

ANALYSIS OF RESTRICTIVE FACTORS ON THE UNIVERSITY CREDIT SYSTEM IN CHINA

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Abstract:

In recent years to further reform education in China, many universities have adopted the credit management system. In this paper, the credit system constraints including university autonomy, management system, curriculum resources, teachers, material resources, financial resources, course arranging, course selection, assessment evaluation, performance evaluation, and security measures are discussed. This research study provides some references for further improvement and implementation of the credit system reform.

Key Words: *credit system, restrictive factors, Chinese high education*

In the new century, China has started the project named: "21st Century Teaching Content and Curriculum Reform Plan". The goals of this project are to meet the demand of a socialist market economy, establish a human resource training model, and improve the adaptability and competitiveness of human resources. We hope to achieve this, we can build the new higher education system in order to meet the needs of political and economic developments and creative talents training. The above sentence is not right grammatically. The credit system has been implemented over a long period in many countries and been considered an effective model for shaping creative talent, meeting the requirement of socio-economic and educational development. On grounds of that, this may be the only way to promote student-centered education and meet the requirements to build a life-long education system [1]. As a result, many universities are carrying out credit system reforms aimed at enhancing the flexibility of teaching management, improving learning initiatives between teachers and students, and providing students with the opportunity for the development of their specialty

Although the credit system was implemented in the West more than a century ago, it is still in the process of development. Due to differences between schools, the credit system can not be a fixed pattern. In China, universities have been expanding, and there have been substantial increases in enrollment in recent years. Higher education is experiencing a change from "elite education" to "civilians education" in China. Since 2002, new rounds of further credit system reforms have been carried out in domestic colleges and universities. However, based on the implementation, the history and the current status of the credit system in higher education all over the world, we believe that there are many constraints to the implementation of the credit system. This is especially serious in general colleges and universities for the following reasons:

Limited education autonomy

The current higher education management in China was mainly formed under the planned economic system with a centralized management by the government. The State is the investor, organizer, and manager of higher education, therefore, the government allocates money, provides resources, and manages direction. In this system, universities lose the power and vitality of independent development, while passively waiting to take the resources from the government, those lost areas by universities include teaching plans, curricula, length of study, professional settings, and the state unified macro regulations and requirements. If the state were to require course under the share of credit too much, the proportion of elective courses will be low and with the limited choice of elective courses, students could not fully expand the knowledge structure, credit system will be difficult to carry out [2]. Therefore, strengthening the autonomy of university education such as admissions, self-determined disciplines, teaching plans, and curriculum and teaching content will make university teaching content base on science, technology, and economic development. This

strengthening will also help update course content, adjust the curriculum teaching plans, and create a large number of elective courses, which will ensure the smooth implementation of the credit system.

Blockage of the management system

The credit system is not just one but rather a package of reforms. From the managerial point of view, there are three factors that restrict the implementation of such system. First, the current system of teaching management in China is still largely dominated by the planning mechanism and run according to a uniform rhythm. The second factor is that the current enrollment system is "a test for a life". The student is recruited by enrollment plan, arranged to certain department according to their professional plans, and trained in accordance with the fundamental unity of teaching plans. Therefore, from enrollment to graduation, each student is "be planned", and the student loses the freedom to independently choose a major[3]. Although most universities allow students to transfer and thus meaning a conversion of professional, independence between departments within the school is strong; that is, mutual communication and cooperation is very limited, and the proportion of professional students between "cold (unpopular)" and "hot (popular)" are significant different, creating difficulties in transferring between different departments. Consequently, only few students can change their majors, which obviously does not meet the requirement of free major transfer. This makes it difficult to fully implement the credit system. Third, the current credit system in teaching management system is flawed. Credit system should be a flexible teaching management system, while its operation is much more complicated than the academic year system. It needs a series of very strict and standardized systems to provide support for teaching, such as the elective system, tutorial system, rehabilitation system, the exemption system, mutual recognition of credits exchange system, the experimental system, the examination management system, performance management system, charging system, education quality and register management for the leave of absence, suspension, return to school, major transfer, professional transfer, withdrawal, early graduation, extended learning period. Without those systems, it is very hard to achieve a good management.

