

Comparing Writely and Moodle Online Assignment Submission and Assessment

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Abstract

This paper discusses the diverse and changing teaching environments in the higher education sector. With the extensive use of Internet and the availability of numerous online interaction tools, students are increasingly participating in, and requesting access to, features such as electronic course materials, online forums, automated response facilities and mechanisms for electronic assignment submission. As USQ moves to provide more of these flexible online environments, particularly to assist in the assessment of student learning outcomes, it is equally important for lecturing staff to select the most appropriate mechanisms and assignment submission tools to assist their students in this process. This paper reports on a pilot study performed to investigate student perceptions of using two online collaborative software systems for submitting assignment work and receiving feedback; Writely and Moodle. An online survey was presented to the students to quantify their preferences in using these two online facilities with respect to intuitiveness, convenience of use and responsiveness. Comments were also sought from students to: Explain why they made their particular choices and report on any problems they encountered. The survey also offered them the opportunity to provide further feedback. The quantitative data provides a clear indication that the students prefer using the Moodle system over Writely while the qualitative data give a clear indication as to why this was the case.

Keywords: Online, assignment, submission, comparison, Moodle, student feedback

Introduction

According to Baillie-de Byl (2004), "the University of Southern Queensland (USQ) has, since 2001, been seen as one of the leaders, among Australian universities in the field of online and distance education" (p. 29). The university has three campuses; a main one in the regional city of Toowoomba, a well-equipped campus at Harvey Bay (Fraser Coast), and a new and growing metropolitan campus at Springfield, just outside of Brisbane. USQ offers award programs at undergraduate and postgraduate level and has over 26,000 enrolments, including approximately 7,500 international students of which about 5,000 study USQ programs from their home countries (USQ, 2007). More than 100 nationalities are represented among the student body and in excess of 75% of USQ students study by distance education. These students are supported by a well established network of regional liaison offices throughout Australia, by partner organisations in other countries and by extensive online environments. This poses many logistical challenges to the university, particularly in relation to providing the high quality

learning experience required in today's highly competitive higher education marketplace.

As many students choose different modes of delivery for different periods of their study, the challenge for USQ is to keep a consistent regime of support available at all times. In addition, to keep in the forefront of teaching and learning in the higher education sector the use of technology to facilitate the student learning experience has become a major priority area. Consequently, USQ, as do other institutions, have to continually review and experiment with new and emerging technologies to establish if there is a need to incorporate them in the interactive mix designed to engage students the diverse student body USQ enjoys.

In this diverse and changing teaching environment and with the extensive use of Internet and the availability of numerous online interaction tools (Lever-Duffy & Mizell, 2003), students are increasingly participating in, and requesting access to features such as: Online forums, automated response facilities and tools such as electronic course materials and assignment submission mechanisms (Mills & Harvey, 2005). As the university increasingly moves to providing online environments to facilitate its assessment of student learning outcomes it is equally important for both lecturing staff to students in this process. Such tools also allow lecturers to update teaching approaches, and help decision makers, such as department heads, analyse the usefulness of these tools with a view to enhancing their entire programs. However, to date there has been very little emphasis on assessing and comparing students experiences with different assignment submission tools (Baillie-de Byl, 2004; Byrnes & Ellis, 2003; Sivapalan & Cregan, 2005). As such, this paper reports on a pilot study investigating student perceptions of using two online collaborative software systems for submitting assignment work and receiving feedback, *Writely* (more recently known as Google Docs & Spreadsheets) and *Moodle*.

Since 2005 the Department of Mathematics and Computing at USQ has been involved in a trial of the *Moodle* Learning Management System (LMS) as a possible replacement to the WebCT Vista system it currently uses. *Moodle*, with its philosophy based on a *social constructivists pedagogy* (Moodle, 2006), has been the fastest growing (in user numbers) open source LMS in the higher education sector for the last few years (Moodle, 2007). After extensive investigation, both at the time when *Moodle* was chosen for trial by the Department of Maths and Computing and since, *Moodle* has been seen to offer the most appropriate interactive tools to enhance students learning experience in this department. As a consequence significant control has been put back into the hands of those who need it, the teacher and the student.

