

# Exploration and Practice of Teaching Reform in *Educational Principles* for Master of Education (MEd) Based on a Problem-Driven Approach

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**Abstract:** To address the deficiencies in the traditional teaching of *Educational Principles* for Master of Education (MEd) postgraduates—notably the disconnection between theoretical learning and practical application, and the inadequate cultivation of core competencies—this study explores targeted teaching reform by leveraging the high congruence between the course's training objectives and the problem-driven teaching approach. Adhering to three core principles: problem orientation, student-centeredness, and practical application, the reform constructs a three-dimensional implementation framework comprising the design of cognitive conflict-based questions, a systematic teaching process, and diversified assessment methods, with a focused aim to enhance the cultivation of students' key abilities. Practical results demonstrate that this reform effectively stimulates postgraduates' problem awareness and research interest, and significantly improves their classroom participation, literature synthesis capacity, academic expression skills, and thesis writing proficiency. The research findings can serve as a practical reference for the teaching reform of similar theoretical courses in MEd programs.

**Keywords:** problem-driven approach; cognitive conflict-based questions; problem-solving ability; educational research competence; *Educational Principles*

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## 1. Introduction

The prototype of problem-driven teaching in Western academia can be traced back at least to the Socratic maieutics in ancient Greece, an interrogative teaching method characterized by elenchus and reductio ad absurdum. Subsequently, it underwent numerous transformations, John Dewey proposed a mature problem-solving model in 1910, which stands as a foundational framework for modern problem-driven teaching and centers on four core steps: discovering, posing, analyzing, and solving problems. With the advancement of Jean Piaget's constructivist theories from Switzerland, contemporary European and American scholars developed more widely adopted problem-driven learning models such as Problem-Based Learning (PBL) and Project-Driven Learning (PDL), since which time the problem-driven teaching model has become a prevalent pedagogical approach globally. In essence, problem-driven teaching guides student learning through intentional problem design, stimulates their research enthusiasm, cultivates their problem-solving and research capabilities, and fosters them into innovative high-caliber talents.

In Chinese educational thought, Confucius' heuristic teaching emphasized the principle of *Do not enlighten a student until he has striven to understand a concept but failed*, which articulates the intrinsic relationship between students' in-depth reflection and teachers' heuristic questioning, and reflects the profound logic of the question-and-answer interaction in teaching. Later, the learning paradigm of *learning, inquiry, reflection, deliberation and application* proposed in *The Doctrine of the Mean* also embodies the core tenets of posing, exploring, and solving problems. In contemporary China, to meet the urgent demand for cultivating innovative talents, problem-driven teaching has garnered increasing attention and is now being vigorously explored and practiced across all levels and types of education.

Compared with traditional teacher-centered teaching models, the modern problem-driven approach boasts unique advantages, particularly in nurturing students' interest in inquiry and innovative thinking. Postgraduate education, as a stage of higher education focused on cultivating problem awareness and research competence, is highly aligned with the core characteristics of problem-driven teaching. Thus, the thorough implementation of

problem-driven teaching has become an inevitable requirement for postgraduate training. Centering on the cultivation of postgraduates' research abilities, this study conducts targeted teaching reform to address the pressing competency gaps among MEd postgraduates, including insufficient problem awareness, underdeveloped expression skills, weak literature synthesis capacity, and limited thesis writing proficiency. The reform focuses on enhancing teaching effectiveness through the integration of problem-driven pedagogy and innovative assessment methods.

