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The Implementation Effect and Optimization Research of College Course Selection System Under the Credit System Reform

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Abstract: As China's higher education reform deepens, the credit system has become a core management model in universities. Within this framework, the course selection system plays a critical role in enabling personalized talent cultivation and optimizing the allocation of teaching resources. This study examines the current implementation of the course selection system under the credit system reform. Through empirical analysis and literature review, it evaluates both the achievements and challenges of the system, and proposes targeted optimization strategies. The findings indicate that the reformed course selection system has effectively expanded students' autonomy in choosing courses, contributed to a more optimized curriculum structure, and facilitated the rational use of teaching resources. However, several issues persist, including a shortage of high-quality courses, inadequate guidance mechanisms, deficiencies in the evaluation system, and technological limitations of course selection platforms. In response, this paper proposes optimization measures in four key areas: enriching course offerings, improving guidance systems, refining evaluation mechanisms, and upgrading technological platforms. These strategies aim to enhance the effectiveness of the course selection system, support the continued advancement of the credit system reform, and ultimately improve the quality of talent cultivation in higher education.

Keywords: credit system reform, college course selection system, implementation effect, optimization strategy

1. Introduction

Amid the nationwide push to reform higher education evaluation systems and transform talent cultivation models, the credit system has emerged as a key strategy for universities to foster personalized education, enhance teaching quality, and strengthen institutional competitiveness[1]. Unlike the traditional academic year system, the credit system uses credits as the basic measure of student learning, emphasizing student agency by allowing individuals to tailor their academic progress, select courses, and choose instructors based on their interests, strengths, and career aspirations[2]. This promotes a more diversified and personalized approach to talent development. The course selection system is central to the successful implementation of the credit system reform. Its design and operability directly affect both the reform process and its educational outcomes. Since the Ministry of Education issued its 2019 guidelines on deepening undergraduate education reform and improving talent cultivation quality, universities nationwide have accelerated the adoption of the credit system and worked to refine their course selection mechanisms[3]. However, in practice, many institutions continue to face significant challenges due to differences in resources, management capacity, and institutional conditions. Common issues include imbalances between course supply and demand, student uncertainty in course selection, and underdeveloped administrative support systems.

In this context, investigating the implementation of course selection systems within the credit system reform, identifying existing problems and their underlying causes, and proposing targeted optimization strategies carry both theoretical and practical significance. This study aims to provide actionable insights for universities seeking to enhance their course selection systems, thereby supporting the deeper advancement of credit system reform and better alignment with the demands of personalized talent cultivation in the new era.

2. Theoretical Basis and Research Methods

2.1 Theoretical Basis

The study of the course selection system within the context of credit system reform is grounded in three core theoretical perspectives: student-centered education theory, resource allocation theory, and systematic management theory[4].

Student-centered education theory emphasizes that education should focus on individual student needs and development, advocating for greater autonomy and choice[5]. This provides a foundational rationale for designing and improving course selection systems. Resource allocation theory suggests that the efficient distribution of limited resources maximizes their utility; accordingly, the course selection system can be understood as a mechanism for optimizing the allocation of teaching resources such as courses and faculty[6]. Systematic management theory highlights the need for coordination across all components of the course selection process, calling for integrated support systems-including course offerings, academic advising, evaluation, and administrative management-to ensure smooth and effective operation[7]. Together, these theories offer a comprehensive framework for analyzing and enhancing the course selection system under the credit system reform.

2.2 Research Methods

This study adopts a multi-method approach to ensure the scientific validity and authenticity of its findings:

Literature review method: By examining domestic and international research on credit system reform and course selection systems, the study synthesizes key perspectives, identifies research gaps, and establishes a theoretical foundation.

Empirical investigation method: A survey was conducted across five undergraduate institutions in different regions-including comprehensive, science and engineering, and liberal arts universities. Questionnaires were distributed to both students and faculty to collect data on the implementation and effectiveness of their course selection systems.

Data analysis method: Quantitative analysis of survey data was performed using Excel to evaluate the implementation outcomes of the course selection systems. This was complemented by qualitative analysis of interview responses from students and teachers, helping to identify existing problems and explore their underlying causes.

