

Learning relationships in online contexts: An educational response to declining rates of participation and a means of support for undergraduate students

Dolene Rossi, LTERC, CQUniversity Australia, d.rossi@cqu.edu.au

Abstract

There is current concern about declining rates of participation in higher education in regional and remote areas of Australia. The potential of online education as a means of enhancing the learning opportunities of those living in regional, rural and remote areas is recognised by Government and educational institutions; however, it is also acknowledged that access without support does not equal opportunity. Despite significant financial investment, the adoption of online delivery and online learning within the higher education sector is variable and under-represented in undergraduate programs. This article builds upon extant knowledge and draws from the findings of a research study which examined the processes of, and the relationship between, learner-learner interaction and knowledge construction in online learning contexts within a single cohort of undergraduate students. Based on the results of the analyses a substantive theory explaining the conditions, actions, interactions and consequences of learning relationships in online contexts was constructed. The purpose of this paper is twofold: to demonstrate the capacity of learning relationships to promote student participation in learning activities and facilitate the achievement of learning outcomes in an online course; and to draw attention to the potential of learning relationships to provide a local, educational response to the institutional challenge of offering an integrative, collaborative, enabling environment for diverse students and support for undergraduate learners.

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Introduction

Australia faces a critical moment in its history of higher education as by comparison with other OECD countries the number of 25 to 34 year olds holding degree level qualifications has reduced over the previous 10 years. Online environments present an educational domain unique in their potential for interaction, participation and collaboration (Kumpulainen & Mutanen, 2000). The potential of online education to enhance the learning opportunities of individuals living in regional, rural and remote areas is recognised by Government and educational institutions (Bradley, Noonan, Nugent, & Scales, 2008), as is the need

for effective support (Tinto, 2008) to enable students to successfully make the transition between first and second year (Kift, 2008). Research suggests that not all learners are suited to online learning (Horton & Osbourne, 2003) and there is a perception that an online mode of delivery has a wider applicability and acceptance among postgraduate students (Bell, Bush, Nicholson, O'Brien, & Tran, 2002). Indeed very few undergraduate programs offer courses that are fully online (Bell et al., 2002). As a result little is known about the participation, interaction and knowledge construction of undergraduate learners within online educational courses and less is understood about how online learning opportunities can be managed and promoted in regional communities (Kirkpatrick & Bound, 2003). Despite the apparent lack of empirical evidence and in response to the issues of declining participation Bradley's review of higher education calls for innovative solutions using a range of flexible and collaborative delivery arrangements (Bradley et al., 2008).

This article offers a literature review which describes the problem, builds on existing knowledge, and draws from the findings of a research study which examined the relationship between learner-learner interaction and knowledge construction in online learning contexts. The purpose is twofold: first to demonstrate the capacity of learning relationships to promote student participation in learning activities and to facilitate the achievement of positive learning outcomes in an online course; and then to draw attention to the potential of learning relationships to provide a local, educational response to the institutional challenge of offering an integrative, collaborative, enabling environment for diverse students and support for undergraduate learners as they transition from first to second year.

Literature review

In Australia 29% of individuals within the 25 to 34 age group hold a degree level qualification; however, this number is considerably lower than the target of 50% which has been set by other nations. To address this shortfall Australia proposes to increase the participation of groups currently under-represented in higher education. These include Indigenous people, people with low socio-economic status and those from regional and remote areas. The aim of the new national target seeks to ensure that by the year 2020 40% of 25 to 34 year olds will have attained at least a bachelor-level qualification (Bradley et al., 2008). In order to achieve this target Bradley's review of higher education indicated that "all institutions in receipt of Commonwealth funds for teaching will be expected to establish initiatives to increase both the enrolment of, and success of, students from disadvantaged backgrounds" (Bradley et al., 2008, p. xiv) and that the percentage of retention and completion of students within regional institutions will be comparative to 90–95% of those within metropolitan areas (Bradley et al., 2008).