On the other hand, *Writely* was selected for comparison with *Moodle* as it was a very recent technology, introduced for people wishing to collaborate, share and update common documents over the Internet. The software is offered by the giant world wide web (WWW) player, *Google*, as a free product to all users. These two tools, or systems, were chosen as they were considered, by the researchers, relatively easy to use by students and educators alike, since both of them exploit widely used user interface technologies and both supplied extensive online help and tutorials.

As part of this course (MSC3001, Professional Issues in Science and Technology) students were required to use *Writely* to submit Assignment 2 and the *Moodle* system to

submit Assignment 3. At the conclusion of the semester an online survey was then presented to the students to provide feedback on their preferences in using either one or both of these online facilities with respect to, intuitiveness, convenience of use and responsiveness. Comments were also sought from students to; elucidate why they made their particular choices, report any problems they encountered, and offered them the opportunity to make further comments.

Before this paper outlines the results of this study it will first present a brief survey of related research. It will then outline, in more detail, the two different systems used for the student's assignment submissions. The methodology of the research into student's perceptions of the two environments will then be explained and the results of this study will be presented. Finally, this paper will present a conclusion and recommendation for selecting the most appropriate tool for assignment submission and presented a case for future work that may need to be done.

Related research

An investigation of the literature found a number of research publications addressing the broader issues of assignment submission and the way feedback is provided however these are largely limited to the development of new propriety products. It was also found that many academic institutions have developed their own tools prompted by their specific needs and all of them address three main topics; developing new product, marking programming assignments, online exercises, adding extra administration functionalities and incorporating marking and modules for countering plagiarism. However, very little work has been done on making comparative judgements of these tools from a students experience perspective (Joy, Griffith & Boyatt, 2005; Baillie-de Byl, 2004; Dawson-Howe, 1995; O'Reilly, Bennett & Keppell, 2005; Price, & Petre, 1997; Topcuoglu, 2006).

Joy et al. (2005) developed a comprehensive system for assessing students programming skills and feedback delivery, the 'BOSS system', which incorporated database schema and software package for plagiarism detection. It was developed as platform independent client-server architecture which adapts to changes in pedagogical requirements and technology. Further, a study presented by Baillie-de Byl (2004) reported on 'Classmate', an online assignment submission and marking system. She also presented students experience with the use of the system and addressed two points of their experience, the feedback method and its timing. 80% of the participants rated the feedback method at least acceptable. More than 90% had rated feedback timing acceptable or better.

Byrnes and Ellis (2003), in their study, explored assessment practises at the Southern Cross University in Australia. They found that, although web-base assessment tools were well understood, they were being underutilised by the teaching staff at that institution. A number of reasons were highlighted for that namely, extensive workload, lack of holistic approach to assessments across the University, concerns about equity and quality of online assessments. They concluded that, more staff development time was needed to promote the usage of the online tools. O'Reilly, Bennett and Keppell (2005) reported a pilot study comprising of a development of a website for showcasing of eight cases of online assessment within two Australian Universities; Southern Cross University and the University of Wollongong. The cases cover a diverse range of

assessments in undergraduate study. These assessments included quizzes, role play, teamwork and discussions with experts.

Sivapalan and Cregan (2005) compared student's performance in first year mathematics-based subject with and without online resources. There was clear evidence that the online resources contributed significantly on the performance measured on students' achievements. As expected, the improvement was more evident with the students who were significantly more active in accessing the online resources. Topcuoglu (2006) also reported an assignment system which handles web-based exercises for collaborative learning settings. The design of the system is based on collaborative scripts and state chart diagrams.

The conclusion from this investigation of the literature is that there has been very little work done in the area of online assignment submission systems such as the ones used in this study; *Moodle* and *Writely*, from a student perspective.

