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Use of online tools to aid group work

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Use of Online Tools to Aid Group Work

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Abstract: In this paper we examine the use of online tools – namely wikis and blogs in aiding group work for a large and diverse student-based team. The results suggest that while students see the generic skill of being able to work in a team as important for their future career, using blogs and wikis is not seen to be as important. It was also found that the flexibility of these tools provides more motivation for students than having assessment based on their use.

Introduction

Two major problems arise when a group of students are put to work on a task - communication difficulties and contribution problems. Communication problems arise due to the students' other commitments as it becomes problematic to find a common meeting time. Increasing the number of students in a group compounds the problem. The unit in question included students from different courses and year levels. The only guaranteed times when the students could be together were the scheduled contact times of the unit.

The other problem endemic to group assignments is unequal contribution. It is not practical (or desirable) to produce a completely homogenous group and members will naturally have differing work ethics, abilities and commitment. This difference is caused by a multitude of issues including commitment to other tasks and different levels of prior experience due to students from multiple year levels and disciplines being present in the same class. Ideally, less experienced group members will use more experienced students in the group as mentors and achieve a greater quality of work than if they worked with similarly able students. In practice this does occur, but there are frequent examples of students who 'just want to pass'.

In recent times, wikis and blogs have come into prominent use. A blog, or web log, is similar to a diary where users make entries. Blogs can be accessed over a network, and offer features like being able to comment on entries, and post rich content, such as images. This makes blogs a powerful group communication medium as team members unable to be present during face to face meetings can engage in discussion. Unlike a regular diary or journal, blogs serve as a record of group communication for all group members and are time and date stamped.

Wikis are another online communication tool. While blogs are time based, with separate chronologically ordered entries not designed for future editing, wikis are completely freeform. A wiki page can be described as a document that group members can edit. While some wikis do contain archival and version control features it is harder to track the progress of discussion in a wiki as opposed to a blog as changes can be made anywhere in a wiki document. A wiki is however suitable for composing documents, allowing people with network access to collaborate on editing a document without being physically present in the same room.

According to Parker and Chao (2007), the use of wikis as a teaching tool is just starting to gain momentum. They list examples of different uses for wikis in education, and categorise them roughly as being used:

- to teach collaborative writing;
- to provide planning and documentation support in project-based learning;
- to support online education; and
- Other applications such as language courses, web development courses and as a tool for faculty to use to create teaching/reference materials.

Other surveys on the educational uses of wikis have been offered by Fountain (2005) and Schwartz et al. (2004). Duffy and Bruns (2006) discuss the use of both wikis and blogs, while Williams and Jacobs (2004) and Downes (2004) examine the educational uses of blogs.

Farrel (2003) identifies the following strategies for using blogs, in increasing order of ambition:

- creating class web pages;
- lecturer-written blogs on developments related to the course;
- organising in-class discussion;
- organising weekly summaries; and
- requiring students to write their own blogs.

Downes (2004) expands on this list, giving examples of each.

The present work explores the use of a combination of wikis for planning and documentation of a project (the creation of a game), and student written-blogs.

Notari (2006) suggests that effective use of these collaborative tools in an educational scenario is enhanced by the use of an appropriate “script”, specifying:

1. the task the students have to perform
2. the composition of the group
3. the way the task is distributed
4. the mode(s) of interaction, and
5. the timing of phases.

We detail these in the following sections.

The Class

The setting for this trial was a unit called Game Design and Production. This unit, run by the School of Computer and Information Science, has no prerequisites and is thus taken by a variety of students. The unit covers the design and production of computer games and is part of two courses – The Bachelor of Computer Science with a major in Games Programming, and the Bachelor of Science (Digital Media). In addition, it is a popular elective with students on exchange and students interested in the creation of computer games in general. The unit ran across two campuses, Mount Lawley and Joondalup, with identical material and assignments.

Defining the Assignment

Online tools were used to aid in several stages of an assignment for the unit. The aim of the assignment was to create a computer game. The students from each campus were divided into two teams, consisting of a mixture of students identifying themselves as either artists or programmers. This resulted in two teams of seven students in Joondalup, and one team of ten and another of eleven in Mount Lawley. Team makeup was determined by the lecturer using a survey of abilities in the first week of class. Each team was assigned two leaders – a programming lead and an art lead, chosen as the top rating students from the survey amongst those who elected to take on a lead position.

