



Innovation-Driven Implementation Mechanism for Cultivating Normal-University Students' Interdisciplinary Teaching Competence

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Abstract: Interdisciplinary teaching competence is crucial for normal-university students to become outstanding teachers. Currently, its development is hindered by conceptual bias, insufficient guidance, disorganized teaching processes, and an inadequate evaluation system. An innovation-driven mechanism should establish a multi-disciplinary collaborative talent-training model, strengthen institutional support, adopt a student-centered teacher-education concept, reform teaching organization, build a student-centered, multi-subject collaborative education system, develop a curriculum-based training framework, overhaul the evaluation system, and improve the overall implementation environment.

Keywords: interdisciplinary teaching competence, normal-university student cultivation, multi-subject collaborative education, student-centered teaching reform

1. Introduction

In an innovation-driven era, teachers' overall competence hinges on developing normal-university students' interdisciplinary teaching ability through teacher-education curricula. This competence — defined as the capacity to integrate and apply knowledge from multiple disciplines in subject teaching via professional study and practice (Zhong, 2021) — is essential for producing outstanding teachers and meeting national education reform goals. Although many universities have begun exploratory interdisciplinary teaching, persistent issues remain: conceptual bias, insufficient guidance, disorganized teaching processes, and an inadequate evaluation system (Luan & Jiang, 2020). Consequently, enhancing interdisciplinary teaching competence requires deep reforms in conceptual understanding, guidance methods, teaching organization, and assessment, alongside the establishment of an innovation-driven implementation mechanism.

2. Research Methods

Through questionnaire surveys, we found that the overall development level of normal-university students' interdisciplinary teaching competence is low and needs further guidance and cultivation. Therefore, based on the goal of cultivating interdisciplinary teaching competence and student-centered principles, we designed a questionnaire on normal-university students' interdisciplinary teaching competence. A total of 500 questionnaires were distributed and 432 valid questionnaires were recovered.

The survey results show that the main problems of normal-university students in interdisciplinary teaching competence are:

- (1) students perceive their own interdisciplinary teaching competence as poor;
- (2) students believe they lack interdisciplinary teaching competence;
- (3) students consider the guidance provided by schools and teachers insufficient.

The main reasons why students regard guidance as insufficient are:

- (1) schools and teachers fail to provide sufficient, effective, and diversified guidance;
- (2) schools and teachers fail to provide adequate and effective learning resources;
- (3) schools and teachers fail to provide enough interdisciplinary teaching practice opportunities.

In addition, the survey reveals gender differences in the development of normal-university students' interdisciplinary teaching competence: females develop better than males, while grade differences are not significant; urban students develop better than rural students, while grade differences are not significant; significant differences exist among different normal-major categories.

3. Implementation Mechanism

3.1 Establish a Multi-Subject Collaborative Talent-Training Organizational Model and Advance the Institutional Construction of Interdisciplinary Talent Cultivation

Interdisciplinary talent cultivation is a systematic project involving schools, teachers, students, parents, and society. The organization and implementation of cultivating normal-university students' interdisciplinary teaching competence in China should follow the principle of “overall design, systematic advancement.”

First, give full play to the leading role of schools in cultivating normal-university students' interdisciplinary teaching competence by guiding colleges of teacher education, normal-student training bases, and normal-student educational-practice bases to participate jointly, and by developing interdisciplinary research projects and courses, so as to build a training system that closely integrates student development with teachers' professional development (Zhou et al., 2021).

Second, give full play to the supporting role of local governments in cultivating normal-university students' interdisciplinary teaching competence by issuing relevant policies and implementation plans to provide policy support (Li, 2020).

Finally, give full play to the collaborative role of normal-student parents and social organizations in cultivating normal-university students' interdisciplinary teaching competence (Jing & Shao, 2022).

3.2 Confirm a Student-Centered Teacher-Education Concept and Promote the Reform of Interdisciplinary Teaching-Organizational Models

Interdisciplinary teaching is an expansion and innovation of traditional subject teaching; it requires the collaborative participation of teachers from different disciplines and aims to achieve students' professional development at a higher level. Traditional subject teaching emphasizes subject logic, and the subject-centered teaching-organizational model is reasonable to a certain extent. However, traditional subject education and teacher education often treat students as objects of knowledge production, ignoring the subjectivity of normal-university students as developing individuals and the guiding, supporting, and helping roles teachers play in cultivating students (Zheng, 2019).