Moodle assignment submission

Moodle is an e-learning platform, also known as a Course Management System (CMS), or Learning Management Systems (LMS), with a fast growing user base. In April 2007 it had 24,854 registered sites in 175 countries. These sites consisted of 995,338 courses, 10,144,196 users, 1,530,815 teachers and course enrolments of 14,972,036 (Moodle, 2007). Figure 1 illustrates the rate of growth *Moodle* has experienced since it was first released in June 2003.

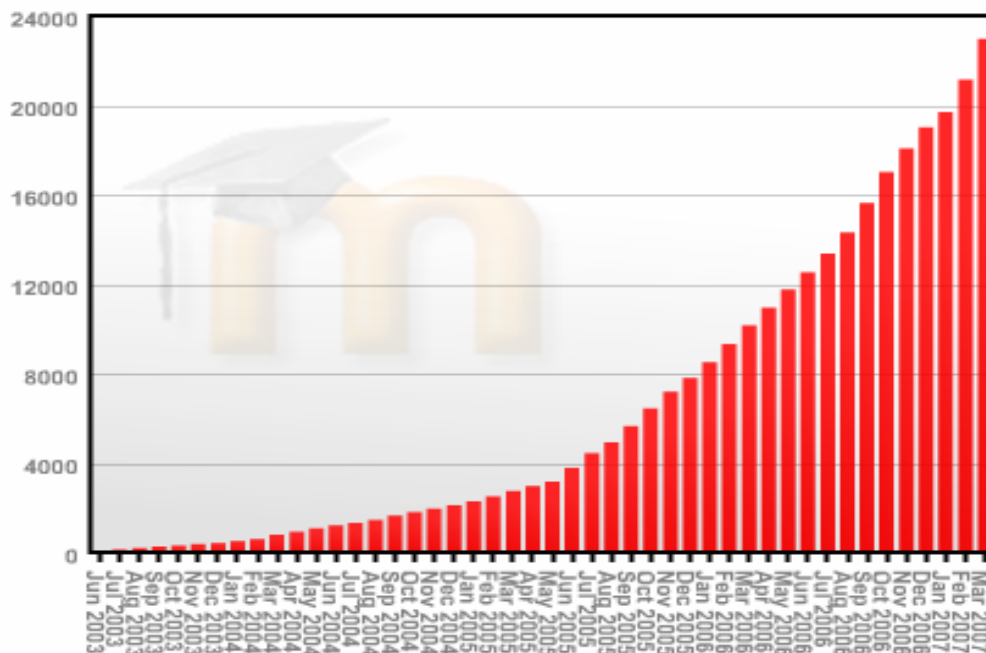


Figure 1: The growth rate of *Moodle* from June 2003 to March 2007 (Moodle, 2007).

Assignment submission is a standard module within *Moodle*, and the module allows the students to upload any digital content. These include Word and PDF documents, spreadsheets, presentations or small video or audio clips. The submission prompts an email to the examiner notifying him that he has an assignment for marking. The

submission file size is set to 2MB as a default, but can be increased by the system administrator. The examiner can set the flag for re-submission, so that he can examine the assignment in an iterative way. After examining the assignment, the lecturer provides feedback comments in the form of marking sheet, where marks and explaining comments are provided to the student. The interface of *Moodle* system, for assignment submission, is depicted in Figure 2.

