

Reform of University Students' Education Evaluation System Breaking "Five Only" in the New Digital Era

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Abstract. The reform of college students' education evaluation system is an important measure to implement the fundamental task of establishing morality and cultivating people, deepen the reform of talent training mode, and improve the quality of college students' education. By combing the relevant theories of university education evaluation in the new digital era, this paper analyzes the problems existing in the practice of university education evaluation in China, and puts forward ideas and measures for the reform of university education evaluation system based on the development of university education evaluation theory. Finally, a new education evaluation system with digital technology is constructed, which will offer an important reference for reform of current education.

Keywords: Colleges and universities; university evaluation; digital era; reform; "Five Only"

1. Introduction

Education is the foundation of a long plan and the cause of cultivating people of a country. With the continuous breakthroughs in artificial intelligence, big data and other technologies, the momentum of education and informatization integration has been accelerated. Big data about education is a new force to promote the reform of education evaluation system and the all-round development of college students. The Joint Information Systems Committee (JISC) releasing its "Future of Assessment: Five Principles, Five Targets for 2025" in China in 2020 stated that educational evaluation in the digital age should follow the principles of authenticity, universality, automation, formability, and security, and implemented the practice of the reform at five levels, which are validity, fairness, efficiency, individuality and ethical norms^[1].

In October 2020, the Central Committee of the Communist Party of China and the State Council issued the overall plan for deepening the reform of educational evaluation in the new era, which proposed "to innovate evaluation tools, use modern information technologies such as artificial intelligence and big data, explore and carry out the whole process longitudinal evaluation of students' learning at all grades, and the evaluations of moral, intellectual, physical, aesthetic and labor educations" called as "five educations". The reform goal of "basically forming an education evaluation system with the characteristics of the times, highlighting chinese characteristics, and reflecting world level by 2035" has been formulated^[2]. This is not only the first systematic document on education evaluation reform in China, but also the overall guiding principle for deepening the reform of education evaluation in the new

era. The development course of educational evaluation after the reform and opening up in China is shown in Table 1.

Table 1. Development of education evaluation after the reform and opening up in China

Time span/year	Pase name	Reform of education evaluation	
1978-2000	Chasing	Reform evaluation by reform of education	
2000-2012	Following		
2012-2020			
2020-2035	Co-leading		Reform education by reform of evaluation
2035-2050			
2050-	Leading		

In terms of education evaluation for college students' career, scholars have mainly focused on evaluating students' subject knowledge, based on which, exam scores are used as the main criterion for evaluating students. Relying on the current education evaluation methods, it is difficult to establish a non "score only" education evaluation system, and the evaluation results are severely limited by the subjective factors of the evaluators^[3-4]. The evaluation of teachers adopts the method of teaching and grading^[5], which to some extent overlooks the guiding and motivating role of evaluation for teachers. In addition, it is vary that the evaluation method of teacher and student education in different regions is limited by the development level of each region. If the barriers of time and space can be broken down, and communication and learning are timely between different regions, as well as mutual reference and evaluation, it is expected to reduce the subjectivity of teacher and student evaluation results. Therefore, the traditional evaluation mechanism for teacher-student education is not competent for the educational development situation in the new era.

In recent years, with the development of digital technology, many studies have combined digital technology with multiple fields such as finance, electricity and urban-rural construction. At the same time, many scholars also pay more attention to the issue of career education evaluation of digital technology enabled college students in the new information age^[6]. John et al.^[7] constructed the Hierarchical database model and interactive evaluation model of digital learning tools in the artificial intelligence era. Searle et al. ^[8] pointed out that in order to promote the integration and development of multiple subject evaluations, it is necessary to conduct comprehensive evaluations based on different methods of intelligent technology. On the one hand, intelligent education evaluation can carefully depict the micro performance of teachers and students and reflect individual differences. Ashwin and Guddeti ^[9] used convolutional neural network knowledge to carry out the research in terms of the data of education and student learning status. An^[10] used in-depth learning method to build a teacher and student teaching quality evaluation index system. On the other hand, digital technology^[11] can cross time and space constraints, integrate and manage effectively multiple heterogeneous things, explore common issues in education from a systematic perspective, improve education quality methods, and promote information flow and collaboration between different roles.

It can be from above seen that when the traditional evaluation system for university education cannot meet the development requirement in the new era, there is an urgent need to carry out educational reform, improve the mechanism of moral education, reverse the unscientific orientation of educational evaluation, resolutely overcome the persistent "Five Only" problems

of only scores, only higher education, only diplomas, only papers, and only hats, and use new technologies to remeasure and develop a new evaluation system for university education. Digital technology can play an important role in this new era and can be used to explore new practical tools that adapt to the evaluation system of university education for contemporary university students' careers.

Based on this background, this paper will start from the theory of university education evaluation in the new digital era and focus on the reform of university education evaluation. From the perspectives of improving university teaching management, the reform of the quality of university teaching and the development and ability cultivating of the students, and the direction and suggestions for the education evaluation system in the new digital era are proposed in Section 2. A new education evaluation system with digital technology is constructed in Section 3. Section 4 is the conclusion.

