

The role of the interpersonal in online knowledge construction: unrealised or unrealisable potential?

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The potential for online discussions and the supportive communities of learners which develop within them to support the collaborative construction of knowledge is often described but not always realised in practice. The reasons for this are not well explained in the literature. To better understand the interplay between social and cognitive aspects of knowledge construction, online interaction three postgraduate online courses in health professional education was studied using a linguistically-based discourse analytical approach. Findings show attention to interpersonal relationships within this public and persistent medium is evident in areas such as asking questions, providing information, citing sources and argumentation and has the potential to disrupt knowledge construction. Other factors such as the ambiguous spoken-written nature of these discussions also play a role, raising the possibility that these tensions may be inherent.

Keywords: online discussions, asynchronous online discussions, online discourse analysis

Introduction

Two decades after their initial appearance, asynchronous threaded online discussions still feature in both fully distance and blended courses in tertiary contexts, offering the opportunity for anywhere, anytime reflective debate. They are often (but not always) guided by a moderator or facilitator and may be seen as occupying the academic niche of both face-to-face tutorials (which they sometimes replace) and written essays, especially given they are commonly assessed. The pedagogical basis for these discussions can be glossed as the *collaborative construction of knowledge within a supportive online community* (eg Littleton & Whitlock 2005; Jonassen, Davidson, Collins, Campbell & Haag 1995), a social constructivist pedagogy combining both affective and cognitive elements (Garrison, 2006). However, despite an initially enthusiastic uptake, in time research findings started to show that the potential of asynchronous online discussions was not being met, leading to students' failure to reach higher levels of knowledge construction and feelings of dissatisfaction. The potential impact on learning and the student experience was a worrying development, particularly given the considerable investment in online learning provision in higher education.

Online learning communities: a persuasive rhetoric

Reactions to the advent of online learning ranged from the dystopian (e.g. Brabazon, 2002) to the utopian, the latter hailing a paradigm shift in, and transformation of, learning (e.g. Harasim, 2000). Utopian views were very influential, as they were held by respected academics and apparently supported by evidence, although there is reason to question the research methodologies employed. Likewise, in the early stages of implementation there was a groundswell of enthusiastic support for online discussions in higher education. Constructivist and social constructivist learning theories and concepts of collaboration, cooperation and community, having already found a place in tertiary contexts, strongly influenced their uptake (e.g. Nicholls, 2009, p. 22; Hammond, 2005, p. 9). Utopian views of the possibilities of online discussion displayed a common rhetoric, here exemplified by Harasim (e.g. 2000) who claims that 'computer conferencing ... remains the "heart and soul" of online education' (p. 51). Its attributes and affordances are said to include socio-affective benefits, messaging which encourages 'verbalization and articulation of ideas' and 'reduced socio-physical discrimination' (Harasim, 2000, p. 50). *Collaboration* is presented as central to learning: 'collaborative learning processes help students to achieve deeper levels of knowledge generation through the creation of shared goals, shared exploration and a shared process of meaning-making' (Palloff & Pratt, 2001, p. 32) and 'is shaped into critical and reflective discourse' (Garrison, 2006, p. 26). At the same time it creates online learning *communities* (Jonassen, Davidson, Collins, Campbell & Haag, 1995) which are commonly described as (potentially at least) offering social and/or emotional support (e.g. Goodyear, 2002, p. 51) thereby facilitating learning (e.g. Rovai 2002a, 2002b). This rhetoric is likely to have persuaded many educators to implement asynchronous online discussions, guided by practitioners such as Salmon (e.g. 2003, 2004), as was the case in the present research context.

However, over time and with the expansion of online discussions to a wider range of disciplinary contexts, this rhetoric appears to have come increasingly into question. Problem areas include the failure of students to reach

the predicted higher levels of knowledge construction (e.g. Moore & Marra, 2005) and even strong negative emotional reactions to participation (e.g. Ellis, Goodyear, Prosser & O'Hara, 2006, Hara & Kling, 2002) or at best a failure to engage. Also included are the extent to which many academics and students were ill-prepared for this type of teaching and learning and resentment of peer learning by students who expected to be taught by academics (e.g. Palloff & Pratt, 2001). In short, 'claims about the benefits of electronic conferencing ... remain contentious' (Coffin, Painter & Hewings, 2005) and for some the widespread adoption of ICT in higher education 'has failed to produce the radical changes in learning and teaching' that 'many anticipated' (Kirkup & Kirkwood, 2005, p. 185). Thus the reality falls short of the rhetoric, and we turn first to published research to help explain this disjunct.