The lack of curriculum resources

The elective system is the prerequisite and core of the credit system. It is characterized by full respect for the outstanding student in the sense of fun, character, personality, and differences in ability. With this, students are able to choose and self-design these free electives, which will allow these students to improve their qualities, knowledge, and abilities and to expand the individualized self-initiative of personality. The prerequisite basis for elective system is to be able to set sufficient quantity of high quality elective courses. It must be ensured enough elective courses with good quality, without sufficient courses, students can't find the one they need. Therefore, the rich curriculum resources are the basis of the credit system. Otherwise, electives are only a mere formality, as it serves only as "ticket provider" since no course is optional. It is statistically showed that in the United States, most four-year universities will commence the classes with the number of more than 5000, while that in Chinese universities is on average less than 2000. For example, it is roughly 3,900 in Tsinghua University and around 4000 in Peking University, while in Harvard's College of Liberal Arts alone, there are more than 3,000 courses available [4-5]. Elective courses in foreign universities make a large proportion, and students are able to select courses with a large degree of freedom, and this allows the credit system to survive and develop. In the Massachusetts Institute of Technology, for a total of 360 credits, free choice of course credit is 300 points, which is 83.3% of the total credits, and undergraduate elective courses in France is as high as 40-60% [6]. In contrast, in Chinese universities, total credits for undergraduates are around 150-170 with the large proportion of required courses, usually 100-130 credits, and students may only be able to choose very few elective courses, and among them. Only no more than 20 credits are allowed in any of the following elective general [7]. Commencement of the majority of domestic institutions is very serious, resulting in some courses of class sizes with up to two to three hundred people in the

elective that is in reality a required course. Found in the survey, 77% and 75% of the students were referred to the limited number of elective courses and the problem of too few hours, respectively [8]. At the local universities, there are even more serious problems with few elective courses and low quality of the classes. Among them, humanities and social sciences, literature and art, scientific methodology, should help improve students' thinking of literacy courses to develop knowledge, but these creations are particularly inadequate [9].

The shortage of teachers

The credit system has a higher level of demand on the number of courses, types, and qualities, which consequently increases the demand for instructors. From the perspective of the amount, since 1999, due to a large increase of enrollment, many universities face a serious shortage of teachers. According to statistics, 1999-2001, with the scale of university students increased by nearly 1 times in population, while the total number of teachers increased by only 31%. China's colleges and universities' student-teacher ratio was on average 16.3:1 in 2000, and the ratio reach the average of 18.2:1 in 2001. Unfortunately, some universities even reach the ratio more than 35:1 [10]. Although increases of enrollment in recent years have slowed down, according to the National Education Development Statistical Bulletin reported that the average student-teacher ratio in 2006, 2007, and 2008 also reached 17.93:1, 17.28:1, 17.23:1, respectively. Statistics from UNESCO show that in developed countries or regions, the student-teacher ratio was significantly lower than that in developing countries; in 39% or more countries and territories, the student-teacher ratio is between 6-10:1, 30% of the national or regional with ratio of 11-15:1, 16-25, and 16.26% of countries or areas with ratio of 16-25:1 [11]. This shows that the relative number of teachers in China is still very low. From the view of quality, with the implementation of credit system, the proportion of elective courses needs to be expanded, the proportion of specialized courses should be reduced, and more elective course with the creation of content have to be opened on the basis of general electives. To accomplish this, it will require more teachers with generous expertise, a broad range of cultural awareness, superb teaching ability, high academic standards, and practical abilities. Only in this way can teachers accomplish something in the cross-disciplinary, interdisciplinary, emerging discipline of teaching, and research in order to level out the students [12]. At Oberlin University in the United States, each teacher is required to open five courses each year to ensure that enough courses are open for students to choose with limited number of teachers [13]. However, in China, for a long time professional teaching programs are divided into a meticulous and stiff academic staff and knowledge structure, and these are both formed according to the requirements of the academic year, consequently causing many teachers' knowledge structure very inflexible and narrow-ranged. This limits adaptability, and makes teachers not multi-skilled and qualified to open new courses as required [2]. From the faculty structure, the overall layout is not rational, uneven distribution of highly educated talent phenomenon is very prominent; there is a concentrated of highly educated human resource in large cities and key institutions, while there is a general lack of college-educated talent teachers in other school. In the age structure, the average age of teachers in an overall downward trend, and with young teachers under the age of 35, becoming the major teaching force, accounting for 48.3% of the total number of full-time faculty [14]. The ideal proportion of Professor: Associate Professor: Assistant Professor: Lecturer is 1:3:4:2 [15]. As enrollment continues to expand, introducing a large number of young teachers then creates a disproportion, since the ratio of instructors with senior professional titles decrease dramatically. In many colleges and universities, young teachers, whose teaching experience and professional theoretical knowledge still need a substantial increase in education, have become a major force. In structure, the different disciplines and professional development among teachers is not balanced, causing a structural shortage of teachers. Due to the emphasis of the teacher recruitment is just to increase the total amount, not scientific disciplines or professional structure, this results in the serious imbalance on disciplines and professional structure.