2. Reform of education evaluation system in the new era

By constructing a "five dimensions" comprehensive education quality evaluation system led by ideological and political education, studies, ability, literary form and practical aspects and shifting to "five educations" evaluation, the shackles of "Five Only" evaluation can be broken. On the basis of maintaining a "learning oriented" approach, we will firmly establish the evaluation system of career education for college students. By combining academic level exams with comprehensive quality evaluation of students, quantitative, qualitative, dynamic and multiple evaluations discovering and developing students' multifaceted potential can help them understand themselves and build confidence.

The job market in the new era is very complex, and higher education should also strengthen its attention to students' career development, help students understand the need of the job market, and provide guidance and assistance to promote students' success rate in the job market. Social development requires talents to possess high humanistic qualities. For the cultivation of humanistic qualities, students should cultivate good humanistic sentiments and a sense of social responsibility in the learning process. The new era also requires more talents who can deal with practical problems, and universities should strengthen applied education to enable students to better apply their knowledge to solve practical problems during the learning process.

In the new digital era, firstly, college students should establish a comprehensive development concept of "five educations" in their thinking, and, especially, prioritize moral education to measure their comprehensive abilities. Secondly, in terms of learning, one should strive to learn knowledge and skills diligently, insist on physical exercise, and pay attention to spiritual cultivation and improvement in terms of ideology. Finally, through practical activities, college students should learn self-directedly, think and do things independently, use critical thinking to analyze problems, be able to put forward ideas and opinions, and cultivate their abilities to view things independently and objectively.

The evaluation of university education should shift from singularity to diversification, and from the traditional "examination oriented" to "development oriented". In the process of university evaluation, we should fully pay attention to the development of college students'

education, understand their own development status through various ways and means, and determine training goals. In terms of student evaluation, more attention should be paid to students' academic performance, participation and satisfaction, especially in teaching activities such as classroom learning and internship training. In terms of students' comprehensive qualities, more emphasis is placed on the evaluation of students' comprehensive qualities, learning attitudes, behavioral habits, and other aspects through methods such as "social practice", "participation in internships", and "club activities". Alternatively, by participating in college student innovation and entrepreneurship training programs, social services, and other means, we can assess the overall quality of college students. At the same time, we guide contemporary college students to form a correct and scientific worldview, outlook on life, and values through psychological health education, moral cultivation education, and ideological and political education. The educational evaluation methods in the new digital era is as Figure 1.

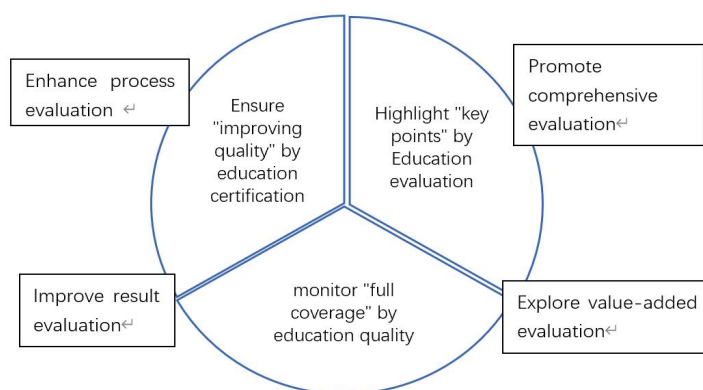


Figure 1 Educational evaluation methods in the new digital era

3. Constructing education evaluation system with real time interconnection

In order to overcome the current dilemma of single information mode, lack of process data, delayed feedback, and strong subjectivity of the results in the evaluation of career education for college students, this paper constructs a new real-time interconnection model for the evaluation of career education for college students in the new digital era to reduce the subjectivity of local education evaluation. By data-driven and precise analysis of educational evaluation indicators, a group of evaluation indicators is selected for teacher and student education to build a certified consensus system of the career education evaluation of college student. We aim to guide all educational evaluators to make objective and fair educational evaluation results, monitor the entire process of educational evaluation indicators, identify abnormal educational evaluation nodes, and provide real-time feedback to the education supervision department, who will supervise the rectification. The education evaluation system with real time interconnection is shown in Figure 2.

In Figure 2, with the help of natural language processing technology, blockchain technology and other technologies, the process education evaluation information (such as text, pictures, audio, video and other heterogeneous information) of each education evaluation party is digitized and linked to the network in real time, so as to interconnect the various education evaluation parties in the decentralized college students' career, build a real-time interaction mode of teacher and student education evaluation, which realizes the authentication of the entire education evaluation dynamic data from the evaluation party to the evaluated person.

