

Who you know *and* what you know: Student interaction in online discussions

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The dynamics of how students respond to each other during online discussions in a blended learning environment remains under-explored in the literature. How this technology shapes interaction when used in conjunction with traditional teaching methods and the practices of learners in these multi-site situations is a significant educational issue. Using mixed-methods, this study drew on social interaction constructs such as: exchange theory; reciprocity; and propinquity to explore practices within a discussion forum in a blended-learning setting. In addition to confirming these well-established constructs accounting for student-interaction, the issue of responding to others perceived as 'knowledgeable' was uncovered, and the mechanisms behind this particular response were examined further. The study reveals an assemblage of practices overlapping and inter-locking with the emergent learning experience, in both online and traditional spaces.

Introduction

Research on asynchronous online discussions ('computer conferencing') in education is now well-established (Hammond, 2005). The early themes – instructional design and formatting; links to social constructivism; and collaboration and interaction during learning – were recently extended with: analysis of content mapping for evidence of higher-order thinking (Schrire, 2006); discourse of interactions (Liu & Tsai, 2008); and the development of critical thinking skills (Richardson & Ice, 2010). Critique on the value of exploring online discussions spans a continuum from the view that online discussion is just a transaction – not a learning experience at all – to the suggestion that it offers the potential for a 'radical re-shaping of rhetorical space [with] plenty of scope for researchers to reflect on the kinds of instructional design principles that best exploit this potential' (Thomas, 2002; Locke, 2007 p.198). Detailed analyses of teacher-student interaction (such as that of Wallace, 2003) focus on broader aspects of online learning, leaving the matter of the day-to-day experience of the student in computer conferencing relatively uncharted.

Contemporary research on asynchronous online discussions shows a trend towards the employment of mixed methods, with some notable examples integrating LMS data with analysis of content (text). Studies in this genre explore issues such as the: 'health' of a discussion based on message flow; time-delays in response patterns and responses; or 'threads' in a given topic (Dringus & Ellis, 2010; Hew & Cheung, 2008). Evidence of knowledge-building based on message content and interaction between students or teachers and students is also a key theme (Schrire, 2006). Where studies into practice are concerned, research has taken a qualitative turn. Recent studies have focussed on learner participation in discussions based on naturalistic, cross-case analysis (Dennen, 2005); and micro-analytic case

analysis of student's individual approaches to learning tasks in a blended learning environment (Wise, Perera, Hsiao, Speer, & Marbouti, 2012). There is a growing acceptance that the dynamics of discussion boards requires more investigation, with recommended directions for future research including the need to 'clarify and take a more critical stance towards interaction between learners' (Hammond, 2005).

The social dynamics of self-organising online discussion groups and how students choose to become involved or how they decide to respond to online discussions remains under-explored in the literature (Beck, Fitzgerald & Pauksztat, 2003). It is notable too that very few studies on computer conferencing in educational settings have focussed on the social and physical context of the individual student and their learning environment or on how the technology within their learning environment shapes their experience. How this technology shapes interaction, how learners negotiate and engage with other learners during this interaction, and how such multi-site practices are adapted in an educationally worthwhile way is a significant pedagogic question (Fenwick & Edwards, 2010). This study sought to draw on well-established constructs about social interaction and diffusion of information to see how they might apply to a discussion forum in a blended-learning setting in higher education.

Structural Properties in Discussions

Structural interactions have normally been analysed in the context of a discussion performing the role of collective knowledge building, with student contributions falling into categories such as: (1) initiating; supporting; challenging; or summarising (Sorensen & Baylen, 2004); or (2) social; cognitive; teaching; and discourse-related (Hackman & Annabi, 2006). Emergent processes relating to the production of space through day-to-day student experiences, as suggested, remain less well-documented with the notable exception of Holley & Oliver (2010).

Models of group processes generalised into learning environments such as Tuckman's (1965) 'stages of group development' are difficult to reconcile with asynchronous discussion dynamics, even metaphorically. This is because of: (1) design factors – teachers may not provide for the socialisation stage of group development to their students; (2) choice – some students may choose to neglect or opt-out from the activity, or may simply decide to contribute the minimum amount to achieve their task without becoming engaged; and (3) the relatively fleeting nature of the learning community – for example 13 weeks in the case of a semester on a typical degree programme, and then only for a few hours each week. It is conceivable that in an asynchronous discussion, Tuckman's ubiquitous stages of 'forming' and 'storming' (Bonebright, 2010; Nicolopoulou, Koštomaj, & Campos, 2006) could be a natural rather than transitional state – the 'incoherent structures' as Thomas (2002) has it.

