Research on the Application of BOPPPS Teaching Model in Information Resource Management Courses in the Context of New Liberal Arts (Postprint)

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Abstract

In response to the problem of unsatisfactory teaching effectiveness in information resource management courses within the new liberal arts context, the BOPPPS teaching model is incorporated into information resource management instruction to advance teaching reform. By constructing a theoretical framework for the BOPPPS-based information resource management course teaching model and implementing it in the specific teaching practice of the information resource management course at Fuzhou University, with the information retrieval section of information resource content management as a case study, the application of the BOPPPS teaching model before, during, and after class is elaborated in detail. Research findings indicate that the information resource management course employing the BOPPPS teaching model achieves favorable teaching outcomes. The article provides a critical reflection on the BOPPPS-based information resource management course teaching model and proposes recommendations for improving course instruction.

Full Text

Research on the Application of BOPPPS Teaching Model in Information Resource Management Courses under the New Liberal Arts Background

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Abstract

Addressing the issue of poor teaching effectiveness in Information Resource Management (IRM) courses within the new liberal arts context, this study introduces the BOPPPS teaching model to advance pedagogical reform in IRM education. By constructing a theoretical framework for IRM courses based on the BOPPPS model and applying it to the specific teaching practice of the IRM course at Fuzhou University, this paper elaborates on the application of BOPPPS across pre-class, in-class, and post-class phases, using the information retrieval subsection of information resource content management as a detailed example. The findings demonstrate that the BOPPPS model yields effective results in IRM course instruction. The article reflects on the BOPPPS-based IRM teaching model and proposes recommendations for improving course delivery.

Keywords: BOPPPS teaching model; new liberal arts; information resource management; teaching reform

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1. Current Status of IRM Course Teaching and Feasibility Analysis of the BOPPPS Model

1.1 Teaching Challenges in the New Liberal Arts Context

The official launch of new liberal arts construction in China, marked by the Ministry of Education's "New Liberal Arts Construction Declaration" in April 2020, aims to break disciplinary barriers and achieve interdisciplinary integration by incorporating modern information technologies such as the Internet and digital intelligence into traditional liberal arts curricula. The "Guidelines for New Liberal Arts Research and Reform Practice Projects" explicitly calls for building interdisciplinary, integrated curricula that blend liberal arts with science, engineering, and medicine. In this context, IRM courses face three major challenges. First, achieving the integration of theory and practice: IRM courses must address real-world problems in information resource development, data governance, and data rights confirmation from various social domains, fostering students' interdisciplinary knowledge integration and practical abilities through participatory learning while incorporating digital intelligence innovation concepts. Second, incorporating digital intelligence innovation: IRM itself spans computer science, management, and other fields, and has evolved from traditional resource management to intelligent information resource management. Course instruction must embed digital intelligence thinking to cultivate interdisciplinary, multi-perspective problem-solving capabilities. Third, breaking professional boundaries: As IRM applications expand into medicine, agriculture, and other fields, teaching must transcend disciplinary silos to integrate specialized knowledge with multi-domain expertise, meeting society's changing demands for IRM professionals.

Currently, most IRM courses in Chinese universities remain theory-centered,

lacking guided opportunities for students to apply theoretical knowledge to practical information resource management problems. This results in low student engagement and poor learning outcomes. Under new liberal arts requirements, IRM courses urgently need to cultivate interdisciplinary talents who can integrate theory with practice, incorporate digital intelligence innovation, and transcend disciplinary boundaries.

1.2 Feasibility of BOPPPS in IRM Courses

The BOPPPS model, developed by Douglas Kerr's team in Canada, offers a student-centered, objective-driven approach emphasizing participation and feedback. Its six-stage structure—Bridge-in, Objective, Pre-assessment, Participatory Learning, Post-assessment, and Summary—creates a dynamic teaching cycle that aligns perfectly with new liberal arts demands for IRM education. The model addresses the need for combining theory with practice by using real-world problem scenarios as bridge-in activities. It supports digital intelligence innovation through technology-enabled pre-assessments and personalized learning interventions. Its participatory learning core fosters the interdisciplinary, collaborative skills required for breaking professional boundaries. By implementing BOPPPS across pre-class, in-class, and post-class phases, IRM courses can enhance student engagement, improve practical abilities, and cultivate talents better suited to new liberal arts requirements.

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2. Framework of BOPPPS-Based IRM Course Teaching Model

Drawing from Professor Huang Ronghuai's blended learning design framework comprising learning environment design, activity and resource design, and teaching evaluation design, this study constructs a BOPPPS-based IRM teaching model framework that includes three core components: pre-learning analysis, teaching process design, and teaching evaluation design.

Pre-learning analysis forms the foundation for successful implementation. Using educational big data, instructors conduct precise analysis of teaching objectives, student profiles, and content characteristics to establish targeted learning outcomes. **Teaching process design** constitutes the core of the model, structuring BOPPPS activities across pre-class, in-class, and post-class phases. **Teaching evaluation design** involves continuous assessment throughout the process, enabling data-driven instructional adjustments and optimization.