Two decades ago Australia was one of the first countries to restructure to enable wider participation in higher education (Bradley et al., 2008). Today Australian universities are considered among the world leaders in the move towards online education, building upon a strong national tradition of distance education (Bell et al., 2002). The potential of online education to enhance the learning opportunities of individuals living in regional, rural and remote areas is recognised by both Government and educational institutions. As a result there has been an increasing emphasis on flexible learning and online delivery (Kilpatrick & Bound, 2003) and considerable investment in the development of courses, support services and the infrastructure necessary to deliver them (Bell et al., 2002). Indeed with the election of the Australian Labor Party (ALP), in November 2007, the Digital Education

Revolution became Australian government policy, with a financial commitment of \$2.2 billion between 2008 and 2012 (Australian Government Department for Education, Employment and Workplace Relations [DEEWR], 2008).

Despite significant investment however, the adoption of, and access to online courses within the higher education sector is variable and under-represented in undergraduate programs (Bell et al., 2002). Indeed the results of a survey commissioned by the Department of Education Science and Training (DEST) in 2001 to ascertain the extent of online education in Australian universities revealed that while all universities in Australia were employing the Internet to some extent for teaching and learning purposes, only 207 courses (31%) were offered fully online by 23 Australian universities. Of these, the majority (90%) were offered at postgraduate level (Bell et al., 2002).

Online contexts are acknowledged to offer an educational domain unique in their potential for interaction, participation and collaboration (Kumpulainen & Mutanen, 2000). Research suggests that interaction among learners makes a positive contribution towards student learning and is a significant factor in successful online learning (Su et al., 2005). Among the benefits to be derived from collaborative learning are the development of critical and problem-solving skills and a social atmosphere where learners can share, consider and challenge one another's ideas (Bruffee, 1999). The claim that "contextualized content and active learning strategies within collaborative learning approaches result in increased learner motivation persistence, and learning outcomes" (Smith & Dirks, 2007, p. 26) becomes even more significant in light of current concern about declining rates of participation and levels of student attrition. Although it has been suggested that not all learners are suited to online learning (Horton & Osbourne, 2003), most studies investigating computer-mediated interaction and knowledge construction have been levelled at postgraduate or professional courses or programs (Gunawardena, 1995; Hendriks, 2002; Hendriks & Maor, 2004; Kanuka & Anderson, 1998; Schrire, 2002). As undergraduate access to online courses is limited it is conceivable that current perceptions may be erroneous and based on the availability of online offerings.

Although online environments represent the fastest growing contexts for adult learning (Smith, 2008), faculty often do not accept the value of online learning (Allen & Seaman, 2007). Indeed, in more than one quarter, concerns have been raised about the quality of the online, educational experience of learners. Negative connotations about the quality of online learning solutions are evident in a submission by Universities Australia to DEEWR on the review of regional loading (Universities Australia, 2010). The response states that:

...the underlying assumption that that alternate delivery models can provide educational outcomes of equivalent quality [to traditional models] at a much lower cost is an untested and somewhat concerning proposition. Measures such as the Australian Graduate Survey show strong support for regional campuses and it would be unfortunate should options of lesser quality be substituted in these communities (p. 4).

Certainly without the proper regard for appropriate pedagogies and the needs of students online learning solutions are destined to fail (Bell et al., 2002). First year is recognised to be fundamental to student success at university and is acknowledged to have the highest rates of attrition (Nelson, Duncan, & Clarke, 2009). Yet if students receive effective support (Tinto, 2008) and can be retained beyond the first year of their studies, their probability for success increases in each subsequent year (Williford & Schaller, 2005). The responsibility for student engagement in higher education lies not only with students but also with

institutions and teaching staff who must provide the necessary “conditions, opportunities and expectations” for such engagement to occur (Coates, 2005, p. 26). While some authorities believe there to be a shortage of information for policy makers, information technology providers and education developers as they devise strategies to enable people in regional and rural areas to access online education and improve learning experiences and outcomes (Horton & Osbourne, 2003; Kirkpatrick & Bound, 2003), others are of the view that there is in fact a wealth of research and knowledge (Kift, 2008) and that there “is much that we have not yet done to translate our research and theory into effective practice” (Tinto, 2006–2007, p. 2).