Several steps were taken to encourage team communication and increase its efficiency through the scheduling of classes and composition of groups. By having a programming and art lead, the number of communication channels was reduced. Further to this, part of each workshop included time for group meetings, and in the lectures each team was made to sit in a specific part of the room so that group communication could occur during breaks in the lecture. Some lectures featured activities (usually in pairs), and completing these with members of the same assignment group promoted team bonding.

Integrating Blogs and Wikis

Blogs and wikis were employed to enhance group communications, and blogs, due to their date-stamped nature, were also used to determine the contribution of individual group members.

Each team was provided with a single blog and a single wiki to which each member could post. The lecturer also had blog and wiki access, using it to post team specific announcements and answer questions relating to the groups' assignment. The following marking structure for the assignment was used:

- Game Pitch (1 Mark) – a 5 minute pitch of the game idea by each group, performed in lecture time (due in Week 5).
- Game Design Document (3 Marks) – written using a group wiki (due in Week 6, after a mid-semester break).
- Final Game Demonstration (3 Marks) – demonstrated in person during a workshop (due in the workshop of Week 12).

- Game Post Mortem (3 Marks) – written using a group wiki (due at the end of Week 12).
- Individual Effort (30 Marks) – determined through contribution evidenced through entries in group blog (marks accumulated weekly over the semester).

For every marks category except individual effort, the same mark was given for each group member.

The team wikis were used for the construction of two reports, the game design document and the final post mortem. The game design document was due after a two-week non-teaching break, and the post mortem on the last day of semester. Anecdotal evidence from student feedback showed that using the wiki in this case cut down on travel time for meetings when there were no classes (non-teaching break), or when there were many things to do (last week of semester).

From the marks breakdown it is evident that individual effort was weighted highest. This was done purposely due to the unequal contribution issue. For a team of seven or more people it would be possible to meet the assignment requirements even if one or two did not participate. If a single group mark was assigned, non contributing members would earn marks unfairly, and contributing members would feel aggrieved.

By assigning low weightings to indicators of group effort (the final product, reports, etc.) and transferring them to individual effort, group effort is actually promoted as the onus is put on individuals to contribute. The procedure for contributing was presented to the class as follows.

- In the workshop of each class, groups would have a meeting and decide upon the tasks to be completed by the following week.
- Within 24 hours of the in-class meeting, both the art lead and programming lead had to post entries to the blog outlining what was decided in the meeting and the list of tasks along with names of team members assigned to the tasks.
- Team members would work on their tasks and report progress and problems on the blog.
- Before the next lecture, the lecturer would check the group blogs and assign a mark between zero and two to each student depending on level of contribution and task accomplishment.

Results

Student Motivation

Making blog entries assessable on a weekly basis rewards consistent work effort throughout the semester. For some assignments students may only start weeks before the due date, but as the maximum marks available per week was limited, a consistent effort was needed to earn good marks. Some students found it hard to adapt to this regime and in the first few weeks the blog entries were few and far between. Constantly reminding the class that blog entries were being marked weekly did not seem to rouse the students

from their malaise, nor did the showing of blog statistics in the class (number of posts per group). It is as though a group mentality had set in, and since non-contributing individuals were not identified, they did not change their behaviour.

What worked to increase motivation was individual counselling by the lecturer. Individuals with poor contribution records were identified and approached by the lecturer, who informed them that they were looking at failing the unit if they continue along their current path. From that time, posting to the group blogs increased dramatically, and meaningful discussion started to occur.

Effect on Marking Load

Having to mark blogs weekly can be seen as increasing a lecture's marking load. In practice this is not so. As there were only four student groups, there were only four blogs to check – and a weekly audit to gather marks could be undertaken in under an hour. A simple marking scale (zero to two) meant it was not necessary to analyse the students' contribution in detail. Furthermore, blogs make interesting marking as all entries are different (and relatively short) as opposed to marking answers to set problems, which can quickly get repetitive and boring. For the other assessments, having only four design documents, final submissions, and post-mortems to mark reduced the marking load and allowed fast return of assignments to the students.

