

The Effect of an Offline Class Model for Blended Learning in Low-ability College School Students

Seung Lock Han

Kongju National University, Korea

Hyun Yong Jung

Daejeon University, Korea

Blended Learning that offers humane contact is now gaining attention as a measure for gaining actual effect of e-learning that many universities are adopting today. The researcher conducted classes of the Blended Learning format during the first semester of 2006 and the first semester of 2007, targeting students with a low academic achievement level. In particular, the offline class model was adopted for the first semester of 2007. Diverse teaching and learning methods of the offline class model such as lectures, assignments, evaluations and interactions are used to increase the students' academic achievement rate to 93%, and to decrease the number of students who failed to meet the attendance requirement to 5.9%.

By adopting the Blended Learning offline class model, the researcher discovered that the model is effective in securing sustainability of the teaching-learning operation system through interactions between teachers and students, and among students and for obtaining other educational effects.

Keywords: blended learning, e-learning, web-based learning, computer-based learning, distance learning

INTRODUCTION

Nowadays, most universities are adopting e-learning. Already, numerous students have experienced taking online classes, and/or have had diverse learning experiences on the Internet. However, as e-learning at universities grows in popularity, universities are facing new problems that they did not experience in the past. e-learning at universities is generally employed to complement or expand education and learning instead of changing the method of teaching and learning by teacher and students, respectively. Therefore, it is difficult for e-learning to provide meaningful and valuable educational experiences to students (e-learning White Paper, 2004).

Moreover, contrary to the expectation that e-learning will communicate the details on the content delivered by teachers, vitalize communication between the teacher and students and between students, culminating in individualized and self-initiated learning, there are criticisms that it fails to cast away the teacher-oriented, one-sided teaching format. In fact, the only change that took place is a change in the medium of communication, from the classroom to cyberspace, the Web (Khan, 1997; Wills & Dickinson, 1997; Kim & Choi, 2004).

The representative problem of e-learning is that it does not allow practical training. Although there are some scholars who claim that practical training is possible for online learning as well, based on a simulation (Clark, 2004, 2005), the simulation also refers to the education with an actual entity with the computer used merely as a medium instead of offering experience with an actual entity.

In order to secure actual learning effects, traditional face-to-face education with human contact is once again gaining attention. Amidst this trend, the concept of Blended Learning is being emphasized. Universities too are conducting a lot of research in order to verify the educational effects of combining cyber education and face-to-face education (Kim & Choi, 2004; Kim & Ahn & Choi, 2005).

Blended Learning is an educational method that combines the advantages of cyber education and traditional face-to-face education to optimize the learning effects by using the new paradigm of a remote educational system. Today, numerous cyber education institutions are adopting Blended Learning, recognizing the limitations of cyber education, and to increase the educational effects. At universities that offer a face-to-face environment whereby classes at lecture halls are offered, a cyber environment and face-to-face environment based learning is offered in parallel, or there is an attempt to combine the effectiveness of cyber education such as cyber-supported learning and so forth, and the face-to-face effectiveness of education (Kim & Choi, 2004; Kim & Choi, 2006).

When classes are conducted using Blended Learning, it is possible to employ diverse teaching-learning methods as well as diversify the interaction between teacher and students and among students. Moreover, there are many educational effects such as the ability to secure continuity of the teaching-learning operating system. Therefore, there are many claims that argue that mixing the cyber and face-to-face methods will be much more effective than turning completely to cyber education (Saunders & Werner, 2002; Singh, 2003; Kim & Choi, 2004).

However, cases of Blended Learning proposed up to now were developed centered on the special purpose of the companies by the companies themselves. Even those cases of Blended Learning that are being conducted in universities do not factor in the overall trend. Moreover, cases on Blended Learning until now attempt to propose the Blended Learning design process and elements in a practical and comprehensive manner, but there were not many instances in which an online and offline class operation model for Blended Learning were proposed.

Accordingly, the purpose of this research is to identify offline class model elements that need to be considered when lecturing at a university, using Blended Learning and to learn about the operation method by targeting students with a low academic achievement level based on actual cases.