Method

This article builds upon extant knowledge about the process of relationship development among students engaged in an online communication course (Rossi, 2009) and draws upon the results of a larger research study which examined the processes of, and the relationship between, learner-learner interaction and knowledge construction in online learning contexts (Author, 2010). The relevance of the research lies in the results of the analyses which led to the construction of a substantive theory about learning relationships in online contexts within an undergraduate course in a regional university in Australia.

The research strategy was a single case study with an embedded case design. Social network analysis (SNA) and constant comparative method, which incorporated the analytical procedures of constructivist grounded theory, were utilised to analyse data collected from the case. The use of these two diverse but complementary methods resulted in a macro level analysis of the interactions that facilitated knowledge construction within the course and micro level analyses of the processes of interaction and knowledge construction during synchronous and asynchronous discussion.

The case and research participants

The course, which constituted the case, was a fully online undergraduate unit of study offered by a regional university in Australia. The university offers a wide range of undergraduate and postgraduate programs and courses both on-campus and off-campus. The communication course, which was available from 6 March to 2 June 2006, was a first year unit of study within a Health Promotion degree and an elective for several different programs offered across faculties throughout the university. Ethical clearance for the study was granted by the university’s human ethics committee. Twenty-one students completed the course and were invited to participate in the study; one learner chose not to participate. Research participants were enrolled in eight different undergraduate programs. Although the age of learners ranged from 19 to 61 years of age, the mean age was 31, the median was 23, and the mode was 21 years. Ten per cent of the participants were male; each participant has been identified by a pseudonym.

The educational philosophy and andragogical framework

The course had been designed to promote learner engagement with course content through weekly pre-reading material, PowerPoint presentations and a range of individual and group activities. Learning activities were directly related to the content for the week and varied in number. Over the duration of the course these activities offered students the opportunity to discuss and analyse written, observed

and experienced interpersonal interactions. For example, content in week 3 addressed theoretical concepts associated with relationship development; the corresponding activities included an individual submission which required students to discuss and analyse a written scenario between two individuals from diverse cultural backgrounds. Two small group activities required students to observe interactions presented on a compact disc and to discuss and analyse aspects of self-disclosure and issues related to relationship development and maintenance. A “topical issue or class discussion” was a recurrent large group activity conducted asynchronously each week. Students were required to discuss, relate and/or demonstrate the application of communication theory to a given or selected topic or personal experiences. Participation and interaction in online activities accounted for 25% of the total grade awarded for the course.

Based on the educational philosophy of the researcher and the purpose and context of the research, theoretical frameworks that reflected a social constructivist stance were of particular interest and Vygotsky’s theory of learning and development (Wells, 1999) was subsequently identified as a sensitising possibility and point of theoretical departure for the investigation. The theory was considered appropriate within a dialogic model of learning as it is based on three interrelated precepts: that human activities take place in cultural contexts; are mediated by language and other symbol systems; and can be best understood when investigated over their historical development.

Figure 1 offers an overview of the research study. It shows three units of analysis which were identified based on the social structure of the course. Each learner, as a member of the large group, a small group, and an individual within the course, was represented within each unit of analysis in the case.

As a case, the course offered an opportunity to examine learner-learner interaction and knowledge construction in online contexts, within an authentic educational setting, among a single cohort of students in groups of different sizes as they engaged in synchronous and asynchronous discussion to complete collaborative learning activities.



Figure 1: A retrospective overview of the research study

Procedures

The principal sources of data within this study were electronic transcripts, retrieved retrospectively from an archive of the communication course. Observational data were recorded in an electronic journal retained by the co-ordinator during the course (participant observation) and from transcripts of participant interaction (direct observation). Data were also obtained from non-interactive, static records produced by the learning management system (LMS) in the form of system logs and course statistics (refer Figure 1).

Data collection and analyses commenced with the large group. This initial selection provided a point of departure in terms of sampling (Charmaz, 2006) and maximised opportunities to identify events, incidents or happenings indicative of learner interaction and/or knowledge construction within the group during asynchronous discussion. Preliminary analysis of the large group informed subsequent sampling. The selection of small groups and individuals was not predetermined.

