ASCILITE 2020
ASCILTE's First Virtual Conference

ASCILITE
SHAPING THE FUTURE OF TERTIARY EDUCATION

Development of a rubric to assess student participation in an online discussion board

Elizabeth Ware
James Cook University

Online discussion boards provide opportunities for students to share experiences, consolidate knowledge, explore new ideas, and feel connected to other students and faculty. Despite the benefits, many students do not voluntarily engage in discussion board activities. Mandating participation is a contentious issue, but after reviewing the literature, a summative assessment task and a rubric were developed and trialed in a fully online, Australian postgraduate course. An audit of the discussion board posts from two semesters without the assessment task, and two semesters using the assessment task, found the quality and quantity of posts increased. There were significant improvements in regularity, discussion of course concepts, translation to relevant experiences, and support and encouragement for other learners. The initiative successfully created a learning environment and is being implemented in other subjects.

Keywords: higher education, assessment, computer mediated communication, distance education, discussion forums

Introduction

Social learning has significant learning benefits (Bandura, 1986; Vygotsky, 1978). Lave and Wenger (1991) theorised that people learn better when they interact regularly, and Chickering and Gamson (1987) recommend that reciprocity and cooperation be promoted among students in higher education courses. Additionally, the development of learning communities in distance education can reduce students' feelings of isolation and provide opportunities for collaborative learning (Yuan & Kim, 2014). For fully online courses, discussion boards can enable students to interact, share knowledge and feel connected (Chen, Chang, Ouyang, & Zhou, 2018). However, many students do not voluntarily engage in discussion board activities or only communicate in a superficial manner that does not contribute to the learning environment in a meaningful way.

How educators provide social learning opportunities, and ensure student participation, in online university courses, is a current teaching challenge. Mandating participation can lead to student dissatisfaction if they perceive the exercise to be of little value or the required extra work has no marks attached (Blissenden, Clarke, & Strevens, 2012). Formally assessing participation in the discussion board is based on the notion that assessment is a key driver for student learning (Biggs & Tang, 2011; Matheson, Wilkinson, & Gilhooly, 2012). Assessing discussion board participation is somewhat contentious (Osborne, Byrne, Massey, & Johnston, 2018) though much research has found students are more engaged with the course content and gain higher marks (Birch & Volkov, 2007; Maddix, 2012; Song, Rice, & Oh, 2019), display improved critical thinking skills (Brown, 2014; Giacumo & Savenye, 2020), form connections with other students and faculty (Tirado-Morueta, 2017) and apply knowledge to practical situations.

Research Aim

This research seeks to describe and evaluate an assessment task and rubric that was developed and implemented in a postgraduate online course. The aim of this study is to audit the discussion board posts in a fully online postgraduate subject before and after the assessment task was introduced. The research question is 'What impact does a summative assessment task, that mandates discussion board contributions, have on the learning environment in an online postgraduate subject?'

Methods

The literature was reviewed to identify relevant criteria to develop the assessment task and rubric to grade participation in the discussion board. Nandi, Chang and Balbo (2009) found the existing criteria for the

assessment of quality in discussion boards did not focus on interaction or engagement. They proposed a framework that included criteria and ratings for content, interaction quality, and objective measures (participation rates and consistency of participation). This framework and subsequent studies were reviewed to select the following elements: contributions are regular and timely (Kemble, 2017; McKinney, 2018; Nandi, 2009; Phillippi, 2015), contributions display knowledge/content (McKinney, 2018; Nandi, 2009; Phillippi, 2015), contributions are reflective (Giacumo & Savenye, 2020; Nandi, 2009; Phillippi, 2015), contributes to social learning environment (McKinney, 2018; Nandi, 2009; Phillippi, 2015), additional resources shared (Kemble, 2017), and contributions are appropriately written and collegial (McKinney, 2018; Phillippi, 2015).

The new assessment was trialled in one subject in a fully online postgraduate course, for two semesters. To evaluate the new initiative, discussion board posts from the two semesters before the assessment was implemented were compared to the two semesters where the new assessment requirement had been implemented.

Each student name was allocated a unique identifying code and their posts were then scored by a single coder (the author) using six criteria each with a scoring scale of zero to ten (see Table 1).