3. The Implementation Status of College Course Selection System Under the Credit System Reform

As the reform of the credit system advances, universities across China have progressively refined their course selection systems, developing relatively comprehensive mechanisms that encompass course offerings, operational procedures, academic guidance, and administrative management. Based on empirical investigation, the current implementation status of these systems can be summarized as follows: In terms of course offerings, most universities have restructured their curricula by reducing the proportion of compulsory courses and increasing elective options[8]. These include public electives, major-specific electives, and interdisciplinary electives, all designed to accommodate students' diverse academic interests and career goals. As of June 2025, over 57% of undergraduate institutions in China have fully implemented or announced the adoption of a complete credit system, with elective courses in selected pilot majors accounting for more than 30% of the total curriculum[9]. Regarding course selection operations, the majority of universities have established online platforms that enable digital and standardized selection processes. Students can log in during designated periods to browse courses, access schedules and instructor information, and make adjustments based on their needs. Institutions have also formulated clear selection rules-such as credit limits, priority policies, and

procedures for course withdrawal and reselection-to ensure orderly and fair participation. In the area of supporting services, some universities have introduced guidance systems that assign academic advisors to assist students in making informed course choices and developing personalized learning plans[10]. Additionally, teaching evaluation mechanisms have been enhanced, incorporating course selection outcomes and student feedback as key indicators for assessing teaching quality and informing curriculum optimization.

4. The Implementation Effect of College Course Selection System Under the Credit System Reform

4.1 Positive Effects

Based on empirical data analysis, the implementation of the course selection system under the credit system reform has generated significant positive effects, as reflected in the following four dimensions:

4.1.1 Enhancement of Student Autonomy and Personalized Development

The course selection system empowers students to tailor their learning pathways by choosing courses and instructors aligned with their interests, aptitudes, and career goals, thereby transcending the rigidity of the traditional uniform instruction model. Survey results indicate that 78.3% of students perceive the system as more responsive to their individual learning needs, and 72.5% report increased academic motivation and initiative. Notably, students with interdisciplinary interests can access cross-departmental courses, thereby facilitating broader intellectual development and career preparation.

4.1.2 Optimization of Curriculum Structure and Pedagogical Content

In response to diversified student demands, institutions have restructured curricula by expanding elective offerings, particularly in practical and interdisciplinary domains, and updating course content to reflect evolving disciplinary and industry standards. According to the survey, 69.2% of faculty acknowledge that the course selection system has contributed to curricular optimization, while 65.8% of students affirm the overall quality of elective courses and their contribution to competence development. The expanded course variety has also prompted instructional innovation, as educators refine teaching strategies to enhance course appeal.

4.1.3 Improved Allocation and Utilization Efficiency of Teaching Resources

By aligning course offerings with student demand, the system enables more strategic deployment of instructional resources, including faculty and classroom facilities. Courses with sustained high enrollment are scaled up through additional sessions or staffing, whereas those with consistently low demand are subject to revision or discontinuation, thereby minimizing resource inefficiency. Survey findings reveal that 67.7% of faculty perceive improved resource utilization, and 63.4% of students report greater access to desired courses unconstrained by fixed class structures.

4.1.4 Advancement of Teaching Evaluation Reform and Instructional Quality

The integration of student course preferences and learning feedback into teaching evaluation mechanisms has incentivized faculty to prioritize pedagogical effectiveness, leading to continuous improvement in teaching methods and content. Concurrently, universities have refined student assessment frameworks by incorporating both formative and summative evaluation methods, thereby fostering more comprehensive learning outcomes. Survey data show that 70.1% of faculty believe the system has positively influenced their teaching performance, and 68.5% of students report enhanced satisfaction with the instructional quality of selected courses.

4.2 Existing Problems

Despite its positive effects, the course selection system under the credit system reform faces several prominent challenges:

4.2.1 Insufficient High-Quality Courses and Imbalanced Curriculum Structure

Although elective offerings have expanded, many courses suffer from outdated content, monotonous pedagogy, and low practical value. The proportion of interdisciplinary and practice-oriented courses remains low, limiting students' personalized choices. Survey data show that 58.6% of students perceive a shortage of high-quality electives, and 56.3%

consider the curriculum structure inadequate. Faculty shortages further constrain course quality, with some institutions relying heavily on part-time instructors.

4.2.2 Weak Guidance Mechanisms Leading to Student Blindness in Course Selection

Many universities lack effective course selection guidance systems. Academic advisors often receive insufficient training, leaving students to make choices without adequate support. This results in blind course selection, where students prioritize credits or course ease over academic coherence and personal development. According to the survey, 62.4% of students report experiencing blindness in course selection, and 59.7% find guidance insufficient. The lack of personalized recommendation features on platforms compounds this issue.

4.2.3 Inadequate Evaluation Systems and Weak Quality Oversight

Teaching evaluation remains predominantly summative, neglecting process assessment and student feedback. Oversight of elective courses is particularly weak, with some instructors delivering perfunctory teaching. Student assessment overemphasizes final exams while overlooking learning processes and competency development. Survey results indicate that 60.3% of faculty consider the evaluation system inadequate, and 57.8% of students report substandard teaching quality in some electives.

4.2.4 Technological Deficiencies in Course Selection Platforms

Course selection platforms often suffer from slow response times, system crashes during peak periods, and incomplete functionality. Information on courses and instructors is frequently outdated or insufficiently detailed, hindering informed decision-making. The survey shows that 55.9% of students find platforms inconvenient, and 53.2% consider course information inadequate. Concerns over data security and privacy protection further undermine user trust.

