting to the forum. The student's last two sentences – the final words in the "six fish" forum - are particularly telling. The experience for this student is encompassed in the phrase, a "great meaningful waste of thought." The final invocation of shared "fun" is reward indeed and evidence of social presence and the sense of "being in and belonging" which was the real intention for this discussion forum.

The analyses presented in this paper similarly show student engagement. The SNA diagram (Figure 3) shows interactions between the majority of students participating and a clear indication of some students assuming roles of leadership. The forum was not an instance where the lecturer/author "spoke" and students docilely agreed or responded to a closed question. There was a genuine and varied interaction between peers. The social presence, of both students and lecturer (author) is evident.

In closing, it is of interest to see discussion forums in terms of learning design, that is, its becoming a tool to achieve a specific outcome rather than be a medium with narrow purposes or a mandatory activity where responses can be superficial and lack the very engagement they are thought to represent.

It is cautiously suggested that what has been shown here, in micro, has resonance with what Winograd and Flores (1986) referred to as ontological design. Such a design acknowledges that "the creation of a new device or systematic domain can have far-reaching significance – it can create new ways of being that previously did not exist and a framework for actions that would not have previously made sense" (Winograd & Flores, 1986, p. 560). In this, and in the design of the "six fish" discussion forum, it becomes apparent that even, or perhaps especially, a low-risk discussion forum can be appropriated to make first-year students feel comfortable in a new environment, to help shift their thinking and approach to working with others, as well as feeling themselves to be part of a learning network rather than an isolated individual. Here, an online asynchronous communication medium is made to "make sense" of a face-to-face synchronous space and has, quite simply, created a new way of being.

References

Barnes, J. A. (1954). Class and committees in a Norwegian island parish. *Human Relations*, 7, 39-58. *doi:10.1177/001872675400700102*

Bikson, T., & Eveland, J. (1990). The interplay of work group structures and computer support. In J. Galegher, R. Kraut, & C. Egido (Eds.), *Intellectual teamwork: Social and technological foundations of co-operative work* (pp. 245-290). Hillsdale, NJ: Lawrence Erlbaum.

Corich, S., Kinshuk, & Hunt, L. M. (2004). Assessing discussion forum participation: In search of quality. *Journal of Instructional Technology and distance learning.* Retrieved September 7, 2010, from http://itdl.org/journal/Dec_04/article01.htm

Dobson, I. R. (2001). How has massification changed the shape of Australian universities? *Tertiary Education and Management, 7*(4). doi: http://dx.doi.org/10.1023/A:1012789128839

Dodge, B. (1998), *Webquests: A strategy for scaffolding higher level learning.* Retrieved August 18, 2003 from http://edweb.sdsu.edu/webquests/necc98.html

Ellis, A. (2001). Student-centred collaborative learning via face-to-face and asynchronous online communication: What's the difference? *Proceedings 18th ASCILITE Conference* Melbourne, 9-12 December. Retrieved November 13, 2006, from http://www.ascilite.org.au/conferences/melbourne01/pdf/papers/ellisa.pdf

Feenberg, A. (1989). A user's guide to the pragmatics of computer mediated communication. *Semiotica, 75* (3/4), 257-278.

Feenberg, A. (1993). Building a global network: The WBSI experience. In L. Harasim, (Ed.), *Global Networks: Computerizing the International Community* (pp. 185-197). Cambridge, MA: MIT Press.

Feenberg, A. (1999). *Questioning technology.* London: Routledge.

Fowler, J. H., & Christakis, N.A. (2008). Dynamic spread of happiness in a large social network: Longitudinal analysis over 20 years in the Framingham Heart Study. *British Medical Journal.* December 4. doi:10.1136/bmj.a2338

Freeman, L. (2006). *The development of social network analysis.* Vancouver, Canada: Empirical Press.

Garrison, R. (2009). Communities of inquiry in online learning: Social, teaching and cognitive presence. In C. Howard et al. (Eds.), *Encyclopedia of distance and online learning* (2nd ed., pp. 352-355). Hershey, PA: IGI Global.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*(2-3), 87-105.

