What influences student participation in asynchronous online discussions

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Abstract

Asynchronous online discussions are widely used in online and blended learning courses. Participation by adult learners can be encouraged by the contributions of teachers, and when online groups are given well-structured tasks that are assessed. The introduction of such discussions to a pre-existing short course in mentorship for qualified health care professionals offered an opportunity to compare participation by different groups studying concurrently. This was done by counting numbers of student contributions to twenty-four different online groups, regardless of length or content. This showed that the contribution of teachers was not an important factor in influencing student participation, though individual students who contributed prolifically tended to encourage their fellow group members to contribute more. These results may not be generalizable: the course was short, the discussions focused on a well-structured and assessed task, and the learners were mature.

Key words Online discussion, Small group work, Participation, Continuing professional development, Blended learning.

Teacher and student presence in asynchronous online discussions by mature learners

Introduction

This paper considers possible influences on student participation in a compulsory online discussion by analysing data form a short course in the School of Health Sciences. It begins with some background information, and then describes the course and the online tasks. The findings are then presented and discussed.

Background

There is an extensive literature on the advantages and disadvantages of asynchronous online discussion forums as components of blended learning educational programmes. Advantages for students of online compared with classroom discussions include the convenience of choosing their own time to contribute, so that they can, for example, do some thinking and/or some research before replying; while shyer students, or those not fluent in the language used in the course, may prefer to type their answer than to speak (Resnik, 2005). Also, online contributions are documented, whereas those to classroom discussions may be forgotten or not heard (Mason and Rennie, 2008). Disadvantages include the lack of non-verbal clues about each others' meaning (Mason and Rennie, 2008) and the frustration of waiting for replies (Miers et al, 2007; Suler, 2004). Some students (such as those taking part in the discussions described in this paper) may struggle to find the time to participate (Anderson and Friedemann, 2010).

In other respects, online and classroom discussions are similar: for example, some students may contribute far more than others. Though this may be perceived as unfair, Beaudouin (2002) found that those who adopt a passive online role do nevertheless learn.

Research findings such as these have enabled the development of guidelines to maximise the advantages and minimise the disadvantages of online discussion forums as an educational method. For example, Warren and Rada (1998) suggest that learners are more likely to participate throughout if:

- they contribute early in the course;
- the tutor takes an encouraging role;
- online interaction is required, structured and assessed; and
- participants are mature and motivated.

This paper describes the use of online discussions designed in line with Warren and Rada's (1998) recommendations. It reports what can be understood as a natural experiment: the introduction of online tasks into four concurrent iterations of an existing School of Health Sciences course, each led by a different facilitator.

The course's purpose is to develop the mentoring skills of health care professionals (usually nurses, though others may attend). The mentoring role in nursing requires that mentors should be trained prior to being registered as mentors, and be able to support learners (usually, pre-qualification health care students who attend placements in clinical settings as part of their training), and to assess their competence and fitness for practice. The course comprises four classroom days (five teaching hours each day, at fortnightly intervals), and three online homework tasks (participating in three different online forums, one after each of the first three classroom days); a written assignment; and the completion of a portfolio of practice completed in the clinical setting by the aspiring mentor and a supervisor.

The course usually runs four times a term concurrently, three terms a year. Each of the four classes included in this study (henceforth known as large groups A, B, C, D) had between 26 and 35 students, and were divided into six small groups for classroom and online discussions; these small groups were unchanged throughout the course. Students could only see and add to the contributions of their small group.

The three homework tasks were as follows. The first (HW1), required learners simply to introduce themselves online to the others in their small group and to say something about the challenges of being a mentor in the clinical setting where they work, using at least 150 words. Though they could choose to respond to others, they were not required to do so. One online contribution is henceforth referred to as a post.

The second, HW2, required the group to work together to prepare a presentation with a given theme and structure on the third classroom day: each small group summarised a different research paper about an aspect of mentorship. It was up to each small group to decide the process whereby they would achieve this: it was designed to involve dialogue between contributors. The third, HW3, was similar: each small group prepared a presentation on a case study (a challenging learner), and the groups were directed to a selection of literature relevant to their topic. Learners were required to post at least 150 words for each task (HW1, HW2, HW3). As long as a student posted 3 x 150 words, s/he was awarded 10% of the overall mark for the course. The quality of their contribution was not assessed.

