

The Value of Collaborative E-Learning: Compulsory versus Optional Online Forum Assignments

Ruti Gafni and Nitza Geri

*The Department of Management and Economics,
The Open University of Israel, Raanana, Israel*

rutiga@openu.ac.il; nitzage@openu.ac.il

Abstract

Online forum assignments are one of the main tools for collaborative learning. This study examines the impact of compulsory submission on the effectiveness of forum assignments. It compares the grades of 120 MBA students who studied an advanced elective course in a blended distance learning university during the years 2005-2009. Some students were required to participate in a forum assignment and their submissions were graded, whereas other students were similarly asked to participate in a forum assignment but their work was not graded. The findings suggest that the benefits of optional forum assignments are marginal, whereas compulsory forum assignments may improve student performance. The main theoretical contribution of this study is the indication that although the students had a task-oriented attitude and were not engaged in social interaction with regard to the forum assignment, compulsory posting of the assignment on the discussion board, improved their performance. Practically, the findings suggest that publishing student assignments on a course website may improve assignments' quality and therefore enhance student performance, even if there is no further collaboration or social interaction. This finding is important since creating meaningful collaboration in online environments requires considerable instructors' efforts in moderating the discussion.

Keywords: online forum assignments, online discussion forums, effectiveness of instructional technologies, collaborative learning, social aspects of online educational forums, value of information, information economy.

Introduction

Collaborative learning is considered one of the most effective ways to improve learning (Tinto, 1998). Students help each other gain better understanding of the studied themes by discussing their assignments (McNamara & Brown, 2008; Salmon, 2004). Furthermore, the value of collaborative learning also stems from the social interaction among students and their mutual support, which increases retention (Guri-Rosenblit, 2005; Levy, 2007). E-learning systems offer new ways of collaborative learning that may enhance student performance (Hrastinski, 2009; Langley, Ronen, & Ben Shachar, 2008). One of the benefits

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of e-learning is that it enables collaborative learning, which involves all the students in a particular class. There are many sorts of collaborative online learning activities, e.g., wikis (Konja & Ben-Zvi, 2009) and blogs (Blau, Mor, & Neuthal, 2009), or different levels of collaborative document writing and peer reviews (Blau & Caspi, 2009), or collaborative projects that require team work and use the online environment for communication (Ellis & Hafner, 2008). This study focuses on online forum assignments and measures the impact of compulsory submission on their effectiveness.

Discussion boards (i.e., forums) are one of the primary tools of e-learning (Harman & Koohang, 2005). Student learning in forums includes two main sorts of activities: passive reading of the forum content and active participation by writing their own posts. Prior studies (Saadé & Huang, 2009) indicate that the extent of views is much larger than the extent of posts. However, it seems that if active participation in the discussion is optional, students are reluctant to do so (Wishart & Guy, 2009). This research investigates the relative effectiveness of optional versus compulsory online forum assignments. There are many interpretations to the meaning of effectiveness, and there are various stakeholders involved, e.g., the institutions that provide e-learning services (Guri-Rosenblit, 2005, 2009) and the instructors that manage the discussions and are responsible for their quality (Salmon, 2004). Effectiveness is measured in this study by the impact on student performance.

The main theoretical contribution of this study is in indicating that, although the students had a task-oriented attitude and were not engaged in social interaction, the compulsory posting of the assignment on the discussion board, improved their performance. The fact that the assignment is posted on an online forum and can be read and criticized by other students and not only by the instructor, causes the students to increase their efforts in composing that assignment. These efforts are translated to better analyses than those performed in other regular assignments, which are delivered only to the instructor. Therefore, the quality of the online assignments is higher. This training in writing high quality assignments combined with the implicit requirement that each student should read the postings of all the others, leads to student higher performance in the final exams.

This empirical study contributes to the body of knowledge dealing with measurement of the real value of information (Ahituv, 1980, 1989), which has been rarely studied (Eshet-Alkalai & Geri, 2007; Raban, 2007). Furthermore, the findings add to the informing science framework (Cohen, 1999, 2009) by showing that the mere publication of a work may improve the author's comprehension of the subject matter due to the need to present it in an adequate manner.

From a practical perspective, the findings suggest that publishing student assignments on a course website may improve the quality of the assignments and enhance student performance, even if there is no further collaboration or social interaction among the students. These findings are important because creating meaningful collaboration in online environments usually requires a lot of efforts of the instructor in moderating the discussion (Salmon, 2004; Wishart & Guy, 2009), so sometimes instructors are disinclined to initiate such projects. However, the mere posting of assignments does not involve much effort of the instructor, and as the results indicate, this simple action improves learning.

