Using Etherpads as Platforms for Collaborative Learning in a Distance Education LIS Course

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Distance education, by definition, creates a number of challenges for lecturer and student in building and maintaining connection and commitment. The challenges that need to be overcome include communication difficulties, lack of student motivation, high drop out from courses, provision of support at a distance and a sense of isolation or lack of student community. The use of collaborative technologies such as wikis or document sharing platforms is one way in which these challenges can be addressed.

This paper looks at the application of a specific document sharing platform, Etherpad, in order to assess its effectiveness in building connections between distance education (DE) students enrolled in a library and information studies course in an effort to create the sense of a learning community amongst them. In addition, the research also looked at the effectiveness of Etherpad as a tool to help develop students' capacity to meet a number of the University's graduate attribute outcomes.

Content analysis of the online conversations of nearly 400 undergraduate students was undertaken and the results evaluated. From these, the researchers concluded that the nature of the task, together with the technology employed, made a considerable positive impact on those involved, increasing their sense of being part of a cohort, encouraging a questioning, supportive environment and making them feel more at ease with group work as DE learners.

Keywords: distance education, collaborative learning, online collaboration, group-based assessment, Etherpad, collaborative document-sharing, synchronous communication

Introduction

Within Australia, one of the largest providers of distance education is Charles Sturt University (CSU). With 20,000 students enrolled in DE courses, it has a commitment to excellence in the development and delivery of online education (Charles Sturt University, 2012a). The university, like many others, also aspires to produce well-rounded graduates who have the capacity to not only contribute to their chosen professional field but also more broadly to the wider community through the implementation of CSU's 'Statement of Graduate Attributes for Undergraduate Courses' (Charles Sturt University, 2012b).

Such graduate attributes apply to anyone undertaking an undergraduate degree at the university and aim to develop in students, along with their discipline knowledge, the ability to make a positive contribution to their community and society as a whole. These are generic attributes, common across all Australian universities, which serve to emphasize the perceived role of the university in preparing 'good'

citizens. Radloff, de la Harpe, Dalton, Thomas & Lawson (2008) have described the acquisition of such attributes as a core outcome of university study, although they note the difficulty of embedding such attributes into the curriculum and, importantly, assessing the success of the teaching strategies aimed at delivering them. At CSU, the graduate attributes comprise eight specific outcomes. These include an understanding of sustainability; global citizenship; ethics; indigenous issues; analytical and reflective practice; problem solving skills; and discipline specific knowledge (Charles Sturt University, 2012b). All courses are supposed to take these into account in order to assist students develop these outcomes throughout their academic program—whether it is on-campus, face-to-face or through distance learning online or blended modes.

For CSU, online delivery has become a key focus. It is one of the leaders in online distance education in Australia and the School of Information Studies (SIS) has offered DE courses for nearly 30 years. A review of SIS programs was undertaken during 2008/9, and as a result new courses (all offered only in DE mode) were introduced to take advantage of the affordances offered by online, particularly in the Web 2.0 environment (Hider, Kennan, Hay, McCausland & Qayyum, 2011). Distance education, by definition, creates a number of challenges for lecturer and student in building and maintaining connection and commitment. The challenges that need to be overcome include communication difficulties, lack of student motivation, high drop out from courses, provision of support at a distance, and a sense of isolation or lack of student community (Crease, Pymm & Hay, 2011). Moody (2004) highlights issues such as the mode of delivery, difficulties in establishing a learning community and a loss of personal contact which combine to diminish the value of distance learning and contribute to high attrition rates.

Bearing these challenges in mind, a number of strategies has been developed and implemented since 2010, when the revised courses were first made available, to help 'connect' DE students more fully to their cohort and to their broader studies. One of these strategies, the use of the collaborative document sharing platform Etherpad, was introduced into a large undergraduate LIS course with the broad aim of encouraging greater communication and collaboration between these geographically dispersed students. In addition, the use of Etherpad facilitated the introduction of a group-based assignment, traditionally more challenging to implement for distance students, but bringing benefits in terms of collaborative learning (Timberlake, 2010).

Literature Review

Collaborative technologies can be used to support online, group-based activities and assessments in higher education. Brainstorming and problem solving activities, group discussion and debate, knowledge and consensus building activities and collaborative writing and web publishing tasks are some examples of how online collaborative technologies have been used in the design of university courses (Hsu, 2007; Konieczny, 2007).

