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Reform Path of Talent Training Model in Local Universities under the Background of Artificial Intelligence

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Abstract: At present, local universities are facing problems such as outdated teaching models, lagging discipline settings, and weak integration of industry, academia and research, making it difficult to adapt to the rapid development of artificial intelligence (AI). This study explores the path of talent training model reform in local universities under the background of AI. Through literature review and field research, this study analyzes the challenges faced by universities and proposes the necessity of reform. The research methods include case analysis, interviews with education experts and business people, evaluating the fit between the existing curriculum system and AI technology, promoting the integration of industry, academia and research, setting up interdisciplinary innovative courses, and strengthening teacher training and international exchanges. The results show that after the reform, universities have significantly improved in curriculum setting, faculty strength, scientific research level and employment rate. More than 60% of graduates have entered AI-related industries, and the employment rate and course satisfaction have significantly improved. Research shows that strengthening AI course offerings can help local universities enhance their competitiveness in the era of artificial intelligence and provide stronger intellectual support and innovation drive for social and economic development.

1. Introduction

All walks of life around the world are undergoing profound changes, and the field of education is no exception. Especially in higher education, artificial intelligence has promoted profound changes in teaching models, course content, and talent training methods. However, in response to this change, many local universities still face a series of problems such as outdated curriculum systems, lagging subject settings, and weak integration of industry, academia and research. These problems make it difficult for local universities to cultivate high-quality innovative talents that meet social needs, and they are unable to keep pace with scientific and technological progress and industrial needs. Therefore, local universities urgently need to innovate their education models and explore talent training paths that meet the needs of the new era.

This paper aims to explore the reform path of talent training model in local universities. The innovation of the research lies in that, through case analysis of many local universities and interviews with education experts and business people, a series of feasible reform paths are proposed, focusing on the optimization of the curriculum system, the deep integration of industry, academia and research, the promotion of interdisciplinary education, and the improvement of the teaching staff. These reform paths not only provide a basis for educational innovation in local universities, but also provide feasible guidance for practical operations.

This paper first reviews the literature in related fields and analyzes the innovative models and challenges of talent training in various fields. Then the research methods of this paper are introduced, including literature review, case analysis, school-enterprise cooperation platform construction and interdisciplinary curriculum design. Then the effects of the reform implementation are demonstrated, including the optimization of curriculum setting, the improvement of teaching staff, and the increase of employment rate. Finally, the main findings of the study are summarized, and policy recommendations and practical prospects are put forward for local universities to further deepen educational reforms in the era of artificial intelligence.

2. Related Work

This paper reviews a number of studies and explores the innovative models and challenges of talent cultivation in various fields, covering explorations in deep learning, interdisciplinary education, policy analysis, and other aspects. Ma proposed an Attention RNN Word2 algorithm to improve the prediction accuracy and classification effect of talent cultivation [1]. Gong studied how to combine the characteristics of sports students to cultivate compound talents with dual abilities of sports literacy and film and television technology [2]. Li explored how to solve the problems of talent cultivation goal assimilation and regional imbalance through policy discourse analysis and optimization of talent cultivation strategies [3]. Mangue explored the impact of China's "academic culture" on the "talent cultivation" process [4]. Zheng mainly discussed the role of industry-university-research cooperation in the field of cross-border e-commerce in solving the dilemma of mismatch between talent demand and student skill levels, and put forward suggestions for optimizing the cooperation model [5]. Shi discussed the key role of the second classroom in colleges and universities in cultivating innovative and compound talents, improving college students' creativity and quality education, and emphasized the importance of combining the first classroom with the second classroom[6]. Wang discussed how to reconstruct and practice the training model of compound computer talents in financial colleges in the context of big data drive to meet new educational needs and challenges[7]. Lan discussed how to improve the comprehensive capabilities of management science and engineering graduate students and cultivate compound innovative talents that can adapt to the needs of the times through innovative education models and interdisciplinary training systems in the context of the digital intelligence era [8]. Qing discussed how to cultivate applied environmental design professionals under the new development pattern[9]. Yi discussed the key factors that affect talents' behavioral intentions in the collaborative talent cultivation of universities in the Chengdu-Chongqing Economic Circle, and verified the significant impact of perceived usefulness, self-efficacy, attitude and subjective norms on behavioral intentions through structural equation modeling [10]. Although these studies have provided important theoretical support for the innovation of talent training models, there are still problems such as limited data sources and insufficient promotion of practical applications.