Garrison, D.R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence and computer conferencing in distance education. *American Journal of Distance Education.* Retrieved December 20, 2010, from http://www.atl.ualberta.ca/cmc/ CogPresPaper_June30_.pdf

Geer, R. (2003). Initial communicating styles and their impact on further interactions in computer conferences. In G. Crisp, D. Thiele, I. Scholten, S. Barker and J. Baron (Eds), *Interact, Integrate, Impact: Proceedings 20th ASCILITE Conference*. Adelaide, 7-10 December. Retrieved August 13, 2006, from http://www.adelaide.edu.au/ascilite2003/docs/pdf/194.pdf

Gunawardena, C. N. (1995). Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications, 1*(2/3), 147-166.

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *The American Journal of Distance Education, 11*(3), 8-26.

Guri-Rosenblit, S., Šebková, H., & Teichler, U. (2007). Massification and diversity of higher education systems: Interplay of complex dimensions. *Higher Education* Policy, 20, 373–389. doi:10.1057/palgrave.hep.8300158

Hara, N., Bonk, C. J., & Angeli, C. (2000). Conversational analysis of online discussion in an applied educational psychology. *Instructional Science, 28*(2), 115   152

Harasim, L. (1990). *Online education: Perspectives on a new environment*. New York: Praeger.

Harris, R. (2010). *Evaluating Internet research sources*. Retrieved January 6, 2011, from http://www.virtualsalt.com/evalu8it.htm

Henri, F. (1992). Computer conferencing and content analysis. In A.R. Kaye (Ed.), *Collaborative learning through computer conferencing: The Najaden papers* (pp. 115–136). New York: Springer.

Hiltz, S.R. (1990). Evaluating the virtual classroom. In L.M. Harasim (Ed.), *Online education: Perspectives on a new environment* (pp. 133–183). New York: Praeger.

Krause, K-L, McEwen, C., & Blinco, K. (2009). *E-learning and the first year experience: A framework for best practice*. Paper presented at *Educause Australasia Conference 2009*, Perth, Australia, May 3-6, 2009.

Krause, K-L., Hartley, R., James, R. & McInnis, C. (2005). The first year experience in Australian universities: Findings from a decade of national studies. Canberra, Australia: Department of Education, Science and Training (DEST).

Kuehn, S.A. (1994). Computer-mediated communication in instructional settings: A research agenda. *Communication Education, 43*, 171–183.

Levin, J.A., Kim, H., & Riel, M.M. (1990). Analyzing instructional interactions on electronic message networks. In L.M. Harasim (Ed.), *Online education: Perspectives on a new environment* (pp. 185–214). New York: Praeger.

Lloyd, M., & Ryan, M. (2005). *Frameworks: Building purposeful socio-technical learning networks in teacher education.* In M. Chaib & A. Svensson (Eds.) *ICT in teacher education: Challenging prospects* (pp. 132-141). Jonkoping, Sweden: Jonkoping University Press.

Lowenthal, P. R. (2009). The evolution and influence of social presence theory on online learning. In T. T. Kidd (Ed.), *Online education and adult learning: New frontiers for teaching practices* (pp. 124-139). Hershey, PA: IGI Global.

Picciano, A. G. (2002). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous Learning Networks, 6*(1), 21-40.

Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (2001). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education, 14*. Retrieved from http://cade.athabascau.ca/vol14.2/rourke_et_al.html

Ryan, M., & Lloyd, M. (2003). On-line, off-line, teaching in between the lines. Paper presented at the OLT 2003 Conference, Brisbane, November. Retrieved January 31, 2010, from http://eprints.qut.edu.au/71

Tu, C. H., & McIsaac, M. S. (2002). The relationship of social presence and interaction in online classes. *The American Journal of Distance Education, 16*(3), 131-150.

Vonderwell, S. (2002). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *The Internet and Higher Education, 6*, 77-90.

Wasserman, S., & Faust, K. (1994). Social networks analysis: Methods and applications. Cambridge, MA: Cambridge University Press.

Winograd, T., & Flores, F. (1986). *Understanding computers and cognition: A new foundation for design.* Norwood, N.J: Ablex.

Wozniak, H., & Silveira, S. (2004). Online discussions: Promoting effective student to student interaction. In R. Atkinson, C. McBeath, D. Jonas-Dwyer & R. Phillips (Eds.), *Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference* (pp. 956-960). Perth, December 5-8.

Yorke, M., & Longden, B. (2008). *The first-year experience of higher education in the UK: Final report*. York: The Higher Education Academy.