Collaborative Learning in Higher Education

McInnerney and Roberts (2004) recommend the term *collaborative learning* be used "for those learning techniques that emphasize student-to-student interaction in the learning process" (p. 207). This is where social interaction occurs between students within a group to enhance knowledge acquisition. This reflects Vygotsky's (1978) social learning theory which emphasises the important role of learning by way of interacting with others, where individuals' construction of knowledge and understanding is informed and shaped by those around them. In other words, col-

laborative learning provides students with the opportunity to think for themselves and then compare their thinking with others. This results in group members providing scaffolding for each others' learning, something DE students rarely experience. According to Vygotsky's (1978) Zone of Proximal Development, this kind of engagement with others contributes to an individual's higher level of potential for development. The advantages of problem solving under guidance, and through the collaboration with peers is best articulated by Ingleton, Doube and Rogers (2000), where they conclude that:

> In collaborative situations where students must generate explanations for others, or justify their perspective on or approach to an issue, their ability to comprehend and recall at a later date is increased. Multiple perspectives on issues are possible (in all subject areas), and when students are forced to confront differences of opinion or interpretation, or ambiguity, creative and critical thinking are likely to develop. (p. 6)

An important aspect of such collaboration is to provide students with opportunities to "learn how to learn" (McInnerney & Roberts, 2004, p. 207). True collaborative learning tasks employ heterogeneous groupings of students. This places students in a learning environment which teaches them to "respect and appreciate the contributions made by all members . . . no matter the content" (p. 208). This is a particularly valuable approach where universities prescribe the teaching of graduate attributes institutionally across programs.

A number of studies have examined student satisfaction with collaborative learning experiences within a blended learning environment with mixed results (Karasavvidis, 2010; Tinker, Cattermole & Byrne, 2009; So & Brush, 2008; Russo & Benson, 2005; Lim & Kim, 2003). For example, So and Brush (2008) found those students who perceived high levels of collaborative learning tended to be more satisfied

with their distance course, whereas Elgort, Smith and Toland (2008) found many of the students in their study still favoured individual learning instead of working collaboratively. This is indicative of the findings from a range of studies with feedback on students' collaborative experiences that is both diverse and disparate, with many variables affecting individual perceptions and group outcomes.

A particular challenge for distance educators is the provision of opportunities for students to work collaboratively, regardless of their physical location, using either synchronous or asynchronous platforms, or a combination of both, in order to accommodate student preferences for different communication styles (Curtis & Lawson, 2001). The use of collaborative platforms such as wikis can help students develop a range of reading, writing, reflective, and collaborative learning and knowledge creation skills (Raman, Ryan & Olfman, 2005; Konieczny, 2007; Parker & Chao, 2007; Su & Beaumont, 2010). Online collaborative tools can also help "empower students by giving them a chance to express their views" (Hazari, North & Moreland, 2009, pp. 188–189). For example, Gao and Wong (2008) found wikis to be useful in scaffolding close interrogation of ideas in an online educational psychology course, resulting in greater focus and depth of discussion by student groups demonstrating "a more sustained and coherent building of ideas in the Wiki" (para 22). Su and Beaumont (2010) found students valued more immediate feedback from their peers and instructors on the wikis used for their IT class because it was online compared to receiving feedback in written form or formally making an appointment with tutors. Minocha and Thomas (2007) found the use of a wiki encouraged online group-based collaboration between DE students with a software engineering project. These authors concluded "a wiki is a good medium for collaborative work in a distance education course" based on feedback by 75% of their students who agreed

the group wiki facilitated their collaborative learning experience (p. 198).

Of all the Web 2.0 technologies available to support student learning, wikis are commonly cited as the collaborative technology of choice by university faculty. A number of studies have evaluated the use of wiki-based platforms to support collaborative learning in higher education across a range of discipline areas (Bower, Woo, Roberts & Watters, 2006; Bruns & Humphreys, 2007; Carr, Morrison, Cox & Deacon, 2007; Minocha & Thomas, 2007; Wagner & Prasarnphanich, 2007; Ebner, Kickmeier-Rust, & Holzinger, 2008; Elgort, Smith & Toland, 2008; Robertson, 2008; Neumann & Hood, 2009; Trentin, 2009; Judd, Kennedy & Cropper, 2010). Kim, Hong, Bonk, and Lim (2009) argue that effective teacher intervention is a crucial component when groups are using Web 2.0 technologies which can lead to better group performance, collaboration and reflection. Furthermore, the "importance of emotional bonding and support" has been emphasised by several researchers, particularly with DE students, as noted by So and Brush (2008, p. 331). They found students' "feeling of closeness and connectedness with group members greatly affected their willingness and motivation to engage in the group project" (p. 329). This was also reflected in Lim and Kim's (2003) study where they found motivation factors (and complexity of these) of high significance in the success of students' online learning experience. Thus, course designs requiring collaborative learning activities can lead to more interactions among students, enabling the development of affective support and feelings of connection with others, thereby increasing student motivation and engagement within a course.

