An Analysis on Blended Learning Pattern Based on Blackboard Network Platform

A Case Study on the Course of Recruitment and Employment Management

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Abstract—**Blackboard platform has become a network teaching platform, which is widely appreciated by colleges, universities, and other educational institutions worldwide for its convenient operation interface, strong teaching functional modulus, and diverse online courses and tools. According to subject characteristics and curriculum practice of human resources management, a blended learning pattern based on a blackboard network platform was designed and implemented in this paper for the course of Recruitment and Employment Management from four aspects: curriculum frontal analysis, teaching environment creation, learning activity design, and learning evaluation. This learning pattern extended teaching activities from classroom to the outside, realized deep integration between the teaching behavior of teachers and the learning behavior of students, and met diversified learning demands of students, thereby improving the teaching efficiency.**

Index Terms—**blackboard, blended learning, learning activity design**

I. INTRODUCTION

With the rapid development of information technology, profound changes have taken place in the acquisition, dissemination, and application of knowledge and information, thereby stimulating a new reform in the history of education. Students can acquire knowledge without spatial-temporal restrictions and have flexible and independent selections on learning content and learning method under the teaching information environment. This phenomenon brings great challenges to the traditional classroom teaching. Given the abundant and sharing network resources, both teachers and students can acquire knowledge freely and have equal rights in online communication. This particular condition is not only beneficial for students to participate in teaching process positively and arouse their consciousness of innovation; it is also conducive to establishing an equal and cooperative teaching–learning relationship between teachers and students. Blended learning can combine the advantages of traditional classroom teaching and the information technology (IT)-based teaching, which is more beneficial to integrate education IT and teaching. Blackboard supports teaching design and management, interaction between teaching and learning and evaluation. Blackboard is one of the most popular network education platforms; it is promoted and applied widely in many colleges and universities worldwide. This study investigated the blended learning pattern based on Blackboard network platform through the course of Recruitment and Employment Management to establish a curriculum system that adapts to talent training of colleges and universities in the new era and to expand the educational reform ideas and methods for colleges and universities.

II. IMPACT OF ATMOSPHERIC CONDITIONS ON THE ACCURACY OF MONITORING DATA

A. Blackboard network platform

Developed by Blackboard Company (the United States), the Blackboard platform is a curriculum-oriented digital teaching platform that integrates multimedia, creates a virtual learning environment, and provides interactive communication. Blackboard has become the most popular network teaching platform in colleges, universities, and other educational institutions in the world for its convenient operation interface, strong teaching functional modulus, and diversified online curriculum and tools [1-2]. Blackboard is used in 78% of top 100 colleges and universities in the world and has a user population of 35 million. Blackboard network teaching platform is centered at its curriculum and provides a strong online virtual teaching environment for teachers and students. This platform is composed of four independent functional modules: content and resources management module, online communication module, assessment management module, and system management module.

B. Theory of blended learning

Blended learning is a new learning pattern under the informatization background. Many Chinese and foreign scholars have recently studied various aspects of this learning pattern. Driscoll believed that blended learning is a learning process based on virtual classroom, cooperative learning, streaming media, and other web technologies [3]. This process combines any form of teaching techniques and face-to-face teaching mode to achieve the most ideal learning or work efficiency. Bonk characterized blended learning as the organic integration of face-to-face teaching and computer-assisted online learning [4]. Learners learn through diversified media and information transfer mode. The organic combination and rational coordination of these diversified media and different information can contribute to the maximum learning efficiency at the lowest cost for resource management and disseminator. Cao and Zhu argued that blended learning is a teaching method that achieves improved teaching efficiency at low economic cost by combining the traditional face-to-face classroom teaching and network online learning [5]. Jin et al. deemed that blended learning pattern is a descriptive approach that displays such learning clearly and determines its links [6]. Blended learning has various patterns, and

teachers can establish a special pattern according to their needs and teaching experiences. Existing blended learning patterns based on network environment and classroom teaching mainly include constitutive learning environment design, classroom teaching, online teaching, and developmental teaching assessment [7].