4.3 Data Statistics of Implementation Effect

In order to more intuitively reflect the implementation effect of the course selection system under the credit system reform, this paper sorts out the questionnaire data of 5 colleges and universities (a total of 1200 questionnaires issued, 1128 valid questionnaires recovered, with an effective recovery rate of 94%), and the specific data are shown in Table 1.

Table 1 Statistical Table of Implementation Effect Evaluation of College Course Selection System Under Credit System Reform

Evaluation Indicators	Positive Evaluation Rate (%)	Negative Evaluation Rate (%)	Neutral Evaluation Rate (%)
Meeting individual learning needs	78.3	10.2	11.5
Stimulating learning enthusiasm	72.5	13.7	13.8
Optimization of curriculum structure	69.2	15.3	15.5
Use efficiency of teaching resources	67.7	16.8	15.5
Supply of high-quality courses	41.4	58.6	0
Course selection guidance	40.3	59.7	0
Teaching evaluation system	39.7	60.3	0

Course selection platform operation	44.1	55.9	0

It can be seen from Table 1 that the positive evaluation rate of the course selection system in terms of meeting individual learning needs, stimulating learning enthusiasm, optimizing curriculum structure and improving the use efficiency of teaching resources is relatively high, all above 65%, indicating that the course selection system has achieved remarkable positive effects. However, the positive evaluation rate of the course selection system in terms of the supply of high-quality courses, course selection guidance, teaching evaluation system and course selection platform operation is relatively low, all below 45%, and the negative evaluation rate is as high as more than 55%, indicating that these aspects are the key problems affecting the implementation effect of the course selection system, which need to be solved urgently.

5. Optimization Strategies of College Course Selection System Under the Credit System Reform

In view of the existing problems in the implementation of the college course selection system under the credit system reform, combined with the theoretical basis and empirical research results, this paper puts forward targeted optimization strategies from four aspects to improve the implementation effect of the course selection system and promote the in-depth development of the credit system reform, as shown in Figure 1.

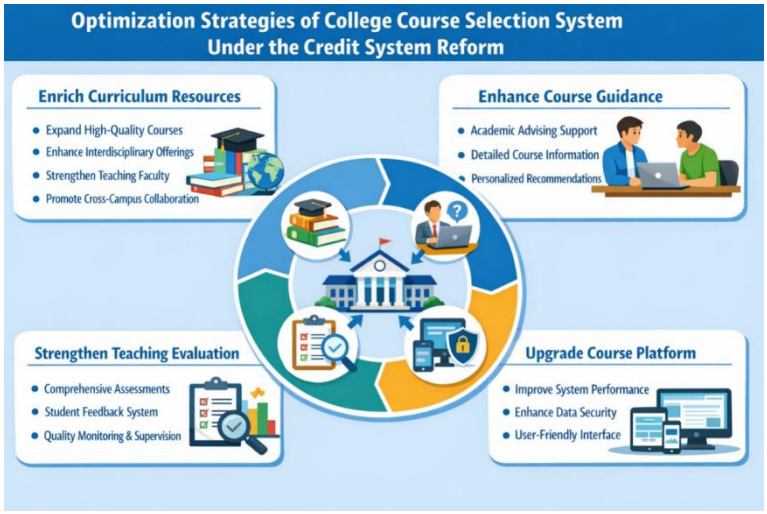

Figure 1. Optimization Strategy Diagram

5.1 Enrich Curriculum Resources and Optimize Curriculum Structure

First, it is essential to increase investment in curriculum development and expand the supply of high-quality courses. Colleges and universities should allocate more resources to the construction of elective courses, with a focus on developing outstanding public electives and specialized electives. Teaching content should be continuously updated in response to the evolving demands of the times and industry trends, thereby enhancing the practicality and relevance of the courses[11]. At the same time, efforts should be made to strengthen the teaching faculty, improve the overall teaching competence of instructors, and encourage them to engage in pedagogical innovation and research, all of which contribute to elevating the quality of course instruction. Furthermore, inter-institutional collaboration should be promoted to facilitate the sharing of best course resources and broaden students' access to diverse academic offerings. For instance, through cross-campus course selection platforms, students can enroll in high-quality courses offered by other institutions, thereby enriching their range of learning options.