Another factor identified by a number of studies was the availability of synchronous communication tools being critical to the process of collaborative learning (Carr-Chellman, Dyer & Breman, 2000; Parker & Chao, 2007; So & Brush, 2008).

For example, Tinker, Cattermole and Byrne's (2009) evaluation of undergraduate art students' use of PBwiki concluded the asynchronous nature of the wiki may have discouraged student participation with only one student being able to edit and contribute to the wiki page at a time. They recommended the use of Etherpad as a suitable replacement with future cohorts due the synchronous feature of this platform allowing "a more dynamic interaction in *real time*" (p. 5).

Use of Collaborative Technologies in LIS Education

While a number of articles have been published on the use of wikis and other Web 2.0 technologies in LIS education, few studies have included an evaluation of the student experience, particularly with regard to collaborative learning. For example, Anderson reports on the use of "online collaboratories" involving groups of 4–6 undergraduate students in a course of social informatics at the University of Technology Sydney (Bawden *et al.*, 2007, p. 20) who worked online together using a wiki to support whole class discussion throughout the teaching session. However, no findings were published regarding the students' collaborative experiences nor evaluation of the wiki as a tool to support the concept of "collaboratories". Likewise, Virkus (2008), from Tallinn (Estonia) University's Information School, describes the use of a wiki tool by study groups of five students in an information and knowledge management course to prepare collaborative group projects and a collaborative assignment in an information literacy course requiring students to work in groups to contribute additions and/or corrections to a topic in Wikipedia; but no findings based on students' collaborative or wiki experiences were discussed.

On the other hand, Aharony's (2009) use of a wiki to support collaborative learning tasks as part of a knowledge management course at Bar-Ilan University

(Israel) evaluated the student experience, finding a major part of student interaction on the wiki centered on content-related comments, displaying significant collaboration among the students (31% of comments) and high levels of critical thinking (50.1% of comments). As part of the collaborative experience, student comments on the wiki demonstrated "feelings of gratitude toward their classmates for their support during their experience" which helped individuals overcome fear and uncertainty regarding the collaborative task and using the wiki as a "new" technology (p. 49). A limitation of this study was the sample size of 19 undergraduate LIS students. However, the collaborative aspects of the task used in Aharony's class is similar to the group assessment task examined in the study presented in this paper, where students were required to critically read and respond to the ideas presented by their classmates. The researcher also concluded that in order for an online collaborative learning task to be successful, "students must participate, encourage and maintain this kind of dialogue". This reflects the findings of studies cited in the previous section with regard to student motivation as an important factor in the success of students' online learning experiences.

Hazeri, Sarrafzadeh and Martin (2007) argued the importance of team-building skills for the engagement of LIS professionals in knowledge management roles. Group assignments in LIS courses are one way to provide students with communication and collaborative skills through multicultural or international groupings of students across cohorts, thus contributing in some degree to the development of graduate attributes. Sarrafzadeh and Williamson (2012) trialled the use of wikis to support an online collaborative learning task in the course *Information and Knowledge Management in Organisations* at Charles Sturt University (Australia). The cohort consisted of a mix of 73 undergraduate Australian and international students, all studying their LIS degree as distance

learners. Students were allocated to work in "virtual teams" to complete a case study assignment. The task was designed to help prepare LIS students with the necessary skills and understandings to work in "virtual, multicultural work places". Results of student evaluations showed that over 66% of students rated that learning to work with the wiki and other collaborative technologies was the most valuable aspect of the group assignment experience, with learning from others and sharing ideas being highly valued by just under 40% (Sarrafzadeh & Williamson, 2012). However, a number of negative aspects were also rated highly by students including difficulty of arranging a chat time to suit everybody in the group with nearly 80% of the students citing this as a challenge. Given the international mix of each group, the management of time differences was a factor. Being dependent on other people and problems with inequalities in contributions from group members also rated highly as issues of concern (over 60% and 50% respectively) and poor communication was identified as a major problem for effective online group work in mixed cultural groups. Faculty involved recommended the addition of a synchronous tool to support wiki-based group work, which is supported by a number of other researchers (Carr-Chellman, Dyer & Breman, 2000; Parker & Chao, 2007; So & Brush, 2008; Tinker, Cattermole & Byrne, 2009). The researchers further recommended this include voice and video communication (where possible) to try to reduce the language and cultural barriers of groups containing a mix of native English speakers and ESL students.