The core of blended learning theory is the integration of multiple teaching means, teaching media, and teaching environments. This setup also includes the integration of network platform and face-to-face classroom teaching environment; the integration of the student-oriented and teacher-dominated teaching structure; the integration of students' autonomous and team learning; and the integration of constructivism, functionalism, behaviorism, and other teaching theories. With respect to the Recruitment and Employment Management for students of Human Resource Management (HRM) major, blended learning pattern is a flexible free teaching strategy that integrates face-to-face teaching and management skill training, implements multiple forms of interactive communications, emphasizes the autonomous learning of training students, and supports students in core knowledge acquisition and professional skill training with various teaching resources.

III. DESIGN OF BLENDED LEARNING PATTERN BASED ON BLACKBOARD NETWORK PLATFORM

Blackboard is a support platform for network teaching that offers technical support to blended learning patterns. Blackboard mentioned that blended learning can display teaching contents and implement the comprehensive strategy of teaching activities conducive to represent the teaching contents efficiently and improve the use of teaching resources, thereby improving the teaching efficiency to the maximum extent [8-9].

Recruitment and Employment Management is a professional skill course for HRM students. This course helps students understand the importance of recruitment and employment in human resources management, comprehend the connotation of effective recruitment, obtain a general idea on recruitment program and its influencing factors, and master common recruitment methods and talent assessment techniques. In addition, this course lays a solid foundation for relative learning and actual employment in the future. The blended learning pattern that adopts theoretical knowledge learning, scenario observation, and computer practices can improve the learning efficiency of students significantly by combining classroom teaching and online platform. As shown in Figure 1, the contents on the Blackboard include basic curriculum information module (i.e., course introduction and teaching program), teaching content module (i.e., contents of different chapters, teaching courseware, teaching cases, and after-class questions), teaching resources module (i.e., video of practical recruitment, expansion cases, reference books, related websites, and SimHRM software), communication and interaction module (i.e., theme forum, discussion, and teamwork), and assessment management module (i.e., chapter quiz, group assignment, and recruitment simulation).

The blended learning flowchart based on Blackboard is shown in Figure 2.

A. Frontal analysis

A reasonable and feasible teaching plan and objective shall be set before opening the course based on a compre-

Figure 1. Recruitment and Employment Management curriculum system based on the Blackboard platform
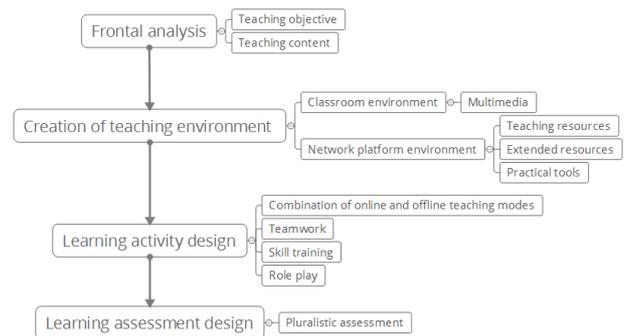

Figure 2. Design flowchart of blended learning pattern

hensive analysis of the teaching program, content, and objective of the course. In the course, a questionnaire survey shall be given to students to understand their learning demands, the operating proficiency of the Blackboard network platform, and the students' opinions, suggestions, and attitudes toward the blended learning pattern. The teaching content and design of teaching activities shall be adjusted according to survey results. For example, some modules such as "Interview Questions of TOP500 Enterprises" and "FAQ of Recruitment" were added in the communication and interaction module according to students' suggestions. Videos of excellent simulation recruitment were added in the works display.

1) Analysis of learning objectives

The overall learning objective of the curriculum shall be determined according to the attribute of the curriculum. The learning objectives and themes of different chapters shall be determined, such as basic concepts, principles, procedure, and methods of recruitment and employment management. The teaching objectives at all levels shall be converted to specific descriptions on knowledge, skills, and actual problems that students have to master, improve, and solve.

