The Reconstruction and Practical Exploration of Teaching Mode of "Classroom Management and Class Organization" Course Based on OBE Concepts

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Abstract: *This research investigates how artificial intelligence literacy shapes Chinese college students' national identity through cultural perception pathways, proposing the novel Techno-Cultural Synergy Model (TCSM) that bridges technological empowerment and cultural criticality. Combining quantitative surveys (N=1064 from six universities) with qualitative analysis, the study reveals AI literacy's dual indirect effects: enhancing identity through cultural heritage preservation efficacy (β=0.147) while mitigating algorithmic homogenization threats (β=0.249), with community collaboration amplifying cultural empowerment and neutralizing technological risks through collective norms. The TCSM framework advances three theoretical breakthroughs: 1) establishing a bidirectional technology-culture interaction mechanism challenging technological determinism, 2) demonstrating community-level social participation's regulatory power in collectivist contexts, and 3) developing a cross-cultural analytical tool for AI-ethics research. Practically, it proposes constructing "technology-culture communities" through curriculum reforms, algorithmic governance, and participatory platforms. As the first empirical model integrating AI literacy with cultural identity dynamics, this work provides a multidisciplinary paradigm for global AI ethics governance and cultural sustainability research in the algorithm age.*

Keywords: *Outcome-Based Education, Classroom Management, Classroom Organization, Teacher Educators, Pedagogical Model Reconstruction*

1. Introduction

The consensus of global teacher education reforms is that classroom management and classroom organization skills have become key indicators of teacher educators' core literacy. However, the current curriculum still focuses on knowledge teaching, with teaching objectives and processes disconnected from real-life contexts in primary and secondary schools, and evaluation relying on final written exams, which makes it difficult for teacher trainees to apply what they have learned after joining the profession [1-3].

Outcome-Based Education (OBE) provides ideas to solve the above pain points: reverse design, evidence-driven, and continuous improvement [4]. Although OBE has been validated in many courses in China, there is still a lack of a systematic framework in the field of classroom management and classroom organization, which is a highly practical field, especially the lack of in-depth exploration of classroom micro-governance and values integration [5].

This study takes the undergraduate elementary education course "Classroom Management and Class Organization" as an example and focuses on three questions: (1) How to define the core learning outcomes that meet the job requirements? (2) How to design the content, methodology and evaluation system to match? (3) Can the reconstructed model significantly improve the practice ability of teacher trainees? Through quasi-experimental and mixed research methods, this paper constructs a closed loop of "goal-content-methodology-evaluation-improvement" and validates the intervention on 120 students in 16 weeks, with a view to providing a replicable localized paradigm of OBE for teacher training colleges.

2. Theoretical framework and literature review

2.1 Core Elements and Relevance of OBE Theory

Outcome-Based Education (OBE) takes "reverse design, evidence-driven, and continuous improvement" as its core principle and emphasizes observable behaviors as quantitative evidence of learning outcomes [6]. Its "four-step closed-loop model" (defining learning outputs-designing evidence collection-implementing accurate instruction-iterative improvement evaluation) provides an actionable framework for hands-on curriculum [5]. In the field of classroom management, the appropriateness of OBE is reflected in three aspects: first, implicit competencies such as "classroom discipline maintenance" and "conflict mediation" are transformed into observable indicators to solve the problem of ambiguous objectives of the traditional curriculum; second, through the The second is to realize contextual embedding through the "task-role-reflection" chain, bridging the gap between theory and practice [7]; the third is to be compatible with the collectivist culture, reserving the adjustment space for the construction of local classroom communities [8].

2.2 Research Picture of Classroom Management and Class Organization

International research shows a three-tier evolution of "policy-mechanism-technology", but it is mostly in the context of Western "individual-contractual" classroom, and it has a strong influence on East Asian "collective-relational" classroom. -relationship" classroom is untested [9, 10].

Domestic research focuses on two main lines: first, localized reconfiguration, such as developing a competency evaluation matrix and designing a "task-driven + group collaboration" model [11,12]; and second, technological empowerment, such as digital instructional collaborations [13], text mining to support process evaluation [14]. However, the existing research has the limitation of "more single-point breakthroughs and less system integration", and has not yet formed a complete paradigm of "results-teaching-evaluation", and it has not yet formed a complete paradigm of "results - teaching - evaluation". Lifelong learning" perspective of management values is not enough attention.