THEORETICAL BACKGROUND

Blended Learning Concept and Meaning

The concept of Blended Learning differs according to different scholars, and these different definitions are used in the actual educational field (Graham, 2005).

Driscoll (2002) considers the concept of Blended Learning as a new meaning that continues to develop, and that has unproven potential since it is used by many people who define it differently. The concept of Blended Learning can be divided into the following four categories.

First is the meaning where class communication mediums are mixed (Orey, 2002). Mixing of class communication mediums refers to the mixing of diverse mediums that are used in classes. Second, it refers to the mixing of class methods (Driscoll, 2002; Rossett, 2002). Mixing of class methods refers to the use of diverse class strategies by mixing them together. Third, it refers to the mixing of e-learning and offline classes (Rooney 2003; Osguthorpe & Graham, 2003; Kerres & Witt, 2003). These positions stem from the belief that offline and online learning methods have inherent strengths and that these strengths can be harmonized. Fourth, it refers to the mixing of all these elements (Singh, 2003). That is, instead of advocating one of the three positions mentioned above, they are all considered Blended Learning whether two of these are mixed or whether all the positions are mixed together. In the case of Graham (2006), he claims that positions other than the third position do not fully grasp the essence of Blended Learning.

Wilson and Smilanich (2005) claim that although the concept of Blended Learning arose from the concept of mixing online and offline education, the concept has been expanding gradually. According to their definition of the concept, blended learning is the use of the harmonious and most effective solutions to reach ideal objectives.

The Korean Society for Educational Technology defines Blended Learning as, 'a design strategy for creating an optimal learning effect through the composite use of diverse learning elements such as learning objectives, learning content, learning hours and space, learning methods, learning mediums, interactive methods and so forth, and a design strategy for a learning system for optimizing the learning performance by appropriately combining and using mostly online and offline learning strategies (The Korean Society for Educational Technology, 2005).

As claimed by Graham (2006), Blended Learning requires the integration of online and offline education based on the origin of its concept. One of the key strengths Blended Learning is that it can build an environment that is reachable by using all formats possible to attain the goals of the classes. Obstacles to e-learning such as implicit delivery of knowledge or its inability to deliver experience-based practical learning can be corrected through integration with offline learning (Lee, 2007).

Need for Blended Learning at Universities

The Blended Learning environment is the teaching-learning environment that is becoming increasingly more common at universities and life-long educational institutions. In general, Blended Learning refers to an optimized strategic learning process (Mantyla, 2001) that mixes at least two learning strategies. Mixing of offline and online learning methods, and mixing of self-initiated and cooperation-based learning methods are some examples.

Adoption of Blended Learning in universities integrates the e-learning method to the existing lecture-centered classes to complement the limitations of the latter with the end result of optimizing the effect of teaching-learning. In other words, Blended Learning presents flexibility that can cast away teacher-centered standardized education to support student-centered self-initiated learning (Khan, 2005). Moreover, learning activities in diverse formats are provided by utilizing the Internet and web technologies, and resources are communicated (Rosenberg, 2001). In addition, the existing learning environment is improved upon, and the educational effect is increased (Driscoll, 2002; Lee & Kim, 2007).

Likewise, if the potential of Blended Learning is to be realized successfully and operated effectively, it is necessary to conduct research on the detailed strategies and policy development for effective blended learning at universities. When compared to the traditional lecture hall-centered education, blended learning requires extensive planning and preparation (Bersin, 2004), and it is necessary to appropriately harmonize components and technologies to realize optimal results from the point of view of cost, time and quality, instead of classes that use a single system.

As a means for effectively integrating lecture hall-centered education and e-learning, Khan (2005) proposed that it is necessary to consider eight factors when planning Blended Learning – the institution, strategy, technology, interface design, evaluation, management, providing resources and ethics. This is indeed emphasizing the notion that diverse elements need to be reviewed to provide a meaningful learning environment.

Moreover, Driscoll (2002) proposes diverse strategies for the application of diverse Blended Learning methods including conducting and grading tests or evaluations online, the use of a community to share student questions, discussions and thoughts, presenting reference materials for learning on the web, and enabling the students to obtain the latest data. These strategies are resourceful for the design, operation and management of blended learning classes, and they are organically interrelated. However, although these researches present ways to use blended learning, they are not able to present detailed strategies for the effective adoption and operation at universities.