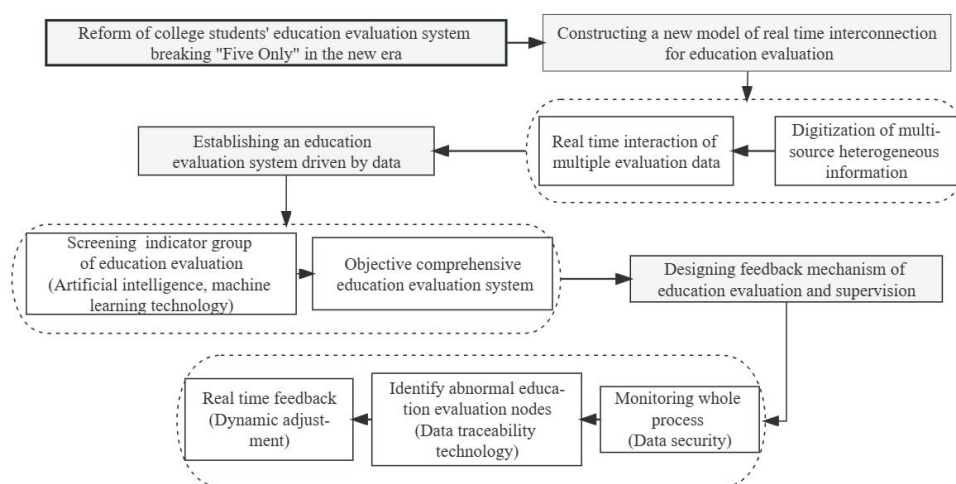


Figure 2 Constructing education evaluation system with real time interconnection

In response to the multidimensional and individualized massive process evaluation data of university teachers and students in the process of education evaluation, artificial intelligence and machine learning related theoretical technologies are adopted, combined with effective data-driven models and methods, to screen out key factors that affect the results of education evaluation. Furthermore, based on the consensus mechanism, a relatively objective comprehensive education evaluation system of college student career in the new era is established. By utilizing the encryption and traceability characteristics of blockchain technology data, the entire process of teacher and student education evaluation is dynamically monitored. Through consensus authentication and data traceability of the same type of nodes, abnormal teacher and student education evaluation nodes are screened and fed back to the education regulatory department, thereby urging the education evaluation nodes with problems to be rectified in a timely manner.

4. Conclusion

It is necessary to reform the education evaluation system of college students in the new digital era. The focus of the reform is to comprehensively improve the quality of college students, strengthen the evaluation of students' learning achievements, and establish an information evaluation platform. The exploration and promotion of diversified evaluation methods is of

great significance for improving the quality of college education and teaching effect. It can not only reflect the learning situation of college students more comprehensively and accurately, but also provide more development opportunities and support for students. At the same time, diversified evaluation methods can also provide more abundant evaluation information for teachers, help them better adjust the teaching content and methods, and improve the teaching efficiency. In the new digital era, the reform of college education evaluation system is a lasting process. In the future, we should continue to explore diversified evaluation methods, and strengthen the evaluation of students' innovation ability and social responsibility.

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References

- [1] JISC: The future of assessment: five principles, five targets for 2025[EB/OL]. (2020-02-10) [2022-04-24]. <https://www.jisc.ac.uk/reports/the-future-of-assessment>.
- [2] The Central People's Government of China: "Overall Plan for Deepening the Reform of Education Evaluation in the New Era" issued the Central Committee of the Communist Party of China and the State Council[EB/OL]. http://www.gov.cn/zhengce/2020-10/13/content_5551032.htm, 2020-10-03.
- [3] Guo, X. N., Wang, W. D., Liu, J.: Education evaluation reform enabled artificial intelligence. *Artificial Intelligence*. No. 2, pp. 126-132 (2023)
- [4] Ke, Z.: Difficulty, desirability and necessity of student evaluation reform. *Research in Educational Development*, Vol. 41, No. 18, pp. 29-37 (2021)
- [5] Wang, B., Zhai, L. H.: Research and enlightenment on teacher evaluation 2.0 in the United States. *Teacher Education Forum*, Vol. 35, No. 04, pp. 69-72 (2022)
- [6] Su, X Y.: The study of physical education evaluation based on a fuzzy stochastic algorithm. *Soft Computing*, Vol. 26, No. 7917-7923 (2022)
- [7] John, G., Michael, O., Li, Y.: Artificial intelligence in educational assessment: "Breakthrough? Or buncombe and ballyhoo?". *Journal of Computer Assisted Learning*, Vol. 37, No. 5, pp. 1207-1216 (2021)
- [8] Searle, M., Drabentstott, M., Kirkpatrick, L., et al.: Learning and leading: integrating mixed methods in a collaborative approach to educational evaluation. *Canadian Journal of Program Evaluation*, Vol. 36, No. 3, pp. 376-390 (2022)
- [9] Ashwin, T. S., Guddeti, R. M. R.: Automatic detection of students' affective states in classroom environment using hybrid convolutional neural networks. *Education and Information Technologies*, Vol. 25, No. 2, pp. 1387-1415 (2023)
- [10] An, W.: Based on the application of deep learning in college education evaluation. *Mobile Information Systems*, Vol. 2022, pp. 103416 (2022)
- [11] Pan, W. H., He, Z. C., Pan, H. Y.: Research on Spatiotemporal Evolution and Distribution Dynamics of Digital Economy Development in China. *China Soft Science*, No. 10, pp. 137-147 (2021)