

Use of Moodle discussion forums to facilitate group projects in a large first year class.

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Level One Biology at the University of Glasgow is the largest first year undergraduate biology class in Europe at 700 students per year, attracting students from a wide range of backgrounds and abilities. As with any large class, there are concerns regarding the social and academic integration of students (Zepke & Leach, 2005), social support (Wilcox et al, 2005) and issues of retention (Tinto, 2006) which the team has sought to address by implementing core activities designed to make students feel part of a community. One of these activities is a group task, Darwin's Dilemma Debate, which traditionally took place in the second half of the year, the end product of which is a presentation (REAP Report, 2007). Due to a restructuring of the course and following student feedback, in session 2007/08, Darwin's Dilemma was moved to the beginning of semester one, and a new group exercise in which students were asked to produce a poster on a significant biological molecule was introduced into semester two. The implementation of both exercises, supported by Moodle, has resulted in improved student cohesion, continual working through the duration of the exercises aided by structured deadlines, and peer support within groups.

Implementing the group tasks

Students attend labs at the same time each week and are assigned seats so that they regularly work with the same group of peers. The group tasks were designed to provide students with a structured exercise, thereby developing peer support networks within the context of a large class environment. Each lab is divided into six groups, giving a total of 90 groups in 2007/08 and 84 groups in 2008/09. The majority of students work in the same group for both tasks.

For the past three years, students have been supported during the tasks by the provision of online Moodle forums for each group. Access to these secure Moodle forums allows students a facility to store and share information and communicate with their group. It was anticipated that access to this facility would allow for increased accessibility and engagement with the group tasks.

Both the Darwin's Dilemma and the Biological Molecule Poster exercises are run on a similar basis. The topics are introduced in Week 1 of each semester. For each task, the students are provided with weekly deadlines which are designed to enable them to plan and execute the task. The deadlines require students to post key pieces of information to their group forum.

Results

During the sessions 2007/08 and 2008/09 the use of Moodle for the group tasks was evaluated by means of Moodle usage analysis, student questionnaires and student focus groups.

Daily Moodle Use

Fig. 1 shows the number of student hits on the Moodle group forums on each day of the group projects during the 2008/09 session. There is a cyclic pattern of usage within each week throughout the exercises, with the lowest usage occurring on Fridays and Saturdays and the highest usage occurring at the beginning of the week. Similar patterns of use were also seen in 2007/08. Average daily use per day, as shown in Fig. 2, confirms a clear daily pattern within both group exercises.

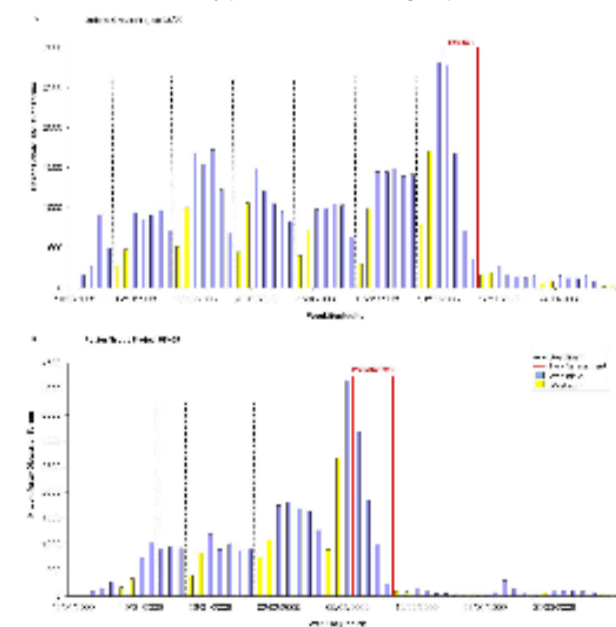


Fig. 1 – Daily Moodle activity (hits on group forums) throughout the debate group exercise (A) and the poster group exercise (B).