## **2. Basic Principles of Problem-Driven Teaching in *Educational Principles***

As a core foundational degree course for MEd programs, *Educational Principles* is a compulsory course for all professional postgraduates in education<sup>[1]</sup>. Given that MEd postgraduates have acquired a basic grasp of pedagogical theories during their undergraduate studies, the course should move beyond the simple construction of the educational principles theoretical system, and instead prioritize advancing students' educational ideological cognition, problem awareness in educational theories, research competence, and ability to solve practical educational problems. Problem-driven teaching is distinguished by its focus on problems as the starting point of learning, its organization of course content around problem inquiry, its emphasis on independent learning and group cooperation<sup>[2]</sup>, and its goal of cultivating problem-solving and research abilities—all of which are highly consistent with the instructional objectives of *Educational Principles*. The implementation of problem-driven teaching in postgraduate courses “facilitates the independent construction of advanced knowledge, helps achieve the higher-order instructional objectives of professional courses, and yields excellent teaching outcomes”<sup>[3]</sup>. In light of this, the application of problem-driven teaching in *Educational Principles* must abide by the following basic principles.

### **2.1 Prioritizing Problem Orientation**

The core of problem-driven teaching resides in the deliberate design and guided exploration of questions. In line with course objectives and content, teachers are required to design contradictory, enlightening, challenging, and open-ended questions that can stimulate students' learning interest and inquiry motivation, and guide them to engage in active thinking and independent problem-solving. For instance, in units themed around the theory of educational objects and the theory of educational aims, teachers may pose core exploratory questions such as: *How to understand that the object of education is not “human beings in general” but “unique individuals”?* and *How to interpret the three connotations of educational aims: fostering professional expertise, nurturing moral character, and achieving self-actualization?* These questions not only cover the key theoretical knowledge of the course but also prompt in-depth classroom reflection and discussion, thereby enhancing students' research competence.

### **2.2 Adhering to Student-Centeredness**

Problem-driven teaching emphasizes student-centeredness and fully embodies students' subjectivity in the learning process. While teachers initiate the classroom by posing core instructional questions, they act as facilitators throughout the teaching process, guiding students to engage in independent learning and collaborative inquiry, and encouraging them to put forward their own perspectives and new research questions. For example, prior to classroom presentations, teachers organize group work for students to prepare presentation content around the preset questions and pose new questions based on their reflections during the preparation phase; during presentations, teachers facilitate further group discussion and exchange, with a focus on sharing newly raised questions and insights. Meanwhile, students are organized to comment on and evaluate the presentations and discussions. This approach ensures full student participation in classroom activities, enabling them to not only deepen their understanding of theoretical knowledge but also develop critical thinking and teamwork skills.

### **2.3 Orienting to Practical Application**

Problem-driven teaching integrates theoretical learning with practical application, and teachers are tasked with guiding students to apply pedagogical theories to solve real-world educational problems, thereby cultivating their practical competence and innovative awareness. In the *Educational Principles* course, for example, teachers guide

students to use educational theories to observe, analyze, and address practical issues in basic education and educational management. This pedagogical approach helps students establish a clear understanding of the intrinsic link between educational theory and practice, and effectively improves their ability to solve authentic educational problems.

### **3. Implementation Path of Problem-Driven Teaching Reform in *Educational Principles***

The effective implementation of problem-driven teaching relies on three mutually reinforcing pillars: scientific problem design as the core premise, a systematic teaching process as the operational guarantee, and adaptive assessment methods as the guiding support. Together, these three elements underpin the achievement of the teaching reform's objectives. Combining the learning characteristics of MEd postgraduates and the disciplinary features of *Educational Principles*—a course that integrates theoretical depth, dialectical thinking, and practical relevance—this study constructs an operable teaching reform framework from three dimensions: the design of cognitive conflict-based questions, the development of a systematic teaching process, and the improvement of diversified assessment methods. This framework aims to promote the in-depth integration of the problem-driven pedagogical concept and the actual teaching practice of the course.