This is not to suggest that roles do not emerge – for example in the broader field of social networking software discussion interaction, structures around particular individuals in a network have been clearly identified as: the 'answer person', the 'discussion person' and the 'discussion catalyst' Gleave, Welser, Lento and Smith (2009). Returning to the field of educational research, Beck et. al. (2003) suggest patterns do emerge showing core-periphery structures in which 'core members exchanged many messages with many different others, while periphery actors exchanged fewer messages with fewer others' (p. 319).

These dynamics are important – they impact on the learning experience. Sub-optimal participation may prevent students from developing 'robust and diverse peer networks ... an important influencing factor on student persistence and academic success' (MacFadyen & Dawson, 2010: p. 597). A student

selecting the wrong alter¹ may be ignored (reducing satisfaction in the learning environment, or worse, reducing confidence). Further, if the aim is to ‘de-centre’ the teacher, teaching presence in the form of excessive comments can work against a primary intent such as student-student interaction (Mazzolini & Maddison, 2007).

Reciprocity, Homophily, Proximity: Clues to Interaction?

Reciprocity could be considered one of the ‘defining features of social exchange’ (Molm, 2010: p. 119). Helping others who help us has long been considered ‘the norm of reciprocity’ (Gouldner, 1960) and ‘particular structures of reciprocity contribute to the creation of social capital in communities’ (Molm, 2010: p. 129). It is perhaps not surprising then that ‘analysis of interaction has emerged as a major theme within the current literature [in the wider field of] computer-supported collaborative learning’ (Suthers, Dwyer, Medina & Vatrappu, 2010, p.5).

Exchange theory, extending the reciprocity construct, suggests that relationships are sustained on the basis of providing valued resources in anticipation of future returns, or in return for past acts of favour (Emerson, 1976). Certain aspects of this theory are useful for examining interaction in computer conferencing, including: (1) attempts to minimise risk and maximise reward (read: student deciding answers to ‘post’ or who to respond to in creating relationships), and (2) perceived fairness about how much time one is ‘giving’ to the activity including reading postings and responding to alters.

Behavioural observations in research about social exchange are also a potential line of enquiry – the idea of ‘homophily’ being relevant in the present case. Simply stated: ‘individuals enjoy the comfort of interacting with those who are similar’ (Rogers, 1995: p.287). Further, electronic proximity is described in the literature (Zhao, 2003), but in a blended learning environment physical proximity is also relevant. Extending the idea of propinquity (Festinger, Schachter & Back, 1950) suggests that exchanges in online discussions might be produced as a consequence of frequent or close personal or electronic contact.

Study Design

The present study used mixed methods to examine the influences behind decisions made by students as they engaged in CMC choices following the contention that it would be useful to know ‘reasons participants decided to send messages to certain other participants [to] clarify the importance of individual factors in [communication] choices’ (Beck et. al. p. 321).

This was an Action Research project within the Faculty of Business and Finance at Holmesglen Institute in Melbourne. A total of 106 students were enrolled in a first-year degree study unit titled ‘Business Communications’, consisting of a two-hour lecture and a two-hour tutorial. There were seven tutorial groups, united for lectures. The learning management system (LMS) was Moodle, consisting of topic-organised course content and a variety of learning objects, links and online tests.

Four discussion forums were offered for students on a voluntary basis, with a 10 percent component of their final grade allocated for participation and content-quality (Rovai, 2007). Since this was an introductory course, some level of coaching in CMC was offered during tutorials, thus students did not contribute to discussion boards exclusively in their own time and personalised learning space. Importantly, the forums were provided as a self-organising activity for students within general guidelines provided by the instructor. Teaching presence was provided in face-to-face lecture and

¹ The structure of a social network is considered to be populated by ‘actors’. In studying a given actor’s personal network, they are considered as a focal point or ‘ego’. An ‘alter’ is someone to whom an individual (ego) is said to be ‘tied’, in the present context this is enacted by offering a message in the discussion forum (see also Prell, 2012: p.8; and Wasserman & Faust, 2007: p.42).

tutorial formats. Instructors generally abstained from forum involvement (apart from monitoring activity and shifting a small number of misplaced postings) meaning the content generated was almost exclusively student-student interaction. The design sequence followed general principles (Salmon, 2000; Northover, 2002) such as: (1) introductions; (2) generation of content; and (3) invitation to discuss and engage with others (including the opportunity to be a ‘spectator’ in other’s discussions Northover, 2002).