Thus the design broadly heeded Warren and Rada's (1998) advice: learners had to contribute early if they were not to lose marks; lecturers could take an encouraging role; interaction was required, structured and rewarded with marks; and participants, as qualified professionals, were mature learners. Whether they were motivated is less clear: some had been sent by their managers rather than volunteering; others wished to practice as a mentor but had no wish to undertake an academic course as such (it is a requirement of the UK Nursing and Midwifery Council that mentorship training include an academic component). As it was the first time that the online discussions had been used as part of blended earning, a detailed analysis of activity was made and is recorded here. The analysis has focused on the amount, rather than the quality, of discussion activity, or, in Naranjo, Onrubia and Segues's (2012) terms, it focuses on presence (who accesses the environment) rather than connectivity (who interacts with whom and how intensely). The decision to adopt this focus reflects two factors. First, the emphasis for students is on the quantity of the individual contribution (word count) rather than quality: it is likely that many students (who are also in full-time work) will not give time to providing high quality content which would be unrewarded. Second, the range of academic ability among students on this course is consistently very variable: the emergence of small groups producing high quality work might reflect only the arbitrary allocation of students to small groups rather than the ability of group members to support each other in making higher quality contributions. Third, the analysis has been carried out by one of the lecturers, whose impartiality could not be assumed in making comparative value judgments about the contributions of his and others' students. In any case, participation is the sine qua non of online discussion forums as an educational method, and is therefore a suitable focus for an initial study of its introduction.

Although the introduction of online discussion forums into the course was planned in accordance with research evidence, its implementation was nevertheless a matter of interest and anxiety for lecturers: would students participate, and what would determine whether they did or not? The analysis was carried out with the following research questions in mind:

1. Do lecturers influence student online participation by their online activity? That is, is there a lecturer effect?
2. Are small groups within a large group likely to behave similarly, and differently from those in other large groups? That is, is there a large group effect?
3. Does each small group develop a particular pattern of participation? That is, is there a small group effect?
4. How influential are individual contributors on their small groups? That is, is there an individual effect?

Methods

The virtual learning environment (VLE) records all information and is therefore available for analysis for anyone granted appropriate rights of access. Student and staff contributions have been counted, using a post as the unit, regardless of length. (Counting words is a feasible alternative to counting posts, but could be misleading, as contributors vary in their discursiveness or succinctness: for many of them, English is a second or third language).

Results

1. Some general findings

Table 1 lists some general findings at large group level: student numbers, the average number of posts per students in each large group and the average number of threads per student. (A thread is a single sequence of messages created by one original post and subsequent replies.) The numbers of threads per student suggest that they have not readily understood that they are intended to reply to each other and build a discussion together. This might reflect the primarily individual nature of the assessment (150 words), even though the task was shared. Even where there was considerable discussion, this was often progressed by students beginning new threads to post their response rather than joining an existing one. This may reflect a lack of specific instruction to this effect, although on the other hand, anecdotal evidence suggests that some students are already familiar with online discussions.

Table 1 also shows that between homework 2 and 3, groups generally learnt to use fewer posts to achieve the task. This presumably reflects learning about working together as a small group to advance a task, as well as learning about online discussion.

Large group	***Homework 1***			***Homework 2***			***Homework 3***			***Total***
	Stud. nos.	*Av. posts per stud.*	*Av. threads per stud.*	*Stud. nos.*	*Av. posts per stud.*	*Av. threads per stud.*	*Stud. nos.*	*Av. posts per stud.*	*Av. threads per stud.*	*Total av. stud. posts*
A	29	2.0	1.0	28	3.0	1.8	28	2.3	1.3	2.4
B	26	1.4	1.1	27	4.0	1.9	27	2.9	1.2	2.8
C	35	1.3	1.0	34	4.8	1.9	32	3.1	0.9	3.1
D	32	1.8	1.0	32	3.4	1.4	29	2.6	1.5	2.6

Table 1. Student activity, by large group

Note: numbers of students in groups fluctuate because work demands prevent some from attending some allocated sessions. Some attend a substitute classroom session, but stay in their original small group. Some students do not complete the course.

2. Is there a lecturer effect?

Table 2 records data comparing the number of student posts, and the number of staff posts in each large group. These data illustrate the range of staff posts (from 5 to 39, a ratio of 1:7.8), and suggest that there is little influence if any, on the former. Taking the three homeworks together, group A showed the largest number of staff posts and the smallest number of student posts. In HW2, no staff posts at all (group D) is associated with a higher student average than group A (21 staff posts).