3. Methods

3.1 Literature Review and Field Research

Through literature review and field research, this paper analyzes the main problems faced by local universities in talent training and proposes the necessity of reform. The literature review shows that the curriculum system of many local universities lags behind, especially in emerging fields such as artificial intelligence [11], and has not been updated in a timely manner. At the same time, the discipline setting is rigid, lacks interdisciplinary cooperation, and the cultivation of practical and innovative abilities is insufficient. Through research, it is further found that local universities generally have the problem of "focusing on theory and neglecting practice", weak faculty, which affects students' employment ability and practical experience. Based on these problems, this paper emphasizes that local universities must accelerate the reform of education models, optimize curriculum settings, improve faculty, and deepen industry-university-research cooperation in order to cultivate innovative talents that meet the needs of the artificial intelligence era.

3.2 Case Analysis and Course Evaluation

This study selected several typical local universities to analyze their existing teaching models and curriculum systems and evaluate their compatibility with the needs of artificial intelligence technology. The analysis found that most university curriculum systems are still dominated by traditional disciplines, lacking sufficient courses in emerging fields such as artificial intelligence, machine learning, and data science, and the content is relatively basic and difficult to meet industry needs. Although some universities have opened basic artificial intelligence courses, they are too theoretical and lack practical links and integration with industry applications. In response to these problems, it is recommended to improve key areas [12] to adapt to the development needs of artificial intelligence technology. To this end, we can use the following mathematical formula to optimize the depth and difficulty of course content:

$$y = \beta_0 \sum_{i=1}^{n} \beta_i x_i + \in \quad (1)$$

Among them, y is the target variable, that is, the predicted value or response variable, which represents the output of the model; β_0 is the intercept term, which represents the predicted value when all input variables are 0; β_i is the coefficient of independent variable x_i, which indicates the influence of each feature variable on the output; x_i is the input feature variable, such as the various input features used for prediction in machine learning; ϵ is the error term, which indicates the part not explained by the model. This formula is used for algorithm optimization in machine learning courses [13]. Through this model, students can learn how to combine multiple feature variables for prediction and analysis to optimize the output results of the algorithm, and can actually operate and adjust relevant parameters to improve model performance.

$$y = \frac{1}{1+e^{-(b_0+\sum_{i-1}^{n} b_i x_i)}} \quad (2)$$

Among them, y is the model output, which represents the predicted category probability; b_0 is the intercept term, which represents the offset of the linear model; b_i is the weight or coefficient of each independent variable x_i; x_i is the input feature variable, such as various data features used for classification; This formula is used to model classification problems in big data courses. Through this model, students can understand how to predict discrete categories through training data and apply it to classification problems in artificial intelligence. In addition, the setting of interdisciplinary courses is particularly important in artificial intelligence education, and students should be encouraged to combine their studies with disciplines such as computer science and applied mathematics, statistics and artificial intelligence. This interdisciplinary curriculum helps students better understand the practical applications of artificial intelligence technology and cultivate their innovative capabilities in technology development. To sum up, the curriculum system of local universities should be updated at a faster pace, especially the depth and breadth of artificial intelligence course content should be closer to industry needs.

3.3 Interdisciplinary Curriculum Design and School-Enterprise Cooperation

There is a large gap between the curriculum system of local universities and the demand for artificial intelligence technology, especially in terms of interdisciplinary integration and the cultivation of practical application capabilities. In order to improve students' application capabilities and innovative thinking, innovative courses should be offered to help students improve their ability to solve practical problems[14]. At the same time, in-depth cooperation should be established with artificial intelligence companies to jointly design courses and participate in actual projects, provide students with industry practice opportunities, and enhance their practical experience and employment competitiveness. Through the integration of industry, academia and research[15], universities can help students apply theoretical knowledge to practical problems and improve their ability to adapt to the rapidly developing technology and industry needs.

