

Asynchronous Learning Network and Student Outcomes: The Utility of Online Learning Components in Blended Learning Environment—A Case Study of the Course of International Finance (Bilingual)

Li Jiang

School of Economics and Management, Ningbo University of Technology, P.R., Jingzhou 315211, Hubei, China. E-mail: jl@nbut.edu.cn

Abstract : In this research we focus on the Asynchronous Online Course Management System (AOCMS) that provide students and instructors with opportunities to extend learning outside of the classroom and to share knowledge outside the classroom. We found AOCMS was successful in providing students with a means to explore and share new information, and with a powerful mechanism for building course community, increasing course interaction and aiding in learning. By employing the data of the usage of AOCMS and the scores of the students in a hybrid class, the research reveals a significantly positive partial correlation between the overall usage and the exam scores.

Keywords : Asynchronous Learning Network; Blended Learning; Student Outcomes

1. Introduction

Nowadays, online technologies play increasingly important roles in learning. More and more universities utilize the internet to supplement in-class learning, with some offering complete courses online. Studies in online collaboration have shown that virtual communication patterns correspond in similar fashion to real-life communication. Researchers found that a higher quality of electronic communication helps to engage students and aids in their learning of the course material. As in face-to-face communication, members of online social learning environments are able to state what they think, comment on what others have said, collaborate on common statements, and share information in many forms. Additionally, as members of a learning community, students have the right to comment on what others have said, collaborate on common interests, and share information in many forms. Accordingly, online social learning environments offer a valid form of learning and offer many different methods for students to interact with instructors and their peers.

An asynchronous online course management system across educational environments can be conceptualized as the ability of a system to facilitate cognitive, on-topic, on-task, and sustained discussion among a community of learners. A strong sense of course community among students can increase interactions among students, and the interactions generate a more significant impact on students' learning outcomes than merely student-instructor interaction does.

2. Theoretical model

Theory plays an integral role in how we create and manipulate our online learning community (OLC) design and helps guide how new sub-components can facilitate learning, social interaction and course community. Our model incorporates theories of individual learning and classroom interaction (Constructivism), peer-to-peer interaction and community (Social Presence) and the various activities to accomplish course objectives (Activity Theory).

Constructionism has been proven to be a widely effective theory for understanding the multiple dimensions that learners bring

Copyright © 2021 Li Jiang

doi: 10.18686/ah.e.v5i9.3965

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

into the classroom. When dealing with the blended learning environment, online plus face to face, establishing a dynamic context, in which the student can manipulate as they see, is essential. Since our OLC is based primarily on the social networking model, learners have a greater freedom to approach learning from multiple angles, choosing when and where they want to participate.

Activity theory provides the appropriate lens for viewing how individuals utilize specific technologies to accomplish course goals. The activity theory considers human activities to be directed at objects and mediated by artifacts (Vygotsky 1987). In educational environments, when instructors are able to choose activities from both online and face-to-face channels, they are also able to select the activities that provide the best fit for any particular learning objective (Heckman and Annabi 2006; Mor et al. 2005).

3. Methods

3.1 Participants

The sample consisted of 65 students (20 males and 45 females) enrolled in the international finance courses (bilingual) at School of Economics & Management, Ningbo University of Technology. Students are in the second year classes.

3.2 Procedure

The research focuses on the courses that is designed as traditional, face-to-face courses included various online elements available to students through the asynchronous online course management system, Chaoxing online learning system. Components are available to students included the contact information of the instructor, various course information regarding teaching contents and teaching calendar. In addition, all documents presented in class are also available online. For example, students could view all chapter outlines, PPTs, group and individual assignments, study guides and supplementary learning materials such as extend reading articles and videos. Students also receive reminders about assignments and quizzes via the discussion board and the announcements functions within Chaoxing platform. The Chaoxing system is well-integrated into the course and students are encouraged throughout the term to utilize the site.

The usage of the Chaoxing system is assessed using the tracking records function that is available to instructors. This utility provides instructors with detailed information on the number of times (bits) students access the Chaoxing site as well as the specific areas they access. Individual performance data is also collected for each student. Individual scores on each chapter online quizzes are also collected and averaged to create an overall score. In addition, each student's grade is also obtained from students' online group papers, news report activities, online articles reading and video learning. The followings evidences exhibit the online activities of students (Figure 1, Figure 2, Figure 3).

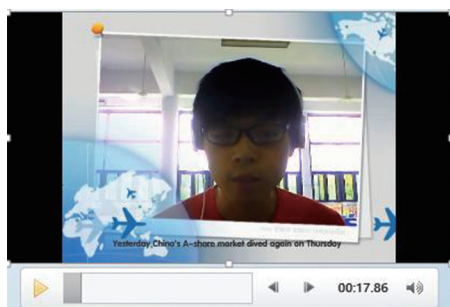


Figure 1. Self-recorded News Report.