Within this study, SNA was undertaken prior to analyses of the content of learner contributions. The analytical procedures of constructivist grounded theory were then used to analyse the processes of interaction and knowledge construction (refer Figure 2). Grounded theory is particularly useful in addressing questions about process (Merriam, 2009) and the procedures within this study included initial, focussed, axial and theoretical levels of coding. This sequence and combination of methods afforded the means to understand and explain interactive patterns identified through SNA and to extend the analyses to explore and understand the relationship between interaction and knowledge construction in computer-mediated contexts (Rossi, 2010).

The integrated analyses revealed how learners interacted and constructed knowledge within large and small groups using asynchronous and synchronous communication, how individual learners conceptualised interaction and knowledge construction within the online course and how learner perceptions shaped communication and learning during the twelve-week term. Learning relationships emerged as a central concept and a substantive theory which explained the conditions, actions, interactions and consequences of learning relationships in online contexts. The research was, retrospectively, acknowledged as a grounded theory study (Rossi, 2010).

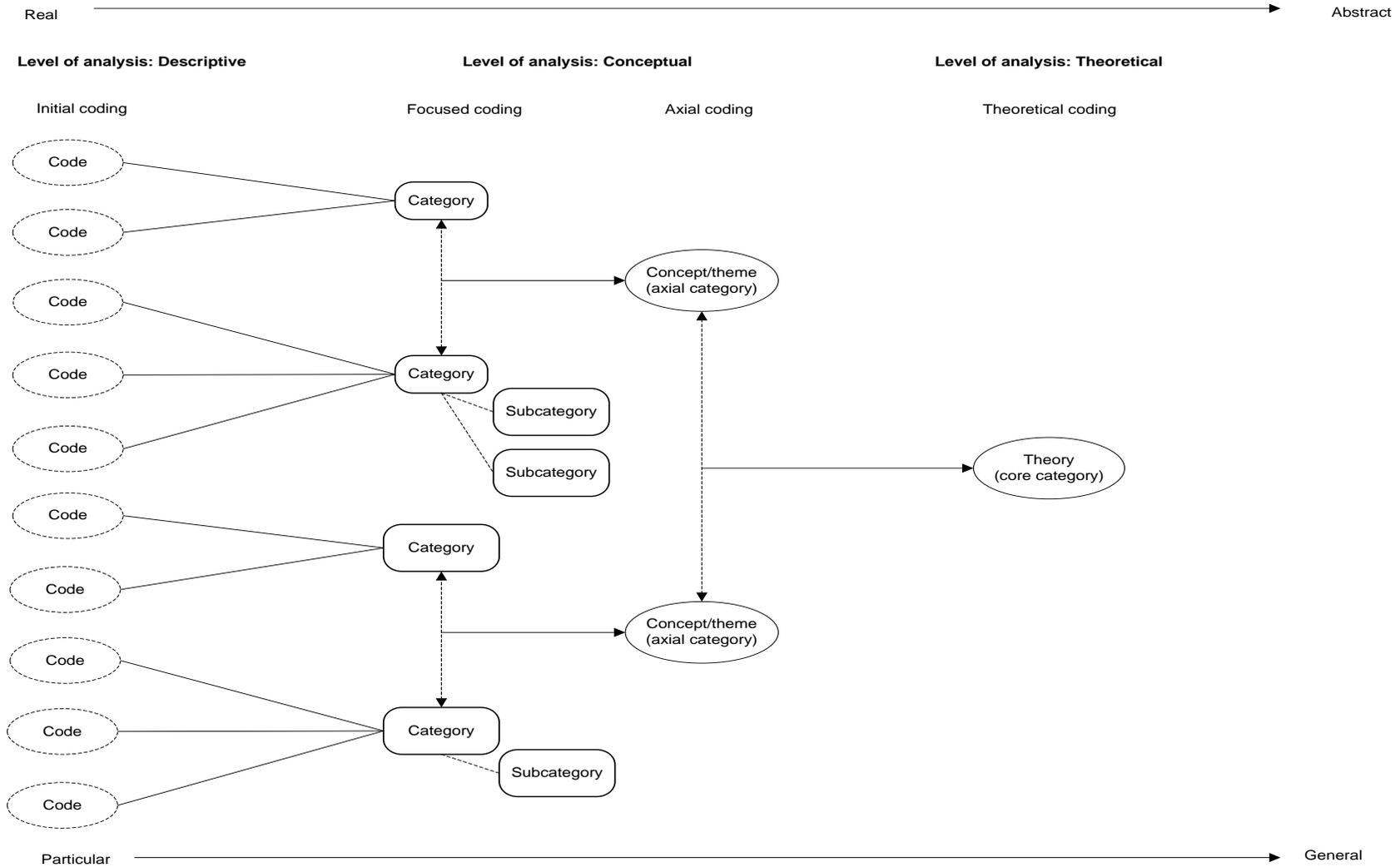


Figure 2: Overview of coding procedures within the study. Adapted from Saldana, J. (2009). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage. p. 12

Results

The generation of a theory generally occurs around a core category which has explanatory relevance because of its potential to link all of the other categories together. The analytical power of the category is derived from the fact that it can convey, theoretically, what the research is all about. The core category may evolve out of existing categories or, if these are determined as being incomplete, a more inclusive category may be constructed (Corbin & Strauss, 2008). In this study the core category was derived from the links between the two axial categories (learner-learner interaction and knowledge and understanding). Figure 3 exemplifies learning relationships in online contexts as a substantive theory.

