



Exploring the reform of experimental teaching of law in the era of artificial intelligence

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Abstract. In the era of Internet, the emergence of new technologies such as big data and artificial intelligence has brought new opportunities and challenges to the development of humanities and social sciences. This article analyzes the current problems in experimental teaching of law and explores how to actively adapt to and lead new technologies and new models of law experimental teaching under the new situation. It aims to make the talent cultivation model of humanities and social sciences meet the needs of economic and social development, and to provide beneficial insights for the reform and development of experimental teaching in liberal arts in universities.

Keywords: AI era; liberal arts laboratory teaching; challenges; problems; Approach.

1 Introduce

The rapid development of globalization and information technology has put forth new requirements for cultivating liberal arts talent in higher education. [1]The demand is for composite talents who possess a rich knowledge base, cross-disciplinary skills, strong practical ability, and excellent creativity. As a crucial aspect of liberal arts talent cultivation in colleges and universities, experimental teaching in liberal arts plays a vital role in aiding students' understanding of theoretical knowledge and fostering their practical and innovative thinking skills. The 13th Five-Year Plan for the development of national education proposes to "promote the deep integration of information technology and education teaching, and to explore new modes of future education teaching by utilizing the Internet, big data, artificial intelligence, and virtual reality technology." [2]With the profound development of information technology and the Internet, big data, cloud computing, and virtual reality technology have become the carriers of student learning, offering the possibility of breaking through the traditional barriers between arts and science disciplines and realizing the cultivation of new innovative talent with complex, modern, and international perspectives in the humanities and social sciences.

2 Opportunities and Challenges for Liberal Arts Education in the Age of Artificial Intelligence

The rapid development of information technology has brought about a great impact on all aspects of higher education models and thinking, and the technological revolution has brought about a major innovation in educational methods and concepts.

2.1 The emergence of new technologies requires new forms of teaching and learning in the liberal arts that are compatible with them

The emergence of new technologies, such as big data, cloud computing, artificial intelligence, and virtual reality, has given rise to new industries in the digital intelligence sector. This has made the cross-border combination of humanities and social sciences with information technology an inevitable international trend. In December 2018, a joint meeting of all members of the Ministry of Education's Education Instruction Committee in Suzhou proposed the creation of five "golden courses." The aim is to bring about a series of changes in the philosophy, content, means, methods, and student examination standards of liberal arts education to improve its quality[3]. The construction of the New Liberal Arts is a brand-new practice of philosophical, social science, and technological innovation in higher education. It will significantly enhance the teaching and research capacity of humanities and social sciences in terms of methods, processes, connotations, and results. Cloud computing, mobile internet, and terminal devices serve as mediums, enabling big data to record the entire process of teaching activities. By collecting, analyzing, and collating this data, teachers can precisely understand students' learning situations and personalized learning needs. They can also identify students' learning difficulties, thereby laying a solid foundation for improving the quality of education and teaching according to their aptitude. Technologies such as cloud computing and virtual reality allow anyone with learning needs to register, log in, and learn on shared resource platforms regardless of time and space. These rich and convenient shared learning resources and mobile internet classes, which are not restricted by time and space, have completely overturned the traditional liberal arts teaching model.

2.2 New technology has led to changes in the concept of liberal arts laboratory education

Cross-disciplinary collaboration, knowledge integration, and technology integration are key features of today's information society. Modern higher education has moved away from the utilitarian and standardized model of education and now aims to meet the personalized development needs of students and cultivate their innovative talents. Education has returned to the fundamental goal of achieving all-round human development. However, for a long time, students in the humanities and social sciences have been taught to prioritize the mastery of theoretical knowledge over practical and hands-on skills. Traditional liberal arts experiments, which rely on demonstrations, case studies, scenario simulations, and investigations, have contributed to a significant gap

between students' theoretical knowledge and real-life applications. Therefore, it is essential to focus not only on the teaching of theoretical knowledge but also on the cultivation of students' ability to analyze, judge, and process information and data. [4]

