

An Online Course for Active Participation and Interactive Learning: An Exploratory Study

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Abstract: Learning is a highly social process. However, Asian students are often found quiet and passive in the classroom. How to promote their active participation and interactive learning becomes a challenge. In this study, a course that was previously conducted in the face-to-face classroom was redesigned and conducted online. This paper describes the design of the course from pedagogical, social, and technical aspects, and presents the students' perceptions of the design and implementation. Results show that students became more active and interactive; technical infrastructure played a critical role; and monitoring students' participation and engagement was a new challenge in the course implementation process.

Keywords: Active participation, Interactive learning; Online learning; Pedagogical design; Social design; Technical design

1. Introduction

Asian students are often found quiet and passive in the classroom, and they seldom speak out unless they are called upon by instructors (cf. Thompson & Ku, 2006). How to promote their active participation and interactive learning becomes critical. School teachers in Asian countries often teach in traditional ways where teaching is perceived as disseminating information and learning as a passive activity (Lim, 2007). Simply encouraging student to actively interact with peers and with the teacher but without changing instructional strategies would hardly work (Livinston & Condie, 2006). For more active participation and interactive learning to take place, teachers often need to redesign lessons to involve more student-centered learning activities.

Integrating technology into the teaching and learning process has the potential to promote students' active participation and interactive learning. A technology-enabled learning environment often provides an equal and comfortable space where students are willing to participate and interact (Thompson & Ku, 2006). However, few cases about using technology to support teaching and learning in the context of China have been reported in international journals (Thompson & Ku, 2006). This study was initiated to promote students' active participation and interactive learning by redesigning an existing course, which was previously conducted in the face-to-face classroom, into an online module. This paper describes the design of the course from pedagogical, social, and technical aspects and also presents students' perceptions of the design and implementation of the course.

2. Design

The course entitled *Introduction to Educational technology* was a core module offered to the undergraduate students at a Chinese university. A total of 50 students (12 males and 38 females) were enrolled into the course in that semester. Their average age was about 24. They majored in various subjects such as English language (N=22), Psychology (N=6), or Physical Education (N=4). They had taken a basic computer literacy course and their computer competency levels were equivalent. They would become primary or secondary school teachers after completing a four-year study.

2.1 Pedagogical Design

Before a lesson, learning resources including PowerPoint slides and other learning materials were online available for the students to download and study. The students were required to go through the resources and complete the learning activities embedded in the slides in groups or individually.

During the lesson, all students were required to login to the online course at the fixed time. The purpose of having a real-time lesson was to provide them with opportunities to share and interact with others simultaneously. Individual students or groups were invited to present their understanding in the lesson. During the presentation, other students were reminded to concentrate on and participate in the presentation. They were encouraged to ask questions in written text. After the presentation, the teacher picked up some issues from the presentation to further discuss with the class. The lesson implementation process was recorded and uploaded online for future reference.

After the lesson, students were required to write reflections in their individual weblogs to further think about what they had learned from the lesson and how to apply what they had learned. Every student was encouraged to read and give comments to others' reflections.

2.2 Social Design

The social design of the course aimed at providing a safe and comfortable environment where students would actively participate and interact with peers. The online course was set as a closed space where only approved users were able to access. To a great extent, this would keep the course safe by preventing strangers from accessing it. The teacher decided to use voice communication as well as text chat in the online course after considering the shyness of students and the capacity of voice in conveying emotions (Aragon, 2003). In addition, the teacher played music before a lesson, which served the purpose of creating a comfortable environment and letting the students know that he was online ready.

2.3 Technical Design

The tools selected for hosting the course were YY Voice and QQ Group. YY Voice is a free software program in which virtual classrooms can be created and users can have real-time communication via voice or text. Teachers can broadcast their voice or share the whiteboard with students. The students can talk to the whole class after getting permission from the teachers.

Another free tool - QQ Group - was selected for group members to share resources and discuss ideas. The QQ Group also provides members with personal spaces where they can bookmark useful websites and write diaries. In this course, the personal spaces were used for students to write individual reflections, read others' reflections, and give comments. Both YY Voice and QQ Group could be accessed on any platform (e.g. Windows, Android, or iOS) using any device (laptops, Tablets, Mobile phones).

2.4 Research Question and Instruments

This study aimed to answer the following main research question: How did the students perceive the design and implementation of the online course? More specifically, this research question aimed at identifying the students' perceptions of the pedagogical, social, and technical designs of the online course. A survey consisting of 22 5-point Likert Scale (from 1-strongly disagree to 5-strongly agree) items, which were adapted from the existing survey validated by Wang (2009), was used to collect quantitative data. Forty-seven students responded to the survey with a responding rate of 94%. The survey items were found to be highly reliable ($\alpha=.924$). An open-ended question was included in the survey to collect students' comments and suggestions. Lesson observation notes taken by the teacher were also collected.