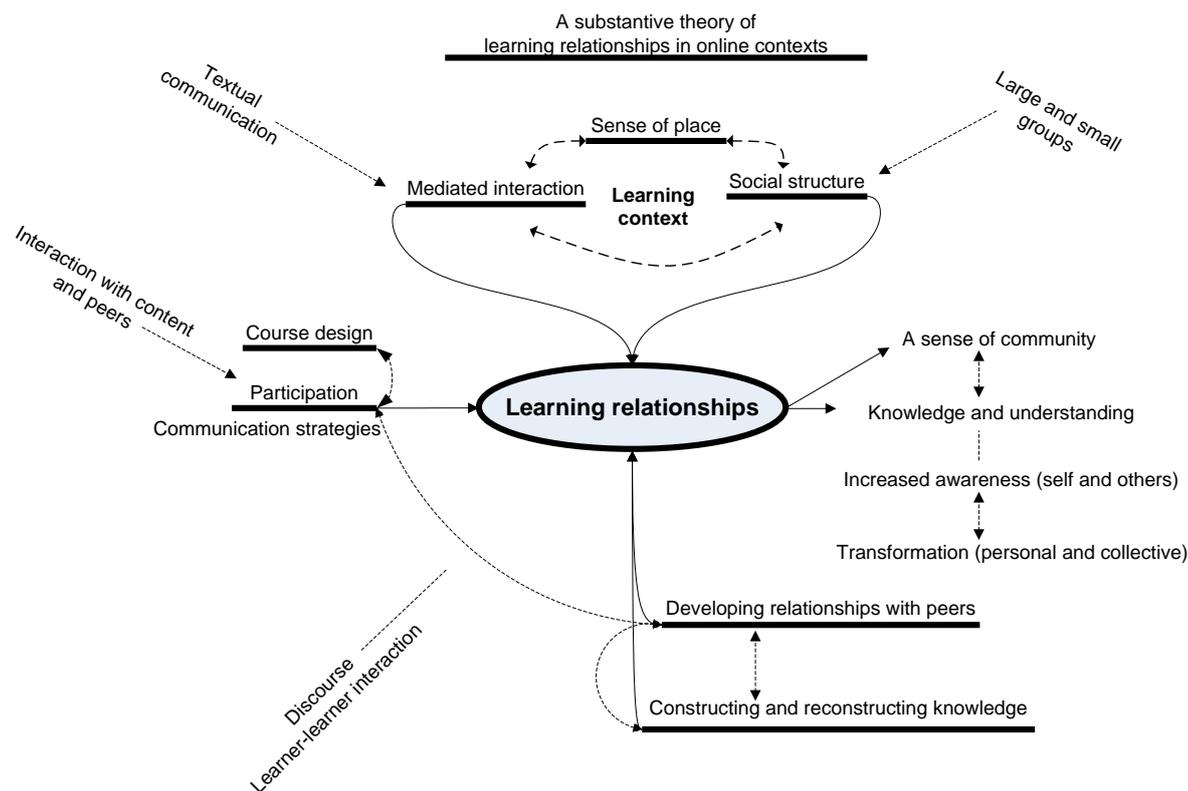


Figure 3: Modelling learning relationships in online contexts as a substantive theory

The model illustrates the significance of the learning context as enacted through four dimensions: mediated interaction (asynchronous and synchronous communication), social structure (group size), course design (learning activities) and learner-learner interaction. These aspects are linked to key elements of the theory and represent areas that may be targeted through educational interventions to promote the development of learning relationships in online contexts. The purpose of the model is to enhance understanding of the substantive theory and to enable practitioners to visualise the concept so that they may be able to evaluate the ‘fit’ of the theory and the application of knowledge derived from this case. (Refer Rossi, 2010 for a detailed description of the theory and discussion of research results.) The intent here is to show the capacity of learning relationships to promote student participation in learning activities, the development of a sense of community and the achievement of positive learning outcomes within an online course.

Contextual conditions

Textual communication and groups formed the basis of contextual conditions within the online course as learners were required to communicate synchronously and asynchronously in large and small groups to complete learning activities during a 12-week term. Textual communication offered opportunities not available in traditional classrooms, including a forum for uninterrupted speech, a reduction in physical noise and time to reflect, prepare and review thoughts before engaging in discussions. Participation in collaborative learning activities and learner-learner interaction in what was perceived to be a safe environment promoted the development of relationships among peers in different learning groups.

Fiona (W3LGD) ... *There are distinct advantages to communicating online because the noise factors are reduced through lack of physical/environmental interference to the "conversation". Visual and non-verbal distractions are non-existent allowing a clearer, uncomplicated climate for discourse.*

The size of the group was found to impact participation in learning activities. Learners were inclined to associate intimacy and connection with members of their small groups and, although connections among members of small groups were considered stronger than those in the large group, the large group offered diversity and access to a wide range of resources and support.