Figure 2. Group Paper.

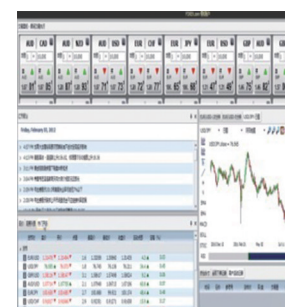


Figure 3. Stimulated Trading.

4. Results

4.1 Onlineclass performance

Total Chaoxing usage is from 3 to 137 with an average of 42.15 hits and a standard deviation of 34.25. Considering the gender difference, females did significantly more ($M= 50.8, SD= 34.46$) than did males ($M= 22.7, SD= 25$). The length of watching online videos ranges from 0 to 220.8 with an average of 93 minutes and a standard deviation of 67.94, females spent averagely almost double on online learning ($M= 109.25, SD= 66.36$) than did males ($M= 56.6, SD= 57.71$). The participation of online discussion ranges from 0 to 35 with an average of 4.56 times and a standard deviation of 7.06, female illustrated more passion on online discussion ($M= 6.15, SD= 7.91$), male almost was the silent group ($M= 0.95, SD= 1.70$).

4.2 Online performance and student grades

Average grade in the class is 89 ($SD= 12.20$). The final grades of the female students are significantly higher ($M= 91, SD= 6.95$) than those of the male students ($M= 82, SD= 18.36$). For females, the correlation between students' online class performance

and final grade in the course are 0.34, 0.33, and 0.47 respectively to amount of online visits, the degree of participation of online discussion and the length of watching online videos. The correlation coefficients show the stronger relation between students' online class performance and final grade in the course for male, since the numbers are 0.45, 0.26, and 0.52.

To test the significance of the correlations, for female, a partial correlation and t-test reveals a small but significant correlation (coefficient= 0.0394, $p= 0.0325$) between students' online videos watching and their final grade in the course, others are not significant. Furthermore, while online performance and the final grade for the course is not significantly correlated at 95% level or 90% level. For male, since none of p -value are less than 0.2, it shows no significant correlation.

5. Conclusion

Although the current study provides statistical evidence for the benefits of the Chaoxing online class interface, the overall effect size is small. Consequently, the results should be interpreted cautiously. In addition, given the dynamic nature of individual classes, the generalizability of these findings is dubious. However, using exam performance as the measure of success, these findings indicate that students who used Chaoxing performed better on exams than those who used Chaoxing less frequently. Though the effect was small, this is one of the first empirical studies to establish a link between students' usage of online components and their overall success in this course. This is significant because few of the existing studies on blending class have utilized objective measures of student learning. Furthermore, it appears that Chaoxing usage is more beneficial to females than it is for males though this finding should be viewed cautiously as females tended to use Chaoxing more frequently and scored higher overall than did males. It's possible that females utilize Chaoxing differently than do males, though the limitations of the tracking functions within the Chaoxing platform limit the ability to explicate these differences.

Again, exam performance is but one method of assessing student learning, so it is also possible that in the short-term gains in student learning are negligibly influenced by Chaoxing usage and that the real benefit shows up in students' retention of course material in the long run. Future research should include post-class follow-up measures to assess student retention of material. Another drawback of the current research is that although Chaoxing provides data on the amount of usage, there is no way to measure the quality of that usage. That is, to be counted a student need only click on the contents tab, there is no way to know the difference between a student who opens a folder within Chaoxing simply to see what's new and a student who spends three hours studying that day's class notes. Future research could address this by asking students to self-report not only on how often they use Chaoxing but in what ways they utilized the contents of the Chaoxing site. In addition, although the Chaoxing site is readily available on campus connected to the internet, some students may not have had as many opportunities to access the internet or bad Internet connections that did not allow convenient access to the materials.

Despite these drawbacks, the findings are interesting in that they provide evidence for the utility of blending classes. This study, though limited in its generalizability, provides a foundation for future research on these increasingly popular pedagogical tools.

References

1. Vygotsky L. *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press 1987.
2. Heckman R, Annabi H. Cultivating voluntary online learning communities in blended environments. *Journal of Asynchronous Learning Networks* 2006; 10(4).
3. Mor Y, Tholander J, Holmberg J. Designing for constructionist web-based knowledge building. *Conference on computer support for collaborative learning: Learning 2005: The next 10 years* 2005: 450-459.
4. Gunawardena C, Zittle F. Social presence as a predictor of satisfaction within a computer mediated conferencing environment. *The American Journal of Distance Education* 1997; 11: 8-26.
5. Tu C, McIsaac M. The relationship of social presence and interaction in online classes. *The American Journal of Distance Education* 2002; 16: 131-150.