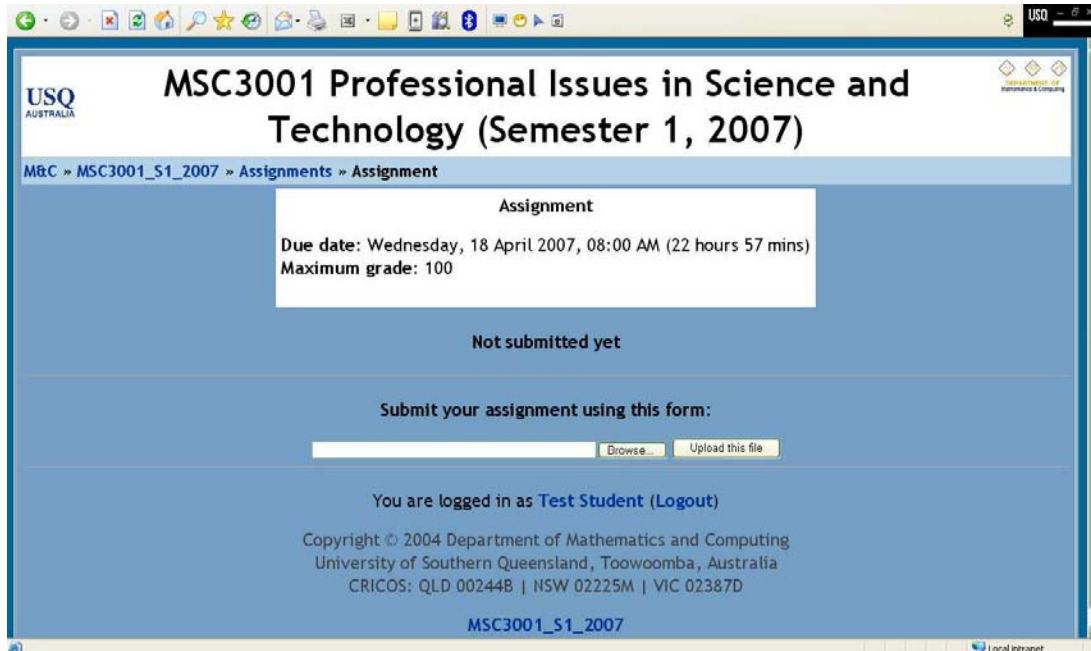


Figure 2: Moodle interface for assignment submission

Writely system

This is a web-based word processor free software application offered by Google. Currently the software is called Google Docs & Spreadsheets and users can create, share and collaborate in real time on documents. The product was initially two separate packages *Writely* and Spreadsheets, combined in October 2006 into a single product (Wikipedia, 2007). *Writely* was developed originally by a software company called *Upstartle* as a web-based word processor. It includes access controls and collaborative document editing. The formatting tool bar is quite similar to *MS Word* or *OpenOffice* (Google, 2007). Originally, the system was running on *Microsoft ASP.NET* technology, but after the take over of the system by Google the servers were switched to Linux (Writely, 2007). The interface of the *Writely* system, just after logging in, is depicted in figure 2. *Writely* allows the owner of the document to share the control on the document by collaborators and viewers. It also has revision control for keeping track of the changes done by the owner and collaborators. The collaborator's has read/write permissions while viewers have only read permissions. The *Writely* interface is illustrated in Figure 2.