Table 1: Employment of students after interdisciplinary curriculum design and school-enterprise cooperation

Indicator	After Cross-Disciplinary Course Design	After Industry-Academia Collaboration Platform	Students Not Involved in the Reforms
Improvement in cross-disciplinary application ability	80%	85%	50%
Participation in practical projects	70%	90%	40%
Employment rate in AI-related industries after graduation	75%	80%	50%
Satisfaction with industry relevance of course content	85%	90%	60%
Increase in student employment confidence	80%	90%	55%
Overall course satisfaction	88%	92%	65%

According to Table 1, through interdisciplinary course design and school-enterprise cooperation platform construction, local universities have significantly improved students' application and innovation capabilities, especially in courses that combine artificial intelligence with other disciplines, where students' interdisciplinary comprehensive capabilities have been enhanced. School-enterprise cooperation provides students with more opportunities to participate in actual projects, improving their practical ability and employment competitiveness. After the reform, the employment rate of students entering artificial intelligence-related industries has increased significantly, especially for students participating in school-enterprise cooperation, with an employment rate of about 25%. These reform measures have effectively enhanced students' confidence in employment, promoted the deep integration of universities and industries.

4. Results and Discussion

4.1 Comparison of Students’ Satisfaction with the Course Before and after the Reform

Local universities have made important reforms in curriculum setting, especially the combination of core AI courses and interdisciplinary content. After the reform, the school strengthened courses such as machine learning, deep learning and data science, and promoted the cultivation of interdisciplinary and application capabilities. Survey data show that the average student satisfaction with the course was 60 before the reform, and it increased to 95 after the reform, indicating that the depth of the combination of course content and technology has been improved, and students' interest and participation have been significantly enhanced. Through extracurricular projects and practice, students' interdisciplinary ability, teamwork and project management capabilities have been significantly improved. Figure 1 shows a comparison of students' satisfaction with the course before and after the reform. The data comes from the satisfaction of 20 students in a certain school (the student satisfaction is expressed by a scoring system, and the closer the score is to 100, the more satisfied it is).

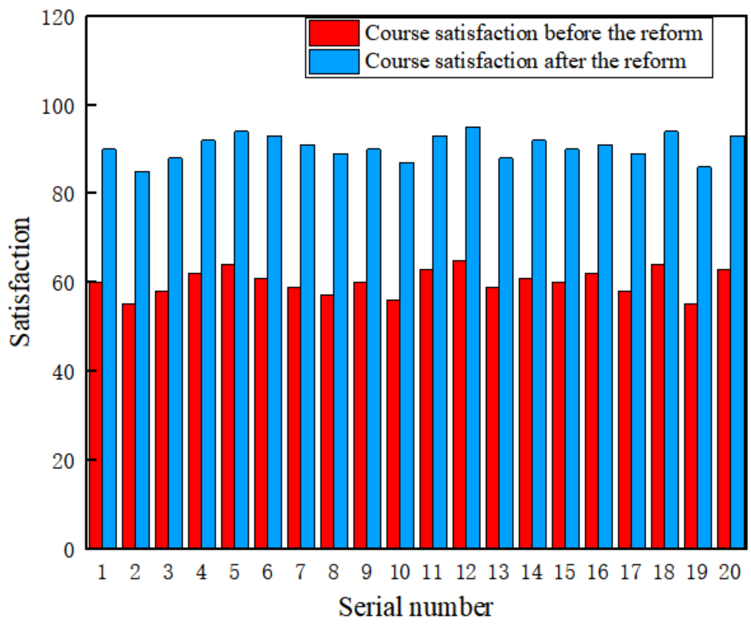

Figure 1. Comparison of students’ satisfaction with the course before and after the reform

As can be seen from Figure 1, students' satisfaction with courses after the reform is generally significantly higher than before the reform. Before the reform, most students' satisfaction with the course is concentrated between 55 and 65. After the reform, almost all students' satisfaction with the course exceeds 85, and most students' satisfaction reaches above 90. This shows that the reform of course content and teaching mode has effectively improved students' learning experience and satisfaction, especially in terms of the combination of artificial intelligence technology and interdisciplinary courses and enhanced practicality, which has been highly praised by students. Through the reform, students can not only better understand and apply classroom knowledge, but also receive more comprehensive training in innovation and interdisciplinary capabilities, laying a solid foundation for their future entry into the artificial intelligence industry.