The emergence and use of advanced technologies, such as big data, cloud computing, virtual simulation, and artificial intelligence have not only broadened our understanding of the external world but also made virtual reality interaction a reality. Through this interactive experience, arts students can identify real-life problems and analyze and devise corresponding solutions. Furthermore, the application of these new technologies in everyday life and experiments has revolutionized liberal arts laboratory education. [5]

2.3 New technologies bring about changes in the way students learn

The development of the economy and society has led to changes in the way liberal arts are taught and learned in colleges and universities. Traditional teaching methods such as classroom discussion, social practice, and professional practice, which were commonly used in the practical teaching of liberal arts, have been replaced by new learning methods such as inquiry-based learning, flipped classrooms, and MOOCs. Contemporary university students have grown up with computers, mobile phones, the internet, and other electronic media. As a result, their cognition, attitudes, and behavioral habits differ greatly from those of previous generations. The way students acquire knowledge and information no longer relies solely on the lectures of classroom teachers or going to the library to consult corresponding literature. Instead, students can access the data and information they need and the corresponding services using mobile networks and terminal devices, regardless of time and space. This flexible learning method can greatly stimulate students' interest in independent learning and improve their learning efficiency.

2.4 Changes in teaching management and assessment models

The traditional assessment model for teaching arts focuses on theoretical knowledge of the subject and neglects the examination of practical and hands-on skills. The application of technologies such as big data, cloud computing and virtual simulation allows teaching managers to examine students' learning in a comprehensive way.[6]

Whereas in the past educational management was mainly based on documents and administrative orders, the emergence of new technologies has allowed educational administrators to manage and control teaching and learning operations also through cloud computing, and in this way to restructure the modern educational governance system.

3 The problems faced by the experimental practice teaching of liberal arts majors

3.1 Universities generally attach importance to the construction of science and technology experiments and neglect the construction of arts experiments

Since the establishment of higher education in New China, neglecting the development of experimental teaching in liberal arts has been a common problem among major universities. Many people believe that experimental courses are only intended for science and technology majors and have nothing to do with liberal arts. In the minds of these individuals, the courtroom is the end of the story. Under the influence of this science-centric mindset, the construction of experimental practice teaching in liberal arts has been insufficient in terms of class time, content, teachers, and other conditions, especially when compared to the construction of experimental teaching in science and technology. The construction time for experimental teaching in liberal arts is relatively short, the construction standards are lacking, and there is also the problem of how to coordinate theoretical teaching with experimental teaching within liberal arts majors. Unfortunately, the comprehensive experimental teaching of liberal arts is often overlooked in the planning of talent training and teaching work systems within schools. [7]

3.2 The lack of scientific and unified experimental standards for the liberal arts among universities and among liberal arts majors

For a long time, there has been an important drawback in the construction of liberal arts laboratories in China's colleges and universities, that is, due to the different sources of students, different quality of teachers and different professional curriculums, the corresponding experimental projects and experimental requirements are different, and some colleges and universities even have no experimental courses in liberal arts at all, which leads to the fact that it is difficult for students to have a relatively unified standard for the same knowledge content, as in science and technology, to This makes it difficult for students to have a relatively unified standard to assess their mastery of the knowledge content and their ability to apply the knowledge in a comprehensive way.

3.3 Lack of collaboration and poor resource sharing

The establishment of liberal arts laboratories in universities is generally based on the needs of professional training programs for liberal arts talents. Different departments build corresponding laboratories according to their respective majors and curriculum settings.

However, this has led to a serious problem of compartmentalization[8], with a "loose laboratory structure, low level of sharing, low level of duplication, unreasonable knowledge structure of laboratory staff and uneven workload"[9]in university laboratories due to the limitations of the existing division of teaching management authority. This situation is even more prominent in the construction of liberal arts laboratories. There is a lack of overall planning at the top level, and liberal arts laboratories involving

different subject contents are divided and arranged in different departments and disciplines, rather than considering the overall arrangement of theoretical and experimental courses in the liberal arts talent training system. As a result, a large number of low-level liberal arts laboratories are built repeatedly, with few laboratories that can truly reflect comprehensive applications and even fewer that can combine modern information technology with students' learning interests. This lack of innovation has resulted in laboratories that lack their own unique characteristics.