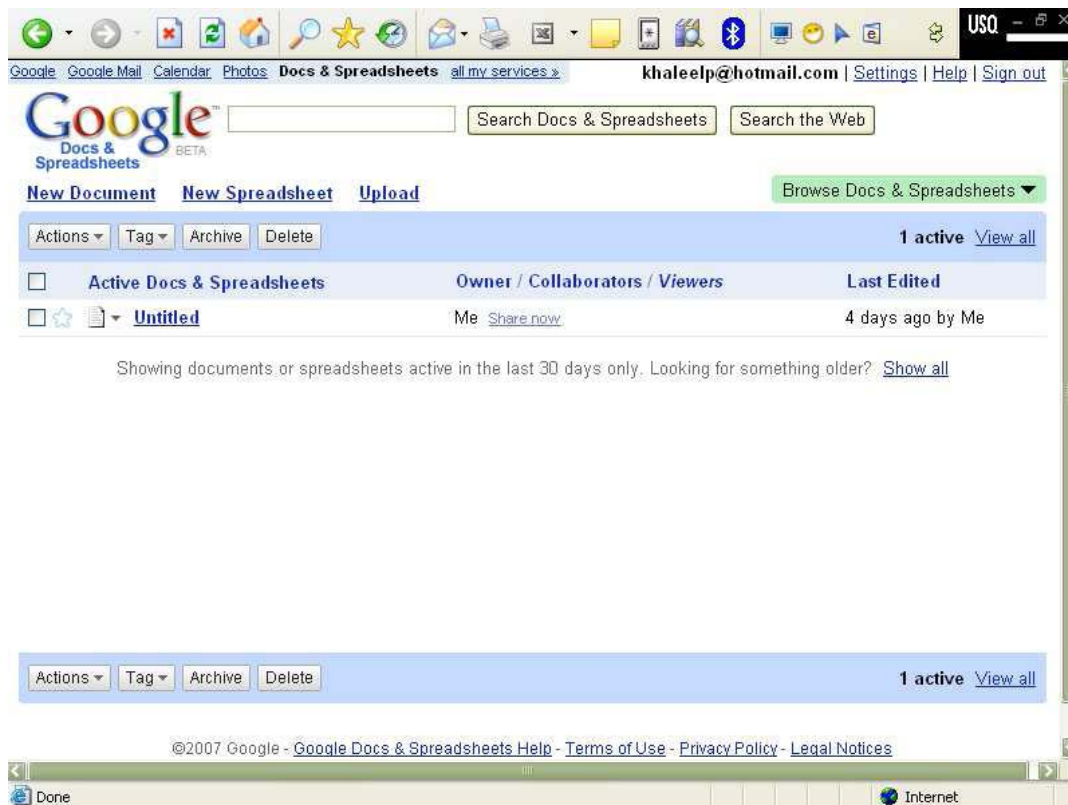


Figure 2: Writely interface for assignment submission

This paper addresses *Writely* only as a vehicle for submitting assignments and providing feedback between lecturer and students. A document (i.e. assignment) is created by a student within the software, then saved on Google servers. The owner (student) of the document have full control of it and will give his lecturer read/write permission for the document by assigning him as a collaborator. This will enable the examiner a right to insert comments and/or marking sheet in the document and save it for the student as his assignment feedback. The document can be saved in any one of the popular formats like doc, odt, odds, rtf, etc (Google, 2007). There is a limit of 500KB for the document plus 2MB for an image, and the user is limited to 1000 documents (Wikipedia, 2007). For increased security the setting of *Writely* offers HTTPS connection during logging in and then it switches into HTTP for document writing and updating.

Methodology

The research model adopted for this study was a mixed methods approach based on sequential exploratory design as defined by Creswell (2003). and sought to ascertain student perceptions of the two assignment submission options provided to them. This combined qualitative and quantitative method, uses a survey with questions that allow students to choose a programmed response, but also gives them the opportunity to give extensive feedback of more qualitative nature. The quantitative approach allows for standardised objective comparisons to be made of collected data (Creswell, 2003). The qualitative data is seen as more flexible and allows a participant to describe what is meaningful or important to them using their own words rather than being restricted to predetermined categories. This in turn can provide a high level of credibility and face validity; results ring true to participants and make intuitive sense to lay audiences

(Sewell, 2004). In using this method the researchers were cognisant that discrepancies or disagreements among different sources of data can surface. However, when questions are designed appropriately, this method strengthens reliability, particularly within the qualitative data (Robinson, 2002).

An online questionnaire was used that consisted of 10 questions. This was administered to students after the exam period, at the completion of semester to gain feedback on their perceptions of using these two assignment submission systems. The survey was designed so that minimum effort and time is required from the students to get their opinion about a number of objective facts (Fowler, 1995) with regard to assignment submission and receiving feedback. Six of the 10 questions contained pre-programmed responses asking students to select the most appropriate response. The remaining four questions allowed for an open ended response, asking students to clarify their answers to previous questions and providing them the opportunity to give some further feedback. This voluntary online survey was made available to 18 students of which 13 choose to participate (72%). Completion of the survey was not mandatory but highly encouraged. A screen capture of the survey is provided in Figure 4.

Survey to Compare your satisfaction with assignment submission and feedback options in our MSC3001 course.

Please take few minutes to fill the following form.