Researching online discussions

The task of researching online discussions has proved to be complex (e.g. Naidu and Järvelä, 2006), with a plethora of methods and lack of agreement on a common approach or theory (Schrire, 2006), nor even on some fundamental matters such as terminology. There has been a gradual progression from early quantitative studies and participant evaluation of discussion effectiveness to more appropriate mixed method approaches (Hammond & Wiriapinit, 2005). There has been, generally speaking, a marked absence of empirical investigation into the *interaction itself* (Doherty, 2006, p. 64). This is surprising, since, as Jonassen, Davidson, Collins, Campbell and Haag, (1995) argue, collaboration is realised linguistically as conversation, the 'focus' of constructivist distance learning activities (pp. 13 - 14). Thus, discourse is central to the social, negotiated, consensual process of learning. As Koschmann, Zemel, Conlee-Stevens, Young, Robs and Barnhart (2005) state, 'learning is interactional and should be researched as such' (p. 282). Even when studies did focus on the interaction, approaches varied but generally employed coding schemes with fixed categories embodying specific a priori pedagogical and ideological orientations (e.g. Gunawardena, Lowe & Anderson, 1997). Thus we are faced with variable research methods and a paucity of reliable empirical evidence for the effectiveness of online discussions. In fact, as Doherty (2006) argues, online educational practice was 'powerfully' shaped by published literature of the descriptive or 'best practice' type offering 'advice uninformed by research' (p. 60). To illustrate this, Salmon's influential five-stage model of e-moderating 'arose as an explanation of experiences within one particular course, but now threatens to supplant other conceptions of what it means to learn collectively online' (Oliver, Roberts, Beetham, Ingraham, Dyke & Levy, 2007, p. 29, quoting Lisewski and Joyce 2003).

The present study uses an alternative form of analysis which does examine the interaction itself, regarding it as a text to which discourse analysis can be applied. When viewed as texts, online discussions are ambivalent, combining elements of written texts (no aural or visual contact between participants, longer monologic passages) and spoken texts, which are dialogic, with multiple rather than single replies are made and turn taking staggered in time. Participation is generally public (within a password-protected domain) and persistent (for the duration of the course) and participants are generally named rather than anonymous. These features have the potential to impact on the unfolding of the discussion and participant attitudes to it. Thus the aim of the present study is to contribute to our understanding of online interaction and to identify possible reasons for participant dissatisfaction and the failure to reach higher levels of knowledge construction. Such an understanding can in turn inform the design of online activities, moderation techniques and academic development to maximize the potential of this learning mode.

Pedagogical and research context

This paper, then, examines the interrelationship between community/ collaboration and the construction of knowledge in a specific academic context (postgraduate coursework in health professional education at an Australian university) and technological setting (online discussions within a learning management system). It employs a discourse analytical methodology, informed by a robust theory of language, to closely examine the interaction itself. The intention in this paper is not to critique social constructivist theories of learning but to explore their application in this specific context.

Methodology

The discourse analytical approach used in this study is informed by Systemic Functional Linguistics (SFL) (Halliday, 1994; Martin and Rose, 2007). SFL is social semiotic theory of language, which has as its focus the functions language needs to perform in social life rather than grammatical rules for generating texts. Language is seen as a resource for meaning-making, a system from which choices are made by users according to their communicative purpose and context. Basing discourse analysis on a theory of language in use brings rigour, an analytical matrix and a measure of (albeit not total) objectivity to the analysis. SFL has a rich tradition in the

analysis of the discourses of face-to-face teaching and learning (eg Christie, 2002) and the analysis of written academic texts (eg Hood, 2010). It has more recently been applied to online texts, for example Coffin, Painter and Hewings (2005), Don (2007) and Piriyaasilpa (2009).

A brief description of SFL is provided here, although excessive technicality will be avoided as far as possible in the remainder of the paper. A core tenet of SFL is that language in social activity comprises three *metafunctions*, enacted simultaneously: the ideational, interpersonal and textual (Halliday 1994). As applied to the analysis of online discourse, the *interpersonal* metafunction relates to relationships between participants and the building of community; the *ideational* metafunction to construing experience (ie constructing knowledge) and the *textual* metafunction to the organization of online discourse, supporting the other two metafunctions. To explore interpersonal meaning-making in the case study discussions, the system of APPRAISAL (Martin and White, 2005) within the interpersonal metafunction was selected as the main analytical tool. (SFL systems and sub-systems are conventionally shown in small capitals.) APPRAISAL involves the writer's or speaker's emotional responses to, aesthetic appreciation of and judgment concerning people and things. These are subsumed under ATTITUDE, divided into the sub-systems of AFFECT (positive or negative emotional reactions), APPRECIATION (aesthetic or other quality of an object) and JUDGMENT (of human qualities such as ability, truth and propriety). APPRAISAL also involves acknowledging other voices and opinions in the text and opening up or closing down space for these. This is known as ENGAGEMENT. Finally, a writer or speaker may use the resources of GRADUATION to make attitudinal meaning more or less positive, stronger or weaker (up-scaled or downscaled), sharper or more diffuse. A further important distinction is made between *inscribed* and *invoked* attitude. Inscribed attitude is 'expressed directly or explicitly' while invoked attitude is expressed 'indirectly or implicitly' (Hood 2010, p. 75); the latter may be more open to individual interpretation than the former.

The case studies

This research takes a case study approach, with each case consisting of the discussions in one course: Case 1 (topic: infectious disease control, fully online), Case 2 (obesity, blended) and Case 3 (tobacco control, blended). All discussions were moderated and assessed on original contributions answering the question posed and on interaction with others. There was a higher proportion of international students and clinicians in Case 1 than in Cases 2 and 3, and a higher proportion of students already working in the field in Case 3. Selection of discussions for study was at first purposive (established fully online or blended courses with experienced moderators) and later involved convenience sampling (consent from the moderator and from sufficient students to make analysing the interaction feasible). Students were also surveyed about their attitudes to, and experiences of, online discussion but response rates were such that the data can be used for illustrative purposes only. An orientation to online learning and teaching had been made available to both students and moderators. Examples in this paper are generalized across all three case studies, except where noted.