2) Analysis of learning content

The teaching content design shall provide considerations to both breadth and depth according to the characteristics and requirements of the curriculum. Special lectures shall be given based on the teaching of basic theoretical knowledge to make up for insufficient practice. Extended cases and practical simulation shall be offered to enhance the students' skills in analyzing and solving problems and practical innovation as well as to improve their knowledge and professional skills.

B. Creation of teaching environment

The creation of teaching environment refers to the design of the blended learning environment, which improves teaching efficiency in offline and online environments. Offline environment is mainly for classroom and multimedia teaching, which is characterized by illustrations and intuitive display. Online environment mainly provides computer practices with simulated enterprise scenario for key chapters based on the Blackboard platform. The practices can help students become familiar with enterprise environment and learn how they can transform theoretical knowledge into practical skills. Moreover, online environment possesses abundant extended resources that can help students broaden their visions, such as enterprise recruitment memoir and links to excellent TV recruitment shows. The Blackboard platform provides the blended learning pattern good diversified learning tools based on network learning environment. The tools include teaching calendar, instant chat, and teamwork, thereby creating a highly efficient and convenient network learning environment with strong functions. Such an environment is highly appreciated by students and improves teaching efficiency significantly.

C. Learning activity design

Constructivism theory stipulates that the interaction between students and environment is the major impetus of students' learning and development. Such an interaction is a learning activity. The cognitive ability development and emotional attitude changes of students shall be attributed to the learning activities. Therefore, learning activity design is the core content of a blended learning pattern design. The Blackboard platform and the combined advantages of the traditional and online teaching activities were used to design different organic combinations (assisted classroom teaching, teamwork, blending cooperative learning, theme exploration, skill training, case-based teaching, and role play) for Recruitment and Employment Management according to teaching contents. The combinations were conducive to maintain a scientific and reasonable teacher–student relationship and interaction between students.

1) Combination of online and offline teaching modes

In the teaching program of Recruitment and Employment Management, the combination of online and offline teaching modes based on the Blackboard network platform strengthens theoretical and abstract knowledge points. Students watch an online micro-video of abstract knowledge essence in advance. Teachers in the classroom inspire their students to make analysis, discussions, comparisons, and summaries, which demonstrate mastery of knowledge points. The flowchart of a learning activity design includes five parts: brief introduction by teachers, proposal of questions, students' analysis and discussion, exercise reinforcement, and teacher summary. Micro-videos, PPT, related network resources, and teaching activities are organized on the Blackboard network platform (Figure 3). This design can assist the traditional classroom teaching and help students develop a habit of exploration and thinking. This phenomenon fully reflects the teacher-dominated and students-oriented teaching modes. The blended learning pattern is particularly suitable for some strong theoretical and abstract knowledge points.

Figure 3.   Online courses of Recruitment and Employment Management based on the Blackboard platform

2) Teamwork-based autonomous learning mode

Psychological research specified that students have higher learning efficiency through interaction with classmates (especially in competitive group learning activities) compared with classroom teaching by teachers. Therefore, collaborative learning groups can be arranged on the Blackboard network platform to allow students to conveniently experience autonomous learning in the virtual community. This module is composed of six parts: determination of learning topic, clear division of labor, team discussion, teamwork, work display, and assessment by teachers and students. This learning pattern was adopted in the "(Recruitment Pattern of Different Countries)." Based on the interaction module of Blackboard platform, the students were divided into teams of six members. Each team chose one representative country. According to the learning requirements, the team members discussed on the Blackboard and cooperated to accomplish the organization and analysis of the recruitment pattern of the country. The students submitted a PPT report and study reports on the works display. The reports of every team were finally evaluated by other teams and the teacher. Such teamwork-based autonomous learning mode can arouse students' interests in autonomous learning and can develop their team spirit.

3) Skill training

Recruitment and Employment Management is a professional skill course for HRM majors. An HRM simulation system software was embedded into the extension function of Blackboard platform to help students understand abstract theoretical knowledge and improve their actual operational ability, analysis ability, and creative ability through simulations. The course consists five parts: key point explanation by teachers, scenario-based simulation of task assignment, computer practice, reports submission, and software and teacher evaluations. Based on the skills training module, students have the opportunity to use learned theoretical knowledge in a complicated virtual environment; experience the entire process from recruitment advertising, selection of recruitment channels, resume screening, interview, and background investigation; and become familiar with daily work contents, common tools, and skills related to recruitment and employment. Students can gain practical experiences in the highly simulated environment and improve their professional skills.