Table 1 – Audit criteria of discussion board contributions

Criteria	Score	10-9	8-7	6-5	4-3	2-0
Contributions are regular and timely (posted within 2 weeks of each module)		Contributions for 9 or 10 modules are regular and timely.	Contributions are regular and timely for 7 or 8 modules. Or contributions for 9 or 10 modules, posted within 4 weeks of proposed timetable.	Contributions are regular and timely for 5 or 6 modules. Or contributions for 6 or 7 modules, posted within 4 weeks of proposed timetable.	Contributions are regular and timely for 3 or 4 modules. Or contributions for 4 or 5 modules, posted within 4 weeks of proposed timetable.	Contributions are regular and timely for less than 3 modules. Or contributions for 4 or 5 modules, posted within 4 weeks of proposed timetable.
Contributions display knowledge of subject material		9 or 10 posts contain factually correct and substantive knowledge, and are relevant to discussion board tasks.	7 or 8 posts contain factually correct and substantive knowledge and are relevant to discussion board tasks. Or 9 or 10 posts display some factually correct knowledge that is relevant to discussion board tasks.	5 or 6 posts contain factually correct and substantive knowledge and are relevant to discussion board tasks. Or 7 or 8 posts display some factually correct knowledge that is relevant to discussion board tasks.	3 or 4 posts contain factually correct and substantive knowledge and are relevant to discussion board tasks. Or 5 or 6 posts display some factually correct knowledge that is relevant to discussion board tasks.	Less than 3 posts contain factually correct and substantive knowledge and are relevant to discussion board tasks. Or 3 or 4 posts display some factually correct knowledge that is relevant to discussion board tasks.
Contributions are reflective		9 or 10 posts contain relevant experiences, examples, stories, or reflections about the teaching strategies or implications for future practice.	7 or 8 posts contain relevant experiences, examples, stories, or reflections about the teaching strategies or implications for future practice.	5 or 6 posts contain relevant experiences, examples, stories, or reflections about the teaching strategies or implications for future practice.	3 or 4 posts contain relevant experiences, examples, stories, or reflections about the teaching strategies or implications for future practice.	Less than 3 posts contain relevant experiences, examples, stories, or reflections about the teaching strategies or implications for future practice.

Contributions support social learning environment		9 or 10 posts support and encourage other learners, or contribute to the social/networking environment	7 or 8 posts support and encourage other learners, or contribute to the social/networking environment	5 or 6 posts support and encourage other learners, or contribute to the social/networking environment	3 or 4 posts support and encourage other learners, or contribute to the social/networking environment	Less than 3 posts support and encourage other learners, or contribute to the social/networkin g environment
Additional Resources Contributed		9 or 10 additional valuable resources suggested (Eg current literature, video, web-based tool, workshop, podcast).	7 or 8 additional valuable resources suggested (Eg current literature, video, web-based tool, workshop, podcast).	5 or 6 additional valuable resources suggested (Eg current literature, video, web-based tool, workshop, podcast).	3 or 4 additional valuable resources suggested (Eg current literature, video, web-based tool, workshop, podcast).	Less than 3 additional valuable resources suggested (Eg current literature, video, web-based tool, workshop, podcast).
Clarity		All of the posts are clear and easy to read, and are written in a collegial manner.	Most of the posts are clear and easy to read, and are written in a collegial manner.	Some of the posts are clear and easy to read, and are written in a collegial manner. A few of the posts are poorly written or difficult to understand.	A few of the posts are clear and easy to read, and are written in a collegial manner. Some of the posts are poorly written or difficult to understand.	Posts are poorly written or difficult to understand. Some posts use an impolite manner.

The data were analysed using descriptive statistics (total number of posts per group, means and standard deviations) and simple unpaired, two-tailed t-tests for each criterion pre and post the assessment task implementation. To comply with ethics requirements, individual student scores are not reported; only the group totals, averages and statistical significance between the pre and post assessment groups are reported.

The postgraduate course is fully online on the BlackBoard learning management system which provides a discussion board function. The course facilitator sets up weekly discussion topics and questions, as well as a virtual 'lunch room' thread for introductions and general networking, and all posts are viewable by the enrolled students and subject staff.

Results

The number of students audited before the assessment task was implemented was 31. They contributed a total of 189 posts (average of 6.10 posts per student). The number of students after the assessment task was implemented was 29 with 433 posts contributed (average of 14.93 posts per student).