Large group	***Homework 1***		***Homework 2***		***Homework 3***		***Total***	
	Av. posts per stud.	*Total staff posts*	*Av. posts per stud.*	*Total staff posts*	*Av. posts per stud.*	*Total staff posts*	*Total av. Posts per student*	*Total staff posts*
A	2.0	9	3.0	21	2.3	9	2.4	39
B	1.4	7	4.0	4	2.9	2	2.8	13
C	1.3	5	4.8	16	3.1	1	3.1	22
D	1.8	5	3.4	0	2.6	0	2.6	5

Table 2. Staff and students contributions compared

Posts by the module leader to all large groups have been excluded.

3. Is there a large group effect?

It could be that rates of large group online participation reflect not the post rates of lecturers, but other aspects of their teaching style apparent in the classroom but not online. If this were so, we should expect small groups within each large group to participate at broadly similar rates. However, even if similar rates were to be found, this may demonstrate something about the composition or dynamics of the large group rather than the lecturer.

Table 3 presents the relevant data, and also ranks the small group post averages across all four large groups. It shows that within each large group there is considerable range in the number of average posts per individual student within each small group. If there was a large group effect, one might expect that small groups' ranks would cluster more than they do. Group A's small groups achieve ranks that range from four to twenty-two; group B's, from five to eighteen; group C's from one to twenty; and group D's from two to twenty-four.

Small groups		***Large groups***
Small group (nos. in group for each homework)	***Overall average posts per student* (rank)***	***Average posts / rank***
A1 (6/6/6)	5.7 (17)	2.4 / 4
A2 (4/5/4)	8.8 (11)	
A3 (4/5/4)	9.0 (10)	
A4 (5/6/5)	10.4 (4)	
A5 (5/4/5)	5.0 (22)	
A6 (4/3/4)	7.3 (15)	
B1 (6/6/6)	9.8 (6=)	2.8 / 2
B2 (4/4/4)	6.3 (18)	
B3 (4/4/4)	10.0/ (5)	
B4 (5/4/5)	9.8 (6=)	
B5 (5/5/5)	7.0/ (16)	
B6 (3/3/3)	8.3 (12)	
C1 (7/7/7)	6.4 (17)	3.1 / 1
C2 (6/6/5)	7.5 (13=)	
C3 (4/4/4)	7.5 (13=)	
C4 (5/6/6)	5.5 (20)	
C5 (5/5/5)	17.2 (1)	
C6 (7/7/5)	9.7 (8)	
D1 (5/5/3)	4.4 (23)	2.6 / 3
D2 (4/5/4)	10.5 (3)	
D3 (5/4/5)	3.6 (24)	
D4 (5/5/5)	9.6 (9)	
D5 (5/6/3)	15.4 (2)	
D6 (7/7/7)	5.1 (21)	
Range	***3.6 – 17.2***	
Total posts	***977***	

Table 3. Average posts per student and rank order by small group (all three homeworks)

**Where group size changes, the number chosen for calculating average posts is the mode, except D5, where the mean is used.*

4. Is there a small group effect?

Table 4 shows the relative fluctuation of contribution of each small group over time, by presenting average posts for students and rankings (a) within each large group and (b) across all four large groups. Relative positions within and between large groups fluctuated considerably. Small group rankings within large groups were broadly comparable across the homeworks in large groups A and D, but not in B or C. There is thus insufficient evidence to suggest a small group effect.