4) Role play

Role play is a teaching method in which the teachers set contents of different roles according to the learning objective and ask students to play the role in a hypothetical scenario. Recruitment and Employment Management is a practical scenario that requires students to learn related theoretical knowledge and master some recruitment and employment management skills. Role play teaching is important in helping students master the related basic skills. Role play teaching based on the Blackboard platform is performed by making full use of the interaction and cooperation module. This learning approach has five parts: determining teaching objective, preparation of teams, role information preparation, play, and evaluation and feedback. For example, the students were divided into several groups to simulate recruitment after learning the interview skills. Each group had six to nine students; some played as interviewers and the rest as applicants to simulate the entire interview process (Figure 4). Based on the Blackboard platform, each group created their own virtual community using a company as the background. The students who played the interviewers and HRM manager discussed about the recruitment demands and plans, released recruitment advertisement, and screened resumes. The interview simulation was displayed, and the final recruitment decision was submitted to the virtual community. Role play teaching is an experience-based learning approach, which deepens students' understanding on knowledge and provides them with a stage to presenting themselves. Moreover, the approach can enhance students' consciousness of innovation and improve their practical ability.

D. Learning assessment design

Pluralistic assessment is used to evaluate learning efficiency. This process combines the common and network assessments as well as the online and traditional tests. In addition, this assessment design emphasizes the process assessment, offers feedback on problems existed in students' learning in time, and perfects teaching activities. The Blackboard platform offers after-class questions, chapter quizzes, and practice tests for students online. The final performance of the students is composed of their usual performance (50%) and the final closed-book exam (50%). Usual performance includes theoretical learning and practice. Theoretical learning comprises number of logins, number of posts, and attendance, whereas practice includes computer practice and recruitment simulation based on the HRM simulation system software. Pluralistic assessment is beneficial because it offers comprehensive assessments to students and pays attention to their developmental process. This assessment design is more appreciated by students than a single summative assessment.

IV. PRACTICE EFFECT OF BLENDED LEARNING PATTERN

To evaluate the efficiency of the blended learning pattern, a questionnaire survey was implemented to 63 students who learned Recruitment and Employment Management. The questionnaire contents mainly include satisfaction to the new teaching mode, satisfaction to learning efficiency, assistance to autonomous learning ability, and innovation ability training. The survey indicates that the blended learning pattern based on Blackboard network platform achieved significantly higher teaching efficiency than the traditional classroom teaching.

A. Blended learning pattern based on Blackboard network platform improves teaching efficiency significantly.

The survey results (Table 1) show that students are highly satisfied about the blended learning pattern based on Blackboard platform and their learning efficiency. Most students believe that the blended learning pattern based on Blackboard platform simplifies preview and post-review. The diversified teaching activities increase students' learning interest, which is greatly helpful when mastering theoretical knowledge and improving professional skills (Figure 5).

B. Blended learning pattern based on Blackboard network platform improves students' autonomous learning ability.

The questionnaire survey and interview show that blended learning pattern improves students' autonomous learning ability significantly (Figure 6). Students think that learning based on the Blackboard platform is free and that they can make learning plans according to their prac-