Student Perceptions

A class survey was undertaken near the completion of the unit. Part of the survey asked for feedback on the wiki and blog system. In one question, students were asked to rate different factors in terms of importance to their motivation for the assignment. Ranking was performed from 1 (least important for motivation) to 4 (most important for motivation). The results are summarised in Figure 1. Surprisingly, use of the blogs as assessment tools was rated among the lowest in terms of increasing motivation, though the flexibility afforded by blogs and wikis in terms of enabling work anywhere with a network connection was among the most important.

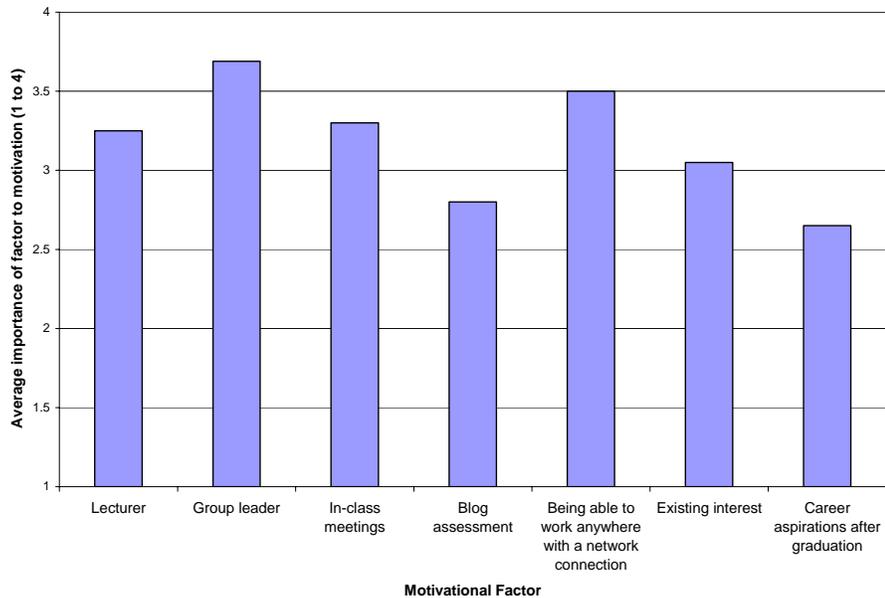


Figure 1: The motivational effect of several factors on students.

Another survey question asked the students to gauge their improvement among several abilities, including the use of blogs and wikis. The results, summarised in Figure 2, show that students felt their ability to use blogs and wikis increased more than other abilities, like working in a team, consistent work effort, and ability to meet deadlines. This can be attributed to the fact that the use of blogs and wikis in education is quite new, and students had not been exposed to them before (the use of blogs and wikis as part of the university online learning system was only introduced that semester).

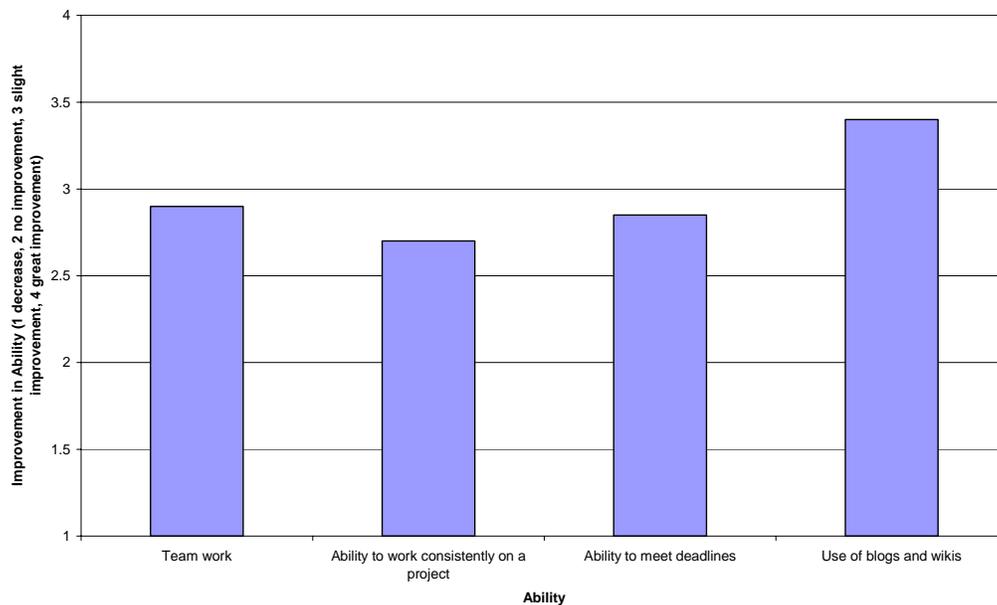


Figure 2: Improvement of students abilities after the unit.