Lack of material resources and financial resources

The credit system requires guarantee of a relatively abundant solid material foundations and funds to address the increase of material and financial resources requirements. While funding for education in universities increases, teaching facilities do not match with the simultaneous increase in enrollment, making increasing problems of shortage of resources. This is particularly serious with the following main features: first, infrastructures are not configured in place of teaching, such as the general classrooms, language labs, computer labs, multi-functional classrooms, and multimedia classrooms. Other resources, such as teaching equipments, training sites (laboratory practice base), books and documents, computer network use, and playground areas and facilities, do not meet the teaching needs, either; second, rearing insufficient resources, the lack of the credit system results in students' poor academic performance, suspension, and postponed graduation. This means that universities should have been able to provide more university accommodation, dining and other resources, but most colleges and universities are unable to afford extra other than the prescribed number of years. In addition, the cross-campus elective campuses need to provide more logistical vehicles to ensure that students attend class on time [16]. It is showed that in many schools in China, 80% of appropriated funds are used just for fundamental cost of high education, and funding is difficult to ensure the necessary material and financial resources for the full implementation of the credit system [17].

Out of line between course scheduling and signing up for the course

China's current curriculum is formed under the conditions of the academic year. All courses are set according to specialties and under highly prescriptive, inflexible teaching plan. The school typifies courses each semester, fixes a certain number of hours, arranges courses strictly in accordance with professional grades with no cross-arranging or rolling course arrangement. This reflects the view that the entire teaching management system should have undergone a radical change. In the credit system, the curriculum must be rolling out, where the same course will be arranged in the mornings, afternoons, evenings, and weekends so that students may choose classes according to their differing schedules. The academic year should break the boundaries of the curriculum, regardless of the arrangement in each semester, which is the only way that each classroom unit arrangements can be organized for a semester courses, this will help the curriculum design. Additionally, internships and other practical aspects would be timely. Therefore, this method will facilitate students to adjust their own learning content, optimize their knowledge structure, and control their learning process. Not only is the elective system the basis and prerequisite for the implementation of the credit system, but it is also the soul of the credit system. Compared with the credit system of the generating process, Chinese universities are taking the opposite of this naturally occurring process; the credit system should be introduced first, and then the elective system should be developed. College has not developed a freedom of choice for students' "curriculum supermarket," creating problems for the elective way for the following reasons [4]: 1) There is an abnormally low proportion of electives – even in Chinese colleges where the reform of credit system is somewhat successful, only 30% of all courses are electives compared to most colleges and universities' 15% -25%. 2) The restrictive elective is dominant. Only few universities began offering any elective course modules, and most universities generally do not set any individual elective courses, only offering 6-8 credit elective in multi-disciplinary, cross-department, cross-college credits for students to choose with relatively simple way in general education courses. 3) There are narrow options with less content due to the carefully separated professionals and narrowly defined optional ranges. The students' elective contents are then directly restricted.

Single assessment and performance evaluation method

Credit scores under the college entrance examination and assessment should be to strengthen the innovative spirit and practical ability for students to form construct from their own knowledge structure and to facilitate students to flexibly adjust their knowledge structure based on changes of the employment situation and personnel needs. However, in most colleges, there are many

drawbacks existing in course evaluation forms and performance evaluation methods: First, it is one-sided test content and disorders, where most of the test contents are memory-based. The students then merely use most of their energy in memorizing those test materials, causing the students "write the notes, memorize the notes, and test the notes" mechanically, leaving no choice for student to choose question the contents of the material. This aspect makes students a lack of cultivation and development for initiative and creativity [18]. Additionally, the limited form of examination also poses a problem: most tests are closed book examinations, and many of them are in written form while few of them are oral. The majority are theory examinations with few for skills, while most are just unified examinations and few are specific. This limits chances for student to develop their verbal and hands-on exercise ability, consequently limits the development of student's personality and ability, causes difficulty in meeting training requirements of high-quality employee in the professional world. Third, at the one-sided evaluation method of performance of student achievement, the only assessment is "the score". At present, most course assessments of student achievement are based on test scores by the end of semester, and other forms such as the process and diagnostic examinations for learning consist the only very small proportion, other methods such as classroom participation, homework, papers, social surveys, field production, and field operations that are to evaluate the academic performance of students in the program are hardly existent. The above sentence is grammatically wrong. This is not conducive to teachers nor is it conducive to students who interact in the teaching process. This does not foster an encouraging environment to overcome the defects of examination under the prevailing doctrine and the "success or failure of a test set" in the academic year [19].