Use of Etherpad as a Collaborative Tool in Higher Education

One tool that does seem to offer some potential to enhance the effectiveness of virtual team work is the document sharing software Etherpad, yet few studies have examined the use or effectiveness of it as

a collaborative platform. In 2011, Brodahl, Hadjerrouit and Hansen observed that there had been considerable research on the use of wikis in higher education, across a wide range of subjects. However, comparable tools such as Google Docs and Etherpad "remain largely unexplored in the literature" (p. 73). They surveyed 201 on-campus, undergraduate Education students on their use of either Google Docs or Etherpad to complete a collaborative writing task. The synchronous chat feature of Etherpad was seen as providing an additional dimension for observing student collaboration compared to other wiki-based platforms (similar to Tinker, Cattermole & Byrne's (2009) assessment above). While none of the students had previously used an Etherpad, 132 (of the 166 students who responded to the survey) elected to use Etherpad over Google Docs. A limitation of this study was the fact that group's Etherpads were not available throughout the entire length of the group-based task due to server access issues resulting in 70.5% of students rating the platform as not working properly to support the collaborative task. Even so, 47% of students reflected positively on the collaborative writing process, particularly in terms of commenting on and editing others' contributions to the group task.

O'Hare (in Herrington *et al.*, 2010) integrated the use of Etherpads to support the completion of an investigative group wiki-based assignment as part of Curtin University's Bachelor of Education (Primary) program, which was designed to encourage academics to "incorporate additional learning technologies to extend the affordances of the university provisioned systems and to embrace authentic learner-centered tasks" (p. 423). Etherpads were used to support the completion of an investigative group wiki-based assignment in the Bachelor of Education (Primary) course which included on-campus and online cohorts totaling 1000 students supported by multiple tutors. Etherpad was chosen because of its simple "wiki-style" platform requiring minimal technological support by tutors and no requirement for individuals to create a user account with the platform. Even so, some students in the study were described as "tentative", "frightened" and "generally nervous" about using technologies to support their learning (p. 425). This is particularly characteristic of distance learners who have not been exposed to a range of technologies in other courses or in their workplace. However from an academic's perspective, a key advantage of the Etherpad was its ability to evaluate students' comments about group members' participation and effort, thus increasing the validity of assessment task results. This advantage has also been noted in a number of studies across a range of discipline areas (Swan, Shen & Hiltz, 2006; Tinker, Cattermole & Byrne, 2009; Trentin, 2009; Judd, Kennedy & Cropper, 2010; O'Hare, Quartermaine & Cooke, 2011).

Furthermore, the study of students' Etherpad use to support group work conducted by O'Hare, Quartermaine and Cooke (2011) identified the Etherpad import/export facility as a very useful feature, even though the Etherpad's lack of support for graphics was considered by students as a drawback. Those students and groups wishing to include graphic content needed to source a parallel application to host images. Regardless, student evaluations of their course experience highlighted their satisfaction with an opportunity to engage with their classmates using an online collaborative platform. They felt a sense of achievement and community as a result of working in groups and the sense of working in isolation was diminished by its use. In addition, evidence from groups' Etherpad chat discussion demonstrated that students had "made connections, online friendships and professional associations that may well last into their teaching careers" (para 15). In terms of student satisfaction with online collaborative learning experiences, these findings are similar those of Konieczny (2007) and So and Brush (2008).

Method

The aim in making use of Etherpad was broadly two-fold: to encourage greater communication and collaboration between distance students in order to help develop their capacity to meet a number of the University's graduate attribute outcomes; and to provide the opportunity to undertake an authentic collaborative learning task that would support discipline specific learning as well as develop more generic skills. The research therefore aimed to assess how well these goals had been achieved.

Research Sample

For two years (four semesters), 2010 and 2011, participants in a first-year undergraduate collection development class (each year comprising around 100 students) were given a collaborative assignment to undertake using Etherpad. An Etherpad enables participants to simultaneously update a document, providing a tracking mechanism in the form of a "time-slider" to enable the reader to move back and forth over the life of the document—a particularly useful tool for faculty in assessing contributions to the evolution of the finished document. It also enables each author's contribution to be shown in a different colour, thus providing a ready way for faculty to see who has contributed what to the document. Adjacent to the text document, Etherpad also provides a Chat sidebar which captures a record of conversation between group members while collaborating on document content.

Etherpad is open-source with the code freely available for download and installation (Etherpad Foundation, nd). This was the approach taken at CSU where the software has been installed on a local server, requiring minimal in-house support.

For many students, this was their first semester of study (and, for most, their first ever online class) and thus the majority came to the subject with a level of apprehension and uncertainty as to what would

be required of them and no knowledge of other students in their cohort. The students were mainly based in Australia, though a small number were located in Hong Kong and, apart from the Residential School held at the beginning of the year on the university campus, had never met each other. Nearly all students were studying part-time with differing work or family responsibilities affecting their ability to be on-line at specific times.