Methodology

This study utilized a task-oriented research approach, in which participants are required to perform real-life authentic tasks (Wiggins, 1992, 1993). Data of the actual performance of 120 students, who were enrolled in an advanced elective MBA course at the Open University of Israel, was used to examine the relative effectiveness of optional and compulsory online forum assignments. Unlike most studies, which use surveys to collect data on student subjective perceptions

(e.g., Balaji & Chakrabarti, 2010) or suggest qualitative criteria for online forums' assessment (McNamara & Brown, 2008), this study measured real performance and used objective measures, i.e., the students' exam grades.

In one of the assignments of the course, the students had to find an up-to-date article in a newspaper, either electronic or printed, which was related to the course themes. Each student was assigned to a different week during the semester. The students were asked to analyze the article, according to the models and concepts learned in the course, and to upload the analysis to the course online forum. In addition, each student had to write at least two comments to other students' analyses. In these comments, the students had to add a new part to the analysis, giving a different point of view or focusing an issue not yet analyzed. Unlike other studies that examined various aspects of online forum discussions (e.g., Gefen, Geri, & Paravastu, 2008; Saadé & Huang, 2009; Wishart & Guy, 2009), the students in this particular study were not required to be engaged in threaded discussions.

This assignment has been conducted in the course for seven semesters, during the years 2005-2009. During all these semesters the course has been taught by the same instructor. The level of difficulty and the nature of the assignments and exams has remained the same. The policy of grading was kept alike over the period of the study and beyond. In the first two semesters, the assignment was optional, but in the following semesters it was compulsory. A one-way analysis of variance (ANOVA) test of the students' final exam mean grade showed that the levels of the students in the two first semesters ($F=.081$, $p=.777$), and in the following five semesters ($F=1.700$, $p=.161$) that were included in this study, were homogenous. Hence, the students were assigned to two groups: optional and compulsory.

Four students were excluded: One student participated in all the activities, but did not take the exam because he was already entitled to graduate. One outstanding student in the optional group was exceptionally engaged in learning and had many interactions with the instructor and fellow students. Furthermore, he was the only one that commented on other students' work. The last two were students who dropped out and never completed the course requirements (about 2% drop-out rate).

The instructions for the forum assignment were intentionally unstructured. They did not define what to analyze, how long the analysis has to be, or the nature of the comments. The only requirement was that repetitions were forbidden, which meant that the students must read prior posts. Many studies evaluate the quality of collaborative learning by analyzing the content of the messages (e.g., Ma, 2009) or combining qualitative and quantitative methodologies (e.g., Schrire, 2006). This study takes a different approach and evaluates the impact of the collaborative assignment on the students' exam grade.

Results

Table 1 presents the students' demographics and descriptive data regarding their exam grade, the other assignments average grade, the online forum assignment analysis grade and its length. Age data was not collected, the average age of graduate students at the Open University of Israel in 2008 was 34.5 (SD 7.9) and the median was 32. The graduates' average age was 37.0 (SD 8.8) and the median was 34 (Open University President's report, 2008). Of the 120 participants, there were 73 men (60.8%) and 47 women (39.2%), whereas the general graduate gender proportion at the Open University of Israel is approximately 50% men and 50% women. Nevertheless, there were no gender differences in the findings.

Table 1: Students' demographics, grades and analysis length		
	Optional assignment	Compulsory assignment
Semesters	2005B, 2006A	2007A, 2007B, 2008B, 2008C, 2009A
Total number of students	53	67
Gender	31 Men (58.5%) 22 Women (41.5%)	42 Men (62.7%) 25 Women (37.3%)
Exam grade		
Mean	84.42	86.96
Standard deviation	6.88	6.60
Percentile 25	81	81
Median	85	88
Percentile 75	88	91
The other assignments average grade		
Mean	83.78	85.88
Standard deviation	6.92	7.01
Percentile 25	81	81.5
Median	86	87
Percentile 75	89	91
Analysis grade		
Mean	NA	88.81
Standard deviation	NA	9.42
Percentile 25	NA	80
Median	NA	90
Percentile 75	NA	100
Analysis length (word count)		
Mean	104	800
Standard deviation	73	426
Percentile 25	62	511
Median	86	652
Percentile 75	131	1,006

