The Implementation of Social Networking as a Tool for Improving Student Participation in the Classroom

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Abstract

This paper details the implementation of social networking tools in the classroom as a mechanism to enable undergraduate student "passengers" to become more active participants in their learning. Tools exist that allow teaching staff to embed social networking into their teaching materials. Using a tool (Twitter) that many of these students are already intimately familiar with in their social lives (Smith and Caruso, 2010), students were able to interact with the academic through devices such as iPhones, iPads and laptops (which students already own) and have their queries appear directly on the lecture slides as twitter posts during the lecture without needing to interrupt the class. The lecturer then used this feedback to amend their teaching style and provide a response to queries and comments. This paper outlines the benefits and challenges of using this tool and provides guidance for academics attempting to use Twitter in their classroom in the future.

Keywords

twitter, social networking, student participation, engagement, classroom feedback, mobile computing.

Introduction

A frequent complaint from academic staff is that undergraduate students are "passengers" in their classroom. While they attend, these students struggle to interact with the teacher and often pretend that they understand so as not to offend. This phenomenon is particularly apparent for international students, where cultural and social issues such as a desire not to contradict an authority figure or speak out for fear of reprisal are often blamed for their lack of participation. This research project surmises that this lack of participation by students in their chosen courses is resulting in a subpar understanding of the course content, therefore resulting in poor grades.

Using social networking tools, this project hopes to enable these "passengers" to become more active participants in their learning. Tools exist that allow teaching staff to embed social networking into their teaching materials. Through the use of a tool (Twitter) that many of these students are already intimately familiar with in their social lives (Smith and Caruso, 2010), students will be able to interact with the academic and have their queries appear directly on the lecture slides during the lecture without needing to interrupt the class. Specifically, student devices such as iPhones, iPads and laptops (which students already own) will be integrated into the classroom through the Twitter social networking platform, allowing students to ask real-time questions that will appear to the lecturer as twitter posts. The lecturer can then use this feedback to amend their teaching style and provide a response to queries and comments.

Through this mechanism, the researchers aim to overcome student cultural and social issues and encourage contact between the students and the teacher, facilitating active learning and allowing the teacher to provide immediate feedback on student queries, improving retention of knowledge and progression of international students. As a result of this process, the research aims to allow students to become more engaged with the material and therefore improve their chances of success.

Literature Review

There has been considerable international and national interest in recent years in developing learning and teaching initiatives to improve retention and progression, especially in regard to the engagement of students, particularly international students and distance students (Glenda et al., 2009).

In general, it is viewed that these international students are frequently passengers in class, not participating and engaging in learning activities (Ballard & Clanchy 1991, 1997). Similarly, distance students are seen to rarely interact with other students or the lecturers in their chosen course. It has been noted in the literature that effective, online learning (as experienced by distance students) must provide students with the opportunity to engage with lecturers and other students in the course to facilitate the learning process (Dunlap and Lowoenthal, 2009).

Technology such as Twitter has the ability to provide this engagement in real time. Grosseck and Holotescu (2007), Taylor, (2008), Bell & Kuon, (2009), and Skiba (2008) have all suggested that twitter can create greater conversations amongst students and facilitate an environment to ask questions, breaking down barriers that may exist in a class setting and enabling dialogue and collaboration among students (Robbins-Bell 2008; Monahan et al. 2008). Research also shows a high usage of this technology by students. Smith and Caruso (2010) conducted a longitudinal research into the use of technology amongst undergraduate students and found that 87.1% of students used social networking sites outside of the university environment. This correlates with the general population, where 93.5 % of 18 year olds and 95.4% of 19 year olds in the USA were found to use social networking on a regular basis.

However, despite this positive trend it appears to be contrary to what lecturers are doing in the classroom. It was determined that less than 8% of these students had access to this medium in a class setting (Taylor, 2008; Faculty Focus, 2009). This is despite more than 52.1% of academics in 2010 indicating that they have used Twitter (Smith and Caruso, 2010). The declining usage by lecturers and near nonexistent usage of social networking in the class setting is surprising as it is estimated that over 470 universities worldwide are using social networks such as 'Facebook' and 'Twitter' to communicate with students (Jucevičienė and Valinevičienė, 2010; Smith and Caruso, 2010).