Small group	***HW 1 av. posts per student (rank out of 24) (rank within small group)***	***HW 2 av. posts per student (rank out of 24) (rank within small group)***	***HW 3 av. posts per student (rank out of 24) (rank within small group)***
A1	1.3 (11=) (2=)	2.5 (16=) (3)	1.8 (20=) (1)
A2	1.8 (6=) (4)	3.8 (11) (5)	2.8 (10) (6)
A3	2.0 (3=) (5)	4.0 (9=) (6)	2.5 (12=) (4=)
A4	3.7 (1=) (6)	3.6 (12) (4)	2.4 (15=) (3)
A5	1.0 (21=) (1)	2.2 (20=) (2)	2.0 (17=) (2)
A6	1.3 (11=) (2=)	2.0 (22) (1)	2.5 (12=) (4=)
B1	1.3 (11=) (2=)	4.7 (6) (5)	3.8 (4=) (6)
B2	2.0 (3=) (6)	2.3 (19) (1)	2.0 (17=) (1)
B3	1.3 (11=) (2=)	5.3 (5) (6)	3.2 (8) (5)
B4	1.5 (9=) (5)	4.2 (8 =) (4)	2.4 (15=) (2)
B5	1.0 (21=) (1)	3.4 (13=) (2)	2.6 (11) (3)
B6)	1.3 (11=) (2=)	4.0 (9 =) (3)	3.0 (9) (4)
C1	1.1 (19=) (2)	1.7 (23) (1)	3.6 (6) (4)
C2	1.5 (9=) (5)	4.3 (7) (4)	2.0 (17=) (2)
C3	1.8 (6=) (6)	2.5 (16 =) (2)	3.3 (7) (3)
C4	1.2 (17=) (3)	3.0 (15) (3)	1.8 (20=) (1)
C5	1.0 (21=) (1)	12.2 (1) (6)	4.0 (3) (5)
C6	1.3 (11=) (4)	5.4 (4) (5)	4.2 (2) (6)
D1	1.2 (17=) (3)	2.2 (20=) (2)	1.7 (22) (3)
D2	2.0 (3=) (5)	5.5 (3) (5)	2.5 (12=) (4)
D3	1.0 (21=) (1)	1.4 (24) (1)	1.4 (24) (1)
D4	1.8 (6=) (4)	3.4 (13 =) (3)	4.4 (1) (6)
D5	3.7 (1=) (6)	7.2 (2) (6)	3.8 (4=) (5)
D6	1.1 (19=) (2)	2.4 (18) (3)	1.6 (23) (2)
Range	***1.0 – 3.7***	***1.4 - 2.2***	***1.4 - 4.4***
Total posts	***197***	***463***	***317***

Table 4. Variations in small group contributions over time

5. Is there an individual effect?

Table 5 shows the range of individual contributions. 114 students contributed to all three homeworks, with 961 posts altogether. The mean posting per student was 8.4, the median 8. Thirty-nine students (34.2%) posted an average of three or more times per homework, and 44 (38.5%) posted an average of two or fewer. Thus there was considerable variety in student contributions, offering no evidence of an association between academic achievement and online activity in this student group.

To what extent were frequent student posters clustered in the same small groups? Two groups (C5 and D5) consisted only of students who posted above the median rate; four groups (A5, B2, C4, D3) consisted only of students posting below that rate.

Total no. of posts	*No. of students*	*% of students (N=114)*

3 – 4	16	14.0
5	16	14.0
6	12	10.5
7	15	13.2
8 – 9	16	14.0
10 – 11	18	15.8
12 – 29	21	18.4

Table 5. Individual posting totals

Table 6 identifies which small groups included the most frequent student posters. This does suggest that, unsurprisingly, high-posting individuals do affect small group activity rates: only four of the 25 highest-posting individuals were in small groups ranked below 12/24.

Rank of individual (no. of posts)	*Small group (rank)*
1 (29)	C5 (1)
2= (20)	C5 (1)
2= (20)	D5 (2)
2= (20)	B1 (6=)
5 (19)	C6 (8)
6 (18)	D5 (2)
7 (16)	A4 (4)
8= (15)	C6 (8)
8= (15)	D4 (9)
10= (14)	B3 (5)
10= (14)	C5 (1)
10= (14)	C5 (1)
10= (14)	D4 (9)
12= (13)	A3 (10)
12= (13)	B4 (6=)
12= (13)	C1 (17)
12= (13)	D2 (3)
12= (13)	D5 (2)
12= (13)	D6 (21)
18= (12)	A3 (10)
18= (12)	C3 (13=)
20= (11)	A1 (17)
20= (11)	B1 (6=)
20= (11)	C2 (13=)
20= (11)	C6 (8)
20= (11)	D4 (9)
25 (10)	C5 (1)

Table 6. Individuals making 10 posts or more

The thirteen highest-posting students are all to be found in the nine highest-posting small groups. However, the individual effect explains only part of the variation. The range of numbers of individual posts within small groups presented in Table 7 makes it clear that in most small groups, (20/24, 83.3%), some students posted at least twice as much as others, and in 7/24 (29.2%), some posted at least three times as much as others. We may conclude, therefore, that individuals appear to have the most influence on the post rates of small groups, while lecturers, large groups and small groups have less influence on participants.