Avril (W8LGD) ... *I feel no cohesion within a group this large as nothing seems personalized or related to me. There is less contribution from each member due to the large group numbers ...it is not worth the effort when trying to learn in online environments like the class discussion board ...*

Intervening conditions

The need to communicate, textually, in groups, presented learners with a number of social and educational challenges which led them to implement a range of self-initiated communication strategies. As the nature, extent and form of participation and the strategies devised were determined by learners, not the educator or the course design, these components were categorised as intervening conditions within the study.

Differences were discerned in the types, degree and frequency of learner-learner interaction and a comparative analysis of large and small groups revealed that individual contributions to small group discussions exceeded those contributed to large group discussions. Therefore despite being less densely populated the number of connections between learners was greater in small groups (refer to Table 1). Learners who were prominent in large group discussions were not necessarily central in small group discussion and those learners who did not contribute to large group discussions participated in small group activities. Unlike the large group, small groups were consistent in their use of synchronous communication throughout the term despite the requirement to use this mode only three times; both individuals and groups exhibited preferences for particular modes of communication.

Table 1: Comparison of the use of asynchronous communication within the small groups and the large group

Asynchronous communication	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	Total learner posts
Group 2 (n=3)	3	12	18	12	31	15	18	29	22	31	10	20	221
Group 3 (n=4)	4	11	13	14	12	5	10	10	8	4	1	5	97
Group 4 (n=5)	11	10	14	38	52	38	33	37	26	40	49	28	376
Group 6 (n=3)	16	43	29	23	55	52	34	32	19	14	38	30	385
Group 9 (n=5)	8	13	26	15	11	8	20	28	16	23	29	21	218
	42	89	100	102	161	118	115	136	91	112	127	104	1297
Large group (n=20)	55	49	38	49	72	107	59	66	45	50	57	56	703

Actions and interactions

Learners differentiated between their connections with members of the large group and members of their small groups. Invariably learner perceptions of the connections were associated with the relationships that they had with group members. The connection between learners was stronger when the relationship extended beyond meeting the needs of the task; instead it had a personal quality and learners' shared intimate knowledge of one another.