The four forums were inserted as links in the course home page in Moodle in Weeks 2, 4, 6 and 8 and were open until the end of the Study Week prior to final exams after Week 14. Each forum was formatted as a ‘standard discussion in a blog-like format’ (Moodle, 2012), so students could see the name of the author, their image or avatar (if they chose to upload either of these) and the first few lines of their post. Subscription mode was set to ‘optional’ for all forums. A significant feature of the student cohort was the level of diversity – with 50 percent of students being international from ten different countries of origin. Seventy percent of the students enrolled were female.

Students were initially surveyed about their reasons for selection of alter(s) in the asynchronous discussions. Semi-structured interviews were then carried out to follow up students of interest on a convenience sampling basis (Patton, 1990), using emergent results from the initial quantitative data gathering phase. As the study progressed, it became apparent that selection of alters who appeared ‘knowledgeable’ to their peers was a mediating factor in exchanges, and this influenced the interview sampling carried out later. The purpose of the interviews was to expand understanding beyond existing and perhaps more ‘intuitively obvious’ explanations for interaction (that is, exchange, reciprocity or propinquity). The interviews also provided the opportunity to explore and extend understanding of the day-to-day experience of the students as they went about their learning tasks to examine ‘learning in the making’ (Barab, Hay & Yamagata, 2009).

The data available from the LMS provided insights into system access and usage, although this was a by-product of the research process and not the main focus of this study. Metrics of interest included: the number of messages accessed by students; the number of messages posted; and thread depth. These metrics can provide a feel for the ‘health’ of the discussion (Dringus & Ellis, 2005). They also show the potential learning value provided to those who did not necessarily actively contribute, but rather chose to read messages (‘lurkers’). This latter aspect is relevant in the present context, given the English as a second language (ESL) proportion of students. A summary of these metrics is shown in Table 1 with the purpose of each discussion forum indicated.

Table 1: Some dimensions of the discussions under study

Items	Discussion Purpose			
	Introduce yourself and respond to a reading (on information literacy)	Post a literature review and discuss	A case study	Design an exam question
No. of discussions	117	113	94	61
No. of threads	171	313	240	203
Thread depth range (low-high)	0-11	0-13	0-11	0-26
Discussion item ‘views’(1)	790	1,355	558	370 (2)
Average item views/student	7	12	5	3

Notes: (1) Based on LMS report data – duplicate ‘views’ removed from count; (2) This forum was used in conjunction with Google Docs so ‘view’ data is dispersed between two tools – only forum data shown; (3) Item ‘view’ data is diluted because forums allowed for subscription, allowing students to view posts via e-mail without logging into Moodle.

Survey Results

The survey was based on 22 items derived tentatively from constructs relating to interactivity (see reciprocity and so on above). A three point scale was offered with students asked to select an item or items they considered relevant to an encounter where they responded to another student's post in a forum. The scale within each category asked the student to rate the strength with which the relevant statement described their reason for responding to the post of the alter they had chosen from: 'most relevant'; 'quite relevant'; or 'possibly relevant'. Multiple categories could be selected to allow for the possibility of more than one reason for selecting a particular alter in a discussion. The scale design then allowed the strength of the 'reasoning' to be reported by the student. An open-ended response category was provided to enable collection of data that could be explored further at interview. Students were invited to complete surveys as soon as possible after making a posting with the provision of a link in the LMS giving direct access to a web-based survey. A total of 56 students responded to the survey, providing 151 completed surveys on their responses to 65 different alters.

The survey data is presented in Table 2. The response categories have been re-ordered from the original questionnaire into the table by the category with the highest frequency response and the strongest reason category. While many of the popular response categories are consistent with the constructs proposed under exchange, reciprocity and propinquity theories, the tendency to select alters perceived as being 'knowledgeable' invites further examination.