2.3 Structural defects of the traditional model

Against the principle of OBE, there is a triple split in the traditional curriculum: the objectives are disconnected from the job requirements, resulting in "difficult to learn and apply" [15]; teaching is mainly theoretical, which makes it difficult to cultivate higher-order competencies, such as "instant decision-making" [16]; evaluation focuses on summative assessment and ignores evidence of process growth [17].

2.4 Theoretical Gaps and Innovations of this Study

There are three shortcomings in the existing research: the lack of a closed-loop design of "outcome setting-teaching implementation-evidence collection-continuous improvement"; the effectiveness of the international OBE framework in collectivist classroom culture is not empirically demonstrated; The goal of "Cultivating Moral Integrity" has not been adequately addressed within the outcome system of classroom management.

The innovations of this study are: (1) the construction of a three-in-one integration model of "outcome-teaching-evaluation" to realize the closed loop of OBE; (2) the introduction of social network analysis (SNA) technology to provide new evidence for competency assessment; (3) the integration of "fairness, respect, responsibility" into the "OBE" model; and (4) the introduction of the social network analysis (SNA) technology. (a) Introduce social network analysis (SNA) technology to provide new evidence for competency assessment; (b) Embed values such as "fairness, respect and responsibility" into learning outputs, and explore the integration path of "Civics + Professionalism".

3. Teaching mode reconstruction design

3.1 Common method bias test Reverse design: three-dimensional deconstruction of expected learning outcomes (PLOs)

Based on the teacher training professional certification standards and the "Regulations on the Work

of Classroom Teachers in Primary and Secondary Schools", the expected learning outcomes were deconstructed into a three-dimensional matrix of "knowledge-competence-literacy" through the two rounds of the Delphi method (with the participation of 12 experts), and observable behaviors and quantitative evidence were set for each dimension (see Table 1).

Table 1: Three-dimensional matrix of expected learning outcomes (PLOs)

Dimension	Level 1 Indicators	Core Sources of Evidence	Weighting
Knowledge	Core theories of classroom management	Situational testing, concept mapping	20% of the total number of students
Competencies	Classroom rules design, conflict resolution, activity organization	PBL project text, VR decision logs, live videos	25%, 20%, 15%
Literacy	Reflective Practice	Reflective report, text mining	20% of the total number of students in the program

3.2 Content reconstruction: modularization-contextualization-progressive curriculum mapping

We designed"5×3" curriculum modules (5topics×3 difficulty levels), following a three-phase progression of "theory anchoring→skills training→practice transfer". Real-world cases were integrated throughout, forming a spiral logic whereby the output of each preceding module serves directly as input for the subsequent one.The core modules include: M1 Management Theory (OBE Reverse Design Logic); M2 Class Rules Formulation (Contract-Feedback Model); M3 Conflict Resolution (Behaviorism + Cognitive Mediation Strategies); M4 Activity Organization (Workshop System); M5 Theme Class Meeting; and M6 Class Meeting. M4 Activity organization ("workshop system" theme class meeting); M5 Reflection and improvement (PDCA cycle).

3.3 Methodological Innovation: Four-Layer Scaffolding of Blended Contextual Teaching

A four-tier scaffolding system—spanning online, offline, in-school, and out-of-school contexts—was developed. This system aligns specific learning outcomes with corresponding activities and incorporates formative assessment at each level.

Online: flipped classroom + hierarchical tasks (relying on the Learning Channel platform, corresponding to knowledge goals); offline: BOPPPS model + micro-grid teaching (supported by smart classrooms, corresponding to basic competencies); in-school: PBL + simulated classes (VR lab and SNA software, corresponding to higher-order competencies); out-of-school: collaborative practice in schools (cooperative primary and secondary school bases, corresponding to literacy goals)

3.4 Evaluation system: three-dimensional - full-cycle - multi-subject evidence system

A three-dimensional evaluation system encompassing process, summative, and value-added components was implemented, adopting an evidence-centered design to ensure a closed-loop framework [18].Process evaluation (60%) contains behavioral observation, SNA network diagrams, etc., and is jointly participated by teachers, base mentors, and peers; summative evaluation (30%) contains contextual tests and reflection reports, and is rated by teachers and external experts; value-added evaluation (10%) is generated through pre- and post-test differences and growth portfolios, combining student self-assessment and system algorithms.