4.2 Faculty Building and Scientific Research Level Improvement

local universities have strengthened the construction of teaching staff and improved the level of scientific research. Through teacher training and international exchanges, teachers have been significantly improved in AI technology, modern teaching methods and innovative concepts. After the reform, teachers' scientific research activities have made significant progress, especially in the field of artificial intelligence. Many teachers have published high-level papers in international journals and participated in national-level scientific research projects. In addition, teachers' cooperation with enterprises and scientific research institutions has promoted joint industry-university-research projects, improved scientific research capabilities and updated teaching content and methods. Comparison of data shows that teachers' scientific research activities have changed significantly before and after the reform. Figure 2 shows the changes in teachers' scientific research activities before and after the reform. The data comes from the changes in the participation of 20 teachers in scientific research projects in a certain school (comparison before and after the reform).

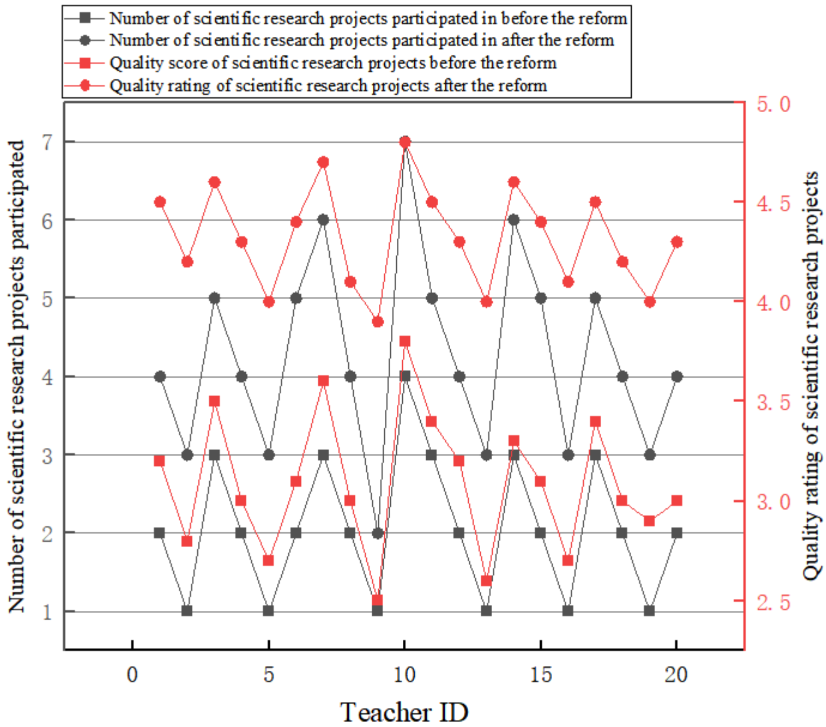

Figure 2. Comparison of changes in teachers' scientific research activities before and after the reform

From the above data, we can see the number of teachers participating in scientific research projects has increased significantly after the reform, and the quality scores of scientific research projects have also improved. Before the reform, the average number of scientific research projects in which teachers participated is 2.1, but after the reform, the number increases to 4.2, and the quality score of scientific research projects increases from 3.1 points before the reform to 4.4 points after the reform. This change shows that the school has successfully improved the scientific research capabilities of teachers through measures such as teacher training, international exchanges, and industry-university-research cooperation. The academic development of teachers has been promoted, and the teaching content and methods have been updated, thus promoting the two-way development of teaching and scientific research.