Table 2: Survey – Responses to survey items and counts

Response	Relevance to selection of alter		
	Most	Quite	Possibly
I thought they were knowledgeable	60	26	8
they have already responded to one of my earlier postings	47	19	14
I already knew them	45	17	29
they could probably help me later	41	27	23
I sit near them in the tutorial	40	12	25
they are someone with whom I could build a useful relationship	39	14	21
I felt I could relate to them on a personal level	31	18	20
I can access them via other communications (e.g. telephone or instant message)	28	14	28
I know of them from other friends on this course	25	12	24
I sit near them in the lecture	25	17	27
they asked me to do so	25	10	6
we are friends	20	17	41
they seem like an influential member of the class	20	9	33
their post was one of the first ones I read/accessed	17	21	39
my response was part of an ongoing discussion I am having with this person	17	18	34
they are someone who I attended other classes with	14	19	45
they were someone whom I had already communicated with in the past (e.g. in class)	13	21	42
we are both in a similar stage of learning in our degrees	13	25	44
they are from the same culture as myself (for example ethnic or linguistic grouping)	12	9	32
I saw this as an opportunity to demonstrate my knowledge	9	20	55
I have noticed the answers they gave to other student's posting were knowledgeable	7	26	33
we are related	3	8	24

In addition to the pre-coded response categories, several students provided additional comments about their selection of alters: “*I also like the idea of being able to help people develop further in the degree. Sharing knowledge can help broaden skills and perceptions*”; “*They didn’t have any replies as yet*”; “*I was trying to satisfy the subject’s requirements*” (twice); and “*I thought their post was great*”. The variety of responses that received a strong response from survey participants indicates the complexity and richness to the relationships developing in the course beyond a social learning process.

Additional data was explored to develop a better understanding of this perceived knowledgeable alter (PKA) response, including a review of those nominated in surveys as being ‘knowledgeable’, and the comparative data for the message ‘views’ by all students of these PKAs. Forum 2 (*Post and Discuss a Literature Review*) was selected for a more detailed analysis due to the relatively larger volume of transactions in that discussion. In this forum, 26 alters were suggested as being ‘knowledgeable’. A selection of data for students nominated as knowledgeable (three or more times) and average ‘views’ across all other student posts in Forum 2 is shown in Table 3.

Table 3 – ‘Knowledgeable alters’ and reading/responding patterns to their post in ‘Forum 2’

Perceived ‘knowledgeable’ Alter (PKA)	No. of threads in the discussion	Number of views by others	Sequence of posting	Reported ‘knowledgeable’ by	Final grade (Course-wide - \bar{x} = 62%)
Kerry	11	59	52 nd	4 others	88%
Linda	8	28	32 nd	3 others	78%
Jane	6	48	18 th	3 others	88%

The data shows that these PKA’s posts were more read and responded to than others in the forum. As noted in the final column of the table, their academic achievement was well above the mean on the course. Comparing the data above in Table 3 with the data in Table 1 indicates that the average number of message ‘reads’ for each student in Forum 2 was 12. In contrast, the minimum numbers of ‘views’ (column 3) for these PKAs was more than double this (the number of unique participants in this discussion was 103 students). The mechanism behind this variance is not clear. It is possible that the ‘knowledgeable’ student’s posts were made earlier than other students, although the order of their posts suggests this is was not necessarily the case (see column four). Further, it should be noted that these students attracted an average of 8 threads to their initial posting – on the upper end of the range in that forum (see Table 1). The literature suggests forum posts attract attention based on reading habits (users tending to check their unread posts on login) with posts that have many unread threads getting more attention (Hewitt, 2011).