For the criterion 'Contributions are regular and timely' which required posts to be submitted within two weeks of timetabled weekly modules, the scores significantly increased ($p<0.05$) from pre-assessment (mean = 3.55, sd = 3.48) to post-assessment (mean = 8.21 sd = 2.57). Similar significant increases were recorded in the criteria 'Contributions display knowledge of subject material', 'Contributions are reflective/describe experiences' and 'Contributions support social learning environment'. For the criterion 'Additional resources are contributed' which required students to provide information about helpful resources (Eg current literature, video, web-based tool, workshop, podcast) there were almost no resources noted (mean = 0.06, sd = 0.25) in the pre-assessment posts. Although a significant increase ($p < 0.05$) was noted for the post-assessment scores (mean = 1.21, sd = 1.15) the mean scores were markedly below the scores in the other criteria. The last criterion regarding the 'Clarity' required posts to be clear and easy to read, and written in a collegial manner. Grammar, punctuation and referencing were not assessed; there was a significant increase ($p < 0.05$) from the pre-assessment scores (mean = 7.90, sd = 3.75) to the post-assessment scores (mean = 9.59, sd = 1.88) though both these means are well above those calculated for the other criteria. See Table 2.

Table 2 – Results of scoring of discussion board contributions

Criteria	Pre-Assessment Mean (sd) n=31	Post-Assessment Mean (sd) n=29	p- value
Contributions are regular and timely	3.55 (3.48)	8.21 (2.57)	0.000
Contributions display knowledge of subject material	3.48 (3.69)	8.00 (2.54)	0.000
Contributions are reflective/describe experiences	3.48 (3.61)	8.52 (2.44)	0.000
Contributions support social learning environment	3.19 (3.40)	7.17 (3.55)	0.000
Additional resources are contributed	0.06 (0.25)	1.21 (1.15)	0.000
Clarity	7.90 (3.75)	9.59 (1.88)	0.032

Discussion and conclusions

Assessing student participation in a discussion board increased the quality and quantity of contributions. The assessment task and criteria sought to highlight to students the importance of social learning and connectedness. The rubric used criteria reported in the literature that were considered important for this fully online subject.

Developing a sense of community in an online environment can be facilitated using a discussion board (Ajayi, 2010), though different approaches to achieve varying learning outcomes are reported in the literature. There is, however, wide consensus, that communication should be regular and address the current learning topics. My study found that students do not engage regularly with the discussion board when no marks are awarded for participation. Despite being informed about the benefits of social learning at the start of each semester, and being provided with potential objectives that could be used to develop personal goals, there was limited use of the discussion board. The introduction of the assessment task, which contributed to 10% of the final grade, had a significant impact on student engagement. To incentivise regular postings students are assessed on how many topics they respond to and the timeliness of their responses. Contributions that are made within two weeks of posted questions are considered timely for this postgraduate subject. To further encourage the social learning environment students are awarded marks for posts that support and encourage other learners, or contribute to the networking environment. A discussion board thread called 'lunch room' is provided for general networking, and students are encouraged to introduce themselves and attach an image of themselves. To further support the social learning, students are encouraged to provide additional resources that may be of use to others in the class (Eg current literature, videos, workshops, podcasts).

To ensure students are engaging with the subject material, and are understanding the key concepts and learning relevant terminology, the contributions are required to display knowledge learned in each course module. Further, constructing new knowledge and meaning of concepts can be enhanced when students share their understanding. This study showed that assessing discussion board posts for knowledge gained from the course material significantly increased the theoretical, evidence-based content of the posts. It is beyond the scope of this small project to investigate the impact on the final grades, though anecdotal evidence (in synchronous tutorials, and other assignments) suggests a greater number of students had acquired a better grasp of the course content.

To situate the meaning of the new knowledge students are encouraged to reflect on how it may be useful for their work practices. By allocating marks to posts that demonstrate the translation of new knowledge to practical scenarios, this study found that the student contributions contained significantly improved analyses of course content. The discourse demonstrated greater critical thinking and higher order cognitive skills. The students are encouraged and awarded marks for describing relevant experiences, examples, stories, or reflections about how they are using newly learnt content, or reflections about implications for future practice.

The use of mandatory assessment of the discussion board, with clearly defined criteria, improved the quality of contributions and facilitated greater connectedness between students. Students demonstrated knowledge and engagement with the subject material. This assessment task has improved the online learning environment and is being implemented in other subjects. The criteria identified for this assessment tool may contribute to other studies published on the development and effectiveness of mandating and assessing discussion board contributions.