3.4 Lack of professional liberal arts laboratory faculty

Currently, only a few colleges and universities in China have established a comprehensive experimental teaching center for liberal arts. Some new institutions are still in the initial stages of liberal arts experimental teaching, and some even lack liberal arts experimental courses altogether. In practice, most liberal arts experimental course teachers are part-time teachers of professional courses, resulting in an unreasonable allocation of teacher strength and a lack of full-time liberal arts experimental teachers. Furthermore, universities do not offer incentives for liberal arts laboratory teachers, resulting in a lack of motivation to invest time and energy into developing new liberal arts laboratory projects and improving corresponding laboratory management work. Additionally, there is currently no professional training specifically for liberal arts experimental teaching in the country. As a result, teachers engaged in liberal arts experimental teaching have large differences in their knowledge of liberal arts teaching experiments and experimental teaching ability, making it difficult for them to effectively fulfill the needs of liberal arts experimental teaching work.

3.5 Lack of problem orientation and slow response to new situations of teaching innovation

Many liberal arts experiments rely on case studies and situational simulations. Unfortunately, due to their professional backgrounds, many liberal arts teachers tend to overlook the importance of emerging science and technology. When looking at existing liberal arts experimental centres, much of the content is homogenized, and very few experiments integrate new technologies such as big data, cloud computing, artificial intelligence, and virtual simulation with the liberal arts. The experimental content lacks sensitivity to the integration of emerging science and technology with professional development. Furthermore, due to the extreme shortage of full-time liberal arts laboratory teachers in universities, it is even more challenging to positively respond to innovations brought about by emerging technologies in professional development.

4 The Progression of Liberal Arts Experimental and Practical Teaching Reform in the Context of Artificial Intelligence Era

The 2018 National Conference on Undergraduate Education in Higher Education in the New Era highlighted the importance of adhering to fundamental approaches and

promoting the "four returns" to accelerate the construction of high-level undergraduate education and comprehensively improve talent cultivation capacity [10]. In the new era, academic ability and comprehensive quality are the two key factors in cultivating innovative and high-quality liberal arts talents. However, the comprehensive quality of liberal arts talents, especially the improvement of practical and hands-on abilities, has been a major shortcoming of liberal arts education. "Grasping practical teaching is the key to cultivating students' practical hands-on ability and innovation ability" [11]. Emerging information technologies such as cloud computing, big data, artificial intelligence, virtual simulation, and mobile internet are driving global technological innovation and are changing and reshaping society and life. These technologies are also an effective way to achieve the "Four Returns" and certainly become the core content of undergraduate teaching reform in the liberal arts.

4.1 National level

The relevant higher education departments should conduct thorough research and strengthen top-level design to coordinate planning, promote the "four returns," and meet the Ministry of Education's requirements for cultivating liberal arts talents in the new era. They should prioritize the construction of liberal arts undergraduate courses, with a focus on experimental teaching of liberal arts and teaching resources, management, and support services. It is important to actively promote the construction of liberal arts higher education based on the "Internet + shared resources platform," use information technology to lead the teaching of liberal arts experiments, and build a sustainable education informatization system. The university should take the lead in promoting the construction of liberal arts higher education, using information technology to transform teaching and building an education informatization linkage and cooperation mechanism for steady and sustainable development. The use of intelligent terminals and the Internet as a platform for simulation, emulation, and flipping will help expand students' and teachers' knowledge and horizons.