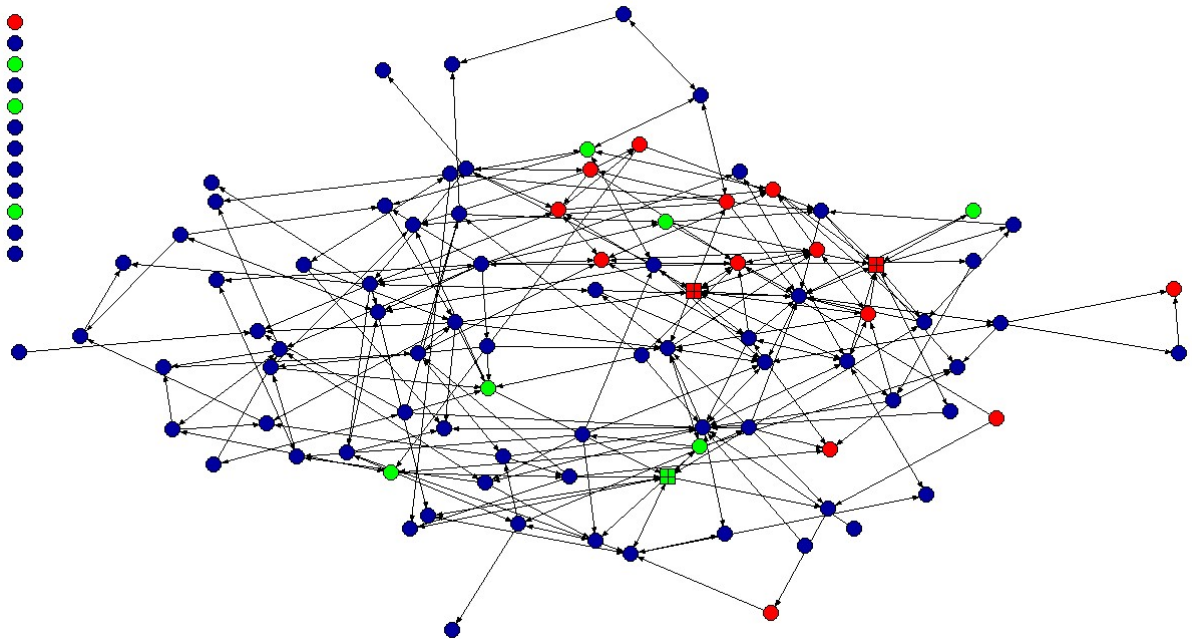
Given the blended nature of the learning environment, it is also possible that in-class influences have had a hand in this perception and response mechanism. Selection of alters who are perceived as knowledgeable is worthy of further examination. Student capacity to judge academic merit is noted in the literature (Falchikov & Goldfinch, 2000), and when viewed from the perspective of exchange theory, students selecting a knowledgeable other could perceive a future benefit from developing a learning relationship with them. Examination of this mechanism was pursued during the interviews and is described further below. Social network data was also collected to provide an understanding of the structure of discussions and to search for the patterns cited in earlier literature (Beck et. al., 2003).

Social Network Data

Social network data was analysed using Ucinet (Borgatti, Everett, & Freeman, 2002) in order to identify patterns in communication. Several dimensions within this data were of interest. For example, did any of those suggested as being ‘knowledgeable alters’ have any particular position in the network structure? Previous studies have determined that students achieving better results in certain higher education courses tend to be in a network position as a ‘hub’ (Macfadyen & Dawson, 2010). The ‘hub’ in a social network tends to have more contact with other members of the network. In other forms of online communities, such as those suggested earlier, the so-called ‘answer person’ would also be identified as a ‘hub’. Beck et. al. (2003) also noted the structure of student interactions as forming a core of students with many alters and a periphery who were in a sense on the edge of the group.

In Figure 1 below – at the individual discussion forum level (see forum #2 noted above), a sociogram was derived from the interaction. The PKAs detailed in Table 1 above were designated a special crossed-square symbol to distinguish them in Figure 1 below, and the tutorial group within which the PKA was a member was colour-coded (two PKAs were in the same tute denoted green). From Figure 1, it appears that the communication structure of each tutorial group had two quite distinct patterns – one is clustered more closely (red) and the other is dispersed (green). Each PKA has begun assuming a position in the course-level network as a ‘star’ – recall that the forum is a course-wide activity rather than a tute-level one. This is not unexpected, since the average in-degree for the three PKAs is 7.3 – considerably higher for other forum participants who average 2.9. The literature suggests that in-degree is frequently considered a measure of prestige or popularity (Prell, 2012; Knoke & Yang, 2008). In a blended course, there is clearly the opportunity to develop social contacts and cohesion in face-to-face classes.