Therefore, confirming a student-centered teacher-education concept, setting normal-university students' interdisciplinary teaching competence as the core goal, building a multi-subject collaborative education mechanism, and promoting the reform of interdisciplinary teaching-organizational models are the keys to improving normal-university students' interdisciplinary teaching competence (Han et al., 2021).

3.3 Build a Student-Centered Multi-Subject Collaborative Education Mechanism and Promote the Improvement of Normal-University Students' Interdisciplinary Teaching Competence

Improving normal-university students' interdisciplinary teaching competence requires not only the efforts of teacher-education institutions and universities, but also the active participation of multiple subjects such as parents, society, and students themselves.

Governments should play a coordinating role, promoting communication among teacher-education institutions, universities, and primary and secondary schools, and jointly formulating training programs and institutions for normal-university students' interdisciplinary teaching competence (Zhou et al., 2021).

Parents should play an exemplary role, encouraging them to set models of interdisciplinary learning for their children (Peng, 2020).

Social organizations and enterprises should actively participate, leveraging their advantages in resource integration and technological development to provide resource support for improving normal-university students' interdisciplinary teaching competence.

Students should enhance self-awareness and self-management, actively participating in exchange activities among teacher-education institutions, universities, and primary and secondary schools to improve their own interdisciplinary teaching competence (Sajidan et al., 2022).

3.4 Construct a Curriculum-Centered Training System for Normal-University Students' Interdisciplinary Teaching Competence and Promote the Reform of the Evaluation System

Traditional evaluations of normal-university students' teaching competence focus on assessing knowledge, ability, and quality, neglecting the assessment of interdisciplinary teaching competence demonstrated in teaching practice (Almendingen et al., 2021). At present, an effective curriculum system for cultivating normal-university students' interdisciplinary teaching competence has not yet been formed; a curriculum-centered training system should be constructed.

First, integrate interdisciplinary knowledge into specialized courses to increase the proportion of interdisciplinary knowledge in normal-university students' professional knowledge structure and broaden their interdisciplinary horizons (Zhong, 2021). Second, integrate teacher-education courses, subject-specific courses, and pedagogy courses to strengthen students' comprehensive application ability in interdisciplinary teaching practice. Third, establish a mechanism for improving subject-teaching knowledge and teaching skills, and build an “subject + teacher education” interdisciplinary learning community (Zhou et al., 2021). Based on the above principles, construct a curriculum-centered training system for normal-university students' interdisciplinary teaching competence and promote the reform of the evaluation system.

3.5 Optimize the Implementation Environment for Cultivating Normal-University Students' Interdisciplinary Teaching Competence and Promote the All-Round Construction of the Implementation Mechanism

At present, the binary opposition of “teachers are producers of knowledge” and “students are receivers of knowledge” is widespread in educational practice. This stands in stark contrast to the binary opposition of “students are receivers of knowledge” and “teachers are producers of knowledge” in actual teaching. In educational practice, this binary opposition constrains both teachers and students, affects their cognition of their own abilities, roles, and development directions, and hinders the improvement of teachers' interdisciplinary teaching competence (Zheng, 2019).

Therefore, to promote the development of normal-university students' interdisciplinary teaching competence, it is necessary to reverse this binary opposition, optimize the implementation environment, strengthen the binary concept of “students are receivers of knowledge” and “teachers are producers of knowledge” in the cultivation process, and promote the all-round construction of the implementation mechanism (Han et al., 2021).

4. Conclusion

Innovation-driven cultivation of normal-university students' interdisciplinary teaching competence is an important measure to improve their educational and teaching ability, an important measure to innovate teacher-education reform, and an important measure to promote their sustainable development. Aiming at the existing problems in the current cultivation of normal-university students' interdisciplinary teaching competence, this paper proposes an innovation-driven implementation mechanism, and discusses it from multiple dimensions, including strengthening concept cognition, enhancing collaborative cultivation, constructing a curriculum system, and improving the evaluation system. The research helps to comprehensively and systematically understand and grasp the innovation-driven cultivation of normal-university students' interdisciplinary teaching competence, helps to give full play to the important role of teacher education in cultivating outstanding teachers, helps to cultivate outstanding teachers with interdisciplinary thinking and interdisciplinary knowledge, and helps to promote the all-round development of students' comprehensive qualities and abilities.

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