Given this lack of use of social networking in the classroom, and despite the importance of engaging students for their positive development and retention, there is still a significant gap in the literature when drawing the correlation between using mediums such as Twitter for the retention and progression of students and increasing student participation through the feedback process in the class (Freeman 2007; Jucevičienė & Valinevičienė 2010). Nonetheless, the literature reveals that there is growing discussion about the positive and negative aspects of the use of social networking in the classroom (DeRossi, 2007, Berg et al., 2007)

For instance, a review of the literature finds the common concern that social networking can be distracting for students and that students might use social networking tools to interact with friends rather than focusing on the course content (Grosseck and Holotescu, 2008). The literature also reveals that many academics see 'Twitter' as a driver for a less intellectually demanding society and are therefore wary of the technology as a whole (Jucevičienė and Valinevičienė, 2010).

On the other side of the coin, the academic community argues that Twitter has some important characteristics for those who are participants in the class. These include its use as a student support feature; the ability for students to use social networking anywhere at any time on any computer with internet connection; the ability to share information with peers; the use as a real-time news source; and the assistance in building a picture of the content that is been discussed (Plaza et al. 2009; Johnson 2009; Selwyn 2009; Madge et al. 2009). Similarly other studies into social networking have found that it is a convenient tool for academic services (Berg, Berquam & Christoph 2007) that creates a student-centric environment that requires less control by the lecturer (Reynard 2008).

Overall, taking all of this into account, it's clear that universities have embraced social networking for other uses, but that the academic community only indicates cautious support for social networking in the classroom. It is also clear that some academics do not understand the technology or how it might fit into the traditional classroom model. These factors lead to a clear need for an overarching theoretical framework to define not only the technology, but how this technology might fit in with existing teaching and training & development practices.

Theoretical Framework

As mentioned above, whilst there are models and frameworks to evaluate educational software and quality in the academic literature (for example Jucevičienė and Valinevičienė (2010), Reynard (2008), Plaza et al. (2009) and Kennelly (2009)), all of these models looked at the use of social networking from the perspective of implementation

of the system at the organizational level. In contrast, the focus of this work is different, looking at the use of social networking at a classroom level, as a tool to improve the progression and retention of students. Thus, a new theoretical framework has been developed to support this work (see Figure 1 and 2 below).
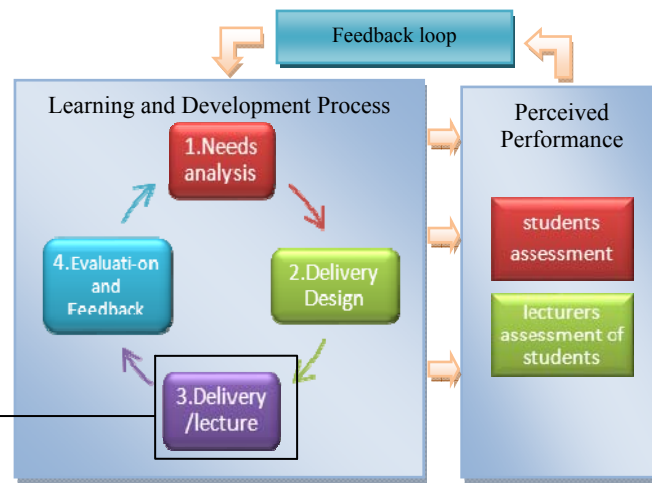

Figure 1.The Training/Learning & Development Process.
(Developed by Cowling & Novak (2010).
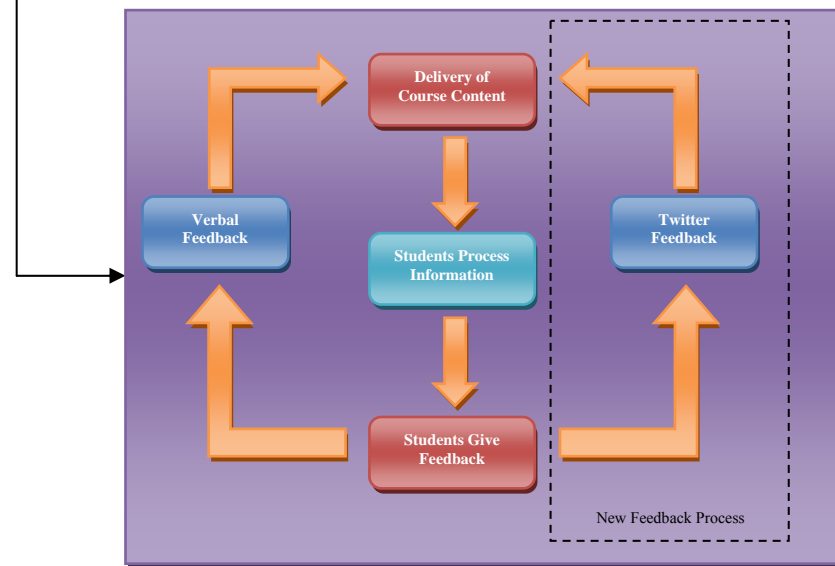Adapted from Al-Khayyat & Elgamal 1997; Smith 2006)