Case study findings: learning communities

In the following sections the key tenets of the underlying pedagogy of online discussions are examined, first community (Section 3), then the interplay of community and knowledge construction (Section 4). In each section I first consider published research then present findings from this study.

Evidence for learning communities

The literature contains a great many descriptions of, and much evidence for, online communities. Even so, definitions of online communities are elusive and the concept contestable (Nichols, 2009). Attributes include a sense of belonging, connectedness, honesty, bonding and trust (Brook & Oliver, 2003; Rovai 2002a, 2002b), interaction and collaboration (Rovai 2002a, 2002b; Nichols, 2009) and a more equal relationship between teacher and taught, although this is contested (eg Yates, 1997). One model, the Community of Inquiry (COI), with its associated analytical instruments, is described as the most common 'research tool' for 'measuring cognitive outcomes in asynchronous discourse' (Nicholls 2009, p. 20), having been referenced in 252 papers from 2000 to 2008 (Rourke & Kanuka, 2009). Taking one COI feature, social presence, definitions are again described as elusive (Tu & McIsaac 2002, p. 132; Russo & Campbell, 2004, p. 230) and imprecise (e.g. Irwin & Berge, 2006, p. 3) and empirical research lacking (Reio & Crim 2006, p. 968). However there is some evidence of a positive correlation between perceived social presence, interaction and perceived performance (Swan & Shih, 2005, Picciano, 2002) as well as student satisfaction, albeit based on self-reporting.

Case study findings

One aim of this study is to explore whether and how community membership is realised linguistically, by whom and to what effect. Proponents of online communities have paid some attention to linguistic realisations of community membership and suggest that this can be attested to by features such as salutations (greetings), naming individuals and inclusive pronouns such as 'we' and 'our' (e.g. Anderson et al, 2001; Rourke, Anderson, Garrison & Archer, 2001). Analysis of the case study data indicated that many of these suggested linguistic realisations are, in fact, present. These include greetings and sign-offs (albeit less common than suggested by the literature) and limited naming (largely by moderators). Pronoun use differed from that predicated: inclusive pronouns were infrequently used while non-inclusive pronouns (*I, you, your*) predominated. Rather than representing low levels of sociability, this is more likely the result of learning activities which involve seeking and giving opinions or moderators introducing themselves and evaluating group effort. This shows that existing broad-brush guidelines need to be treated with caution.

The incidence of feelings, emotions, mood and warmth (realised by AFFECT within the SFL system of ATTITUDE) was lower than expected. Moderators were sparing in their use of AFFECT. Where present, it is often formulaic and/or hypothetical, for example *welcome, enjoy, looking forward to reading...*. Alternatively it may be invoked, or not obvious, for example *I can't resist logging in to see what has happened*. Where it is inscribed, or obvious, it is generally realised as happiness (*I am happy*), satisfaction: pleasure (*impressed*) or satisfaction: interest (*interested, intrigued*). There is very little AFFECT overall in student postings.

Community participation is also said to involve *praising and complimenting*, realised by SFL systems of APPRECIATION and JUDGMENT. Moderators make extensive and nuanced use of these resources, not so much to praise and compliment students directly as to manage the delicate matter of evaluating the correctness or otherwise of responses, which potentially places interpersonal relationships at considerable risk. Moderators tread a fine line between ensuring that correct knowledge is constructed whilst not exposing individual students to potential embarrassment and undermining the community. Students and their efforts (rather than responses) are robustly if formulaically evaluated: *great to hear from so many of you early in the piece... These are all great points ... You have raised good points*. Subtle gradation between *great* and *good* may be lost on students. Effort is also evaluated metaphorically and implicitly: *You are working like a well-oiled machine*. APPRECIATION is sometimes applied to contributions (*very good and thoughtful presentations, good idea*). Such evaluative language was overwhelmingly positive. Students rarely used such resources to evaluate their peers' responses in the early stages of the discussion, although this tended to increase the longer the group was together: *Great ideas everyone... I think Student p made an important point ... Thank U for your comments... your fascinating insight*. JUDGMENT is commonly used by moderators to praise and compliment students and their efforts. Such evaluations are invoked (implicit, muted) rather than inscribed and overwhelmingly positive. Thus one moderator praises the group as follows: *... wide range of skills and experiences; You have really started to work well as a group; You have covered the next question brilliantly*. Students were less inclined to use JUDGMENT. The relative paucity of praise and compliments by students (compared to that predicated in the literature) potentially reduces the sense of community. Thus moderator and student use of ATTITUDE across all cases tends to be 'low-key' and indirect, muted and tentative rather than overt and direct. This suggests that, where attitudinal meaning revolves around others in the group, community maintenance is better served at least at first with such low key realisations.