While ability to use blogs and wikis improved more than the other attributes, in terms of importance for future employment, students thought that being able to use a blog or wiki was not as important as the generic skills of team work, ability to work consistently, or ability to meet deadlines. This is shown in the data summary of Figure 3.

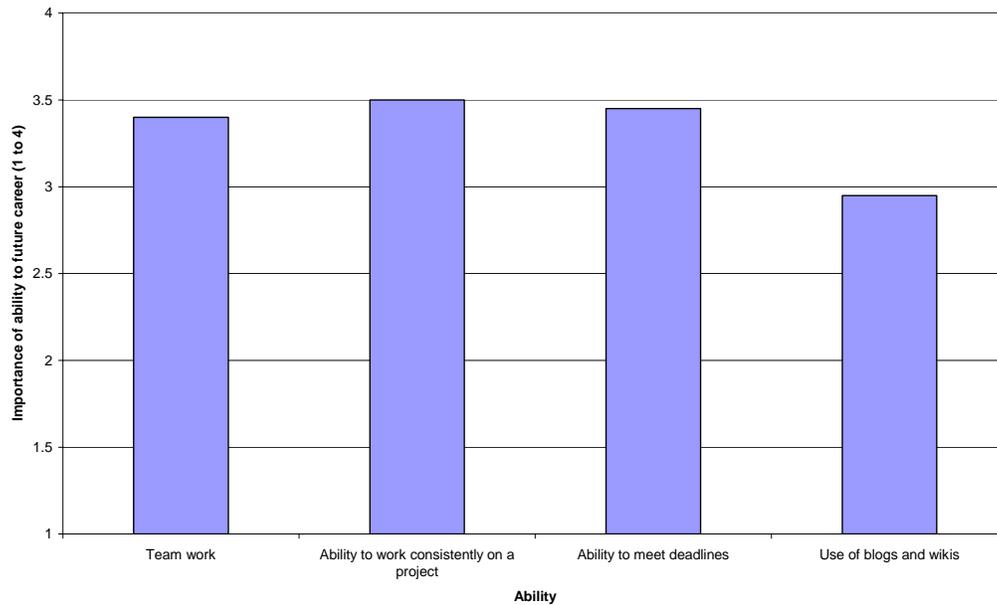


Figure 3: Perceived importance of abilities to future employment.

Discussion

From observations, there are several improvements that could be made to the blog and wiki system to afford better communication for students. As the system was, students had to log in and go to the blog page to see if anyone had posted a new entry or answered one of their queries. The blog would have been much more engaging if students were notified of new entries by email. This would increase efficiency as when someone posted a problem, all team members would be alerted to it, and if a solution was posted, the team member with the problem could be notified immediately. In future iterations of the unit, such a system will be sought.

Another problem some students faced was not being able to trust the wiki. The wiki authoring system included a word processor like interface where members can edit and author text. Some students had a perception the system was not reliable, and rather than using the built in wiki editor, wrote their documents offline in a word processor and only when the document was finished copied and pasted the document to the wiki. This was only reported in one of the four groups, but defeats the purpose of having a wiki, where the document should evolve on the wiki as a result of everyone's contribution. To

improve on this in future unit iterations, more training on using the wiki will be provided to students.

Conclusion

Wikis and blogs are online tools that can be used for group collaboration. In this study, students using these tools for the completion of assignments rated the flexibility to work anywhere with an Internet connection highly. It was also found that the time-stamped nature of blog entries was useful in determining the level of contribution of individuals, and the consistency of that contribution. Also apparent from the results was that students came into the unit with limited prior experience of using blogs and wikis, and a perception that using these online tools would not be as relevant in future employment.

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