RESEARCH METHOD

Research Subjects

The researcher lectured on the ITQ¹ Korean course to 490 students in 10 classes during the first semester of 2006, and to 455 students in 10 classes during the first semester of 2007. Four out of the 10 divided classes were related to humanities, while four and two were from arts and sports, and natural sciences, respectively.

In the case of freshmen, the ITQ Korean course is designated as a mandatory class, and it is operated as a graduation certification program at school level.

Research Design

The researcher applied the offline class model at the 10 divided classes for the first semester of 2006, and to students from the same majors when it came to the 10 divided classes for the first semester of 2007.

1) First semester of 2006

Lectures were conducted every other week for 16 weeks. During odd numbered weeks, students in the odd numbered classes attended the class, while students from the even numbered classes attended lectures during even numbered weeks. At the classes where students had to attend, lectures on the theories of drafting documents and practical training made up most of the classes in preparation for the ITQ Korean qualification test. During the week when there were no lectures, students could ask questions, get responses and were assigned assignments through online lectures and the cyber lecturing system. Lectures were conducted according to the weekly lecture plan, and problems related to the assignments that the students asked most questions about were solved through the bulletin board.

As for the evaluation, students were graded as follows: 50% for the score they got on the ITQ (Information Technology Qualification) qualification test, 25% for assignments and 25% for quizzes and attendance. In particular, students could check their grade for their assignments since the teacher graded them within one week when the students submitted their work via the cyber education system.

After the eight-week-long lecture, a mock test was conducted to separate the students with 230 points or less to teach them separately at night for three weeks. The number of students in this group made up 40% (approximately 200) of the total.

2) First semester of 2007

The period, contents and method of the lectures were the same as those of the first semester of 2006. As for the assignments, the professors printed out the assignments submitted by students to enter in comments to the wrong answers, and distributed them to the students during class.

In the case of lectures when student attendance was required, SMS messages were sent to the students who could not attend so that they would attend other classes.

¹ The ITQ (Information Technology Qualification) qualification test is supervised by the Korea Productivity Center, which is a special corporation under the jurisdiction of the Ministry of Commerce, Industry and Energy. The test intends to objectively evaluate the information technology ability and capability to use information pertaining to members of companies, institutions and groups in the face of the information age in order to classify them into indices of information technology management and working-level capability level. Furthermore, this is an official qualification test certified by the nation (Ministry of Information and Communication).

After the eight-week-long lecture, a mock test was conducted to separate the students with 230 points or less to teach them separately at night for three weeks. The number of students in this group made up 16.9% (77) of the total. In the case of these students, SMS messages were sent at least three times a week so that they could participate in these classes at least six times.

Meanwhile, the teacher produced VOD lectures for each area of evaluation and posted the VOD lectures on the cyber education system so that the students who were not the subject of these classes could study each area that they made mistakes on. The VOD ran for 3-10 minutes, and any student could access it.

Limitation of the research

The researcher conducted research in lectures held on IT, and classified the domains of offline classes into lecture, assignment, evaluation and interaction domains while the domains were not connected to the cyber education system, and the academic achievement level was set as the license passing rate to evaluate.

Students with a low academic achievement level, as defined by the researcher, refers to students of arts and sports majors and those students with low Korean SAT scores.

SETTING UP THE OFFLINE CLASS MODEL

The researcher divided the offline class model elements into lecture management, assignment management, evaluation management, and interaction domains. For one day at least two weeks prior to the start of each semester, professors (full-time professors and lecturers) got together to hold workshops on teaching methods and the ITQ license test. Opinions on teaching methods that were raised during the workshops were then divided into lecture management, assignment management, evaluation management, and interaction domains, and the professors shared their opinions.