Figure 1: Sociogram of Discussion Forum Activity in Moodle – Forum 2 Only

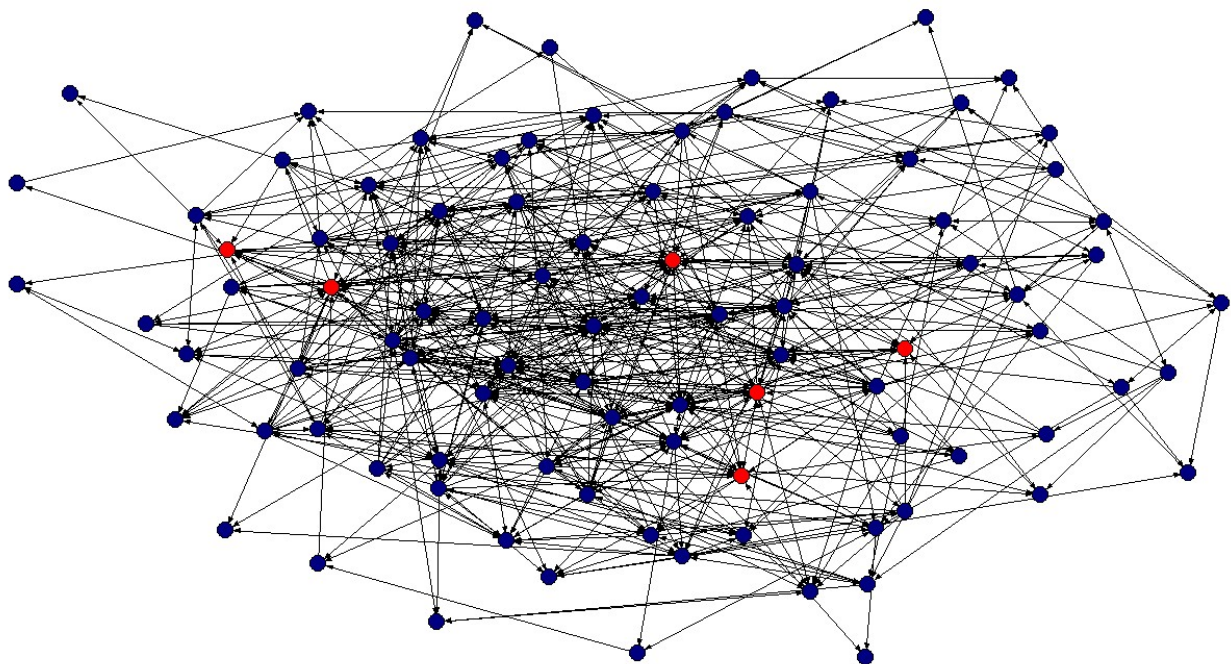


Notes: (1) nodes representing students on the left hand side of the diagram posted but received no replies. (2) the colour codes represent different tute groups, with the red group having two ‘reported’ PKAs, the green group one and the remaining four tute groups presented in blue (having no PKAs nominated out of this particular forum. (3) The figure represents the social network position across the course and within the tutorial groups of Kerry, Linda and Jane detailed in Table 3.

At the course level, positioning of additional PKAs was reviewed, given the influence they appear to have had on their peer's involvement in discussions. Further scrutiny of these alters was done by selecting those who: 1) were nominated as 'knowledgeable' by two or more survey respondents; and 2) selection of these alters for being 'knowledgeable' as the main reason their correspondent decided to post in the forum. Six students fitted this category and their position in the four discussions at the aggregated course-level is designated with red colour coding in Figure 2.

The sociogram at Figure 2 suggests the PKAs are positioned closer to the core of the social network structure – as derived from their forum posts – but not necessarily at the core. Again, the social network metric that is noteworthy in the data was that each of these six knowledgeable alters tended to have a higher in-degree than that of their peers – the average student on this particular network has an in-degree of 7.6, and the knowledgeable alters have an average in-degree of 10.7.

Figure 2: Sociogram of Discussion Forum Activity in Moodle – Course Level



Interviews were conducted to explore the mechanisms behind the posting choices of alters made by students. A total of nine 30 minute semi-structured interviews were conducted with five of the PKAs and five of those reporting at least one alter as being a knowledgeable. The interviews sought general information about the student's experience on the course, their experience in their forum interactions and some contextual information about their technology and online access behaviour, including the devices they used or appropriated in their interactions with the course material. The metrics for each student about how many 'reads' or 'posts' they made was also discussed.

A Review of Individual Student Activity and Interaction

A series of portraits that characterise the nature of participation in the traditional teaching and learning activities and in the online forum is developed below. Interviews were conducted two months after course completion with the alumni in the two categories described above.