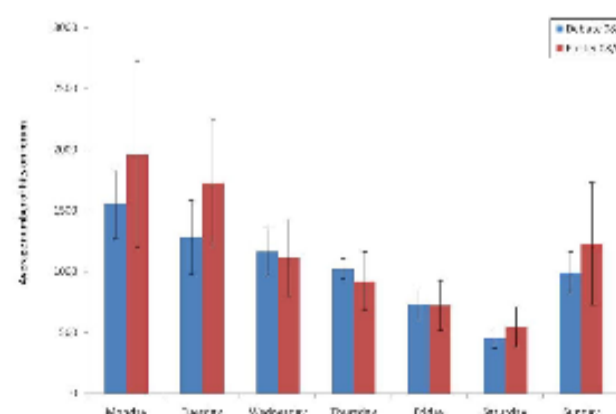


Fig. 2 - Average number of hits on Moodle forum for each day throughout the group exercise.

Overall Moodle Use

The number of hits on the group forums for each exercise in the 2007/08 and 2008/09 sessions is shown in Fig.3A. The rise in numbers between the poster exercises in these two years was significant at the $p < 0.1$ level ($t=1.89$, $P=0.065$, $df=52$). There was no significant difference in the number of postings made to the forums by students for each exercise between the 2007/08 and 2008/09 sessions (Fig.3B). The number of student posts to these forums accounted for approximately 10% of the total hits for each day.

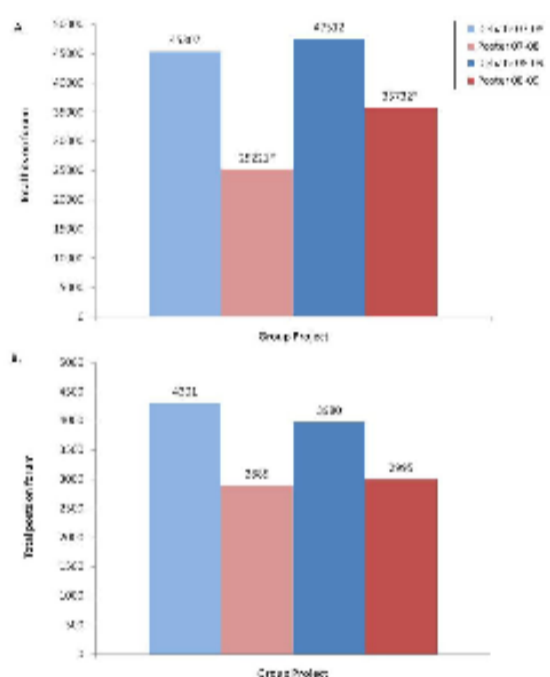


Fig. 3 - Total number of student hits (A) and student posts (B) on group forum for each group exercise during session 2007/08 and 2008/09. * significant difference at the $p < 0.01$ level

During the sessions 2007/08 and 2008/09 over 89% of respondents stated that they did use their secure Moodle sites to communicate with their group. Over 85% stated that the Moodle forum facility had helped them conduct the project more effectively. Despite the high use of the Moodle forums it was encouraging that over 74% of respondents stated that they had also met with their group three or more times during the course of the project.

Social Cohesion

There is considerable evidence that these group projects promote social cohesion and peer support, with evidence coming from both student questionnaires and focus groups. 24% of respondents stated that they liked 'getting to know others' / 'social aspects' of the group project. Comments from focus groups included "Even though I don't always meet up with them or whatever, I have noticed that when I go into Biology or Chemistry lectures, if they are in there then I will sit with them and talk to them. And you know it's nice.", which demonstrates the opportunity to increase social networks through these projects. There is also considerable evidence of students providing peer support through the Moodle forums.



Fig. 4 – Group 42 (2008/09) showing their 'Noradrenaline' poster.

Conclusions

- The majority of students used the Moodle forums and found them an effective way to manage group projects and communicate within their group.
- Evidence suggests that provision of deadlines and access to Moodle group forums promote continuous working throughout the group tasks.
- Although groups often fail to meet the deadlines on time, they do post the work for the deadlines at a later date, suggesting that deadlines play a role in leading students through the task.
- Despite the fact that a number of students found the deadlines not to be helpful, it seems likely that deadlines act as a 'safety net' to ensure students complete the correct planning stages.
- There is considerable evidence of the promotion of student social cohesion and peer support through the use of these exercises.