Membership of an online learning community is also said to involve *phatic communication* (ie social small-talk), *self-disclosure*, a 'conversational tone' and *showing agreement*. There were almost no examples of phatic communication in the discussions studied, in which the focus was clearly on disciplinary content. Moderators engaged in a limited amount of self-disclosure, particularly highlighting professional expertise and teaching experience, but occasionally making personal comments no doubt intended to build rapport. A 'conversational tone' flows naturally from the spoken-like nature of the discourse. Finally we come to 'showing agreement'. This requirement is worrying in itself, as it implies critique, disagreement and argumentation (aspects of constructing knowledge) are not welcome and that consensus should be achieved at all costs (Coffin & O'Halloran, 2009). In the event, students tended to fulfill this requirement by overwhelmingly showing simple agreement rather than engaging in argumentation. I discuss this further in Section 4 below.

Analysis of the case study data suggests a further aspect of community building and democratisation which has largely been ignored in the literature – the use of what is termed 'interpersonal grammatical metaphor' to soften instructions. Normally speaking, instructions take the form of commands (imperative mood): *Answer the questions as they are posted on the discussion board*. However throughout these discussions instructions are predominantly realised in other (incongruent) ways: *Just a reminder that posts should be limited to 200 words ...*

Stated congruently this would read: *Post no more than 200 words*, which sounds harsh and underlines the power imbalance between moderators (who can issue orders) and students (who cannot). Another incongruent example is *I am just wondering if anyone has found any particular literature about the risk periods for men?* rather than *Please find out the risk periods for men*. Such metaphorical realisations are common in educational settings and adult language, and are unproblematic unless meaning is unclear. Survey responses indicated that students were sometimes so confused by instructions that they did not know how to proceed. Clarity may also be compromised when metaphors are used in instructions: *Finally, if you have already made a few postings, try and hold back on these next questions so others can contribute, although once the ball is rolling feel free to add to it*. This example is also indicative of the moderator's positioning of students as virtuous online discussants who contribute freely but must also consider others.

The findings from this study have confirmed that some of the purported online community characteristics are present, that some of them are not, or not to any great extent, and that additional characteristics, for example interpersonal grammatical metaphor, are also found. Students generally speaking tend to engage less in emotion, praise and complimenting than moderators, but for both, realisations of emotion tend to be muted, and praise and compliments, realised through judgment, similarly low-key.

Findings: learning communities and knowledge construction

This section addresses the interplay of social factors (community, collaboration) and knowledge construction, starting from the social. This acknowledges the centrality of social interaction to learning, as noted above. It begins with published research findings, then turns to the findings of this study.

Evidence in the literature for knowledge construction

Findings about the effectiveness of online discussions for facilitating learning have been even more equivocal than those concerning online communities. Although the majority of the 62 papers reviewed by Hammond (2005) concluded that asynchronous online discussion was *potentially* valuable or very valuable as a support for teaching, most were nonetheless 'measured' in their support for its use. A core issue seems to be that, while its *potential* is widely recognised, the *implementation* of online discussion remains problematic (Oliver & Shaw, 2003, pp. 57-8) and claims about its effectiveness largely unsubstantiated (Coffin, Hewings & North, 2006). Likewise Hopkins, Gibson, Sole, Savvides & Starkey (2008) were forced to conclude that 'There is a general lack of evidence regarding the actual achievement of ... [the] aims' of promoting 'higher-order critical inquiry and the social construction of knowledge' in asynchronous computer-mediated conferences (p. 29). The reality, according to studies published over many years, is that students simply aren't reaching or spending much of their time at the 'higher levels' of knowledge construction. Asynchronous online discussion thus provides a platform for cognitive processes such as critical thinking and argumentation but does not guarantee they will occur.

Similarly elusive have been attempts to describe the process of *collaboratively* constructing knowledge. Collaboration has both social and cognitive aspects: when collaborating, students 'should be expected to work together to generate deeper levels of understanding and critical evaluation of the material under study' enabling them to generate 'new knowledge and deeper levels of meaning' (Jonassen, Davidson, Collins, Campbell & Haag, 1995, p.115). However, articulating clearly the processes involved seems to have been problematic. The distinction between knowledge building (a gathering or accumulation of ideas, 'accumulative learning') and knowledge construction (working with the ideas of others, 'intersubjective learning') (Suthers, 2005) has been used below. However, as Suthers himself notes (2005, p. 314), no one theory can explain online knowledge construction, which leaves both researchers and practitioners somewhat in limbo.

Case study evidence: accumulating knowledge

In line with the requirements of the learning activity, students assiduously brought information from a range of external (textual or human) sources into the discussion, offered their personal and professional experiences and insights and gave opinions on the scenarios proposed and questions asked. This preponderance of lower-order cognitive processes is in accordance with published research findings. Students' primary source tended to be published research, with secondary sources mixed: professional experience, peers (ie others within the discussion group) and personal experience. Moderators tended to rely on personal and professional experience rather than on textual sources, perhaps to reinforce the interpersonal, community-building aspect of the discussion. It certainly means that moderators were not modeling valued ways of citing or referring to external sources. Where students reference others within the group, this could be regarded as the germ of inter-subjective

knowledge building.