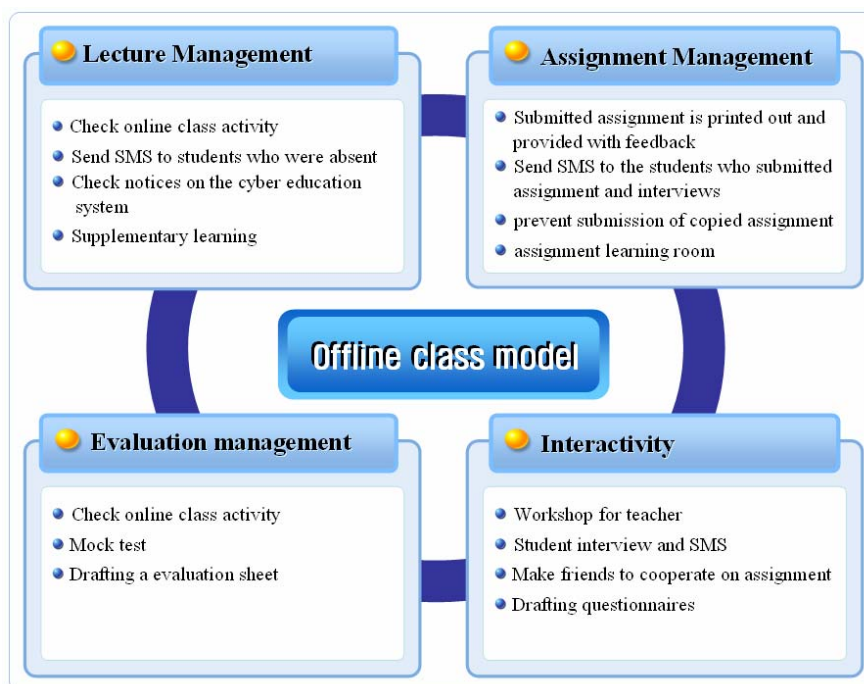


Figure 1. Offline Class Model

Lecture management

The lecture management domain is divided into: checking online class activity, sending SMS messages to students who were absent, checking notices on the cyber education system, and supplementary learning, and the details are as follows.

First, check online class activity. Students need to preview and review prior to attending classes, and a quiz is conducted to check their studying.

Second, SMS messages are sent immediately to the students who are absent after checking attendance so that they can attend immediately. After receiving an SMS message, about 70 percent of students attended class within one hour. Moreover, SMS messages are sent to the students who were absent, one day prior to the following class so that they would attend classes for the week in question, instead of classes scheduled for two weeks later. The research studied the root causes of the absences and tardiness of students who were absent and late often during the first semester of 2006. The ensuing results are as follows. The researcher conducted classes that require attendance every two weeks. However, classes that require attendance are conducted after four or six weeks if the classes are not held due to department events or holidays held in the week that classes were scheduled to be held, or due to negligence towards the classes, illness or sleeping late, and other personal reasons. Accordingly, the students are facing considerable hardships when it comes to attendance according to the new class format that they are experiencing for the first time after entering university. To solve this problem, the researcher used SMS messages to remind students about classes, and to notify the students who are absent to attend.

Third, students are required to check all types of notices and details on assignments by logging onto the cyber education system during class time.

Fourth, supplementary learning is offered to students who run the risk of scoring a C or less or not passing the ITQ qualification test². When students are selected for supplementary learning, they need to attend night supplementary classes for three weeks. In the case of the first semester of 2007, they are required to attend at least six classes. An SMS message is sent every two days to induce them to participate in the supplementary learning regularly. However, most instructors provided supplementary learning by department. Since the researcher already knew that many students did not attend the class when the instruction was given by department and that those who were good at self-study did not need the supplementary learning, they were induced to use VOD if they needed further study in some areas. Even those who needed the supplementary learning were allowed to take part in the supplementary learning when they wanted to instead of forcing them to attend at a designated date.

Assignment management

The assignment management domain is divided into: printing out submitted assignment, and providing feedback, sending SMS messages to the students who submitted assignments and interviews, preventing the submission of copied assignments, and an assignment learning room, and the details are as follows.

First, submitted assignments were printed out by the teacher in charge, and graded, and the grades were posted on the bulletin board. Furthermore, wrong answers were checked and distributed during class time. As the students could see what mistakes they made as well as checking their grades on the bulletin board, they tended to make similar mistakes less often on future assignments.

Second, SMS messages were sent to the students who did not submit their assignments so that they would submit their assignments. If assignments were not submitted at least three times, a phone call was made to the applicable student, or an interview was conducted during class time to listen to the problem, and seek a solution together.