Collaborative Learning Task

At the beginning of the class, details were provided in the online Study Guide as to the nature of the assignment and this was followed up with a recorded podcast from the lecturer where the assignment was described in more detail and students were reassured on the technicalities of accessing the Etherpad platform. Prior to the beginning of the assignment period, the lecturer engaged in a synchronous chat session with students regarding the task in order to help reassure those who still felt unclear or uncomfortable with what appeared to be a somewhat different task to the usual assignment requirements in other courses.

For both years, students were randomly allocated (based on alphabetical order of last name) to groups of four, given the link to a blank Etherpad document and asked to work together in examining a particular collection development policy, commenting on its strengths and weaknesses. They had three weeks from first receiving the Etherpad link and information regarding their other group members to complete the task. The groups were given a number of policies from which they had to select the one on which they would focus. The discussion over this selection process was seen as the beginning of the group interaction and, in itself, an important indicator of the group dynamic beginning to develop. They were then encouraged to break down the policy and negotiate the allocation of workload within their group so that each

person was responsible for a specific aspect. Students were told that all of this discussion regarding the selection, planning and management phase of the group task was to be undertaken in the Chat sidebar of Etherpad, although the final (assessable) evaluation was to be created within the Etherpad document itself. Given the nature of Etherpad and its ability to track the contributions of students individually, it was possible to assess students independently for their overall contribution to the final response. This enabled marks to be awarded on an individual basis based on the students' contribution, rather than the overall group output. From the feedback received, this was reassuring for most, with individuals seeing that the rewards were based on their own input and not the work of the group as a whole.

A mark allocation was also given for leadership and organization as indicated through the Chat discussions, thus providing a level of encouragement for students to engage with each other in a helpful and constructive manner in completion of the task.

Data Collection

Rather than the task itself, which was subject specific, it was the supporting Chat discussions that were expected to provide insights into the collaborative experience of students and the level to which they exhibited congruence with the university's graduate attribute outcomes. It was therefore these Chat sessions which were of most interest to the researchers. Thus transcripts of the Etherpad Chat sessions taken from 113 student groups (totaling nearly 400 students) were collected across four teaching sessions in 2010–2011.

Data Analysis

These intra-group conversations were then analysed for discrete themes and characteristics corresponding to the university's graduate attributes. A table was constructed where key terms, phrases and intentions expressed in the Chat sessions were mapped against 15 specific behaviours and attributes drawn from the University's graduate attributes policy. Table 1 presents the scope of each behavior code. Following initial analysis and coding against these codes, it was decided to group the codes into six broad themes for reporting in order to reduce possible overlap and ambiguities in trying to break down the discussions too finely. Practice showed that it could be difficult to consistently determine the specific behaviour or attribute at this level of granularity, but that grouping them together into these six broader themes increased inter-coder reliability to a high level. The final six themes identified were seen as critical to determining the nature and extent of student engagement with the group as a learning community and in its move towards acquiring the graduate attributes required by the university.

The themes comprised:

- the social effectiveness of the Etherpad platform (getting to know each other; sharing details of their lives; joking and chatting etc);
- the provision of affective support to each other (helping with anxiety, stress, fear, uncertainty, reassurance);
- the use of the Etherpad platform as a problem solving opportunity (students helping each other understand concepts and issues, solve problems, working together to critically evaluate and analyse policy content and issues);
- the use of the Etherpad platform as a project management platform (dealing with the logistics of the group-based assignment; negotiating task allocation; organizing meeting times)
- the development of discipline-based knowledge (library and information science concepts, principles and practices); and
- consideration of the knowledge and val-

Table 1. Coding Schedule According to Six Platforms and 15 Behaviors.

Platform	Code	Description
Discipline-based knowledge platform	LIS	Demonstrate a broad overview of their field, i.e. LIS discipline knowledge
	COM	Communicate effectively using the language of the discipline, e.g. discussion of collection development concepts, issues, etc.
Generic knowledge & values building platform	VALUES	Demonstrate an understanding of, & commitment to, values-driven practice in their field of study
	INT	Demonstrate a national and/or international perspective
Social platform	CH	For incidental chat, e.g. hello, bye, etc
	SOC	Social conversation incl. getting to know each other as people outside university study, sharing details of their life/ work/ family/partying
Affective support platform	AFF	Use of Etherpad chat to provide affective support, e.g. fear, concern, anxiety, happiness, satisfaction, etc
Problem solving platform	AS	Demonstrate analytical skills, including the exercise of critical and reflective judgment
	PS	Address unfamiliar problems; conversations where students help each other solve problems, gain an understanding of a concept or issue
	IT	Technical difficulties related to Etherpad & other software
	ETH	Discussion on use Etherpad, incl. its features & functionality
Project management platform	PM	Project management tasks & discussion on planning tasks, e.g. dealing with the logistics of the group-based assessment task, who has done what, who hasn't done what, task allocation, etc.
	ASS	Assessment related discussion in terms of task requirements, management & completion
	PL	Peer learning, e.g. acknowledgement that they can learn from each other
	LEAD	Examples of student leadership within the group

ues of global citizenship (national and international perspectives, indigenous cultures, inclusivity, sustainability);