Acknowledging sources

Knowledge building in academic contexts generally requires that the source of the knowledge be noted and the writer's attitude to it made explicit. The questions asked in the case studies were generally non-committal regarding whether and how to use external resources. In Case 3, citations exhibited the full range of standard academic formats. In Cases 1 and 2, this was not so. For example, Case 2 students mainly foreground an artifact of the research: the study, article, review or report, de-emphasising research and the researcher to a far greater extent than normally found in written academic texts, for example: *study showed ...; ... article raises some interesting questions and suggests ...; **There is a growing body of evidence** which shows that ...* This may result from spoken models such as tutorial participation. There is a tendency to cite web sites, organisations (and for Case 2, media personalities) to a greater extent than usual in academic texts. In Case 1, reference was more likely to be made to the procedures of the field or general research, consistently foregrounding content over knowers.

The resources of ENGAGEMENT: EXPAND and CONTRACT were appropriately used by students to convey their attitude to the sources brought into the discussion, presumably modeled on written academic texts. However, narrative and descriptive approaches were also found, which do not show writer evaluation of sources: *When David Davies ... **delivered a speech** at the National Press Club; article relates to; information in the article...* In addition, in Case 2 more use was made of low-vigour evaluative choices (Hood, 2010, p. 92) such as *looked at*. These choices are reminiscent of the low-impact APPRAISAL choices made in support of the community of learners. It may be that descriptive or narrative approaches are chosen avoid taking a stand, and foregrounding artefacts rather than research or researchers serves the same purpose.

Expanding space for other voices

Expanding or alternatively contracting space for other voices, values and meanings impacts on knowledge construction in contradictory ways. Such expansion and contraction can be seen for example in moderator questions and evaluations of student responses and in student responses themselves. *Contracting* such space may serve to state or transmit rather than construct knowledge and may close down discussion, in part because of the high interpersonal cost of disagreeing (Martin & White, 2005). However, it provides certainty about the knowledge offered. Resources which *expand* space for other voices have the potential to facilitate discussion and knowledge construction by positioning interlocutors so they feel able to proffer alternate views, but this may result in reduced certainty about the correctness or otherwise of responses.

Moderators generally tended to expand discursive space by asking questions which admit of multiple divergent, unanticipated responses, by modulated and generalised evaluations of responses and by providing answers and summaries in ways which similarly leave space for alternatives. Moderators less commonly ask unmodulated questions and provide answers in ways which contract space for alternatives, thereby aligning themselves with certain value positions and confirming propositional meaning. However, a range of issues emerges where such space is *inappropriately* expanded by moderators. Amongst these is the issue of question wording. The possibility exists for questions to be asked in an apparently open way, resulting from the desire to stimulate knowledge construction and/or interpersonal considerations, whereas they do not in reality admit of a wide range of responses. Openness without certainty in the evaluative phase does not provide some students with the resources they need to reliably construct 'correct' or even 'best' knowledge, as noted in student survey responses. This particularly applies to those students whose educational dispositions or professional practice favour stronger direction and greater certainty. The potential thus exists for interpersonal concerns (open debate, maintaining community) to compromise ideational meaning-making.

Students also structure their answers using resources of ENGAGEMENT: expand and contract to open up or close down space, respectively, for negotiation of alternate views. This is a significant albeit variable feature of the discussions studied. A Case 3 post is used as an example (instances of expand in bold):

It is an interesting point you raise about the impact that **might be possible** on communities with high smoking prevalence ... it **seems to me**, if we must go down the path of investing in harm reduction, then these are the populations we **could** target in the first instance...

The student balances modality with categorical statements (*is, are*), but these are statements her peers would probably agree with, so they function to build alignment rather than alienation. This characterises most posts;

there are few instances of *contract*, which would stifle debate. Thus students are open to alternate views, fostering debate and potentially knowledge construction as well as community. They toggle between resources of *expand* and *contract*, with *expand* perhaps a little more prominent, indicating that they understand the need to convey ideational meaning whilst maintaining interpersonal harmony.

Facilitating knowledge construction thus consists of a nuanced balancing by both moderators and students of the engagement resources of EXPAND and CONTRACT, closely aligned with the intention of the learning activity, the disciplinary field and other contextual factors.

Working with the ideas of peers

When students reference and work with resources which are part of the same ‘conversation’ - the posts and ideas of fellow students and moderators – the potential exists for intersubjective knowledge construction, as noted above. Such peer referencing includes acknowledgement of ideas proffered (addressed in this section) and critical engagement with the ideas of others (covered in Section 4.6).

It appears that the (assessment) requirement for ‘interaction’ has been interpreted across all three cases as a requirement minimally to acknowledge and link with the ideas of others and less commonly to evaluate them or take up a stance towards them. This is reflected in a clear tendency for evaluations of peers’ contributions to feature ‘additive’ comments and expressions of agreement, rather than affect, appreciation or judgement. In Case 1, for example, a large percentage of student posts do not overtly acknowledge the ideas of peers at all. Where they do so, such acknowledgments are usually quite perfunctory and may be of the whole group, with the writer moving quickly on to personal opinions: *I agree with what everyone has mentioned before. I think ...* Some of them are purely additive without agreement or evaluation: *Just to add a point to the ideas above ...* In Case 3 (Tobacco control) there appears to be a greater level of engagement with the ideas of peers using a range of strategies; even so, instances of additive and agreement-type linking predominate across all cases. Agreement of this type promotes community cohesion amongst learners since it affirms peers.