	Range	*Ratio*
A1	3-11	1:3.7
A2	7-10	1:1.4
A3	5-13	1:2.6
A4	7-16	1:2.3
A5	3-7	1:2.3
A6	3-9	1:3.0
B1	3-20	1:6.7
B2	6-8	1:1.3
B3	7-14	1:2.0
B4	3-13	1:4.3
B5	5-10	1:2.0
B6	8-9	1:1.1
C1	4-13	1:3.3
C2	5-11	1:2.2
C3	5-12	1:2.4
C4	3-8	1:2.7
C5	10-29	1:2.9
C6	7-19	1:2.7
D1	3-7	1: 2.3
D2	7-13	1:1.9
D3	3-8	1:2.7
D4	4-15	1:3.8
D5	9-20	1:2.2
D6	3-13	1:4.3

Table 7. Range of posts, and ratios of low to high posting rates, by small group

Campbell et al (2008) also looked at how online participation relates to overall academic measures. In the case of this course, twenty-eight got 60% or more: their average post rate was 8.4, which is also the average for all students.

Discussion

This study has various limitations. It looks only at some aspects of quantity and not at the content and quality of participation. It was assumed that, for counting purposes, all posts are equal, whereas in reality they are not: some are just a few words (eg. “I agree with John”), and although each student contributed at least 450 words altogether, some contributed far more. Nor can it assess the degree to which online discussion contributed to learning.

Nevertheless, the finding that individuals appear to be more important than lecturers in facilitating participation is important. As the introduction of online discussion forums to this course began, there was anxiety among lecturers about their role. As Table 2 shows, the four lecturers showed very different patterns of online behaviour. Prior to the analysis reported here, individual staff were concerned that their online facilitation had been insufficient or unnecessary. While it is advisable for staff to monitor small group activity to ensure progress, the data presented here show that active participation throughout is not required. Given the heavy demands on staff in most educational centres, this is a welcome finding.

Kamin et al (2006) suggest that facilitators should be active in asynchronous discussions, encouraging discussion and prompting them to think more deeply. In our case, the pressure was not necessary to encourage discussion, as the task was sufficiently well-structured and rewarded. Thinking more deeply in this course could happen in the classroom as they presented to the whole group, an option self-evidently unavailable to exclusively online courses.

It is not surprising that in a short course such as this, no large group effect was detected. Large groups and lecturers had relatively little time to get to know each other, so it was a priori unlikely that large groups would develop dynamically in divergent ways. The effects of large groups and lecturers may be more important in courses of longer duration or when groups are considerably smaller, and there is more opportunity for people to get to know each other. Though small groups worked together in the classroom as well as online, their opportunities to form relationships were still limited, compared with full-time students on three year courses. Whereas the latter can expect ongoing contact with their fellow students, the students in this study might never meet at the end of this short course. It is true that there are several people from each local hospital in each large group, but they will not necessarily be in the same small groups (which are determined alphabetically by surname). In addition, online participation of students in this study may have been limited by their being generally in full-time employment and in many cases having family commitments. However, undergraduates may also have family commitments and to be in part-time work, so such differences between the two types of students cannot be assumed.

There is another reason why our findings may not be transferable to undergraduate education. The tasks that the students were set were clearly structured and de-limited by staff. This may have inhibited some individuals from contributing more, which they might have done with a more open-ended task. However, we believe that a well-focused task is more appropriate for busy professionals, and what limited some, may have been what enabled others to attempt a task seen as demanding or onerous. A fairly large minority of students expressed apprehension about working online, because of limited confidence in electronic communication or because of limited access at work or at home to a computer.

Warren and Rada's (1998) advice to enhance participation by setting a well-structured task suits the scope of a short course very well; the same may not be true of courses for students on longer programmes. Online activity in such contexts may have medium- and long-term objectives: to build skills that will be needed later in the curriculum, for example, or to encourage students to develop discursive and reflective habits of mind for which a tightly structured task may not be an apt preparation.

For these reasons, these findings cannot be assumed to apply to longer courses or curricula. Lecturers, large groups and small groups may be more influential over longer time periods. It would be of value to replicate the methods used in this study to explore online discussion forums that are embedded in different kinds of courses. It would also be of value to analyse contrition more qualitatively, identifying different types of contribution and their relative frequency (see for example the framework suggested by Kim et al (2006).

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