PKA Profile 1 – Jane

Jane is a local mature-aged student, who joined the course after a break from studies and having completed a Diploma qualification in business discipline some years ago. The introductory forum helped her to ‘meet’ students from other classes and she became more relaxed about joining the course as a ‘mature-aged’ student, with the forum showing the diversity of students who were undertaking their studies. Jane extended her acquaintance with other course members via the lecture and tutorial and forum posts – she felt a strong need to reciprocate when other students responded to her postings. Jane was well-resourced, with access to the internet at home, a smart-‘phone and a tablet device, and she used these to access course content on Moodle. She also used the college library facilities to access course materials and the forums. An analysis of Jane’s forum posts suggests a ‘dialogic’ element (Knowlton’s (2005) taxonomy) to her learning practice. Her posts to other students were generally around 3-4 lines of text. They were carefully considered; polite; encouraging and at times made clear attempts to summarise the contribution of her alter in a concise way. Jane believed that because she had ‘conceptualised’ to a degree on her forum posts, that she might be considered knowledgeable. It might also be noted that Jane exhibited a high degree of ‘citizenship’ behaviour on the course.

PKA Profile 2 – Kevin

Kevin is an international student with an East-Asian background who at 18 is below the average age of the student cohort and is taking his studies with English as a second language. He considered himself a ‘social’ member of the class, having known a number of students from previous stages of the course undertaken in a previous semester. Kevin indicated that he tended to read the introductory posts of other students but he did not respond to very many. On the other hand, he had a strong belief that it is necessary to respond to other students who had replied to his own posts, considering it very impolite to ignore direct correspondence from other students. Kevin had good access to the internet via a computer at home, but did not use mobile technology to access course content, instead using the library facilities on campus to complete some tasks. His posting patterns were markedly different to Jane’s. His posts varied widely in length from a couple of lines to more extended posts that included a combination of quotes from a journal article; asking questions; or requesting further information. Kevin’s posts also contained positive sentiments to other students. Involvement in the forum activity helped him to build relationships based on new and existing student contacts on the course.

PKA Profile 3 – Linda

Linda is an international student who is also learning in English as a second language and is 20 years of age. When she went through the forum posts she evaluated the comments made by students to decide if they were simply offering an opinion or if there was a more sound basis on which the contribution was made – for example by referring to a reading or the text. She did not aim to be a ‘top’ contributor, but felt that it was important to maintain a ‘business-like’ style and tone in her contributions, which she typed and edited directly online rather than through a word processor. Linda had good access to the internet at home and used her own computer to help with contributing to discussions. Linda also used a smart ‘phone and tablet device to read the forums on which she was subscribed, rather than contribute. She felt that she was responsive to other students and would return correspondence within a week – she had developed this ‘habit’ from her working life where large

volumes of email were common. LMS data indicates that Linda was on the lower end of the scale for 'reads', but on the upper end of the scale for 'posts' in the forum.

Student 'Reporting' PKA Profile 1 – Dana

Dana is a local student who entered the course from the vocational college in order to further her education and gain a business degree. At 21, she is close to the average age of the other students on the course, and achieved a Credit result. Although she has good access to technology, with the internet at home and mobile devices available, Dana is a time-poor student who works 3-4 days per week. She felt tentative about getting involved in the forums at first, being concerned that there was a risk of projecting a lack of knowledge to her peers. She later felt more confident and eventually came to value exchanging views with other students through the forums offered. Dana's perception of another student as being knowledgeable was based on her observation that they exhibited certain life-experience, demonstrated in the text of their postings. She also knew of some students who were 'studiers' which helped her form an opinion about their status independently of their contribution to the discussion forum. Dana's observation was that these particular 'knowledgeable' students tended to link their answers to the subject text, or made the relationship between the questions or activities in the forum and what was to be learned (course content) readily apparent.

Student 'Reporting' PKA Profile 2 – Mara

Mara is a local student who had completed a diploma at another campus before joining the degree programme. She needed to balance study and family time and found the forum useful because it allowed her to get to know a good number of students that she had never met. She used a smart 'phone and a computer at home to access the course materials. Mara was a member of one of the larger tutorial groups (20+). She tended to keep to herself during tutorials and she reported being 'quite selective' about with whom she corresponded on certain forums, especially in the case study forum. She suggested that her selection of a 'knowledgeable alter' was based on those who she felt were more perceptive – judged by the contents of their posting on the forum – or after a careful analysis of the quality of the text within the posting.