At the same time additive and agreement-type linking foregrounds personal dispositions and mental processes, for example agreeing, thinking and reflecting. This tendency is in fact quite noticeable in all discussions studied. It combines reference to published sources with the writer’s mental processes of evaluation, for example *I agree with Stratten et al., (2001), that smokers have the right ...* In this slightly different example: *I want to share this interesting article which points out ...*, the writer personalises the relationship to the source by foregrounding his own volition and appropriate online discussant behaviour (*want to share*). In Case 2, AFFECT and APPRECIATION reflecting the writer’s sensibility are almost always expressed in terms of ‘interest’, a term rather overworked in these discussions: *.. interesting part in this article wasinterested me ...* In addition, students frequently foreground their own activity as researchers, as in the following metacomments: *Reason that i had chosen this article is because i find that ...; In the article I noted ... ; Through knowledge and research I have come to understand ...* Metacomments on contributing to the discussion occur from time to time in all cases: *Sorry, I realise that I haven’t taken a clear line on this issue, but thought I’d shared my thoughts anyway.* Questions asked often invite responses based on student dispositions, experiences and opinions, but such metacomments go beyond this, strongly emphasising the personal. Similar formulae can be found in some contemporary academic writing, particularly in the humanities, since researchers are increasingly making ‘first person pronominal reference to themselves’ (Hood 2010: 198). They are far less common in scientific writing, and the formulae noted resonate more with spoken forms or informal professional exchanges such as email.

Argumentation and the role of written genres

Components of knowledge construction in a tertiary context include critical thinking (often described as an individual activity) and argumentation (commonly in dialogue with others). New knowledge, obtained through discussion, is held to be internalised, critiqued and ordered through writing, long used both as a process and product of rigorous critical thinking (e.g. Vaughan and Garrison, 2005, p. 11 quoting Wells, 1999). Writing in educational contexts usually involves known and well-described academic genres, such as discussions, explanations and expositions (e.g. Coffin, 2006). Such genres have arisen to enact a social purpose – to structure and communicate academic knowledge – and each academic genre structures argumentation in a specific ways. Genres in discussion posts are generally not developed in their entirety. Posts may contain fragments or combinations of stages of different genres (cf Piriyaasilpa 2009). However, lending weight to the argument of collaborative construction, some texts display well-formed jointly constructed genres. For example, in Case 3 students often construct a well-formed genre but omit the thesis (final stage, conclusion), deliberately inviting other opinions. Generally speaking, where genres are incomplete or fragmented, appropriate argumentation cannot be developed.

Further, in an analysis of a sample of 58 Case 3 posts, levels of argumentation (or even response) are low, suggesting a concentration on own answers rather than interaction. There are few challenges to comments made and only a small number in the case studies as a whole, suggesting that argument or disagreement is generally avoided. Generally speaking, these discussions show breadth rather than depth of argument. The comparative watering-down of evaluative (and persuasive) language in these discussions resonates with the syndrome identified by Coffin and Hewings (2005), of low level argumentation and the reluctance to defend a thesis and take a stand lest interpersonal relations be affected.

Discussion and conclusion

This study started from the premise that the rhetoric surrounding online discussions was in many cases not matched by the reality and that published research had been unable to cast much light on this anomaly. An alternative approach involving linguistically-based analysis of online interaction was undertaken. In general terms, its findings support published research – there was some evidence for online communities, as well as evidence that higher levels of knowledge construction were not achieved. The case study findings for learning communities in some cases (inclusive pronouns, naming, lower levels of emotion) contradict or modify those in the literature. The findings also include features not previously noted, particularly that realisations of ATTITUDE were overwhelmingly implicit, low-key or metaphorical, giving an impression of somewhat muted sociability. The use of interpersonal grammatical metaphor (and its pitfalls) was also identified.

It seems then that the public, persistent nature of these discussions between named participants leads to low-key participation and a concern to maintain good interpersonal relationships with fellow discussants. While these findings are interesting in themselves, their effect on knowledge construction is pivotal to this study. The potential exists for constantly positive, muted and subtly graded evaluation of responses to interfere with understanding and learning, which may deny students the opportunity to know with certainty if their answers are correct. This may be more problematic for non-native speakers of English than for locally educated native speakers, particularly where the latter have relevant workplace experience, but could impact all students to some extent.

Turning now to knowledge construction, it was clear that students fulfilled the lower-order requirements and contributed knowledge and opinions. Both moderators and students tended to open space for divergent views and values, whether in questions, answers or evaluations. It is clear that such expansion has positive and negative implications. Ideas are more readily offered, the interpersonal cost of disagreeing is lower and the potential exists for knowledge construction. However, questions may be asked which are misleading in their openness and a lack of certainty exists concerning the accuracy of knowledge brought into the discussion. The nexus between expanding and contracting such space and knowledge construction needs further theorisation. Relations to sources of knowledge de-emphasise researchers and focus on artifacts, perhaps symptomatic of a reluctance to commit to value positions. Possibly for the same reason, students were reluctant for the most part to engage in critique or argumentation. Students tended to foreground their own dispositions, attitudes and ‘research’ activity, a form of personalisation or individuation at odds with the supposed community focus of discussions. As Coffin and Hewings point out (2005, p.56), such formulations tend to place student writers, in their own and their peers’ eyes, on the same level as published research, blurring lines of expertise. The effect of this personalisation and non-standard relations to sources on structuring academic discourse and argument which requires nuanced evaluation needs also needs further theorisation. Finally, if it is accepted that knowledge is structured by writing established academic genres, the absence of recognised genres and their fragmented or incomplete nature when present may mean that students do not develop the skills of academic argumentation or the structuring of specific knowledge which would occur in an assignment or academic paper, with possible implications for knowledge construction. The opportunity for these discussions to serve as an apprenticeship into academic writing is lost. Thus there is a disjunct between the expectation that online discussions will foster academic argumentation skills and the reality that written genres which may be needed to realise this are often compromised.