Supporting measure is out of position not consistent with other subtitles

Though the reform of credit system in colleges and universities in China appears to cause a stir making changes, the implementation is actually very difficult, as many factors have been involved. This implementation of credit management by no means can be achieved by teaching management or teaching units independently, as all levels of the system need to be introduced, amended, and improved by the government, all school departments also need to work together to build effective educational, personnel, financial, library, logistics, and other support systems. In many colleges and universities, it has been found the implementation process to run credit protection measures is not in place, mainly due to:

- 1.) Not enough investment in education funding. Rapid expansion of college enrollment and financial allocations are not synchronized, and some still remain in the scale of 1999 funding. In the meantime, tuition revenue has exceeded half of the running cost, which is much higher than the state's set level of quarter of the cost. Due to the absence of adequate funding for education, many universities rely on bank loans to run the credit system.
- 2.) Employment system for graduate is not complete. The credit system, which means there is no strict time limit for students registration in the school, states that a student can graduate as soon as he or she fulfills all required credits. However, China's current employment system has not completely divorced not a proper word from the track of the employment under the planned economy, and procedures for school release as graduates needs government departments directly involved. For example the police department transfers the identity of graduates at a time limit, and educational administrative departments will issue graduation certificate and report card uniformly. Moreover, the impact of traditional values by society, people tend to adopt the attitude of suspicion and even rejection to earlier or later graduates who are vulnerable to unfair treatment, for example, some employers suspect students on their ability and quality of their background education [2].
- 3.) Teaching management quality is not good enough, and management methods are old. Not enough attention has been paid on management in countless universities: there are insufficient positions and professional employees with limited systematic management training or the basic theory of pedagogy training, most of universities are still using the out of date , instead of new innovative information technology management. The credit system needs a sharp increase of workload to provide the support for the credit system, all of which requires management of

employees to get continuous learning advanced management concept, use of advanced management tools, automated management system of teaching, introduction of smart "campus card" system, and other advanced technologies for modern management [20].

4.) The lack of promotion and distribution policies to stimulate teachers to be involved in teaching, opening more classes and good class. In current system, salary, benefit, and positions are all embodied by job classification. During the process of job classification, focusing on scientific research, instead of merely teaching, is more important; while the quantity, quality and frequency of classes are not indicative of job promotion or year-end appraisal, resulting in many teachers not paying enough attention to teaching. If the policy does not reboot and improve, the distribution of job will subside, and the main incentive mechanism to improve elective courses, achieve hard work and excellent pay will dissipate. The credit system will then lose the soil for the survival.

5.) There are problems due to the lack of standardization, operational management system for credit fee. Charge on credit is a straightforward way of education services. It reminds the school that students are the main consumers for the service, the teaching, which is more conducive to the school to establish service awareness and the implementation of the dominant position of students. It also can reduce the arrears, which is a headache not a good word for many universities. In many colleges and universities, the principles of credit fee are the "prepaid school year, school year-end clearing, settlement graduation," which is actually charged with the similar way to traditional school system. In schools, the current charging standards are based mainly on the level of economic development in various regions, rather than the various disciplines or the professional to measure the actual teaching costs. Therefore, the college financial departments should cooperate with the relevant functional departments of higher education reasonably to estimate the total cost and to determine reasonable credit fees. Normative use of the system will protect practical and efficient operation [21].

6.) There is a shortage of library materials, logistics resources and support services. The credit system is supposed to make arrangements for our students very flexible, and to achieve this goal, a logistical support system is needed to meet the individual needs. Resources such as books, materials, and other departments need to be open to students throughout the day, as well as a collection of printed document information by computer technology with network technology for reprocessing to speed up digital information collection, transmission networks, resource sharing, and automation of borrowing so that the flow and using of the existing paper documents can be fully expanded and extended to ease the reader's needs on the context of on the books and information [22]. Dormitories, canteens, and other logistical departments should be intensified reform. Student dormitories and apartment management should be implemented to provide hotel-style services so that students have a sense of home, and student canteens should be replaced by a student restaurant, open for business social services, to meet the different time student dining needs.