The mean exam grade of the compulsory group was 86.96 (SD=6.60) and a t-test ($t = -2.054$, $p = .042$, 118 df, equal variances assumed, Levene's test for equality of variances: $F = .133$, $p = .716$) showed that it was significantly higher than the mean exam grade of the optional group, which was 84.42 (SD=6.88). Although the mean grade of the other assignments was higher for the compulsory group, 85.88 (SD=7.01), than the optional group, 83.78 (SD=6.92), the difference was insignificant ($t = -1.634$, $p = .105$, 118 df, equal variances assumed, Levene's test for equality of variances: $F = .350$, $p = .555$). However, a paired sample t-test indicated that the mean analysis grade of the 67 students who completed the compulsory assignment, 88.81 (SD=9.42), was significantly higher than their average grade for the other assignments, 85.88 (SD=7.01), ($t = 2.663$, $p = .010$, 66 df).

There was also an apparent qualitative difference in the depth of the analyses performed by the two groups. Although no content analysis was performed in this study, and the length of a message does not necessarily indicate anything about its quality, the significant difference between the average lengths, 800 words (SD=426) versus 104 words (SD=73) ($t = -13.09$, $p = .000$, 71.28

df, equal variances not assumed, Levene's test for equality of variances: $F=39.285$, $p=.000$), suggests that the compulsory analysis was not just more elaborative.

Out of the 53 students in the optional group only 4 students (7.54%) did not perform the analysis at all. Two additional students uploaded a relevant news item, but did not analyze it. The other 47 students uploaded an article and accompanied it with a short analysis. Although the instructor responded to each analysis, and even asked guiding questions, none of the students reacted, except for the one outstanding student mentioned earlier, who was not included in this study. On the other hand, all the students in the compulsory group performed the analysis and wrote comments to two other posts, as required. Here again, there was a handful of students who responded more than the obligatory two posts, on which they were graded, but no discussion emerged.

It should be noted that during all these years, the regular student satisfaction surveys conducted by the university indicated that the students were very satisfied with the course site content and level of support of their learning. Hence, it seems that the students were not interested in more online interaction.

Discussion

The findings of this study suggest that compulsory online forum assignments may improve student performance, as measured by their final exam grade. As seen, there were no significant differences in the grades of the other assignments, between the compulsory and optional groups, which indicate that the policy of grading was equal in both cases. The low involvement of students in forum discussions implies that the main factor that contributes to student performance is their own analysis, which is posted on the forum, and not explicit collaborative learning. The online forum is an information system that enables different levels of collaboration. The average grade of the forum assignment was significantly higher than the average grades the students obtained in other assignments, which were not published on the course website. This may be explained by the students' desire to post a presentable analysis. They try harder, they devote more time for this analysis, so their learning improves, their grade in this specific assignment is better, and as a result, their exam grades are also higher. So the fact that the analysis is published and exposed to the eyes and criticism of their colleagues, improves student performance. Furthermore, students read others' postings and they may learn from them. They are also required to comment on two other postings, and since the initial analyses are generally very good, they need to elaborate and find less obvious aspects. Therefore, their learning improves.