Figure 2.The inclusion of Twitter in the Delivery of a Lecture.
(Model developed by Cowling & Novak (2010))

This theoretical framework is based on the training/learning & development process in the Human Resources discipline. Most theorists and practitioners agree that this framework has at least four steps or phases (see Figure 1). These include i) needs analysis, ii) delivery design, iii) delivery/lecture and iv) evaluation & feedback. From this, it can be seen that the success of a training/learning activity depends on correct execution of each stage of the process but it is the evaluation & feedback phase that affects what is attempted in the future (Huerta, Audet & Peregort 2006).

In general, evaluation of the training program is usually conducted at the end of the program (Al-Khayyat & Elgamal 1997; Smith, 1998). In doing so, Smith (1998) believes that the time to remedy any issues or shortfalls that arise from the evaluation may have passed. It is also viewed that often, training/learning programs fail due to the lack of ongoing evaluating and seeking feedback (Abdelgadir & Elbadri 2001). This research could help overcome these issues by utilizing Twitter to provide the students another avenue to give instant feedback, opinions or to ask questions at the time of the lecture/class. This therefore could aid in the engagement, progression and retention of the students and help in improving the performance of all stakeholders.

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Implementation

An initial trial of this work was conducted across all four CQUniversity Metropolitan campuses, namely Brisbane, Gold Coast, Sydney, Melbourne, which are all located on the eastern seaboard of Australia. On each of these campuses, the twitter tool was integrated into a diploma-level management course in Term 2, 2011 (MGMT11165). This course is studied by students in their first year, providing a good opportunity to trial the technology on students that have only just started their university studies. Support to conduct this research in this course was given by both the Course Coordinator and the Head of CQU College.

Implementation was a challenge as this course is lectured by different staff members at each location and coordinated by a staff member on the Gold Coast. Lecturers on each campus were asked if they wished to be involved in the trial. Lecture slides were provided that included the twitter components and lecturers were instructed on their use. Staff on each campus were also asked to schedule the class for a computer laboratory to allow equity amongst all students in their ability to send tweets. Twitter functionality in the lecture slides was achieved using a freely available product from enterprise solution organization SAP (http://www.sapweb20.com/blog/powerpoint-twitter-tools/). This product is written using Adobe Flash and works under most common operating system and Microsoft Powerpoint combinations. An Internet connection is required for the SAP tool to operate successfully. The specifics components used from the SAP tool were the "PowerPoint Twitter Ticker Bar" and the "PowerPoint Twitter Feedback Slide". More details on how these components were used is included in the methodology section below.

For the purpose of data collection each week there was an analysis of how many tweets have been posted on each campus and a ratio between the amount of tweets posted and student attendance for that week was calculated to get an accurate picture of usage. The data on number of tweets was collected using the search tool available on the twitter.com website, with the data on number of students in the class being provided by each lecturer at the end of each week of teaching.

Methodology

It is important to note that the purpose of this project was not to analyse the individual tweets received from students, but rather to increase overall classroom participation and feedback within the classroom. While the tweets can (and should) be delivered to the course coordinator as a tool for improvement of course material, the protocols and research design methodology outlined below focus primarily on this goal of increased feedback and removing the student "passenger". With this in mind, the main focus of any protocols developed should be on how to handle in-class feedback and manage the use of the twitter tools in the classroom. The following approach was taken:

1. Students were advised during the start of each class on how they can use the twitter tool. They were also asked to include a hash tag on each tweet (ie. #s1s2651) so that it will be displayed on the slides (note that it's possible to filter tweets automatically for language using this process, but this didn't prove to be necessary). A summary of this process was distributed as a presentation to staff by the course coordinator for staff to use.
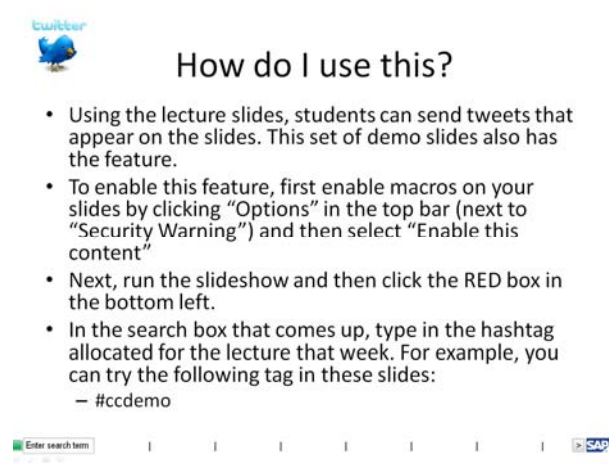

Figure 3. PowerPoint Instructions to Staff

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Figure 4. PowerPoint Instructions to Students

2. As students tweeted, these were displayed in the rolling "ticker" on the lecture slides (see below). Staff were then able able to integrate this feedback into their lecture delivery, either by revising concepts again, or by stopping specifically to answer a question posed.

Figure 5. An example of the Twitter Bar on a slide

3. At the end of the lecture, staff would display a summary slide of all questions asked during the lecture (see below). They were advised to use this slide to check with students that all questions had been answered and concerns dealt with before concluding the lecture (N.B. the ticker remains at the bottom of the slides for the remainder of the presentation so that this can be done via twitter).
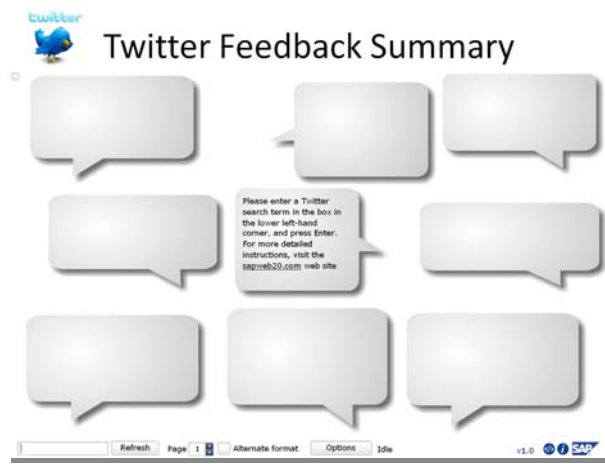
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Figure 6. The Twitter Feedback slide

Data Collection

As this is an initial trial, detailed stats have not yet been collated on the effectiveness of the tool. To determine how well implementation occurred, however, informal feedback was sought from staff as part of the normal teaching process. This feedback was collected through phone calls and e-mails. Details of the results of this feedback are given below.

Results & Discussion

Implementation of the twitter technology into the classroom is in its infancy and is ongoing, thus the statistical data at this early stage is limited. It is planned that a stratified survey and interviews with the students will be conducted in Term 1 2012. The interviews and survey will be seeking the opinions and experiences of participants in the use of the technology and will investigate the effectiveness for students and staff of the twitter technology. In the meantime, several implementation issues have arisen that warrant discussion.

Technology Competency of Staff

The first (not unanticipated) issue was the staff competency level and uptake of the technology itself. In anticipation of this lack of competency or understanding of twitter, an online training program on the use of the twitter ticker bar in the classroom and how it should be used by students was developed. This took the form of online support supplied to the staff through such mediums as online video, procedural documents, emails, PowerPoint presentation and personal phone calls with the researchers. The online training and support was developed due to the time constraints of the staff as all four lecturers are casual employees located in geographically-diverse locations. Therefore, face to face training and development of all staff was difficult.

Despite this training, prior to the commencement of the semester some staff expressed that they were feeling uncomfortable with social networking technology and struggling to grasp the concepts, with comments such as "That's a bit scary - I'm not even sure how twitter works but I guess I'm about to find out!" . Further to this, other staff expressed concerned that they would need to join the twitter social network in order to participate in the trial (this is not the case) and were unwilling to make personally identifying accounts on the network. To combat these concerns and problems, training materials were made available to staff before the beginning of the semester along with the weekly lecture slides with the ticker bar embedded. However, apart from one lecturer, all struggled with the initial implementation of twitter into the classroom. This highlighted the technology competencies of some staff and the need for further work in this area.