Second, the curriculum structure should be optimized to increase the proportion of interdisciplinary and practice-oriented courses. In light of evolving talent cultivation goals, universities should recalibrate their curriculum

frameworks by appropriately reducing compulsory course loads and expanding interdisciplinary and practical course offerings. More courses should be designed in alignment with societal needs and industry developments. Additionally, diversified course modules should be established based on the characteristics of different academic disciplines and students' interests, in order to cater to individualized learning needs. For example, interdisciplinary courses such as artificial intelligence and big data can be introduced for computer science students, while practical courses like social research and writing may be offered to students in the humanities, thereby enhancing their comprehensive competencies and employability[6]. Moreover, a dynamic curriculum adjustment mechanism should be implemented to regularly evaluate course effectiveness, enabling institutions to timely revise or discontinue courses with low demand or poor instructional outcomes, thus preventing the inefficient use of educational resources.

5.2 Improve the Course Selection Guidance System and Reduce Students' Blind Course Selection

On the one hand, universities should strengthen academic advising by establishing a clear course selection guidance system. Academic tutors should be assigned to each student, with well-defined responsibilities to help them understand their interests, strengths, and career goals, and to develop appropriate learning plans. Regular training should be provided to tutors to enhance their professional competence[12]. In addition, a dedicated course selection guidance center can offer personalized support for students with special needs. On the other hand, the course selection platform should be upgraded to provide more comprehensive and transparent course information. This includes teaching outlines, content, methods, instructor backgrounds, and teaching evaluations, enabling students to make informed decisions. Leveraging big data, the system can analyze students' academic interests and past performance to offer personalized course recommendations, helping students choose more suitable courses and reducing blind selection.

5.3 Improve the Evaluation Mechanism and Strengthen the Supervision of Teaching Quality

Firstly, universities should improve the teaching evaluation system by diversifying both evaluation subjects and methods. A comprehensive system should combine formative and summative evaluations, incorporating indicators such as teaching processes, student feedback, and learning outcomes. Evaluation subjects should include students, peers, and experts to ensure objectivity and fairness. For instance, student evaluations of teaching quality can serve as important references for performance assessment and promotion, motivating instructors to focus more on teaching effectiveness. Secondly, the supervision of elective course quality should be strengthened through a dynamic monitoring mechanism. A dedicated teaching quality supervision team should be established to conduct regular inspections and assessments of elective courses, identifying issues and proposing corrective measures. A student feedback mechanism should also be implemented to collect timely opinions on courses and instruction, enabling continuous improvement in teaching methods and content. Furthermore, stricter learning management systems-such as attendance policies and assessment protocols-should be enforced to ensure students' engagement and the overall quality of learning.

5.4 Upgrade the Technical Level of the Course Selection Platform and Improve the Operation Experience

First, increase the investment in the construction of the course selection platform and solve the technical bottlenecks. Colleges and universities should introduce advanced network technology and system equipment, optimize the system structure of the course selection platform, improve the response speed and stability of the platform, and avoid system crashes during the peak period of course selection. At the same time, regularly maintain and update the course selection platform, fix system bugs in time, and ensure the normal operation of the platform. In addition, strengthen the construction of data security, adopt encryption technology and access control measures to protect students' personal information and course selection data, and improve students' trust in the platform.

Second, optimize the operation interface of the course selection platform and improve the convenience of operation. Colleges and universities should design the operation interface of the course selection platform according to the use habits of students, simplify the course selection process, reduce the number of operation steps, and make it

easier for students to operate. At the same time, add a variety of convenient functions, such as course selection reminder, course schedule query, course withdrawal and make-up selection online, to improve the course selection experience of students. In addition, set up an online customer service system to timely answer the questions encountered by students in the course selection process and provide technical support for students.

6. Conclusion and Prospect

The course selection system, as a key component of the credit system reform, plays a vital role in enabling personalized talent development, optimizing the allocation of teaching resources, and enhancing the quality of higher education. Research indicates that the implementation of this system has significantly expanded students' autonomy in course selection, promoted the optimization of curriculum structures, and facilitated the more efficient use of teaching resources. As a result, students' learning motivation and initiative have been notably enhanced, yielding considerable positive outcomes. Nevertheless, several challenges persist, including the insufficient availability of high-quality courses, the lack of a well-developed course selection guidance mechanism, deficiencies in the evaluation system, and the limited technological capability of course selection platforms. These issues have, to some extent, constrained the effective implementation of the course selection system.

In response to these problems, this paper proposes optimization strategies focusing on four key areas: enriching the variety and quality of course offerings, improving the course selection guidance system, refining the evaluation mechanism, and upgrading the technological infrastructure of the course selection platform. It is expected that these strategies can serve as a useful reference for universities seeking to enhance their course selection systems, thereby advancing the in-depth implementation of the credit system reform and better aligning with the demands of personalized talent cultivation in the new era. As the reform of the credit system continues to evolve, the course selection system in higher education institutions will undergo further refinement and optimization. Future research should focus on deepening the exploration of course selection mechanisms, particularly by leveraging advancements in information technologies such as big data and artificial intelligence. This will contribute to the development of more scientific and efficient course selection approaches, ultimately enabling the system to better support talent cultivation in colleges and universities.

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