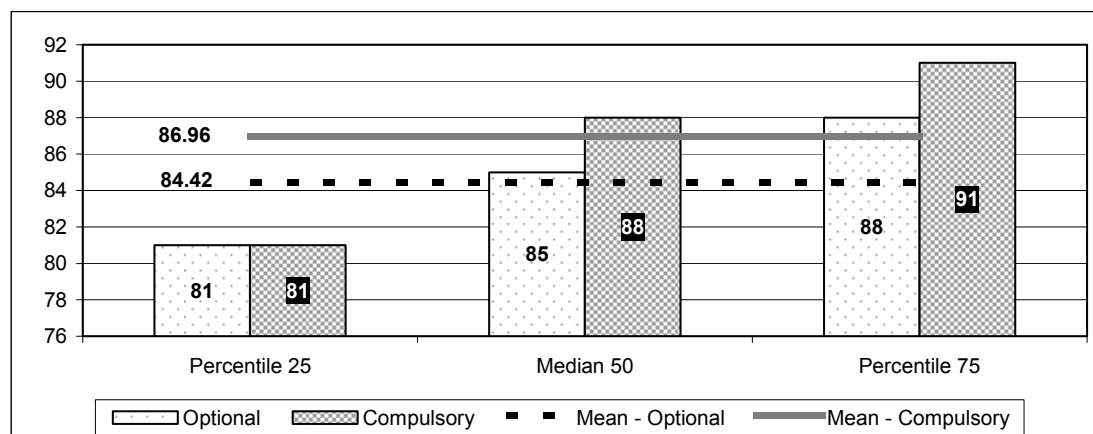


Figure 1: Average exam grades: Compulsory versus optional groups

Another noteworthy observation, which is demonstrated in Figure 1, is that while the average exam grades of students at the lower 25th percentile was the same for the compulsory and optional groups, the average exam grades for the 50th and 75th percentiles were higher in the compulsory group. This finding suggests that assignments that are unstructured and require more efforts will be more beneficial for average and excellent students, but will not contribute much to weaker ones. However, this proposition should be corroborated in further studies, and it should be noted that the students in our sample were all graduate students, so these findings may not be applicable to undergraduates.

Interestingly, the students of both groups had a task-oriented attitude and were not engaged in social interaction with regard to the forum assignment. The fact that there were no gender effects supports this conclusion, since gender differences tend to emerge in online discussion boards that involve social interaction (Gefen et al., 2008). Student task-oriented attitude was found in prior research, e.g., Chan and Waugh (2007) who studied student participation in online activities at the Open University of Hong Kong. American Graduate Management Information Systems students valued reading their peers postings but assigned lesser value to replying to other students' messages (Levy, 2006). Beaudoin, Kurtz, and Eden (2009) found in their cross-cultural study that Western students attributed less importance to online relationships with peers.

The students' posting of just the two obligatory comments can also be explained from an attention economy perspective (Davenport & Beck, 2000, 2001; Geri & Gefen, 2007); since MBA students are usually very busy, they don't have time to engage in optional learning activities, so they take a satisficing approach (Simon, 1957, 1971) and complete only compulsory tasks. Even instructor encouragement may not influence their behavior (Yang, Yan, Tan, & Teo, 2007). Another closely related phenomenon, which was analyzed in a sequel study (Gafni & Geri, 2010), is students' proclivity to procrastinate the completion of the comments part of the assignment until the end of the semester. Procrastination is well-known in general and especially in learning contexts (Ariely & Wertenbroch, 2002). Toward the end of the semester, students are usually busier, and therefore they are expected to be less inclined to perform voluntary activities, such as becoming engaged in online forum discussions.

Further empirical studies are required in order to validate the conclusions of this study. It should be noted that the participants in this research were graduate MBA students toward the completion of their studies, and therefore their behavior and performance may be very different from those of other populations.

Conclusion

Creating meaningful collaboration in online environments entails sizable efforts of instructors in planning and moderating the discussion (Salmon, 2004). However, it seems that students are usually not enthusiastic to be engaged in collaborative e-learning, and adopt a satisficing attitude (Geri & Gefen, 2007). Nevertheless, the findings of this study demonstrate the potential contribution of compulsory online forum assignments to learning processes.

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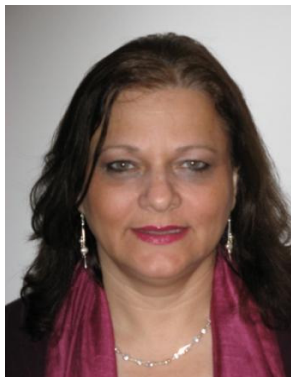
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Biographies



Dr. Ruti Gafni holds a PhD from Bar-Ilan University, Israel in the Business Administration School, focusing in Information Systems. She holds an M.Sc. from Tel Aviv University and a BA (Cum Laude) in Economics and Computer Science from Bar-Ilan. She has more than 30 years of practical experience as project manager and analyst of information systems. She teaches in the Management and Economics MBA program, both at the Open University of Israel and at Netanya Academic College.



Dr. Nitza Geri is Head of the Department of Management and Economics, the Open University of Israel and a member of the Chais Research Center for the Integration of Technology in Education. She holds a B.A. in Accounting and Economics, an M.Sc. in Management Sciences and a Ph.D. in Technology and Information Systems Management from Tel-Aviv University. Nitza is a CPA (Israel) and prior to her academic career she had over 12 years of business experience. Her research interests and publications focus on various aspects of the value of information, and information systems adoption and implementation, including strategic information systems, e-business, value creation and the Theory of Constraints, managerial aspects of e-learning systems adoption and use. Personal site: http://www.openu.ac.il/Personal_sites/nitza-geri.html