Student 'Reporting' PKA Profile 3 – Sarah

Sarah is on the upper end of the age range of students on the course. She has returned to study to extend her knowledge and started her career in another non-business discipline. Sarah was in the larger tutorial group and felt that she shared certain views with another member of the class through particular life experiences. She is a cautious user of technology – she has home internet access but is not a regular user of mobile devices – Sarah took a 'pragmatic' approach to the online forums. When she did access them, she went through other student's posts methodically – this is reflected in the total number of 'reads' data reported through the LMS. Sarah looked at the way other students expressed themselves, seeking those who had a more 'serious' or 'mature' contribution which had an important point to make and that stood out as 'making sense'. In evaluating and responding to forum activities, she considered whether another student's contribution was original and included a personal point of view, or was simply a re-iteration of another point made elsewhere in course material.

Conclusion

This study brings together aspects of the social structure of self-organising discussion forums in a blended learning environment and extends the understanding of practices with a closer examination on a case-by-case basis. The unique assemblage of multiple learning sites and technologies and the responses elicited by different individuals provides an exemplar of learning-in-the-making.

Some observations can be made about the reported ‘knowledgeable alter’ response mechanism from this study. There is a variety of mechanisms at work in the blended learning environment, including: (1) direct observation of the other student’s behaviour in tutorials such as responding to or asking tutors questions; (2) prior knowledge of the student as being ‘conscientious’ for example doing weekly ‘set’ readings; (3) careful reading of other student’s posts to determine if they were giving ‘templated’ answers or conversely that they demonstrated a level of critical thinking; (4) that the alter seemed older or more experienced, giving them some level of credibility with the observer; (5) those who provided responses to questions in the forum with good explanations, backed with a link to the course content; and (6) those whose post made a point from their own personal perspective rather than a reiteration of course content. Exploration of the practice of PKAs suggested that: (1) these particular students were more selective about the posts that they chose to read fully (recall the forum mode set for this course was in a blog-like format); and (2) that they tended to put more effort into the structure, length and content of their posts.

Extending the proof of concept in the use of sociograms drawn from course discussions to detect at-risk students early (MacFadyen & Dawson, 2010) could be useful to identify those students in a position to encourage and assist others in the forum activity (helping them to build ‘robust and diverse peer networks’ p.597). By identifying those forming part of the social hub – perhaps then qualifying this by examining the quality of postings – it may be possible to develop an intervention that involves students in a position to help others by either encouraging them or engaging with them in the forum using partnering or a similar approach. The concept of ‘partnering’ other members of an online learning community to increase a feeling of inclusion is also supported elsewhere in the literature (Fasso, 2010). In a blended environment, partnering could have face-to-face and online components. Further research is needed to determine if the use of sociograms can help identify these students early as it did for identifying students at risk in MacFadyen and Dawson’s (2010) study.

There is also a case for provision of detailed discussion exemplars to be available for students entering a forum activity. The ones provided to students on the course under study were based on smaller vignettes adapted from Hew & Cheung (2008). It may be that to guide those students with less confidence, a more developed case-study exemplar could be included in the subject outline or on the LMS. This would further assist those students who are unclear about the structure or the process of the activity. This approach would give them more ideas about effective participation on a discussion forum, with the view that better posting quality leads to more correspondence, leading to increased confidence and participation – a ‘virtuous cycle’.

Further research is required to examine detailed practices in the use of learning materials, technology, and student-student interaction in a blended learning environment. This may assist in identifying more timely ways in which diagnosis and intervention can be implemented that will enhance the student experience in online discussions. The number of studies indicating that online discussions provide solid educational and diagnostic material is now growing and will be enhanced with additional examination ‘beyond simple measures of behavioural quantity’ – a call made by other researchers (Wise et. al., 2012, p. 115). Still, gaps in the understanding of the learning affordances offered by online discussions remain. Further research into how the technology itself shapes interaction is warranted. Exploration of teaching and learning practices that best harness the design features of these systems is also needed. This suggests that further micro-level analysis is a consideration for the design of future studies.

Biography

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