This study has shown a variety of ways in which attention to community and interpersonal meaning in a public, persistent and identified forum have the potential to disrupt knowledge construction instead of enhancing it, demonstrating a mismatch of rhetoric and reality for this pedagogy. The critical question is whether this tension between interpersonal and ideational meaning-making is inbuilt and immutable, given online discussion’s technological affordances and student concerns with both grades and sociability, and ultimately not able to be completely erased by pedagogical interventions such as building trust or improved activity design. These findings await confirmation or otherwise in further studies in different pedagogical contexts. However they do indicate

that technological innovations which claim to revolutionise teaching should be subject to careful empirical research to ensure these claims are in fact substantiated.

References

- Anderson, T., Rourke L., Garrison D. & Archer W. (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks* 5(2) 1-17
- Brabazon, T. (2002). *Digital hemlock: internet education and the poisoning of teaching*. Sydney: University of NSW Press.
- Brook, C. & Oliver, R. (2003). Online learning communities: investigating a design framework. *Australian Journal of Educational Technology*, 19(2), 139-160.
- Christie, F. (2002). *Classroom discourse analysis: a functional perspective*. London: Continuum.
- Coffin, C. (2006). *Historical discourse: the language of cause, time and evaluation*. London: Continuum.
- Coffin, C. & O'Halloran, K. (2009) Argument reconceived? *Educational Review*, 61(3), 301-333.
- Coffin, C., Hewings, A. & North, S. (2006) Argumentation and text-based conferencing: Who is learning and what is being learnt? *Proceedings of the 23rd annual ascilite conference: Who's learning? Whose technology?* http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p29.pdf
- Coffin, C., Hewings, A. & North, S. (2012). Arguing as an academic purpose: The role of asynchronous conferencing in supporting argumentative dialogue in school and university. *Journal of English for Academic Purposes* 11, 38-51.
- Coffin, C., Painter, C. & Hewings, A. (2005a) Patterns of debate in tertiary-level asynchronous text-based conferencing. *International Journal of Educational Research* 43, 464-480.
- Doherty, C. A. (2006). *The production of cultural difference and cultural sameness in online internationalized education*. (Doctoral thesis), Queensland University of Technology, Australia.
- Don, A. C. (2007). *A framework for the investigation of interactive norms and the construction of textual identity in written discourse communities: the case of an email discussion list*. (Unpublished doctoral thesis) University of Birmingham, England.
- Ellis, R. A., Goodyear, P., Prosser, M. & O'Hara, A. (2006). How and what university students learn through online and face to face discussion: conceptions, intentions and approaches. *Journal of Computer Assisted Learning* 22, 244-256.
- Garrison, D. R. (2006). Online collaboration principles. *Journal of Asynchronous Learning Networks* 10(1), 25 – 34.
- Goodyear, P. (2002). Psychological foundations for networked learning. In C. Steeples & C. Jones (Eds), *Networked learning: perspectives and issues* (pp 49 -75). London, England: Springer.
- Gunawardena, C., Lowe, A. & Anderson, T. (1997). Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. *Journal of Educational Computing Research* 17 (4), 397-431.
- Halliday, M. A. K. (1994). *An introduction to functional grammar*. London, England: Edward Arnold.
- Hammond, M. (2005). A review of recent papers on online discussion in teaching and learning in higher education. *Journal of Asynchronous Learning Networks*, 9(3), 9-23.
- Hammond, M. & Wiriyaipinit, M. (2005). Learning through online discussion: a case of triangulation in research. *Australasian Journal of Educational Technology*, 21(3), 283-302.
- Hara, N. & Kling, R. (2002). Students' difficulties in a Web-based distance education course: an ethnographic study. In W. H. Dutton & B. D. Loader (Eds), *Digital academe: the new media and institutions of higher education and learning*. London, England: Routledge.
- Harasim, L. (2000). Shift happens: online education as a new paradigm in learning. *Internet and Higher Education* 3, 41-61.
- Hood, S. (2010). *Appraising research: evaluation in academic writing*. Basingstoke, England: Palgrave Macmillan.
- Hopkins, J., Gibson, W., Sole, C. R. I., Savvides, N. & Starkey, H. (2008). Interaction and critical inquiry in computer-mediated conferencing: a research agenda. *Open Learning*, 23(1), 29-42
- Hughes, M., Ventura, S. & Dando, M. (2007). Assessing social presence in online discussion groups: a replication study. *Innovations in Education and Teaching International* 44(1), 17–29
- Irwin, C. & Berge, Z. (2006). Socialisation in the online classroom. *E-Journal of Instructional Science and Technology*, 9(1). Retrieved from http://www.ascilite.org.au/ajet/e-jist/docs/vol9_no1/papers/full_papers/irwin_berge.htm
- Jonassen, D., Davidson, M., Collins, M., Campbell, J. & Haag, B. B. (1995). Constructivism and computer-mediated communication in distance education. *American Journal of Distance Education*, 9(2), 7-26.
- Ke, F. (2010). Examining online teaching, cognitive, and social presence for adult learners. *Computers & Education*, 55, 808-820.