[Figure 1: see original paper] Framework of BOPPPS-Based Information Resource Management Course Teaching Model

The teaching process unfolds across three temporal phases. The **pre-class stage** utilizes information technology to analyze student data and behaviors, enabling instructors to personalize the introduction of IRM theories based on

pre-assessment results. Students access customized learning resources and complete diagnostic tests via online platforms. The **in-class stage** focuses on participatory learning and post-assessment through face-to-face instruction. Under teacher guidance, students engage in group discussions, case analyses, and collaborative projects to deeply explore key concepts such as information retrieval principles, network search techniques, and literature search methods. The **post-class stage** employs artificial intelligence for precise intervention, requiring students to complete summative assessments while instructors reflect on and optimize the entire teaching process.

[Figure 2: see original paper] Teaching Process Design

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3. Practical Application: Fuzhou University IRM Course

3.1 Course Context

The IRM course at Fuzhou University enrolls students majoring in Information Management and Information Systems, using the textbook *Information Resource Management* edited by Ma Feicheng and Lai Maosheng. As a core professional foundation course, it has been redesigned under new liberal arts requirements to meet evolving market demands for IRM professionals. The course aims to cultivate students' comprehensive abilities in applying digital intelligence technologies, integrating interdisciplinary knowledge, and solving practical problems through autonomous learning and team collaboration.

3.2 Instructional Design for Information Retrieval Module

Taking the information retrieval subsection—the fourth module in the information resource content management section—as an example, this section details the BOPPPS application. Students have already mastered foundational knowledge of information resource concepts, characteristics, content management methods, and information collection and organization techniques, providing a solid theoretical basis for this module.

Pre-Class Phase The pre-class phase comprises Bridge-in, Objective, and Pre-assessment stages, delivered through blended online-offline methods. On the Chaoxing Learning Platform, instructors upload personalized learning resources about information retrieval and release diagnostic exercises. Offline, teachers use contextualized scenarios to introduce learning objectives and stimulate interest. For instance, when teaching information retrieval processes, instructors might prompt students to imagine their upcoming graduation job search and consider how to obtain industry recruitment information, thereby demonstrating the practical significance of retrieval skills. In the Bridge-in stage, students analyze historical photos to extract information, cultivating patriotism while introducing retrieval concepts. The Pre-assessment reveals students' prior knowl-

edge, enabling instructors to adjust instructional design and provide targeted guidance.

In-Class Phase The in-class phase centers on Participatory Learning and Post-assessment, conducted primarily through face-to-face instruction. Teachers systematically explain retrieval principles, processes, methods, and techniques, including network and literature search skills. Students engage in group activities, such as using web crawler software to collect data from university news notification pages, with accuracy and efficiency determining group scores. This hands-on approach helps students understand the complete retrieval process while developing teamwork and problem-solving abilities. For example, when encountering unfamiliar music with only a melody, students practice using retrieval tools to identify the piece, enhancing their practical skills. The Post-assessment includes in-class exercises and discussions, with instructors providing immediate feedback and emphasizing key knowledge points.

Post-Class Phase The post-class phase focuses on Summary and reflection. Students complete personalized online tests to evaluate learning outcomes, while instructors summarize core content and emphasize critical concepts to help students consolidate their knowledge system. For advanced learning, students might be assigned to crawl COVID-19 prevention measures from Fujian universities' websites, forming documents and reflections. Teaching evaluation occurs through online questionnaires, with results (excellent, good, pass, fail) fed back into the educational big data system to inform future personalized instructional design.

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4. Teaching Feedback and Reflection

4.1 Instructional Effectiveness

To evaluate the BOPPPS model's effectiveness, an online survey was administered following the IRM course implementation. Results showed that 95.96% of students enjoyed the course, 98.38% approved of the BOPPPS-based teaching approach, and 99.59% favored this instructional method. Additionally, 99.19% of students reported improved practical abilities. Comparative analysis of course grades before and after BOPPPS implementation revealed significant improvement, with higher achievement in the 90-100 and 80-90 ranges compared to traditional teaching modes.

[Figure 3: see original paper] Comparison of Course Grades Before and After BOPPPS Implementation

4.2 Limitations and Improvements

Despite its effectiveness, the BOPPPS model presents certain challenges in IRM courses. The model's success heavily depends on students' learning capacity and autonomy, as personalized instruction requires active participation. Some students may resist student-centered approaches, affecting classroom engagement. The Participatory Learning stage, while central to the model, varies in implementation difficulty across different knowledge points. To address these issues, instructors should balance teacher guidance with student autonomy, increase the weight of pre-assessments to stimulate interest, and scientifically design personalized learning activities and resources. Future iterations should leverage big data analytics to track learning progress and provide timely interventions.

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5. Conclusion

Under new liberal arts requirements, IRM courses must integrate digital intelligence innovation, transcend disciplinary boundaries, and achieve seamless fusion of theory with modern technology. The BOPPPS teaching model effectively addresses these challenges by enhancing student engagement, improving practical capabilities, and cultivating talents who meet societal demands. While this study represents an initial step in IRM curriculum reform, continuous improvement and optimization are needed. Future efforts should focus on refining personalized instructional design, strengthening teacher-student interaction, and leveraging educational technology to further enhance IRM course quality and cultivate professionals suited to new economic and social development needs.

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Note: Figure translations are in progress. See original paper for figures.