4.3 Industry-University-Research Cooperation and Employment Rate Improvement

The school-enterprise cooperation platform encourages students to participate in enterprise projects, accumulate practical experience, combine the knowledge they have learned with industry needs, and communicate with enterprise experts, thereby enhancing their ability to adapt to the industry. After the reform, more than 60% of graduates entered the artificial intelligence and related industries. The employment rate of students who participated in school-enterprise cooperation was higher, and some students were hired before graduation. This shows that school-enterprise cooperation has effectively improved students' employment competitiveness. Figure 3 shows the comparison of student employment rates before and after the reform.

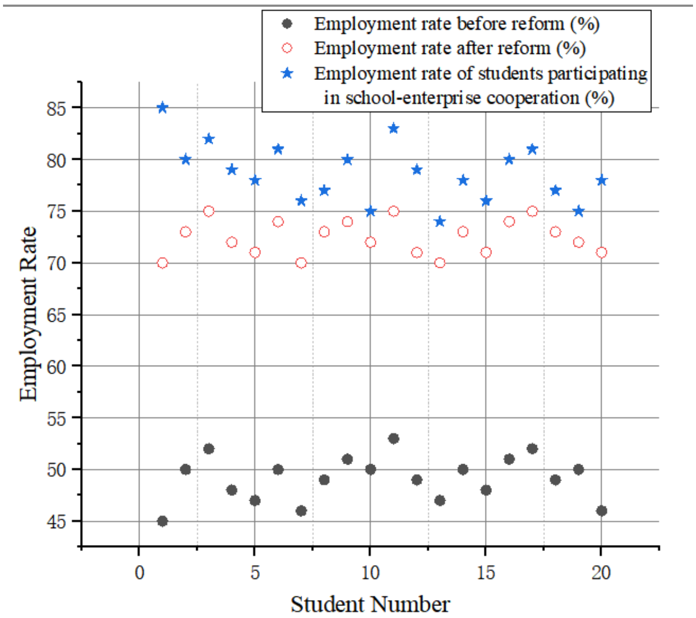

Figure 3. Comparison of student employment rates before and after the reform

As can be seen from Figure 3, the overall employment rate has increased significantly after the reform. In particular, the employment rate of students who participate in school-enterprise cooperation is significantly higher than that of students who do not participate. Before the reform, the employment rate of students is generally low, ranging from about 45% to 53%. After the reform, the employment rate of students generally increases to more than 70%. The employment rate of students participating in school-enterprise cooperation projects has increased significantly, reaching between 75% and 85%, demonstrating the positive role of school-enterprise cooperation in improving students' employment competitiveness and industry adaptability. This data shows that the school-enterprise cooperation platform not only enhances students' practical ability, but also improves their employment rate through real enterprise projects, especially employment opportunities in artificial intelligence-related industries. This provides students with a broader career development platform.

5. Conclusion

This study explores the reform path of talent training mode in local universities under the background of artificial intelligence, and proposes a plan to improve the quality of university education through curriculum innovation, integration of industry, academia and research, school-enterprise cooperation and teacher development. Research results show that after the reform, colleges and universities have achieved significant improvements in terms of curriculum, faculty, scientific research levels, and student employment rates. Especially in terms of the setting up of artificial intelligence-related courses and the cultivation of interdisciplinary abilities, students' innovation ability and employment competitiveness have been greatly enhanced, and more than 60% of graduates have successfully entered artificial intelligence-related industries.In addition, through regular teacher training and international exchanges, teachers’ scientific research capabilities and teaching levels have been effectively improved. The contribution of this study is that it provides a feasible reform path for local universities to cope with the challenges of the era of artificial intelligence, and it has strong practical guiding significance. However, the research is limited by the small data sample. In the future, the sample scope can be further expanded to conduct in-depth tracking and evaluation of the reform effects in order to verify and optimize the reform path. With the rapid development of artificial intelligence technology, the reform of talent training models in colleges and universities in the future should be adjusted more dynamically, continuously following cutting-edge technologies and industry needs, and providing stronger innovation drive and intellectual support for social and economic development.

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