Notes:

1. *Writely* refers to assignment submission via Google software. You submitted assignment II using this method.
2. *Moodle* refers only to assignment submission via our online MOODLE learning environment, not the whole MOODLE system. You submitted assignment II using this method

The survey:

Q1. Which method (*Moodle* or *Writely*) is more intuitive (makes common sense) to use?
 , Moodle, No Preference

Q2. How convenient was *Moodle* in assignment submission and feedback?
 , convenient, not convenient, extremely not convenient

Q3. How convenient was *Writely* in assignment submission and feedback?
 , convenient, not convenient, extremely not convenient

Q4. Which method did you prefer?
 , writely, both, niether

Q5. Why did you choose your specific preference in the answer of Q4 above? Please Explain.

Q6. How responsive did you find *Moodle* in assignment submission and feedback?
 , fast, average, slow, extremely slow

Q7. How responsive did you find *Writely* in assignment submission and feedback?
 , fast, average, slow, extremely slow

Q8. Did you experience any problems in submitting assignments or receiving feedback using *Moodle*? Please describe.

Q9. Did you experience any problems in submitting assignments or receiving feedback using *Writely*? Please describe.

Q10. Any further comments you would like to make.

Figure 4: The online survey form

The two systems (*Moodle* and *Writely*) had been used by the students at the Mathematics and Computing department at USQ during the Summer semester of 2006, while studying a professional practise course. Assignment II of the course was submitted and marked using the *Writely* system, while Assignment III was submitted and marked using the *Moodle* system. Prior to the survey being administered it was

discussed and moderated by a number of colleagues in both statistics and educational disciplines to refine the final format.

The pre-programmed questions in the survey addressed the following points:

- intuitiveness
- convenience of *Moodle*
- convenience of *Writely*
- preference
- responsiveness of *Moodle*
- responsiveness of *Writely*

The four open ended, short answers, questions addressed a number of key points. These include why the student preferred a specific system, what problems they may have encountered with either system and finally, any further comments were sought from the participants.

Results and discussion

Question 1 and Question 4 of the survey (illustrated in Figure 5) asked students to identify which of the two systems they found more intuitive and which one they preferred.

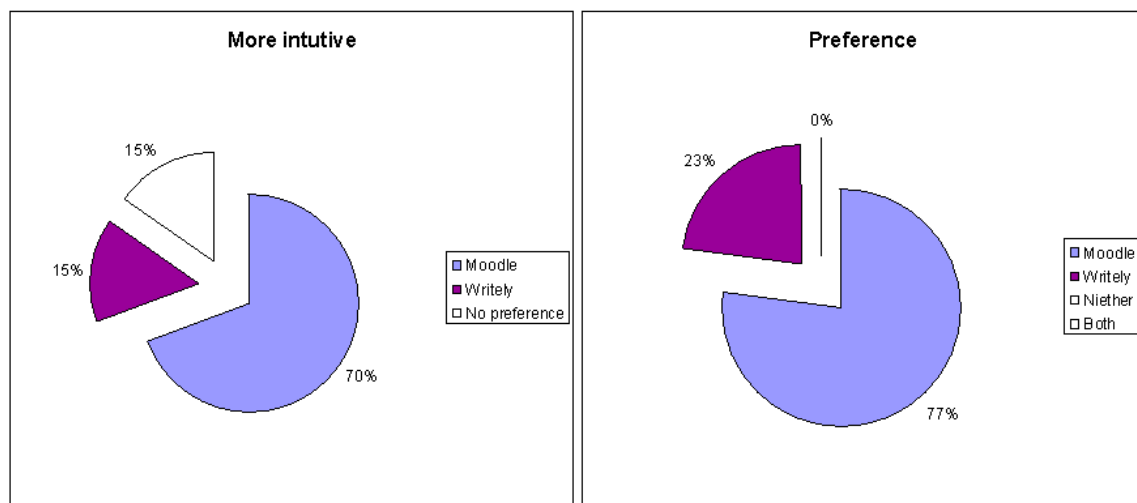


Figure 5: Intuitiveness (Question 1), left. Preference (Question 4), right.

Nine of the 13 students found the *Moodle* system to be more intuitive to use, two chose *Writely* and two had no preference. A similar result was seen in relation to their preference for using the two systems, with 10 of the 13 students preferring the *Moodle* system.