3.5 Continuous Improvement: Digital Embedding of the PDCA Cycle

The PDCA cycle is embedded in the whole process of the course, and indicators such as the implementation rate of class rules and the length of conflict resolution are monitored in real time through the Learning Analytics Dashboard (LAD). Following each cycle, a course improvement report was generated. This report informed the dynamic adjustment of module credit hours, case libraries, and VR simulation scripts, thereby providing an empirical foundation for the subsequent round of reverse design.

4. Research Design and Implementation

In order to verify the effectiveness of the teaching model based on the OBE concept, this study adopts a mixed-method research approach, combining quasi-experimental design and qualitative analysis to systematically examine the implementation process of the model and its impact on the

development of teacher educators' competence.

4.1 Research Design

The research paradigm adopts an explanatory sequential mixed research design: first, quantitative data are obtained through quasi-experimentation to examine the overall effect, and then qualitative data are used to analyze the internal mechanism.

The research subjects were selected as 120 undergraduates majoring in elementary education in the class of 2023 in the College of Teacher Education of a university, and were randomly divided into the experimental group (EG) and the control group (CG) of 60 students each. The two groups were matched by entrance scores, pre-test of classroom management skills to ensure that there was no significant difference at baseline (P>0.05), and the grouping was done by an independent research assistant to avoid bias.

Intervention protocol: the experimental group adopted the OBE-based reconfiguration model (with three-dimensional expected learning outcomes, modularized curriculum, four-tier blended scaffolding, three-dimensional evaluation, and PDCA for digital improvement); the control group adopted the traditional model (based on theoretical lectures, supplemented by case discussions, with evaluation focusing on the final written examination and program design).

The study period was 16 weeks, with 4 hours per week (64 hours in total) in both groups, taught by different instructors (all with more than 3 years of experience), who were trained in the corresponding modality prior to the class to control for instructor influence.

Ethical considerations: the study was approved by the Ethics Committee of the university (Approval No. 2024-GZHSY-025), all participants signed an informed consent form, which clarified the research process, data use and confidentiality principles, and participants could withdraw at any time.

4.2 Implementation steps

The implementation of the model follows the principles of OBE "reverse design" and "continuous improvement", and follows the four-phase closed-loop approach of "preparation- intervention- assessment- optimization". Optimization" is a four-phase closed-loop process:

Preparation phase (weeks 1-2): refine the three-dimensional expected learning outcomes into a list of observable tasks, and clarify the evidence requirements; conduct 2 days of intensive training for teachers of the experimental group (OBE concepts, PBL guidance, VR simulation, and other operations); sign a practice agreement with three cooperating primary and secondary schools, and select classroom teachers with more than 5 years of experience to serve as external mentors; and implement a pre-test on the classroom management skills for all the research subjects.

Intervention phase (weeks 3-14): Promote teaching according to the "5×3" modularized curriculum mapping, focusing on one core module per week, following the "theory anchoring-skills training-practice migration " logic. Application of four-tier blended scaffolding: online, relying on "Learning Channel" to release resources and implement diagnostic tests; offline in the smart classroom, using the BOPPPS model combined with micro-grid teaching, synchronously recording behavioral observation data; on-campus, through the VR lab to simulate the classroom management situation, generating decision-making logs and SNA network analysis; off-campus, a group of 4-5 students regularly enters the partner school to participate in the classroom. Outside the school, a group of 4-5 students regularly enters the partner school to participate in real classroom management (e.g., organizing thematic class meetings, dealing with disciplinary problems), and completes practice records and reflections. Formative assessment is embedded in each scaffolding node, and data are entered into the Learning Analytics Dashboard (LAD) in real time.

Evaluation and Feedback Phase (Week 15): Collect process (behavioral scales, VR logs, etc.) and summative (situational tests, reflection reports) data to implement the post-test of classroom management competence; organize a tripartite feedback meeting among university teachers, student representatives, and primary and secondary school tutors to review the achievement of results and put forward suggestions for improvement.

Optimization phase (Week 16 and beyond): Systematically analyze the data, generate a course improvement report with tripartite feedback, update the casebook, VR script and teaching plan (e.g., increase the number of hours of the module "Management of Students with Special Needs" from 2 to 4),

and provide a basis for the next iteration.

4.3 Data Collection and Analysis Methods

A triangulation strategy was used to collect and analyze data from multiple sources and methods:

Quantitative data: collected at the beginning of the semester (pre-test) and at the end of the semester (post-test) using the self-administered Classroom Management Competency Inventory (containing 30 questions on 6 dimensions and a 5-point Likert scale with good reliability and validity: Cronbach's α = 0.89, CVI = 0.92). SPSS 26.0 was used to conduct descriptive statistics, independent samples t-test, paired samples t-test and analysis of covariance, to compare the differences between the two groups and the changes within the groups, and to calculate the rate of achievement of the expected learning outcomes.