- Kirkup, G. & Kirkwood, A. (2005). Information and communications technologies (ICT) in higher education teaching – a tale of gradualism rather than revolution. *Learning, Media and Technology* 30(2), 185-199.
- Koschmann, T., Zemel, A., Conlee-Stevens, M., Young, N. P., Robs, J. E. & Barnhart, A. (2005). How do people learn? In: R. Bromme, F. W. Hesse & Spada, H. (Eds), *Barriers and biases in computer-mediated knowledge communication* (pp 265-293). New York, Springer
- Littleton, K. & Whitelock, D. (2005). The negotiation and co-construction of meaning and understanding within a postgraduate online learning community. *Learning media and technology* 30(2), 147-164.
- Martin, J. R. & Rose, D. (2007) *Working with discourse*. London, England: Continuum.
- Martin, J. R. & White P. R. R. (2005). *The language of evaluation: Appraisal in English*. Basingstone, England: Palgrave Macmillan.
- Moore, J. L. & Marra, R. M. (2005). A comparative analysis of online discussion protocols. *Journal of Research on Technology in Education*. 38(2), 191-222.
- Naidu, S. and Järvelä, S. (2006). Analysing CMC content for what? *Computers and Education*, 46, 96-103.
- Nichols, M. (2009). Online discourse. E-Primer series. <http://akoaooteaoroa.ac.nz/project/eprimer-series/resources/pages/online-discourse-eprimer-series> . Accessed 12 July 2014
- Oliver, M. & Shaw, G. P. (2003). Asynchronous discussion in support of medical education. *Journal of Asynchronous Learning Networks*, 7(1), 56-67.
- Oliver, M., Roberts, G., Beetham, H., Ingraham, B., Dyke, M. & Levy, P. (2007). Knowledge, society and perspectives on learning technology. In: G. Conole & M. Oliver (Eds), *Contemporary perspectives in E-learning research: themes, methods and impact on practice*. London, England: Routledge.
- Palloff, R. M. & Pratt, K. (2001). *Lessons from the cyberspace classroom: the realities of online teaching*. San Francisco, USA: Jossey-Bass.
- Piriyasilpa, Y. (2009). *Genre and discourse in online discussions: a study of online discussion postings in a Thai EFL writing course*. (Unpublished doctoral thesis) Macquarie University, Sydney, Australia.
- Reio, T. G. & Crim, S. J. (2006). *The emergence of social presence as an overlooked factor in synchronous online learning*. ERIC Online submission. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED492785>
- Rourke, L. & Kanuka, H. (2009). Learning in communities of inquiry: A review of the literature. *Journal of Distance Education*, 23(1), 19-48.
- Rourke, L., Anderson, T., Garrison D. R. & Archer, W. (2001). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education*, 14(2), 50-71.
- Rovai, A. P. (2002a). Sense of community, perceived cognitive learning, and persistence in asynchronous learning networks. *Internet and Higher Education*, 5, 319-331.
- Rovai, A. P. (2002b). Building sense of community at a distance. *International Review of Research in Open and Distance Learning* 3(1). <http://www.irrodl.org/index.php/irrodl/article/view/79/152> Accessed 12 July 2014
- Russo, T. C. & Campbell, S. W. (2004). Perceptions of mediated presence in an synchronous online course: interplay of communication behaviours and medium. *Distance Education*, 25(2), 215-232.
- Salmon, G. (2003). *e-tivities: the key to active online learning*. London, England: Kogan Page.
- Salmon, G. (2004). *e-moderating: the key to teaching and learning online*. London, England: Kogan Page.
- Schrire, S. (2006). Knowledge building in asynchronous discussion groups: Going beyond quantitative analysis. *Computers & Education*, 46(1), 49-70.
- Suthers, D. (2005). Technology affordances for intersubjective learning, and how they may be exploited. In: R. Bromme, F. W. Hesse & Spada, H. (Eds), *Barriers and biases in computer-mediated knowledge communication* (pp 295-319). New York, USA: Springer.
- Swan, K. & Shih, L. F. (2005). On the nature and development of social presence in online course discussions. *Journal of Asynchronous Learning Networks*, 9(3), 115-136.
- Tu, C. H. & McIsaac M. (2002). The relationship of social presence and interaction in online classes. *American Journal of Distance Education*, 16(3), 131-150.
- Vaughan, N. & Garrison, D. R. (2005). Creating cognitive presence in a blended faculty development community. *Internet and Higher Education*, 8, 1-12
- Yates, S. (1997). Gender, identity and CMC. *Journal of Computer-assisted Learning*, 13, 281-290.

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