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Design and Practice of Blended Teaching Mode Based on BOPPPS: Taking the Course "Management Information Systems" as an Example

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Abstract: The BOPPPS model is a new teaching mode proposed in recent years, advocating that the classroom should be student-centered and encouraging students to actively participate in classroom teaching. This paper addresses the issues in teaching the course "Management Information Systems" by combining the BOPPPS model with online and offline blended teaching modes for teaching design and practice. Firstly, the course design ideas are determined based on the BOPPPS teaching model. Secondly, the content "Planning of Management Information Systems and Its Planning Methods" is used as an example to describe the specific implementation process of the BOPPPS model in classroom teaching practice. Finally, the teaching effect and evaluation after the application of the BOPPPS teaching model are investigated and analyzed. The practice shows that the application of the BOPPPS model helps to stimulate students' interest and initiative in learning, strengthen the interaction between teaching and learning, standardize the classroom teaching process, and improve the quality of classroom teaching.

Keywords: BOPPPS; Blended Teaching; Management Information Systems; Educational Teaching Reform; Teaching Mode

1. Introduction

The Ministry of Education's "Guiding Opinions on Comprehensively and Deeply Promoting Educational Informatization During the 14th Five-Year Plan Period" points out that information elements should be integrated into teaching, and information technology should be used to promote changes in the content and mode of teaching in various disciplines [1]. In the era of informatization, the demand for information systems in public management majors is increasing, and cultivating talents in "digitization" and "informatization" applications has become one of the mainstream directions for public management majors. Therefore, public management majors have set up informatization courses such as "Management Information Systems" and "Urban Digital Management" to further improve students' decision-making thinking ability, management data analysis ability, and information model application ability. How to enhance the information application ability and data analysis ability of students majoring in public management in the digital context has become a focus of the times.

On the other hand, with the advent of the "Internet+" and digital era, the extensive application of multimedia in education and teaching has transformed the traditional teaching modes in colleges and universities. The emergence of online teaching platforms such as Chaoxing, Rain Classroom, and MOOC has created opportunities for the reform and innovation of traditional teaching modes, and the exploration of offline and online blended teaching modes has become an important direction for current teaching reform and innovation in colleges and universities [2-6]. The concept of student-centered teaching has become a mainstream modern teaching philosophy, and new teaching modes such as flipped classrooms and seminar-style teaching have been widely proposed and applied [7-8]. Many teachers have proposed using project-based, case-based, and task-based teaching methods to strengthen students' hands-on ability and enhance their enthusiasm for participating in the classroom. Therefore, it is necessary to explore a student-centered

blended teaching mode that integrates the trends of the digital development era, adopts a combination of theory and practice, allows students to participate in learning comprehensively, and provides timely feedback and communication, thereby improving teaching quality and effectiveness.

Based on the aforementioned research background, to better improve teaching quality and the level of applied talents, leverage the main role of students, and respond to the call for the construction and reform of applied courses, the author has reformed the teaching of the public management major course "Management Information Systems" (referred to as MIS) based on the BOPPPS theory. The goal is to design an innovative online and offline blended teaching mode suitable for public management students and to optimize its application, aiming to increase students' classroom participation and depth of learning, achieve good teacher-student interaction, create effective teaching, and improve teaching quality.

2. Issues in the Classroom Teaching of "Management Information Systems"

"Management Information Systems" is an interdisciplinary course that requires the integration of concepts and methods from management science, computer science, communication technology, and other disciplines. Its content includes many development and design methods of information systems. The course is highly theoretical, and the conceptual knowledge is abstract, making it comprehensive and challenging for public management students. The following issues exist in the classroom teaching of this course:

Firstly, limited teaching hours hinder effective, targeted in-depth teaching. Due to the limited course hours, teachers have to spend more time lecturing on basic knowledge points, leaving insufficient time to delve deeper into the key and difficult points of the course, which affects the depth and breadth of students' learning.

Secondly, students' foundational knowledge of computers is relatively weak. Public management students have less exposure to computer knowledge, resulting in a weaker foundation. This leads to a disconnect in their abilities, making it difficult for them to understand some abstract theoretical knowledge. Surveys indicate that students generally find this course challenging.

Thirdly, students have poor self-control and low utilization of fragmented time outside class, with a need to improve autonomous learning. Surveys reveal that university students are active in thought and have broad interests but weak self-control. They have few opportunities to participate in professional practice outside of class, failing to apply classroom knowledge to practical applications promptly. This results in insufficient knowledge reserves and weak practical application abilities. Moreover, public management students generally do not have an accurate understanding of this course, with a lack of interest and initiative in learning it. Most students want to learn this course to pass computer level exams, with few genuinely interested in it. As a result, students have low interest in the course, lack active learning, and do not engage sufficiently in interactive learning.