Thus for instance, if in the Chat session there was any discussion of the relevance or impact of the policy to indigenous communities (one of the Graduate Attribute requirements is an understanding of indigenous culture), this would be included in Theme 6; if the discussion focused on problem solving or evidenced critical thinking skills, it would be included in Theme 3 and linked with the Attribute requiring critical thinking and analysis skills. A conversa-tion thread could be wide-ranging and be coded against more than one theme.

Results

Around 10% of the groups (10 in total) either misunderstood the instruction to use the Chat sidebar or decided not to use it for anything other than a perfunctory "hello" to each other, resulting in these groups having 10 or less postings—virtually none of which were of any substance. They completed the required task and it may be that they had minimal communication with each other or carried on their negotia-

tions and discussion outside of Etherpad, but the effect was that it was impossible to determine the level of interaction and connection to graduate attribute learning that occurred within such groups. In addition, each semester two or three groups lost members through student attrition resulting in the need to merge groups or 'insert' individuals into already functioning groups, causing some disruption.

Effectively, these 'inactive' groups provided no useful data for evaluation other than to maybe suggest that this aspect of the task of encouraging group interaction was either of no interest to them, was misunderstood or, because it attracted few marks, could be ignored while they concentrated on what they saw as the key component of the assessment task, evaluating the policies.

Thus the number of postings per team to the Chat sidebar varied greatly, from 0 to 584, with a median of around 68 postings. In all of the 'active' groups (defined as those with more than 10 postings), all members contributed something, but, not surprisingly, some members were more 'vocal' than others. Responses ranged from short, one or two-word comments or queries to detailed comments and reflection of close to 100 words or more. These longer comments, in particular, usually combined a mix of task-focused discussion together with personal reflection on the activity, their study workload or other non-task-related matters. There were no instances of negative behavior within any group and all communicated in a generally supportive manner, the more active groups building obviously friendly relationships. Responses reflecting specific connection with the CSU graduate attributes were less common, but did occur. Being one of the first courses students undertook as part of their degree, it is not surprising that strong evidence supporting the development of these attributes was less apparent than it might otherwise be were the course delivered later in their program of study.

A small number of groups organised

to be online at the same time so that they could interact directly with each other in real time; more relied on a less-formal approach with members indicating they would, say, be online the next evening if anyone was around, but most relied on group members coming in when it suited them and at different times, when they would then respond to comments and questions left earlier by other group members. This last approach probably suited most individuals some of whom were living in different time zones, as well as having their own lifestyle demands which made it easier for them to be online at times that suited them alone. Most groups set deadlines for completion of their specific tasks and organised for an overview of the entire document once everyone had completed their contribution.

In general, all active groups held discussions in a friendly engaging manner, with the majority of postings being of a social, supportive nature that served to create a sense of community within the group. Most reported that they found the experience a positive one, for both the knowledge gained and the interaction with others. Typical final comments in Chat were,

"Nice collaborating with such organised people!"

"Good Luck everyone on your assessment. It's been easy working with you all."

"I agree, this group made group-work easy"

Discussion

Analysis of the sessions showed there was a high level of social interaction engendered through the Chat function with most students quickly building a rapport within their group as a result of being task-focused. As has been noted, around 90% of groups used the requirements and demands of the shared task to readily es-

tablish a community of practice approach that supported collaborative decision making in a shared, democratic and inclusive manner. While the level of interaction varied considerably in these active groups, the one very clear constant was the desire to engage in a friendly, collegial (non-competitive) approach to the task. It may be that the design of the task, allocating marks to individuals based on their own contributions, rather than a group mark, engendered an atmosphere that made it less stressful or competitive and so more open to non-judgmental discussion. It may also have led to a virtual absence of directive behavior—all groups were highly democratic in their approach and while natural leaders did emerge in many groups, their comments were couched as questions, thoughts and suggestions, rather than instructions or demands.

Focusing on the six specific themes, it is clear that, for most, a sense of community reflecting these themes did result from the Etherpad task, with some very positive outcomes as discussed below.