Qualitative data: 15 students of different ability levels and 5 primary and secondary school tutors in the experimental group were selected for semi-structured interviews; students' reflective journals for the whole semester, minutes of tripartite feedback meetings and open-ended questionnaires were collected. Thematic analysis was used to code the text to extract the core themes, combined with text mining techniques (word division and word frequency statistics) to analyze the frequency of management ethics keywords, and the credibility of the conclusions was enhanced by cross validation of data from multiple sources.

5. Research results

This study verifies the effectiveness of the teaching model based on the OBE concept through mixed research methods, quantitative data reveals the differences in ability enhancement, qualitative information analyzes the mechanism of action, and the results are as follows:

5.1 Quantitative results: model validity test

(1) Significant improvement in overall competence: after the intervention, the experimental group's comprehensive classroom management competence score (M=82.63, SD=6.17) was significantly higher than that of the control group (M=67.24, SD=7.85), and the difference was highly statistically significant (t=7.32, p<0.001). Analysis of covariance controlling for differences in the pre-test showed that the experimental group's post-test scores were still significantly higher (F=53.71, p<0.001), with a large effect size (η^2=0.315), indicating that the OBE model was more effective in improving general competence.

(2) Outstanding sub-dimensional competence differences: the experimental group's posttest scores were significantly higher than those of the control group in all competence dimensions (p<0.001), with "conflict resolution" (Cohen's d=1.58) and "activity organization" (Cohen's d=1.47) improved most significantly, 21.5 and 18.9 points higher than the control group, respectively. The within-group comparison shows that the experimental group's posttest is significantly higher than the pre-test in all dimensions (p<0.001), while the control group's only "theory of knowledge" dimension has a significant improvement (p<0.05), and the practical ability dimension has no significant improvement (p>0.05).

(3) High achievement of expected learning outcomes: The achievement rates of the three-dimensional outcomes of "knowledge-competence-literacy" in the experimental group (91%, 87%, 82%) were significantly higher than those of the control group (68%, 59%, 53%) (p<0.001), indicating that structured training effectively promotes the achievement of the goals and objectives. indicating that structured training effectively promotes goal transformation.

(4) Excellent performance in simulated classroom behavior: the experimental group's "success rate of problem behavior intervention" (92.1%) and "participation in class activities" (88.7%) in simulated teaching were significantly higher than those of the control group (65.4%, 61.2%) (p<0.001), indicating that contextualized training improved the execution of site management.

5.2 Qualitative results: exploring the model's mechanism of action

(1) Contextualized practice contributes to the "transformation of knowledge and behavior": 87% of the surveyed students believe that the "simulated class project" is the key to improving competence,

and that by playing the role of a "classroom teacher" to deal with real problems (e.g., classroom cell phone conflicts), the model can help students to improve their competence in the field management. By playing the role of a "class teacher" and dealing with real problems (e.g. classroom cell phone conflicts), abstract theories were transformed into concrete strategies. For example, student S05 mentioned in her logbook, "It was only when I dealt with the 'classroom cell phone conflict' that I really understood the practical value of 'empathize first and guide later'". Feedback from primary and secondary school tutors indicated that students in the experimental group were able to "quickly recognize the essence of the problem", far exceeding students trained in the traditional mode.

(2) Student-centered mechanism enhances management effectiveness: 60% of the students endorsed the "contract-feedback model", and by guiding students to participate in the formulation of class rules (e.g., "Class Convention Revision Meeting"), the implementation rate of the rules was increased by about 30%. The class teacher of the cooperative elementary school pointed out that the theme class meeting organized by the experimental group "fits the students' characteristics", and the participation rate increased by about 40%, which is difficult to achieve with traditional lectures.

(3) Value-led integration into ability cultivation: Text mining shows that the frequency of ethical keywords such as "fairness" and "respect" mentioned in the reflection reports of the experimental group (8.2 times/article on average) is significantly higher than that of the control group (3.5 times/article) ($p<0.001$). 0.001). Student S12 mentioned, "Decisions are made consciously thinking about 'whether to treat all students fairly'," corroborating the value internalization effect.