#### **3.1 Focus on Cognitive Conflict: Precision Design of Course Questions**

##### **3.1.1 Core Rationale and Objectives of Cognitive Conflict-Based Question Design**

Problem design is the cornerstone of problem-driven teaching and a key link in the teaching reform of *Educational Principles* for MEd postgraduates. MEd learners typically possess both practical experience in basic education and a preliminary understanding of educational theories, yet they commonly face challenges such as the disconnection between theory and practice, insufficient exploration of the profound connotations of educational principles, and a lack of dialectical and exploratory ability when confronting complex educational issues. Based on the constructivist theory of cognitive conflict, and in consideration of *Educational Principles* as a core foundational course for MEd programs with inherent theoretical, dialectical, and practical attributes, this study takes cognitive conflict-based questions as the core type of course question design. The primary goal is to disrupt learners' original cognitive balance: by designing research questions that go beyond their existing cognitive scope and contradict their prior educational experience or theoretical cognition, MEd postgraduates are prompted to proactively break free from rigid cognitive frameworks and stimulate their intrinsic motivation for independent inquiry.

##### **3.1.2 Design Approaches and Source Characteristics of Cognitive Conflict-Based Questions**

Teachers design cognitive conflict-based questions around each unit theme, with a specific focus on guiding the cultivation of students' educational empathy, critical spirit, and innovative awareness. *Educational Principles* is structured into ten thematic units, with approximately ten cognitive conflict-based questions designed for each unit. The questions derive from two primary sources: educational academic literature and authentic educational practice.

Questions drawn from academic literature focus on new theoretical developments and research trends in education. For example: *Given that teaching is an essential component of education, how to interpret the inconsistency and contradiction between education as a practical activity and teaching as a cognitive activity?* Questions rooted in educational practice target pressing and unresolved real-world educational issues. For example: *Is the county-led management system for basic education an institutional cause of unbalanced educational development? Can a county-city collaborative management model effectively promote the balanced development of basic education?*

Each cognitive conflict-based question is designed to arouse students' cognitive dissonance and stimulate their curiosity and research initiative, guiding them to conduct literature reviews, in-depth reflection, and classroom presentations and discussions. Notably, cognitive conflict-based questions are not exclusively preset by teachers; students are also encouraged to independently discover and pose such questions during course research and

autonomous learning. This approach not only effectively cultivates students' ability to discover and pose research questions but also further enhances the implementation effect of problem-driven teaching.

### **3.2 Interlocking Links: Construction of a Systematic Teaching Process**

To translate the problem-driven teaching concept into practice and ensure the effectiveness of the reform, this study takes the inquiry of cognitive conflict-based questions as the core thread and constructs an operable problem-driven teaching process, tailored to the characteristics of *Educational Principles* and the learning needs of MEd postgraduates. The process consists of three interlocking core stages, which jointly promote in-depth inquiry of cognitive conflict-based questions and effective classroom discussion:

#### **3.2.1 Question Elaboration and Inquiry Guidance**

Teachers distribute the preset cognitive conflict-based questions for each unit to students in advance, and briefly elaborate on the design rationale of the questions—with a focus on unpacking the process of discovering, refining, and constructing the questions—to inspire students' problem-oriented thinking. In addition, teachers provide directional guidance for students' subsequent literature review, specifying core classic works, key research scholars, and important theoretical perspectives, thus laying a solid foundation for in-depth problem inquiry.

#### **3.2.2 Grouping, Division of Labor and Task Selection**

Teachers organize heterogeneous classroom groups and clarify the division of responsibilities between group leaders and members. Taking each thematic unit as a basic unit, students independently select cognitive conflict-based questions of their interest to prepare for classroom presentations. This approach not only ensures the rational allocation of learning tasks but also fully respects students' research interests, thereby enhancing their initiative to participate in the learning process.

#### **3.2.3 Multi-Dimensional Interaction and Presentation-Driven Discussion**

Teachers clarify clear and specific requirements for classroom presentations and discussions. For each unit, in addition to the presentation group, a questioning group and a commentary group are assigned to achieve coordinated collaboration among all groups. After the presentation group presents their research findings, the questioning group raises extended and exploratory questions about the presentation content, which the presentation group answers on the spot followed by interactive discussion. The commentary group then provides a comprehensive evaluation of the presentation group's research findings and the questioning group's question design. Meanwhile, students in non-assigned groups are encouraged to actively participate in questioning and discussion, fostering a whole-class engagement atmosphere for academic exchange.