Fourthly, the teaching organization form is relatively single, and students cannot effectively combine it with practical applications. Currently, many teaching materials for Management Information Systems are outdated, overly theoretical, and too abstract, with little connection to practical applications, making it difficult for students to understand.

Therefore, using traditional single teaching methods makes it difficult to stimulate students' enthusiasm and initiative for learning and to grasp students' learning outcomes in a timely manner. This study aims to design an online and offline blended teaching mode based on the BOPPPS model, creating a new course teaching process and mode driven by projects and tasks, combining online and offline integration. Various forms such as tasks, projects, innovation competitions, and online and offline integration are explored to find a teaching mode suitable for public management students, which can stimulate students' interest, ensure classroom teaching quality, and improve students' professional quality.

3. Teaching Design Strategy Principles
The BOPPPS teaching model originated

from the Instruction Skill Workshop (ISW) project in Canada in the 1970s. It modularizes the entire teaching process into six relatively independent teaching segments: Bridge-in, Objective, Pre-assessment, Participatory Learning, Post-assessment, and Summary [9]. This model has strong logicality, simplicity, ease of operation, and good teaching effects, and it is widely used in many countries. Moreover, this model emphasizes the central role of students in the classroom, designing classes with the concept of "teacher-led + student-centered." By strengthening teachers' teaching design and classroom organization, it creates an open, free, and intelligent learning environment for students, guiding them to participate in classroom teaching and interaction. It focuses on participatory, exploratory, and personalized learning processes and has become popular in major universities in China.

To better improve teaching quality and the level of applied talents, and to play the main role of students, this study reforms the teaching of "Management Information Systems," designing an innovative online and offline blended teaching mode based on the BOPPPS theory and optimizing its application. This aims to achieve good teacher-student interaction, create effective teaching, and improve teaching quality. The specific BOPPPS + blended teaching mode design and application scheme are shown in Figure 1.
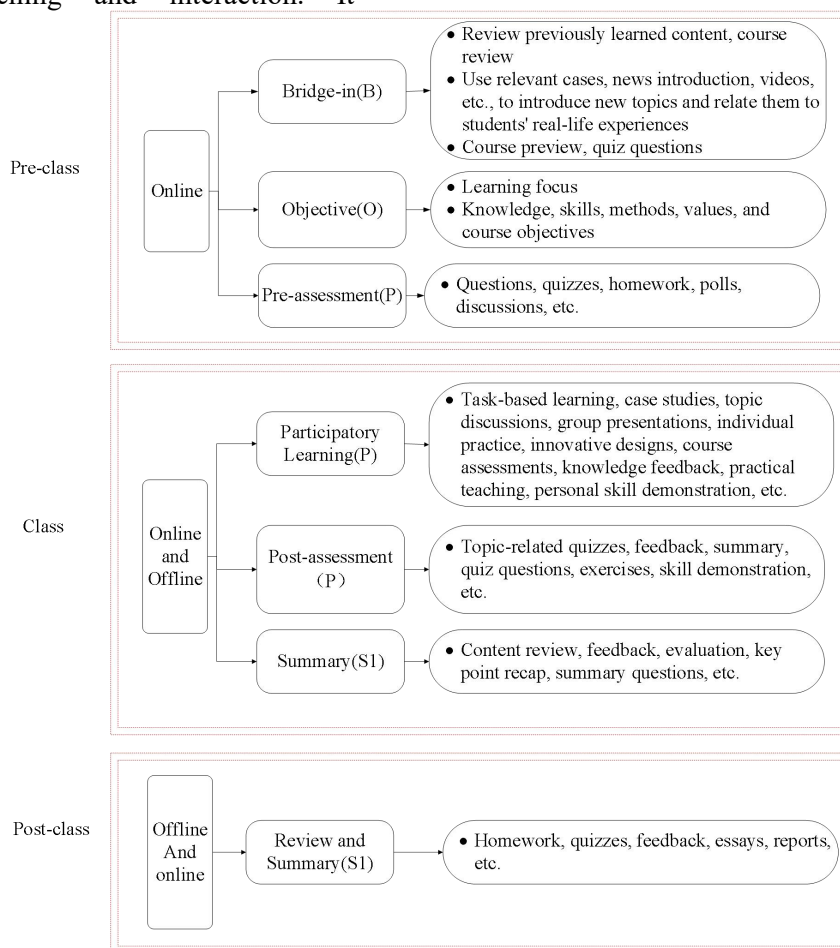

Figure 1. Principles of Teaching Design Based on the BOPPPS Model

4. Teaching Design and Practice Based on the BOPPPS Model

Based on the principles of the BOPPPS teaching design strategy, this paper utilizes the Chaoxing Learning Pass online teaching platform for blended teaching. The teaching unit "Management Information System Planning and Its Planning Methods" in the course "Management Information Systems" is taken as an example to carry out teaching design and practice. The specific teaching steps are as follows in table 1.