Conclusion

Taken together, after the rapid development of higher education for many years in China, the reform attention has been more focused to improve the quality, instead of the scale of development, to adapt to the needs of rapid economic development and the strategic adjustment of economic structure. The credit system has the flexibility of learning time, learning content, selective excitation of potential teachers, feasibility of individualization, comprehensive capacity-building, and adaptability of the society [23]. The goal is to train students to get knowledge, ability, quality and other aspects of the coordinated development to become the the best seller of employment market. Therefore, the construction of the credit system in Chinese universities should take full account of national circumstances, the local situation and the school district's school situation; a careful analysis of problems and constraints should be carried out during the implementation of credit system in different types and levels of college credit. Only when appropriate solutions and measures are developed, the advantages of credit system can be exerted to train highly qualified personnel to adapt to the needs of society.

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References:

1. Lei, W. (2006). The feasibility analysis of local institutions need to reform the credit system. *Culture Education Data*, (27), 2-3.
2. Ding, Z. J., Zhao, N., Ren L. Y., et al. (2007). The analysis of the difficulty of College Credit System. *Journal of Shandong Institute of Business and Technology*, 21(1), 113-115.
3. Chen, G. (2009). The analysis of the existing contradictions between credit system and current management system. *Heilongjiang Researchers on Higher Education*, (10), 80-82.
4. Xiang, Y. (2009). Problems and countermeasures in credit system reform in China. *Modern Education Science*, (6), 9-12.
5. Wang, W. L. (2001). The construction and reform of the operational mechanism in Chinese University. *Meitan Higher Education*, (6), 1-4.
6. Zhong, L. P., & Luo, T. (2007). Problems and countermeasure of university curriculum management under complete credit system. *Higher Education Development and Evaluation*, 23(3), 108-112.
7. Liu, Q. (2005). Analysis of Reform and Development in Credit System in Chinese High Education. Nanjing University of Science and Technology.
8. Bao, C. Y. (2003). The study on the problems existing in the process of carrying out the credit system in Chinese university. Liaoning Normal University.
9. Yu, D. H., & Zeng, Q. (2006). A ponder on carrying out the in Higher Education. *Theory Monthly*, (9), 84-86.
10. Wang, H. (2005). The main constraints to implement the credit system in Chinese Higher Education. Hunan Agricultural University.
11. Guo, H. L., Meng, L. C., Ruan, X. M., et al. (2005). A positive research of the ratio between teacher and student in higher education: the case of Hebei Province. *Chinese Higher Education Research*, (3), 41-44.
12. Li, L. P., & Yu, H. X. (2006). The conditions and countermeasures for the implement of the credit system. *Journal of Social Science of Jiamusi University*, 24(3), 99-101.
13. Wang, Z. (2006). The reflection and study on the implementation of the Credit System. *Journal of Kunming Metallurgy College*, 22(4), 4-10.
14. Wang, X. Y. (2009). Analysis of current teaching faculty in Chinese universities. *Journal of Xuchang University*, 28 (1), 153-156.
15. Zhang, Y. K. (2008). The analysis of university staff structure and countermeasures. *Heilongjiang Education (Higher Educational Research and Evaluation)*, (4), 13-14.
16. Lei, S. X., & Zhong, J. Q. (2006). Problems and countermeasures for credit system reform. *Jouanal of Inner Mongolia Radio & TV University*, (7), 77-79.
17. Bao, L. X. (2004). The implement of University Credit System and the substantive issues with urgent need to improve. *Modern Education Science*, (3), 58-60.
18. Ding, M. Z. (2007). The thinking on the university examinations management in the credit system. *Journal of Zhangzhou Normal University (Philosophy and Social Sciences)*, (2), 163-167.
19. Zhang, H. (2006). An Analysis of Examination System under Credit System--A Response to the Paper "From Makeup-examination to Retake-examination". *University Education Sciences*, (2), 42-43.
20. Li, J. (2007). Problems of College Credit and countermeasures. *Culture and History Vision (Theory)*, (2), 52-53.
21. Wang, L. F. (2007). The reform of the university academic credit system charge and its improvement. *Journal of Zhejiang University Technology (Social Science)*, 6(1), 41-44.
22. Zhang, Y. Q. (2009). Construction of University Library Resources under Credit System. *Qinghai Social Sciences*, (1), 202-204.
23. Zhang, J. S. (2006). Opinions on Quality Education and Credit System. Q. S. In Li (Eds) *To assess and promote the development of comprehensive university* (pp 348-351). Jinan: Shandong University Press.