During the entire teaching process, teachers provide timely heuristic guidance, intellectual feedback, and formative evaluation based on classroom dynamics and students' performance. Students' overall performance in presentations and discussions is taken as the core evaluation criterion for the course's formative assessment, providing a solid empirical basis for subsequent comprehensive assessment.

### **3.3 Competency-Oriented Empowerment: Improvement of Diversified Assessment Methods**

Assessment methods serve as the “baton” guiding teaching objectives. The traditional assessment of *Educational Principles* overemphasizes the memorization and reproduction of theoretical knowledge, which fails to comprehensively evaluate MEd postgraduates' problem-solving ability, academic research competence, and practical application capacity—thus misaligning with the training objectives of problem-driven teaching. To address this issue, this study integrates competency assessment into the entire teaching process, closely aligned with the core demands of problem-driven teaching, to effectively achieve the course's high-order instructional objectives.

#### **3.3.1 Strengthening Formative Assessment: Focus on the Process of Competency Development**

The weight of formative assessment is tilted toward the entire process of problem inquiry, with a focus on evaluating students' performance of core competencies in the exploration of cognitive conflict-based questions. The

assessment content is closely linked to each stage of the teaching process, including: the ability to discover and pose cognitive conflict-based questions, literature synthesis and analysis capacity, classroom dialectical thinking and academic expression skills, and teamwork ability. This formative assessment system ensures that evaluation results fully reflect the trajectory of students' competency growth in problem-driven learning.

### 3.3.2 Optimizing Summative Assessment to Highlight the Orientation of Research Competence

Summative assessment adopts course papers as its core assessment carrier. In the topic selection stage, students are required to define the research direction of their papers by integrating what they have learned, reflected on and practical educational problems, and deliver topic selection presentations and conduct interactive discussions in class. The research perspective is refined through teacher-student comments and peer learning to ensure the topics possess both theoretical value and practical pertinence. In the writing stage, a nearly two-month winter vacation is reserved, providing students with sufficient time for literature research, data collection and paper composition. During this period, teachers offer phased academic guidance to address students' research doubts and puzzles. In the submission stage, with the beginning of the second semester as the deadline, the course paper serves as the core basis for summative assessment, with the evaluation focusing on the paper's problem awareness, logical structure, theoretical application, analytical depth and writing standardization.

### 3.3.3 Adding Incentives for Achievement Transformation to Stimulate the Motivation for Independent Research

To further strengthen Master of Education (MEd) postgraduates' awareness of academic research and their ability in achievement transformation, paper submission to academic journals is incorporated into the assessment and evaluation system as an important extra credit item and a competency certification component of summative assessment. Students are encouraged to independently select suitable education-related journals for submission based on the quality of their course papers after completion. Experiences gained during the submission process, including research topic optimization, format standardization and communication with journal reviewers, are all included in the scope of assessment and evaluation. Additional assessment credits and academic incentives are awarded to students who achieve successful paper submission. This mechanism breaks the limitation where research ends with the completion of a paper, guides students to hold their research findings to rigorous academic standards, and stimulates their endogenous motivation for autonomous learning and proactive research inquiry.

## 4. Conclusion

Aiming at the inherent deficiencies of traditional teaching in *Educational Principles* for MEd postgraduates, this study takes the problem-driven pedagogical concept as the core and explores an adaptive teaching reform path. The research results show that adhering to the principles of problem orientation, student-centeredness, and practical application, and constructing a three-dimensional implementation framework (cognitive conflict-based question design, systematic teaching process, and diversified assessment methods) can effectively stimulate students' research enthusiasm and significantly improve their core competencies, including problem handling, literature synthesis, academic expression, and thesis writing. The research findings can provide a practical and operable reference for the teaching reform of similar theoretical courses in MEd and other professional postgraduate education programs.

## References:

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