Kelsie (W8SG9-AS) ... *Although I am a member of two groups for this online course I feel I have only experienced a bonding with my smaller group with which I conduct my group activities ... In this small group we have worked together and communicated towards reaching a mutual goal ... The small size of the group has allowed our communication to flow beyond our task topic and include personal information that has highlighted our differences and similarities ...*

Interpersonal connections between learners in small groups also had a positive effect on the time that they invested and their levels of commitment, evidenced by the statistics presented earlier and the comment below.

Kirin (W8LGD) ... *I am keeping up to date with my readings and trying to have the weekly tasks finished on time, I am putting so much effort into this subject, mainly because I don't want to let my group down ...*

Although learners offered and received material and emotional support with the large and small groups there were discernable differences in the nature of the support. Support offered within the large group appeared more functional than personal. By contrast the support provided by small groups was more personal and empathetic reflecting both the connection and the relationship among learners. In the following excerpts one student talks about her intention to withdraw.

Ruth (W5SGA-AS) ... *I'm sorry if the conclusion I posted was no good, I had to take many strong pain killers yesterday and my mind was a bit foggy. I will attempt to expand on it in a further posting ... I feel like chucking it in ...*

Jenny (W5SGA-AS) ... *I am sorry to hear you are not well. I hope you can continue it would be a shame not to chat to you now we are getting to know each other. I think you are brave enrolling in 4 subjects, I am flat out handling 2 ... I wonder if there is a way of setting up your computer so you can talk and the text*

will appear for you so you dont have to type as much. I dont know if that exists but it would be good for you if it did ...

Ruth (W5SGA-AS) ... *Thank you all for your kind words ... I won't be dropping the subject ...*

This student was not an isolated case as two of the 21 students who completed expressed their intent to discontinue. With support from their small groups however, both persisted and successfully completed the course.

Consequences

Within the online learning contexts of the course the open, textual, relationships among peers promoted a sharing, dialogic approach to the construction and reconstruction of knowledge the consequences of which were a sense of community and increased knowledge and understanding of self and others.

Belinda (W8LGD) ... *I am enjoying the OLG [online learning group] more-so with each passing week, due to the support of my fellow group members and the sense of unity that's evolving over time.*

Rena (W8LGD) ... *I also feel connected with others and assured that help is available as everyone is so quick to respond in answering queries or problems on the discussion board.*

Yasmin (W6LGD) *After reading your submission I think I am a very inconsiderate listener. I mindfully listen for awhile but I find if the conversation bears little relevance to me and mine, or there is little learning content I tend to drift. I had not realised how hurt other people become and for this I am sorry. I guess it is like most things until we learn a truth it has very little i[m]pact on us. I agree with Nari this course has certainly softened my views and made me more aware of other views/stances. Thanks for being so willing to share ... Thank you to each of you that open and share your thoughts-they certainly make me review mine.*

The results of this study have implications for educational practice as they reveal information about conditions for effective learner-learner interaction and knowledge construction in online contexts. The findings are significant because they demonstrate that undergraduate learners participating in a first year online course can develop close relationships with peers and a sense of community. They can also experience learning which leads to personal and collective transformation within a 12-week term.

Discussion

One of the most cited objectives in relation to online courses and programs is the improvement of student access (Allen & Seaman, 2007). However, Tinto (2008), points out that,

It is not enough to provide low-income students access to our universities and colleges and claim we are providing opportunity if we do not construct environments that effectively support their efforts to learn and succeed once access has been gained. Simply put, access without effective support is not opportunity. (Tinto, 2008, p. 9)

Skene and Evamy (2009) also suggest that the capacity to widen participation is inextricably linked to the ability to provide an enabling environment for diverse

first year students. Kift (2008) is of the view that the challenge of supporting and enhancing the experience of first year students is “everybody’s business” (p. 1). The strategy she proposes involves the integration of both top-down and bottom-up approaches and the coordination of institutional philosophies, strategies and structures as well as policies, processes and practices, particularly in relation to learning, teaching and support (2008).