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The issues of the technical competency of the lecturers and tutors appears to be not isolated to the use of Twitter, as this particular course utilized a number of online applications, including the Moodle learning management system, electronic assignment submission and online reflective blogs. Whilst all lecturers were previously familiar with Moodle, it quickly became clear that their understanding of Moodle was of a superficial level, with a limited knowledge of many functions. An example of this is the implementation and use of the online reflective blogs. Throughout the term, many staff had great difficulty in the understanding and use of the online reflective blogs. As with the Twitter implementation, this high instance of lack of understanding and inability in using the online reflective blogs is despite the online support supplied to the staff through such mediums as online video, procedural documents, emails, PowerPoint presentation and phone call provided by CQU IT staff and the course coordinator.

In light of this discussion, one could extrapolate that the problem here is not the lack of understanding of the use of Twitter, but the limited knowledge of technology and technology competencies of some lecturer and tutors. The lack of technology competencies of staff may also be a generational issue, however the lecturer from the Brisbane campus, who is from a technical background and has lectured the subject before, has had no issues in the implementation of and use of twitter. It's also interesting to note that these issues of technology competencies do not appear to be present with students in the course (see below).

Technology Competency of Students

Unlike the problems encountered with teaching staff, the initial evidence is that students appear to be having limited issues with the use of twitter technology. Throughout the trial not one student expressed a negative comment of being unable to use twitter in the classroom. In general terms most students (97%) appeared to be able to use all the online applications of the course (Moodle, electronic assignment submission and the online reflective blogs). This is interesting given that this is only the second semester for students and they are therefore new to the university system. However, the understanding of the use of online functions appears to be high, suggesting that students appear to gain technology competency quicker and easier than the lecturers. The generational issue of the use of technology may be playing a role in this instance as the demographics of the students are mainly from the Y generation and the lecturer/ tutors are from the baby boomers and X generation. Further research into this area is needed to determine how important technology competency is to university teaching staff and whether the generation gap makes a difference in this competency level.

Other technical problems

In addition to the above, there have also been some unforeseen problems occurring such as the computers not being connected to the Internet that required further e-mails and telephone calls to resolve. While some of these teething problems are inevitable, this issue highlighted to the researchers the challenge of implementing a technology such as this across diverse campuses not entirely under the control of the research team. It is hoped that with subsequent trials involving the same teaching team for the course, some of these initial problems can be resolved. The mechanisms and frequently asked questions have also been documented from this trial such that more comprehensive materials can be developed if the twitter tools are ever rolled out to a wider university community.

Resistance to change from campus management

Lecturing staff generally have been supportive in the use of twitter integration and have been willing to work with the tools in their classroom. Overall, there has been support from the management from three out of the four campuses for this research in its entirety, with the lectures allocated resources such as a computer lab on the request of the researchers (so to ensure equitability with accessing technology for all the students; see below) and lecturing staff asked to collaborate with the research project. However, management staff from one of the campuses, the Gold Coast campus, have expressed concern about the use of the tools, citing extra workload for the staff and students within the classroom and confusion amongst students on the use of the technology. Given this concern, management staff on this campus were unwilling to schedule the class for a computer lab or allow the campus lecturer to report on student attendance for data collection purposes. The campus director indicated that "It is inappropriate for these additional tasks to be added to the students timetable" and "… a lab is not allocated to this class". While attempts were made to explain how the project would proceed, use of the technology on the Gold Coast campus continued throughout the trial to be a challenging situation.

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This issue highlights that along with technology competency, there are also workload implications in implementing technologies such as this. While the researchers feel that the extra work involved is minimal, experiences with campus management have shown that additional education of staff is required in some instances to outline how the additional work of these technologies can provide significant pedagogical benefits. It is hoped that the outcomes of this research will provide data that can be used to facilitate this education and obtain buy-in from not only academic staff, but also campus management staff.

Equitability in accessing the technology

To ensure equitability in access to the technology, the researchers requested management on each campus to schedule the lectures to be performed in the computer lab. In a traditional classroom model at CQU, students do not usually have a desktop computer to access in a normal room, the only in-built technology is the computer and data projector included for the staff member to present their lecture. There is, however, campus wide wireless Internet providing the ability for all students to use wireless technology such as notebook computers, smart phones and tablet devices.