Table 1. The Specific Teaching Steps

Stage	Segment	Content	Duration
Online Learning	Segment 1: Pre-class Scenario Introduction (B) – Assigning learning tasks through various forms such as cases and videos and conducting tests	(1) Assigning learning tasks through various forms such as cases and videos (Bridge-in) and conducting tests (Pre-assessment). Before class, the teacher assigns preview tasks through the Chaoxing Learning Pass platform, such as asking students to read the case "Common System Planning Issues for Project Managers" in the "Management Information System Planning" chapter, and students answer related questions like "What is planning?" and "Why do we need planning?". (2) Students watch videos to independently learn about the critical success factors method in strategic planning of management information systems, especially drawing fishbone diagrams. (3) Students think and answer questions such as "Why plan information systems?" and "How to draw a fishbone diagram?" through various forms such as collecting information and thinking about problems, which helps students to initially recognize the course knowledge points, attract their curiosity, and stimulate their learning motivation.	Help students understand knowledge points in advance
	Segment 2: Online Announcement of Learning Objectives (Objective)	Announcing the learning focus and learning objectives (Objective) of this lesson online through Learning Pass, helping students understand the teaching objectives. When designing learning objectives, the teacher comprehensively considers the students' learning conditions and appropriately incorporates elements of curriculum ideology. The teaching objectives for the system planning section are as follows: 1. Understand the importance of strategic planning for management information systems; 2. Master the implementation steps and connotations of one of the common MIS strategic planning methods, the critical success factors method; 3. Use the common tool "cause-and-effect diagram" in the critical success factors method to analyze and solve problems.	Students clarify the key points and difficulties of learning
Offline Teaching + Online Interaction	Segment 3: Case Analysis Participatory Learning (P1)	The teacher checks the pre-class preview tasks: randomly asks students about their insights after watching the case, focusing on guiding students to analyze the connotation and significance of strategic planning for management information systems. (10 minutes)	Help students deeply understand knowledge points
	Segment 4: In-class: Summary and Explanation of Knowledge Points (Online and Offline)	Summarize and consolidate the knowledge points "The connotation and importance of management information systems" based on students' analysis and answers. (5 minutes)	Help students further understand knowledge
	Segment 5: In-class: Participatory Learning (P2) – Each chapte creates project tasks, group inquiry and collaboration analysis.Usomg project-based, case-based, and task-based forms to flip the classroom, and help students understand knowledge through participatory learning.	(1) Before the course begins, divide the project learning modules, create pre-set problem scenarios, and group students based on their interests and knowledge levels (6-8 people per group) to collaboratively complete the tasks. Students discuss and explore independently, searching for information, conducive to classroom discussion. (2) The teacher briefly explains the steps of using the critical success factors method commonly used in management information system planning and introduces one common tool, the process of drawing a fishbone diagram. (3) Create problem scenarios, reasonably design the project training process according to the classroom content, and guide students to actively participate in practice through guiding questions in the project training process. For example, in the application teaching process of system planning methods, design tasks such as "let students independently participate in drawing fishbone diagrams" and using fishbone diagrams to reasonably plan the small management information systems to be developed by each group according to the relevant knowledge mastered by students. (10-15 minutes) (4) Group reporting (10-15 minutes)	Improve students' enthusiasm for active learning
	Segment 6: Teacher Summary (S2)	The teacher evaluates and guides each group's reporting situation and summarizes the specific matters that need attention when drawing fishbone diagrams. (3 minutes)	Sublimate knowledge points
Online Test	Segment 7: Post-class Stage – Online Quiz (Post-assessment)	Recommend the drawing software Visio, introduce that Visio software can draw fishbone diagrams, and briefly explain how to use the software. Students can learn and draw fishbone diagrams through Visio or explore other software on their own after class.	Expand and enhance students' hands-on application ability