Limitations

This research audited data from four small cohorts of students in one postgraduate subject. The subject content, which is about health professional education, lends itself to discussion of new content and concepts, so the criteria developed for this assessment tool is merely a guide for others.

Reference List

Ajayi, L. (2010). How Asynchronous Discussion Boards Mediate Learning Literacy Methods Courses to Enrich Alternative-Licensed Teachers' Learning Experiences. *Journal of Research on Technology in Education, 43*(1), 1–28.

Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Biggs, J. B., & Tang, C. (2011). Constructively aligned teaching and assessment. In J. B. Biggs & C. Tang (Eds.), *Teaching for quality learning at university* (4th ed. ed., pp. 95–110). Maidenhead, England: McGraw- Hill Education.

Birch, D., & Volkov, M. (2007). Assessment of online reflections: Engaging English second language (ESL) students. *Australasian Journal of Educational Technology, 23*(3), 291–306.

Blissenden, M., Clarke, S., & Strevens, C. (2012). Developing online legal communities. *International Journal of Law and Management, 54*(2), 153-164. doi:10.1108/17542431211208568

Brown, A. L. (2014). Implementing Active Learning in an Online Teacher Education Course. *American Journal of Distance Education, 28*(3), 170–182. doi:http://dx.doi.org/10.1080/08923647.2014.924695

Chen, B., Chang, Y. H., Ouyang, F., & Zhou, W. (2018). Fostering student engagement in online discussion through social learning analytics. *The Internet and Higher Education, 37*, 21–30. doi:10.1016/j.iheduc.2017.12.002

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *American Association for Higher Education Bulletin, 39*(7), 3–7.

Giacumo, L. A., & Savenye, W. (2020). Asynchronous discussion forum design to support cognition: effects of rubrics and instructor prompts on learner's critical thinking, achievement, and satisfaction. *Educational Technology, Research and Development, 68*(1), 37–66. doi:http://dx.doi.org/10.1007/s11423-019-09664-5

Kebble, P. G. (2017). Assessing Online Asynchronous Communication Strategies Designed to Enhance Large Student Cohort Engagement and Foster a Community of Learning. *Journal of Education and Training Studies, 5*(8), 92–100.

Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.

Maddix, M. A. (2012). Generating and facilitating effective online learning through discussion. *Christian Education Journal, 9*(2), 372–385.

Matheson, R., Wilkinson, S. C., & Gilhooly, E. (2012). Promoting critical thinking and collaborative working through assessment: combining patchwork text and online discussion boards. *Innovations in Education and Teaching International, 49*(3), 257–267. doi:10.1080/14703297.2012.703023

McKinney, B. K. (2018). The Impact of Program-Wide Discussion Board Grading Rubrics on Students and Faculty Satisfaction. *Online Learning, 22*(2), 289–299.

Nandi, D., Chang, S. & Balbo, S. (2009). A conceptual framework for assessing interaction quality in online discussion forums. In Same places, different spaces. Proceedings ascilite Auckland 2009. http://www.ascilite.org.au/conferences/auckland09/procs/nandi.pdf

Osborne, D. M., Byrne, J. H., Massey, D. L., & Johnston, A. N. B. (2018). Use of online asynchronous discussion boards to engage students, enhance critical thinking, and foster staff-student/student-student collaboration: A mixed method study. *Nurse Educ Today, 70*, 40–46. doi:10.1016/j.nedt.2018.08.014

Phillippi, J. C., Schorn, M. N., & Moore-Davis, T. (2015). The APGAR rubric for scoring online discussion boards. Nurse Education in Practice, 15(3), 239–242. doi:10.1016/j.nepr.2014.11.002

Song, D., Rice, M., & Oh, E. Y. (2019). Participation in online courses and interaction with a virtual agent. *International Review of Research in Open and Distributed Learning, 20*(1). doi:http://dx.doi.org/10.19173/irrodl.v20i1.3998

Tirado-Morueta, R., Maraver-López, P., & Hernando-Gómez, Á. (2017). Patterns of participation and social connections in online discussion forums. Small Group Research, 48(6), 639–664. doi:10.1177/1046496417710726

Vygotsky, L. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Yuan, J., & Kim, C. (2014). Guidelines for facilitating the development of learning communities in online courses. *Journal of Computer Assisted Learning, 30*(3), 220–232. doi:10.1111/jcal.12042