Deadlines

Deadlines for the tasks were evenly spread throughout each exercise (Fig. 1). The results showed that in 2008/09 only 17% of groups met four or more of the eight deadlines within the debate exercise on time. When tardy groups (i.e. those which responded to the deadline but were late) were included this number rose to 81% (Fig. 5). During the Poster exercise 49% of groups met three or more of the six deadlines on time. This was likely to be due to deadlines for the poster task being clearer than for the debate. Again when the number of groups who met the deadline late were included this number rose to 81%. This trend suggests that the deadlines do play some role in leading the students through the tasks.

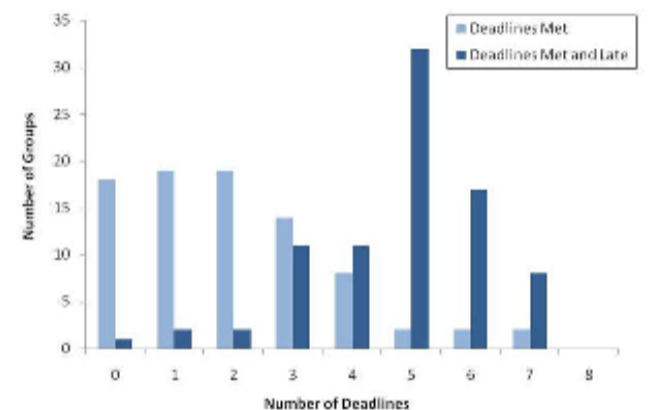


Fig. 5 – Number of deadlines met and number of deadlines met and late by groups taking part in the debate task 2008/09.

Results from the questionnaires, from the 2007/08 and 2008/09 sessions, showed that over 84% of respondent students were aware of the deadlines set. However, a growing number of students stated that they did not find the deadlines helpful, most noticeably during the poster exercise in 2008/09 (Fig.6).

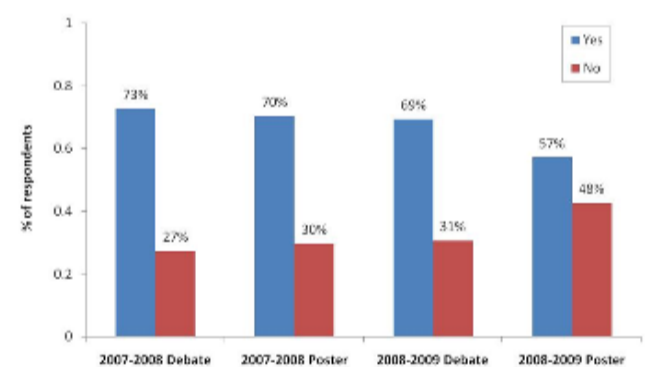


Fig.6 – Response to question 'Did you find the deadlines set for the tasks helpful'

Feedback from the focus groups revealed mixed feelings about the deadlines. One student remarked that the deadlines "were one of the best tools for the group leaders and deputy leaders to get the group together" while another individual simply suggested that they were "not necessary" given the project. This individual and others stated that the deadlines "were things they would have done anyway".

Several students also stated that the debate project timescale was "too long and the task not challenging enough" and for this reason their perception was that most work was carried out in the first and last weeks. However evidence from the Moodle logs (Fig. 1) shows continuous Moodle activity throughout and so does not support this statement. This steady activity is likely to be promoted by the deadline structure (REAP, 2007).

'[deadlines] some of them were good, they got you working... we found it hard to kind of hit them at the same time... they did do their purpose which was to get the poster done on time'

'It was enjoyable, it was good fun and it was the only way we get to know our fellow students because there is no opportunity to chat in lectures and no opportunity to chat in labs'

'It's the only way I have made any kind of friends, its great!'

'[we're] now working on revision together'