² The perfect score of the ITQ qualification test is 500, and level A is 400 or higher, level B 300 or higher and level C 200 or higher. Those who score less than 200 fail.

What those who did not submit reports three times or more had in common was that they were losing interest in the pertinent subject and gave up on it so the researcher paid more attention to these students.

Third, if an assignment was copied, the assignments of the two students concerned were considered as non-submission, and graded accordingly. Four weeks after the instruction was initiated, few students copied reports, and those who would copy reports failed to submit their reports from time to time.

Fourth, the assignment learning room is located in the lecture hall where the teacher lectured for the convenience of the students who don't have a computer. As long as they do not disturb the class, they could work on their assignments in the back.

Evaluation management

The evaluation management domain is divided into: checking online class activity, a mock test, and drafting an evaluation sheet, and the details are as follows.

First, 25% of the grade was allocated to quizzes to check online class activity.

Second, a mock evaluation was conducted during class time on Week 8 of attendance in order to select students for supplementary learning. The students for supplementary classes were selected from the students who scored less than 230, students who did not submit 50% of their assignments, or students who were absent for a long time.

Third, the purpose of drafting an evaluation sheet is to check the wrong answers on the students' assignments and to provide customized comments. There are many instances in which students make mistakes on the same section. Accordingly, this informs individual students about the part they made a mistake on, and the teacher can make a database of the most frequent mistakes made to prepare for subsequent lectures.

Fourth, in the case of the ITQ qualification test, students are allowed to take the test at least three times during the semester. The first regular test is taken in Week 10 (the second Sunday of May), the second in Week 12 (the fourth Saturday of May) and the third in Week 14 (the second Sunday of June). Students who were allowed to take the test in Week 10 were limited to those who had scored 180 or higher (200 points being the perfect score) in the evaluation of reports. However, if a student was willing to take the test, he or she was allowed to take the test. The reason why only those who had scored 180 or higher were allowed to take the test was that it costs 13,000 won (about \$14) per test. The result of the test was notified to each student in two weeks, and if the result was not satisfactory, the students were allowed to take the regular test in Week 14. Accordingly, most students took the Special University ITQ qualification test³ provided in Week 12.

Interactivity

The interactivity domain is divided into: a work-shop for teachers, student interviews and SMS messages, making friends to cooperate on assignments, and drafting questionnaires, and the details are as follows.

First, a work-shop for teachers is where teachers get together for one day, two weeks prior to the start of the classes to exchange their views on the new evaluation standards of the ITQ qualification test and teaching methods (mainly on the offline class quality control model) .

³ Those allowed to take the Special University ITQ qualification test are limited to the students of universities that established industry-academia cooperation with the Korea Productivity Center, the supervisor of the test. It is customary for the Korea Productivity Center to disclose the result of the test in four weeks; however, in the case of the Special University ITQ qualification test, the result of the test is notified to universities in two weeks. In the case of the regular test provided in Week 14, the result of the test is notified to the universities two weeks prior to the announcement of the academic results of the semester for students.

Second, mostly SMS messages and phone calls are used to communicate with the students via offline mode. The researcher notified classes, tests and reports to the students, but many of them sent SMS messages to explain why they were late for class and failed to submit reports and to ask questions.

Third, making friends to cooperate on assignments is for students who cannot work on assignments alone, and forming partnerships between good and poor students so that they can cooperate.

Fourth, drafting questionnaires purports to identify names, student numbers, cellular phone numbers, e-mail addresses and so forth as well as to identify whether they have earned any other ITQ licenses in the past. After the questionnaire is received, SMS messages are employed to prepare for assignment submission, class participation and so forth.

RESULTS OF THE OFFLINE CLASS MODEL IMPLEMENTATION

Results from the ITQ Korean qualification test taken by the students of the first semester of 2006 show that 407 (83.1%) out of 490 passed the test while 83 failed to pass (16.9%). In particular, most of the students who failed to pass are those who failed to meet the attendance requirements. However, when the offline class model was adopted during the first semester of 2007, 419 (92.1%) out of the 455 students passed the test, while those who did not pass numbered 36 (7.9%). Moreover, 92 (18.8%) failed to meet the attendance requirements during the first semester of 2006, but this number decreased significantly to 27 (5.9%) during the first semester of 2007.