5. Application and Effect Analysis of the BOPPPS Teaching Model in the Course

In addition to the knowledge point "Management Information System Planning," the teaching team also applied the BOPPPS model in the classroom teaching of other important knowledge points such as "Concept and Nature of Information," "Prototyping Method," "Business Process Diagram," "Data Flow Diagram," "Code Design," and "Database Conceptual Model Design." Starting from the second semester of the 2023-2024 academic year, the BOPPPS teaching model has been applied in the classroom teaching of the Management Information Systems course. After one semester of teaching practice, the teacher conducted a survey on the classroom teaching effectiveness among the students who took the course and received positive responses from the students. The overall average score for students' evaluation of the classroom teaching effectiveness of the MIS course was 96.14; this score was derived from multiple evaluation indicators. Among them, 95.04% of the students believed that the MIS classroom "had rich content and a large amount of information, which could be related to real-life and practical applications"; 90.16% of the students believed that the MIS classroom teaching "reflected the teaching philosophy of modern higher education and used appropriate teaching methods and means to organize classroom teaching"; 94.21% of the students believed that the "teacher-student interaction in the MIS classroom was relatively deep, the atmosphere was lively, and the participatory learning method could deepen their understanding and comprehension of the teaching content"; and 93.39% of the students believed that they were "very interested in the teaching forms such as project-driven and group discussions in the MIS classroom, which they thought could inspire their thinking, association, and innovation, help cultivate divergent and creative thinking, and enhance their learning interest."

The above survey data reflects that the MIS classroom teaching reform implemented with the BOPPPS model has achieved preliminary results, and students have felt the improvement that the introduction of the BOPPPS model has brought to the MIS classroom teaching.

6. Conclusion

To enhance public management students' interest in information courses, this paper constructs a BOPPPS blended teaching model with three stages: "online" + "offline," "pre-class + in-class + post-class," and dual subjects of "teacher" and "student." Taking the Management Information Systems course as an example, it explores the classroom teaching reform of the MIS course. First, it analyzes the problems existing in the MIS course; second, based on the problems in the course and the connotation of the BOPPPS teaching model, it reconstructs the teaching content, optimizes the teaching methods, establishes a BOPPPS + online and offline blended teaching reform model, and carries out specific design and practical application of the classroom teaching links of the MIS course; finally, it uses the questionnaire survey method to test the effect of the teaching reform practice. The results show that the BOPPPS teaching model can highlight the students' main role in the classroom, mobilize their learning initiative, and help cultivate their strong interest in learning; students can improve their communication, expression, and cooperation skills through group discussions and cooperation, scenario simulations, and project-driven methods, and deepen their understanding and comprehension of knowledge points. At the same time, the BOPPPS blended teaching model also helps teachers obtain timely teaching feedback, standardize the classroom teaching process, and improve teaching effectiveness. This model will promote the positive cycle of two-way interaction and innovative ability training in the teaching classroom, further promoting the classroom teaching innovation of information courses in public management majors.

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References

[1] Guo Yan. Path Selection and Countermeasures for Local Undergraduate Colleges to Serve Regional Economic Transformation and Development. Modern Education Management, 2018(2):56-60.

[2] Zhang Mingyong. Blended Teaching Practice Based on the Chaoxing Learning Pass Online Learning Platform under the BOPPPS Teaching Model—Taking the "HTML5 & CSS3" Web Design Course as an Example. Journal of Wuhan Institute of Shipbuilding Technology, 2019, 18(04):67-73.

[3] Xu Yingchun. Blended Teaching Research on Introduction to Artificial Intelligence Based on "Learning Pass+BOPPPS". Journal of Hunan Vocational College of Posts and Telecommunications, 2022, 21(01):32-35.

[4] Ke Jiangcen, Wang Lin, Zheng Yahong. Research on SPOC + PBL Blended Teaching Model in Colleges and Universities under the Background of Emerging Engineering Education— Taking the Course "Traffic Management Information System" as an Example. Education Teaching Forum, 2022(15): 117-120.

[5] Burgess A, Haq I, Bleasel J, et al. Team-based learning (TBL): a community of practice. BMC Med Educ, 2019, 19(1): 369-375.

[6] Yang Zhenpeng. Application of Blended Teaching Based on Rain Classroom in the Course "Fundamentals of Access Database Application". Heilongjiang Education (Theory and Practice), 2022(11): 57-59.

[7] Tian Hua, Hao Fengzhi, Wang Pengjiao. Effective Teaching Design Based on the BOPPPS Model—Taking the Course "Multimedia Web Design" as an Example. Education Modernization, 2017, 4(36): 224-227.

[8] Lu Hongxia. Blended Teaching Practice of "SQL Server Database" Course Based on the BOPPPS Model. Western Quality Education, 2021, 7(21):123-125.

[9] Pat Pattison, Russell Day. Instruction Skills Workshop (ISW) Handbook for Participants. Vancouver, The Instruction Skills Workshop International Advisory Committee. 2006.