Question 5 of the survey (open ended) then asked the students to explain why they had made this particular choice. The responses can be summarised as follows: Students preferred the *Moodle* system as it was easy to use and more flexible than *Writely*. There was no issue in relation to the types of files *Moodle* would accept, where two students reported that, formatting within *Writely* was too time consuming as they had experienced formatting problems. Only one student experienced formatting or technical

problems using the *Moodle* system as against four using the *Writely* systems. On three occasions students mentioned the lack of notification, or confirmation, that they had submitted work when using the *Writely* system. For example, one student said, ‘*With the Writely system I just had to hope the examiner had received it OK*’. This did not seem to be an issue with the *Moodle* system. It should be noted, however, that two students did make mention of the sharing (collaborative) feature within the *Writely* system that allowed them to share their work, and that this was seen as a positive thing.

Question 2 and Question 3 of the survey (illustrated in Figure 6) addressed the level to which students found each system convenient to use. These questions were not asking students to make a comparison of the two systems, rather just to quantify to what level they found each one to be convenient.

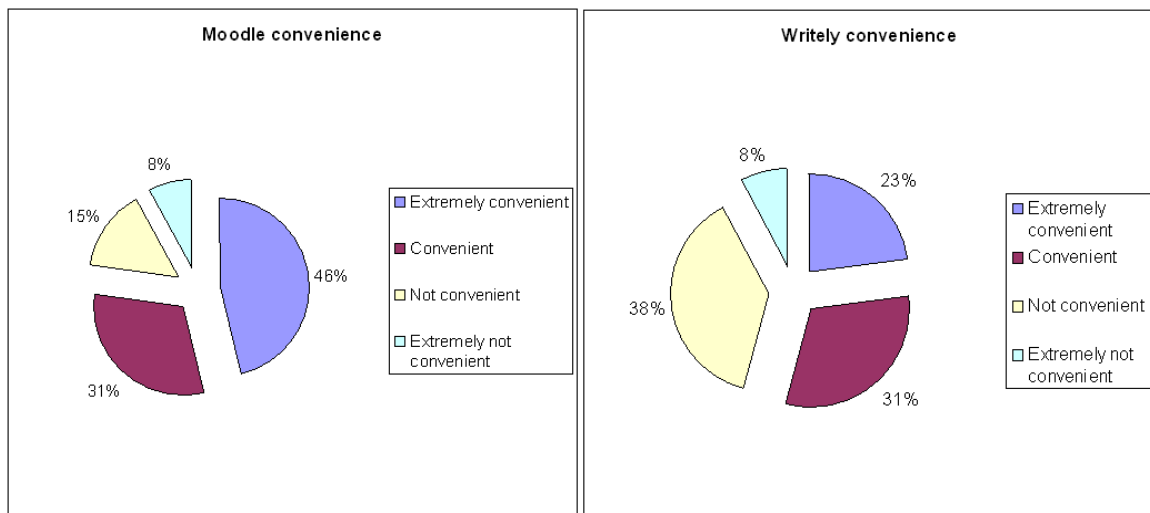


Figure 6: Convenience of; Moodle (Question 2), left; Writely (Question 3), right

Ten of the 13 students found the *Moodle* system either extremely convenient, or convenient to use. Where as seven of the 13 found *Writely* either extremely convenient, or convenient to use. It should be noted that the weight of sentiment in relation to *Moodle* system being ‘Extremely convenient’ was twice that of the *Writely* system. Given the small numbers of students participating this could not be seen as significant but more so, based on the qualitative data, it can be said that this is indicative.

There was no open ended question directly related to questions 2 and 3, however, comments were made in answer to other questions that can support the quantitative data displayed here. For example, students made mention that they found it much better to have everything in the same space (*Moodle*) and that this meant ‘*less hopping around on the net*’. In summary they found *Moodle* to be ‘*simple*’, ‘*straight forward and easy to manage*’.

Question 6 and Question 7 of the survey (illustrated in Figure 7) sought to determine the level of responsiveness each system afforded the student when using. Again, these questions were not asking students to make a direct comparison, rather to quantify to the level of responsiveness they experienced.