Accordingly, the number of students who failed to meet the attendance requirements decreased significantly during the first semester of 2007 compared to the first semester of 2006, and thus the number of students who needed supplementary class time decreased from 186 to 77. Meanwhile, the number of students who received an A Grade increased significantly to 339 (74.5%), and the number of students who failed to pass due to unsatisfactory grades decreased significantly to only 9 (2%). Moreover, scores by 22 (28.6%) of the 77 who were the target of supplementary class time selected based on the results of the mock test improved. The results are summarized in <Table 1>.

Table 1. Results of the ITQ Korean Qualification Test

Semester	Classification	A Class	B Class	C Class	Total	Failure to pass	Total	Attendance requirements not satisfied
First semester 2006	No. of passing students	180	148	79	407	83	490	92
	Share	36.7%	30.2%	16.1%	83.1%	16.9%	100%	18.8%
First semester 2007	No. of passing students	339	62	18	419	36	455	27
	Share	74.5%	13.6%	4.0%	92.1%	7.9%	100%	5.9%

When the distribution of the students who failed to pass is examined, 47 (9.6%) failed to pass because of unsatisfactory grades, 22 (4.5%) did not show up while 8 (1.6%) did not apply for the test in the case of the students for the first semester of 2006. Meanwhile, the number of students who did not pass due to unsatisfactory grades decreased significantly to 9 (2.0%) during the first semester of 2007 when the offline class model was introduced. Meanwhile, the number of students who did not show up and who did not apply stands at 18 (4.0%) and 7 (1.5%), respectively, which is similar to the first semester of 2006. In the case of the students who did not show up, they got the place or time of the test wrong, and some overslept. In the case of the students who did not apply, the reasons were: planning to take leave, preparing for the college entrance examination, planning to drop out of school, and planning to give up studying, etc. The results are summarized in <Table 2>.

Table 2. *Distribution of Students Who Failed to Pass the ITQ Korean Qualification Test*

Semester	Classification	Did not show up	Did not apply for the test	Disqualified	Low score	Total	Attendance requirements not satisfied
First semester 2006	No. of students who failed	22	8	6	47	83	92
	Share	4.5%	1.6%	1.2%	9.6%	16.9%	18.8%
First semester 2007	No. of students who failed	18	7	2	9	36	27
	Share	4.0%	1.5%	0.4%	2.0%	7.9%	5.9%

CONCLUSION AND RECOMMENDATION

The researcher was able to use diverse teaching-learning methods through the Blended Learning's offline class model, targeting students with a low academic achievement level, and was able to obtain the following educational effects such as the ability to sustain the teaching-learning operation system through interactions between professors and students, and among students.

First, the opportunity to focus on school work is provided by retaining students who would otherwise give up their schooling by significantly lowering the number of students who failed to meet the minimum attendance requirements through lecture management compared to the first semester of 2006. Moreover, supplementary classes are offered to the students who scored low so that they will not give up mid way and will attain their educational goal. The researcher can now teach students with a sense of responsibility.

Second, students are encouraged to work on the assignments on their own through assignment management, and human feedback is provided on the assignments submitted by the students to decrease the likelihood of the same mistakes being made, and to instill a sense of achievement that comes from completing their assignments.

Third, data are collected for the parts that the students cannot understand very well by drafting an evaluation sheet, so that the results can be used for subsequent lectures.

Fourth, a workshop for teachers, making friends to cooperate on assignments, and the use of SMS messages leads to diverse forms of interactivity. In particular, the use of SMS messages stimulated the students with a low academic achievement level to become more interested in their classes. The number of students who got an F due to frequent absences decreased significantly, and students who did not submit their assignments were encouraged to submit their work so that they could pay attention to the curriculum and so that they could avoid getting poor grades due to their failure to submit assignments.

The researcher drew out the Blended Learning's offline class model targeting students with a low academic achievement level. In a subsequent research, the researcher intends to conduct research on the online class model and integrated online and offline models.

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