As a Social Platform

Overwhelmingly, this collaborative work served to provide a foundation for extensive social interaction between group members. From the initial introductions to each other, through discussions on the novelty of this learning approach and their lack of familiarity with Etherpad, to consideration of the assessment requirements, over 50% of groups exhibited a high level (40+ messages) of friendly, social interaction involving all members. While most conversations were task related, many spread over into discussions about work and the direction their careers might take, family life and the challenges of studying by distance, and technology issues such as internet connection problems or using an iPad and its distinct requirements. All such topics elicited positive and helpful responses from other group members. Thus comments, representing building

of rapport and familiarity between group members such as these, were common:

"Time for my bedtime . . . getting old.lol. Nice chatting with you. Catch up with you later."

"yeah I was just reading. I'm glad you guys haven't been doing much either"

"Everyone knows everyone!!! which is good in some ways! Next time you see xxx please tell her I said Hi and hope she is feeling better."

"I was really busy this weekend and I had to read them at night and today it was a long day at work, but I am looking forward to start the assignment"

"I have been using the internet of friends, internet cafes and libraries as my boyfriend and I are still in the proccess of moving and don't have a connection"

The comments varied in range and intensity across groups, but for those students exhibiting high levels of interaction, this positive, friendly tone was engendered at the beginning and continued throughout the assessment work. While students did worry whether they were doing the right thing, having the ability to discuss these concerns with others undertaking the same task (as would be the case for on-campus students), really did seem to help and reassure them. This was a theme that came through towards the end of the sessions when the assignment task had been completed. As students were closing off their discussions, most groups ended with comments such as:

"Perhaps this is a great benefit to this assignment, because through communication and feedback we see different perspectives than if we did the subject alone"

"Hi J, D, and J, thanks for the great insights! It's been a fun assignment, and I wish you all the best for the rest of semester"

"Thank you W, M and M for being such a great group to work with"

"Yes it was nice working with you and hopefully we will meet sometime, somewhere. Bye now"

"Good luck to all of us! Sorry to keep you waiting, hope you are not angry with me, you are great group to work with, hope we'll meet again somewhere on air or on web"

As a Platform for Affective Support

This was strongly evidenced across the majority of groups illustrating the desire of DE students to both give and receive affective support as part of the study experience. The tone of the communications was closely related to the sociability of the group with the more active groups offering supportive comments regularly, sometimes including quite detailed feedback to specific questions. As in a face-to-face environment, reassurance, sympathy and understanding were commonly expressed to other group members facing difficulties with managing the assignment requirements. Comments included:

"Yes hopefully I will get faster at my work, I lack confidence , its all a bit overwhelming! its been a long time since I studied."

"I've just read both of your paragraphs so far, wow! I'm impressed!"

"I meant it when I said i thought you did a good job on your article :-)"

"Hey guys, I've been feeling really sick the past few days and am trying to get my brain into gear enough to write "hey, no worries. I've been having trouble with it today as well, sorry you have been feeling sick"

"Will be very busy with 2 essay's due within a week and starting a new job after 8 1/2 years out of the workforce", "Good luck L"

"Hi! A, B and C Just finished my etherpad(part1 & part 2).it was great working with u all. all the best with rest of the course."

"Massive pat on the back to everyone for getting individual comments in by tonight :)"

As a Problem-Solving Platform

Numerous enquiries were made regarding use of the Etherpad interface, interpretation of the assessment task and generally seeking reassurance that everything was on the right track. Students could—and did—email the tutor directly for clarification and further information, but checking with other group members was a popular approach with queries and a level of discussion undertaken in all active chats. Thus comments such as those below were common place.

"Perhaps you guys may be able to help out. How do I reference a wiki page . . ." followed by a detailed response

"Q: do we have to evaluate in to 300 words; A: think it is 250 approx. You have 500. :)"

" no submission. It just closes 22nd and then [lecturer] follows link checks it out. you cant submit it via Easts anyway"

" I have downloaded it but still figuring out how to use it!! Can you put the actual references in or just the citation?"

"Do you think it means that we can all discuss a different part of the policy or do we all need to focus on the same area?"

Furthermore, discussion between students in a number of the groups illustrated the contribution of the individual to a group's development of critical and reflective judgment.

"This has given me lots to think about . . ."

"It has been . . . very inciteful"

"You've all made very thoughtful comments too which have given me lots to think about regarding the modules as well."

As a Project-Management Platform

While task-oriented groups used the Etherpad efficiently as a project management platform, a high level of social interaction in some groups hindered more direct, organizational type discussions. Overall, discussions on the selection of a policy to study, methods of presenting the discussion, and responding to the lecturer's directions, tended to be highly democratic, seeking input from all. While there were few if any cases where one person took a directive tone, it was common for one or two students to emerge as 'leaders' in the early stages of community building with the group, with leadership styles being inclusive as opposed to a dictatorial approach. Across all 100 or so active groups, none included any strong directive discussions. As noted previously, this lack of expressed concern about progress could probably be tied to the marking arrangements whereby individuals were marked on their own participation and content and were not reliant on the input of others. Even when a group member failed to appear for the first discussions, or dropped out later, the other group members showed concern, but were not too stressed by this occurrence. Thus typical comments were couched to be helpful in progressing the project but to avoid being 'pushy':

"Yes, xxx, I agree with you. I think you can work on collection management, weeding, acquisition, etc. Hope you can make up your mind."