While the existing technology in the traditional classroom is adequate and allows the staff member to display the slides with the twitter ticker bar, the above described layout of the room creates an inequity for the students, because not all students have access to devices that can use the Twitter social networking platform. While it is easy to assume that most students will have access to these devices, a better research base would be for all students to be able to send tweets as they have questions or comments to make on the lecture, rather than relying on the assumption that the student that needs to ask the question also has access to a tweet sending device.

In order to surmount this problem, the researchers tried two approaches, neither of which were 100% successful. The first was to ask the university to purchase iPads for each of the classrooms to be used in the trial. However, the panel assessing the grant application used to fund this work expressed concern that students would feel a lack of anonymity if involved in a "pass-around" scenario with a single iPad per classroom and suggested that mobile devices (phones) would serve as appropriate m-learning tools. While the researchers understood this line of reasoning presented by the grant review panel, there was still felt to be an underlying concern that the students that most needed this additional feedback mechanism would not have access to the appropriate tools, so other avenues were explored.

Based on discussions, a subsequent request was made that all classes on all campuses be scheduled for a computer lab. This occurred, but only for three of the four campuses involved, due to resistance from campus management. Given these problems, for the subsequent trial in following semesters, the researchers therefore intend to continue to investigate other options for ensuring equality in the use of twitter by all students that require it, such as the purchase of a select number of TwitterPeek devices (http://www.twitterpeek.com).

Twitter Participation

Due to the trial nature of this study, the purpose of this paper is not to report in detail on the twitter data collected, but rather speak to the implementation of the technology itself. As mentioned above, further trials with a more impartial group of staff and students will produce better data for analysis once this trial is used to iron out any problems with implementation.

Nonetheless, informal analysis of the data displays some interesting trends worth noting for implementation. First, it's interesting to note that very few tweets were sent in the first quarter of term. This appears to be mainly due to the technical issues noted above, as well as a low attendance of students in the first three weeks as some students enrolled in the course quite late.

Past this point, there appears to be an improvement in the tweet rate in the middle section of term. This improvement may be because the initial feedback from the lecturers is that they are feeling more comfortable with the technology and are encouraging the students to participate more in tweeting during the lecture. However, subsequent to this, the tweet rate drops again as the semester draws to a close. It is unclear why this occurs, as staff indicated in the latter part of the term that they were more comfortable with the technology. It may be related to the material being delivered or the increased student focus on assessment during this part of the term and will need to be investigated further in the future.

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Finally, it is also worth noting that the Brisbane campus has higher participation rate. As mentioned above, this may be because the lecturer on that campus has a propensity for accepting new technology and new teaching methods. Whilst the lecturers have been encouraged to give feedback on a regular basis, at this stage the students have not been solicited for feedback. This will be done at a later date and reported on.

Conclusions

Despite a rocky start, implementation of this technology shows great promise. It would appear that students are comfortable with the use of this technology in the classroom and are willing to adopt it. However, the challenge for this implementation appears instead to come from staff use of the technology. In a multi-campus implementation such as this, the technology compentency of staff appears to play a big part in the uptake of the technology. Campus resistance is also a factor, with campus staff concerned about the effects of the implementation of this technology on resourcing requirements and the workload of teaching staff.

Nonetheless, the researchers still believe that the use of twitter in the classroom provides a mechanism that will encourage contact between students and Faculty. This initial implementation shows that as children of the 21st century, most of our students are already firmly entrenched in the social networking paradigm (through facebook, myspace, twitter etc), so the use of a technology that is specifically from their existing suite of familiarity creates the potential for significant uptake by students (Smith and Caruso, 2010). Previous work has shown the applicability of Facebook as a tool to keep in touch with students (Jucevičienė, G. Valinevičienė 2010; Smith and Caruso, 2010), and this project endeavours to do the same with twitter, with the advantage that it is within the classroom.

Central Queensland University has a proud history as a distance education provider (even to this day having a cohort of distance education students representing almost 30% of the student EFTSL base (CQUniversity Academic Dashboard (viewed 31-03-11)), and this work allows the university to continue to innovate in this space and provide a possible enhancement to the learning and teaching model for all modes of teaching, no matter how they are performed. As trials continue, the researchers hope to demonstrate that this work helps students to retain knowledge and progress through their studies, providing positive outcomes for the course, the program, the university and the wider academic community.

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