Education administrative departments at all levels and universities are encouraged to prioritize the informatization of liberal arts laboratory teaching. They should actively raise funds, formulate corresponding policies, and construct liberal arts laboratory teaching informatization in their regions. Liberal arts comprehensive experimental centers, especially those at the national level, should be established, taking into account multiple factors such as economy, credits, school ownership, and semesters. Universities should use their existing liberal arts laboratory platforms for support, social needs for guidance, and social public networks and information platforms for grasping, while national education departments should coordinate planning to build a comprehensive experimental platform for liberal arts in national universities. The sharing of resources is the core, but sharing should not simply involve universities contributing and sharing without compensation.

Taking the construction of virtual simulation experimental projects as an example, high-quality liberal arts experimental practice projects are provided to colleges and universities nationwide on the comprehensive liberal arts experimental platform through the selection and recognition of national virtual simulation experimental projects and

national virtual simulation experimental centers. The sharing of resources for a fee is used to motivate college teachers and relevant departments of colleges and universities to design and construct high-quality experimental teaching projects with liberal arts characteristics, forming a virtuous cycle.

At the same time, enterprises should be guided to actively participate in the construction of the national comprehensive experimental platform for liberal arts, following the Ministry of Education's industry-university-research and other projects. This approach will help alleviate the pressure on university research funds, solve practical problems faced by enterprises and society, and promote the further development of enterprises, resulting in a double harvest of social and economic benefits.

4.2 Higher education institutions

Universities must change their concept of liberal arts education and modify the original assessment methods, which primarily focus on the theoretical foundations and thinking abilities of liberal arts students, while neglecting their practical and operational capabilities. To achieve this, the classroom teaching format should shift from being teacher-centered to student-centered, with the main focus on the needs and problems of students. The goal is to cultivate talents for undergraduate teaching in the liberal arts, emphasizing the overall growth and development of students, aligning with the reform of the new liberal arts talent cultivation mode, and creating an innovative, open, and adaptable liberal arts comprehensive experimental teaching platform that is interesting, practical, and valuable to students. This platform should consolidate students' theoretical knowledge, cultivate their hands-on abilities, and improve their practical innovation skills, with a course designed to enhance their practical and innovative abilities. [12]

Moreover, the experimental and practical contents of the liberal arts must be integrated into the cultivation program and teaching curriculum of liberal arts majors, with relevant teaching effect evaluation methods formulated. An open and shared teaching performance incentive mechanism should be explored to break the "school-based" mentality, establish a mechanism of mutual recognition of project results and credit conversion among universities, schools, and majors, and allow for credit-based accreditation of programs to achieve complementary resources[13].

However, the current assessment and promotion of teachers in universities still relies heavily on scientific research papers and national and provincial-level philosophical and social science projects as the main assessment indicators. There is too much emphasis on the output of scientific research papers, while the diversified forms of arts achievements are ignored. Compared to the more complete experimental teaching, management, and promotion system in science and technology, the assessment and promotion mechanism for liberal arts experimental teaching teachers is nearly non-existent. Universities should establish and improve the assessment, reward, and supervision mechanism for liberal arts experimental teaching teams, and encourage and support teachers to participate in the development of liberal arts experimental projects.

4.3 Teachers in higher education

To ensure quality undergraduate education in colleges and universities, it is crucial to focus on faculty development. With the advancement of information technology and the demand for reforming liberal arts education, educators in liberal arts experimental teaching must take a proactive approach to integrate experimental teaching reform into the broader context of higher education reform and development. They should embrace online teaching methods, explore effective ways to assess the impact of online learning, and update educational concepts accordingly. Moreover, educators should actively pursue new knowledge, especially in the field of information technology, to expand their knowledge base and improve their ability to incorporate such knowledge into liberal arts laboratory teaching.

5 Conclusion

Emerging information technologies such as cloud computing, big data, mobile internet and artificial intelligence have brought great innovations and changes to the education industry. The construction of a new liberal arts requires a variety of future composite liberal arts talents, who must not only have solid basic skills in professional knowledge, but also be able to fully harness the tools of modern information technology on the basis of integrating and penetrating the knowledge of other related majors, which is both an opportunity and a challenge for the development of experimental education in liberal arts.

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