Although the *construct* of learning relationships can do little to increase access to online courses, the substantive theory could provide policy makers, educational providers and course developers with important information about the conditions which shape learner participation, learner-learner interaction and knowledge construction within a first year online undergraduate course. In this respect the research also challenges commonly held perceptions about learner suitability for online education.

The results of this study indicate that the development of learning relationships can provide learners with effective material and emotional support and engender a sense of community within online learning contexts. Although previous research suggests that learners do not feel secure in online contexts in the same way as they do in a traditional classroom (Horton & Osbourne, 2003), that was not the finding in this case. In this course, the online context was perceived to be safe and learners reported feelings of acceptance and of receiving material and emotional support from group members.

The results of the study also indicate that it is possible to offer learners an online learning experience which is not only positive but also of a high quality. One of the five conceptions of quality in higher education identified by Harvey and cited within the *Higher Education Review* describes the “‘transformation’ or qualitative change from one state to another as applied to the development of students through the learning process or the creation of new knowledge” (Bradley et al., 2008, p. 128). The learning outcomes or consequences of learning relationships within this online course included not only knowledge and understanding of course content but also an increased understanding of self and others and the personal and collective transformation of learners (refer Figure 3). Scott’s (2008) report on student engagement and satisfaction with learning and teaching indicates that it is the total experience that shapes productive learning. From a hypothetical stance one might speculate that the positive consequences experienced within this course could be enhanced if learning relationships were promoted and developed within and across different programs of undergraduate study.

Prior research suggests that strong feelings of community increase persistence in courses, the flow of information among learners, the availability of support and commitment to group goals (Wellman, 1999). However, the results of this study indicate that these characteristics are the consequence of relationships among peers and that the learners’ sense of community is derived from learning relationships (refer Figure 3). Brown (2001) asserts that a community cannot be forced and that members must be willing to be a community, a view given credence by the differences between large and small groups formed from the single cohort of students represented within this case. If Brown (2001) is correct then as educators we have little or no control over the development of learning communities. Although we may be unable to compel a sense of community, we can nurture relationships among learners as we do have control over curricula design and course content and have the ability to structure learning activities which will facilitate and promote learning relationships and dialogue among peers.

Kirkpatrick and Bound (2003) observe that, “Online delivery appears to be a ‘lonely’ act where teachers spend increasing amounts of time in front of their computers and less time interacting with each other” (p. 193). Interestingly, one of the suggestions of possible processes for applying academic standards at a discipline level, within Bradley’s review, included the provision of a forum for ongoing dialogue and consensus-building within the Australian academic community (Bradley et al., 2008). The concept of learning relationships could equally be adopted and applied within and extended across educational institutions to enable educators to reflect upon, share experiences, and collaborate with each other. In this way the knowledge and experience of diverse stakeholders, involved in creating supportive environments could be shared to promote the integration and coordination of philosophies, strategies, structures, policies, processes and practices for first year students; much as Kift (2008) envisaged.

Conclusion

This article began by drawing attention to declining rates of participation in higher education within Australia over the past 10 years. The literature review revealed the Government’s intent to increase the participation of individuals who are currently under-represented, including Indigenous people, people with low socio-economic status and those from regional and remote areas. Although online education is acknowledged to offer increased access to learning opportunities, access without support is recognised to be of limited value, particularly given the incidence of student attrition in the first year of undergraduate study. The results of a case study, which examined learner interaction and knowledge construction within a first year undergraduate course, were utilised to illustrate to demonstrate the capacity of learning relationships to promote student participation in learning activities and facilitate the achievement of learning outcomes within an online course. The ensuing discussion emphasised the potential of learning relationships to provide an educational response to the challenge of offering an integrative, collaborative, enabling environment for diverse students and support for undergraduate learners as they enter higher education and transition between first and second year.

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