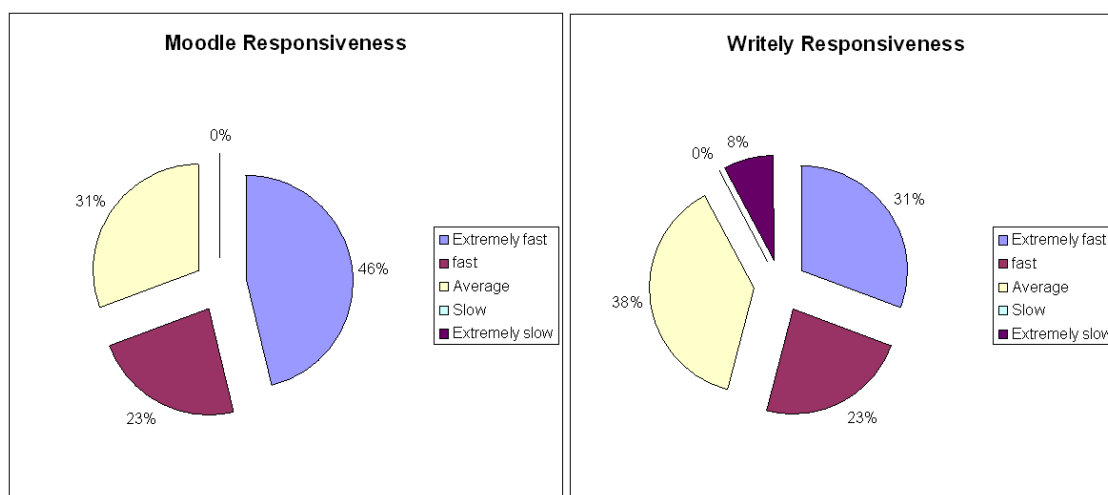


Figure 7: The Responsiveness of; Moodle (Question 6), left; Writely (Question 7), right.

Nine of the 13 students found the *Moodle* system to be either fast or extremely fast with the remaining four students finding it to be average. No student found the *Moodle* system slow. On the other hand, seven of the 13 students found the *Writely* system to be either fast or extremely fast, with five students finding it average and one finding it extremely slow.

It would appear that the issues related to responsiveness were not just related to internet speed, this was not mentioned at all. Rather, it is the speed of finding, using (formatting) and uploading that are the issues raised most often in the qualitative data. These data indicate students found the formatting problems within the *Writely* system, that seemed to have occurred for a range of reasons, to be the main contributing factor to their clear preference for the *Moodle* system. The other main issue was lack of notification within *Writely* system, as mentioned above.

Conclusions

At a time when universities and other educational providers are having to continually review and experiment with new and emerging technologies to establish if there is a need to incorporate these in their learning and teaching mix, this pilot study has trialed two assignment submission systems and sought feedback from those using these systems. Students involved in this study gave a clear indication that they preferred using the Moodle system over the Writely system for submitting assignments for assessment and for receiving feedback. The main areas of concern in using the Writely system can be summarised under three main headings. Technical, formatting problems and lack of notification. The most positive characteristic of the Writely system seemed to be its collaborative features that allowed students to update and share their submissions with each other. In this study the Moodle system limited assignment submission to a file upload, while in Writely, the systems allows students to update their submission, prior to marking. The overall recommendation of this study is that the Department of Mathematics and Computing at USQ should continue to use the Moodle assignment submission and feedback tool. Or as one student boldly requested, 'please use the Moodle system for others in the future'.

Based on the findings of this pilot study there is clearly a need for further investigation. It is therefore recommended that the study be expanded to include more students and different types of courses. For example, it would be interesting to see how student from different disciplines respond; students from mathematics, problem solving courses and humanities programs. The current study investigated the process of an 'essay' assignment submission, however, these findings may not necessarily be extrapolated out to other forms of assignment work. A further extension to this study would also be to enhance the assignment submission module within Moodle to allow a similar functionality to that present in the Writely system.

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