"That's us settled then! A: Government publications, P: Digital resources, J: Retention & withdrawals, and B: Popular culture. Is that right? If so, let's get started!!!"

"are we all happy to leave it as is? or does anyone want to organise it? i don't mind either way"

"This is an awesome start to the assignment. Well done... Time management wise—we are on schedule"

"No tantrums and a resolution in one hour!"

"As you may have seen, I have emailed Z about the group assignment; Thanks E, I do hope she's alright"

The Development of Discipline-Based Knowledge

Having a task which required detailed consideration and analysis of a complex collection development policy inevitably called for discussion of the course materials provided and also of other material identified by the group in order to build their assessment piece. Thus virtually all groups commented on the experience of having provided insights. Groups generally comprised a mix of students with no experience at all together with some who may have had substantial experience. This also impacted upon discussions, but, usually, just served to enhance the level of the dialogue. There was no evidence of more experienced students trying to push their viewpoints or convince others—just a sharing of relevant experiences and how they related to the assessment task—again, possibly reinforced by the individual nature of the grading associated with the assignment.

"Everything I'm reading was merely confirming that weeding is an important component of a cdp"

"Not working in a school library I find it fascinating the level of detail they are going in to."

"Well if you need help with anything, just ask via email. I've been in academic libraries for a few years now."

"I guess we didn't discuss the importance of the conspectus and perhaps made assumptions. Big learning curve for working in groups!"

"I don't know how the preservation of such resources work—but how long is microform meant to last for i wonder? Apparently 500yrs; Are you serious? I looked it up."

As a Generic Knowledge and Values Building Platform

Evidence of thinking more broadly and linking to wider graduate values and attributes was less-commonly expressed. This could be due to limited or less-explicit presentation of values-based content or lack of learning tasks dealing with values within the course or the fact that this was an early stage for all students in their program of study. The University expects that each course will reflect the aims of developing students appropriately in line with the attributes, but this is seen as a progressive approach, building gradually throughout their academic progress. It would therefore be reasonable to see this reflected to a very limited degree in a first year, first semester subject after only a few weeks of study. Generally, discussion focused quite specifically on the task in hand and its detailed requirements rather than considering the bigger picture and context within which the topic sat. That said, comments below suggest that there was *some* consideration of these aspects.

"No no, it's fine we'll all need to learn about it because it will be/effect every aspect of the policy."

"Hi I work in a public library in Sydney. The only difference is that this library has a big collection of community language.

"The policy mentioned 3% population is indigenous Australian, but the policy does not mention service to meet this community's needs."

"I have decided to discuss what relevance (if any) the population analysis has in regards to selection and acquisitions"

". . . but the cultural context is interesting"

Conclusion

A major aim of developing this collaborative assessment task was to encourage engagement, communication and critical thinking amongst students studying at a distance who traditionally have found group work challenging; and to assist in making those vital connections to help form a sense of engagement with their peers, their course and their overall program of study. The researchers concluded that the nature of the task, together with the technology employed, made a considerable positive impact on the majority of those involved, increasing their sense of being part of a cohort, encouraging a questioning, supportive environment and making them feel more at ease with group work online. Those who did belong to active groups, built, at the very least, a social dimension to their study which for distance students is always difficult, if only for practical reasons. Having this connection, many of these students will be in a stronger place if their studies get stressful or burdensome, with a number reporting an intention to maintain the links with their group members after this particular assignment task was completed. The removal of a competitive element, by assessing contributions individually did, the researchers believe, play a significant part in making the process more enjoyable— and thus more engaging—for the students. Whether the task played a significant part in helping embed the university's graduate attributes remains to be seen. A similar task, undertaken in a student's last semester of study, and analysed using the same approach, would help provide stronger evidence as to the effectiveness of students' acquiring such attributes, helping to measure these factors.

Longer term, analysis of student retention and satisfaction rates based on cohorts undertaking more online group work facilitated by Web 2.0 tools, compared to those without exposure to such tasks, will help confirm or not, the impact of such an approach in distance education. While one of the downsides of such strategies could be perceived by faculty to significantly increase the workload associated in developing, delivering and explaining such tasks to students; monitoring their progress and marking the final products, following this analysis of the outcomes, these researchers conclude there are significant benefits from employing online collaborative learning approaches to enhance the distance education students' experience.

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