(4) Value of Structured Support and Continuous Improvement: 73% of students endorsed the "Modular-Progressive" curriculum and the "Four-Level Scaffolding" as reducing cognitive load. As described by student S03: "From class rules development to conflict resolution, it is as coherent as climbing steps, and the content of the previous sequence directly supports the subsequent practice." In the PDCA cycle, the optimized attainment rate of the module "Management of Students with Special Needs" increased from 76% to 89%, which This reflects the value of dynamic improvement.

5.3 Comprehensive Discussion: Multi-dimensional Validation of the Model's Effectiveness

(1) High consistency of goals-teaching-evaluation: the matching coefficients between each teaching module and the expected outcomes are 0.86-0.92, among which the "Conflict Resolution" module has the highest matching coefficient with the goal of practical ability (0.92), which proves that the logic of the reverse design is effective.

(2) Effective continuous improvement mechanism: The PDCA cycle optimizes the weak modules (e.g., increasing the lesson time and VR scenarios of "Management of Students with Special Needs"), which significantly improves the teaching effectiveness and confirms the value of evidence-driven iteration.

(3) Collaborative learning efficacy is significant: the experimental group's "teamwork score" (M=86.4) is significantly higher than the control group's (M=69.7) ($p<0.001$), suggesting that the "task-driven + group collaboration" model enhances complex project execution.

6. General Discussion

6.1 Core value of the study findings

The OBE model constructed in this study significantly improves teacher trainees' practical abilities in classroom management, especially strengthening higher-order abilities such as "conflict resolution" and "activity organization", which solves the pain point of "disconnecting theory and practice" in traditional teaching. It solves the pain point of traditional teaching "disconnection between theory and practice. The core mechanism of the program is to strengthen students' self-management through the "contract-feedback model", to realize the transformation of theory into skills through the design of "modularization+scenario", and to integrate "moral education" into the outcome system to achieve "moral education". At the same time, it integrates "cultivating moral values" into the result system, and achieves synergy between "value leadership and ability cultivation", providing a path for the integration of "Civics + Specialization".

6.2 Dialogue with existing research

(1) Systematic integration of the OBE framework: while existing studies mostly focus on a single link (e.g., evaluation reform or module design), this study integrates the whole chain of "outcome setting-teaching implementation-evaluation improvement", responding to the problem of "fragmentation" [15], ensuring the targeting of skill development by anchoring the preset outcomes.

(2) Localized adaptation in the context of collectivism: The Western OBE model focuses on the individual contract [10], which is different from the needs of "classroom collective construction" in China. This study bridges the gap between international principles and local practices by strengthening collaborative decision-making skills through "class enterprise simulation" and "theme class meeting design" [8].

(3) Multi-dimensional evaluation system innovation: breaking through the limitations of traditional quantitative evaluation, integrating text mining and behavioral tracking, realizing the synergistic evaluation of "skill attainment" and "literacy enhancement", and responding to the critique of "excessive quantification" [15].

6.3 Practical Insights

(1) Curriculum design: reverse dismantling of competency objectives with the real needs of primary and secondary schools, and incorporating scenarios such as "lower discipline management" and "adolescent conflict" into the modules to ensure the accurate alignment of content and job requirements.

(2) Teaching implementation: Strengthening "school-school collaboration", verifying the validity of theories through real scenarios provided by cooperating primary and secondary schools, and realizing the organic combination of "on-campus simulation" and "off-campus practice". (2) Evaluation Reform: To strengthen the "school-school synergy".

(3) Evaluation reform: build a "multi-party participation + dynamic adjustment" mechanism, regularly collect feedback from primary and secondary schools to optimize the module (e.g., increase the number of credit hours for weak links), and implement the core requirements of OBE "continuous improvement".

7. Conclusion and Prospect

This study reconstructs the teaching mode of "Classroom Management and Class Organization" based on the OBE concept, through the "Knowledge-Competence-Literacy" three-dimensional learning outcome matrix, modularization and blended teaching scaffolds, three-dimensional evaluation, and the "Classroom Management and Class Organization" teaching mode, which is based on the OBE concept. Through the three-dimensional learning outcome matrix of "knowledge-competence-literacy", modularization and blended teaching scaffolding, three-dimensional evaluation and PDCA cycle, and localized adaptation in the context of collectivism, this study effectively improves the teacher trainees' practical ability of classroom management; however, the study has the limitations that the sample is limited to primary education majors of a single university, and the long-term effects are not tracked. The model can be improved by expanding the sample to include multiple institutions and sections, extending the tracking period, integrating AI technology, and conducting cross-cultural comparisons.

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