Figure 4.   Recruitment simulation

TABLE I.
QUESTIONNAIRE SURVEY RESULTS ON BLENDED LEARNING PATTERN IN RECRUITMENT AND EMPLOYMENT MANAGEMENT

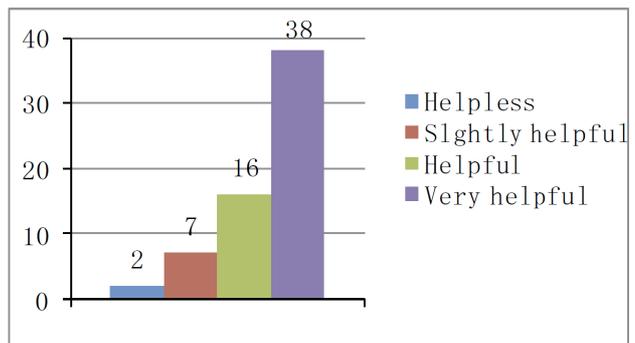| Results (testee number /%)			
Index	*Satisfying*	*Relatively satisfying*	*Unsatisfying*
Teaching mode	56/89%	5/8%	2/3%
Learning efficiency	52/83%	8/14%	2/3%

Figure 5.   Effect of blended learning pattern on knowledge learning and skill improvement (unit: person)

tical situations. Moreover, with the rich extended resources, discussion module, and virtual learning community on the Blackboard platform, students can think and solve problems that they did not master independently through classroom learning or communication with classmates.

C. Blended learning pattern based on Blackboard network platform improves students' innovation ability.

Blended learning pattern significantly improves students' innovation ability (Figure 7). During the teaching program, many links require teamwork, such as data acquisition, information organization, representation, mutual-assessment, and summarization. These links train students' innovation ability greatly. Many novel and unique opinions of students are found in theme forums on the Blackboard platform. Case-based teaching often sees that students analyze cases and solve problems using new ideas and methods.

V. CONCLUSIONS

The blended learning pattern based on Blackboard network platform has complementary advantages of traditional classroom teaching and digital learning. This learning pattern combines the traditional teaching mode and E-learning, the professional theoretical learning and practical skill training, and the independent and collaborative learning. In addition, blended learning arouses students' learning interest and consciousness of autonomous learning, thereby transforming them from being a passive accepter into a positive constructor. Moreover, such learning pattern enhances the communication and cooperation among students and between teachers and students. The blended learning pattern based on Blackboard network and characteristics of the subject can create a good environment for training students' innovation ability. However, blended learning proposes new requirements on teachers. Aside from the traditional classroom teaching activity design and implementation skills, teachers can also design a good learning environment and manage the learning process well using the Blackboard platform to encourage students to make autonomous learning and deep exploration and to allow themselves to adapt to the challenges induced by such a new teaching mode.

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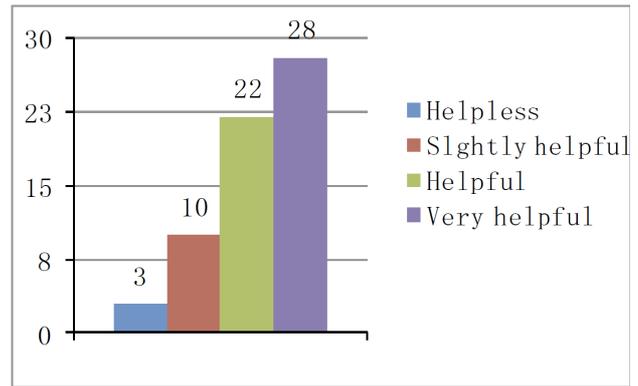
Figure 6.   Effects of blended learning pattern on students' autonomous learning ability (unit: person)
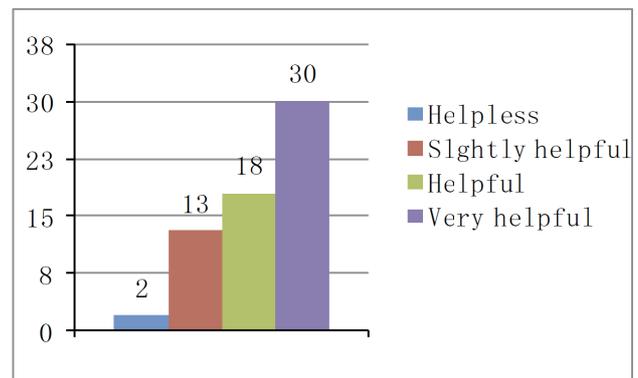

Figure 7.   Effects of blended learning pattern on students' innovation ability (unit: person)

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