3. Findings

3.1 Pedagogical Design

Table 1 shows the respondents' perceptions of the pedagogical, social, and technical designs of the online course. The students were generally satisfied with the pedagogical design of the environment. They liked the way of involving online learning in the course, as they could interact and collaborate with others. In their answers to the open-ended question, they mentioned that they gained knowledge and skills from this course, as participating in this course required them to put a lot of efforts in reading and discussion. They had opportunities to share their understanding, discuss ideas, and clarify doubts with peers. These opportunities enabled them to learn from others and construct knowledge. Also, they could review the instructional process as the recorded lesson was available online.

The students became more active in the implementation process of the course compared to that in the face-to-face classroom. They actively asked the teacher or peers questions or responded to their questions in written text. A student's answer to the open-ended question well explains why she kept active in the course:

I have to be very careful and active in the online class. Online learning is unlike in a classroom where I have neighbors to ask when I miss out something. I won't know what to do next if I do not concentrate or when I drift away.

3.2 Social Design

The students commonly felt that this course offered a comfortable space. They could attend class while resting in the hostel with a cup of tea. They could ask questions and get prompt feedback from the teacher and peers without interrupting them. However, certain students indicated that participating in online learning at the hostel lacked a learning climate. Their roommates might be walking around, eating, or watching movies on their computers, which caused much distraction to their learning. The students were more confident in asking questions and/or giving answers in the online course. They were less worried about losing face since the others could not see them. Nevertheless, they felt they were socially connected with others. To a great extent, communication via text and voice in the online course enabled them to establish social presence. A student responded that:

It is a little bit pity that I never saw the teacher and classmates. I may not be able to recognize them when I see them. But it does not matter. I still remember them as I am familiar with their voices and tones. E.g. the funniest voice is from a PE male student, and the sweetest soprano voice is from a girl of the Music College.

Lesson observation notes showed that students' online discussion frequently lagged behind the pace of an oral presentation. Occasionally, students were still discussing about the content on the previous slide after the presenter had moved to the next slide. This observation suggests that the teacher as a facilitator should closely monitor the discussion progress and give student sufficient time to reflect and type in their thoughts. In addition, it was a challenge for the teacher to monitor every student's participation and engagement as some of them kept quiet or did not take part in the discussion.

3.3 Technical Design

The students could conveniently access the online course without technical difficulties. Also, they could view the teacher's shared whiteboard and annotations. A student shared in her response that:

When I first knew I was enrolled into an online course, I was very upset as my friends told me that taking an online course requires high technical skills but I am not technology savvy. After installing the YY Voice, I found it was not hard to use. ... I realized that an online classroom was not that scaring but quite interesting.

However, some students encountered certain technical problems. A common problem was that the Internet access speed was slow and unstable sometimes. As a result, they could not watch the shared whiteboard or the video played by the teacher.

4. Discussion

This study showed that the students were active and the learning process was interactive. A few reasons might contribute to this result. Instructional (re)design played a vital role. Many student-centered learning activities were involved in the course. The activities included studying and discussing on learning materials before a lesson, having students' presentations during the lesson, and writing reflections after the lesson. This finding supports the notion that it is a combination of many instructional design endeavors rather than simply putting a course online that contributes to the often-reported positive outcomes of online learning (Means, Toyama, Murphy, Bakia, & Jone, 2010).

Also, students had the tendency to behave more actively in an online environment. Physically being there and listening to the teacher's instruction are typical behaviors of students in a classroom (Thompson & Ku, 2006). In a virtual learning environment where the teacher cannot see them, however, students often have to participate actively to indicate their social presence.

Social presence is heavily affected by social interactions rather than the intrinsic attributes of the media used (Garrison, et al, 2000). The result of this study confirmed that using voice enabled social presence to be easily established, as voice can easily reflect the emotions and friendliness of the speaker (Aragon, 2030).

In addition, text chat also played a vital role in promoting social presence and social interactions in this online course. Text chat provided a backchannel for students to interact with others while they were attending a presentation. This backchannel could "... [change] the dynamics of the lecture room from a one to many transmission to a many to many interaction, without disrupting the main channel communication" (Ross et al., 2011, p. 215). However, the teacher should closely monitor the content and progress of backchannel discussion to make the discussion more effective.

The success of using technology for teaching and learning depends on the implementation support in the education system (Fullan & Donnelly, 2013). The result of this study indicated that the technical infrastructure in the university needed to be further improved. The low networking speed negatively affected the students' perception of the course implementation. This finding confirms that technical design provides conditions for effective pedagogical and social designs to take place. Without sufficient technical design and support, theoretically sound pedagogical or social design will not function well (Wang, 2008)

In addition, other supporting facilities such as the classroom or library also needed to be renovated. Online learning usually enables learning to take place anytime anywhere. However, almost all students took part in the online course at the hostel in this study. The campus was not fully covered with a wireless network and the library did not allow them to talk loudly. In this case, staying at the hostel was nearly the only choice left. To make online learning more flexible and effective, the university should provide more venues like small rooms in the library for students to engage in online learning.

This study did not examine the students' actual learning outcomes. Even though the students responded that they learned more knowledge and skills from this course, no concrete results showed that the students could perform better. Future research can investigate students' learning outcomes after taking the online course. In addition, video has become a ubiquitous means of communication that it has been labeled the 'new text' (Prensky, 2012). Future studies will incorporate video conferencing to investigate its feasibility and effect on learning.

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