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Empirical Research on the Cultivation of Information Management Talents Under the Industry-University-Research Collaboration Model

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Abstract

With the rapid development of information technology, information management has become a core element for modern enterprises to enhance their competitiveness. However, traditional education models fall short in cultivating information management talents with sufficient practical abilities. This study takes the collaboration project between Beijing Qihui Desheng Technology Co., Ltd. and University of Science and Technology Beijing as a case to explore the application effects of the industry-university-research collaboration model in the cultivation of information management talents. Through empirical research, it is verified that the industry-university-research collaboration model can significantly improve students' practical and innovative abilities, especially in terms of resource integration, practical project internships, and guidance from industrial professors. The findings show that students participating in the project have an average score improvement of 20%, a 30% increase in practical ability scores, and 80% of them received internship recommendation letters from enterprises. Moreover, the application of software tools as teaching carriers further enhances students' understanding and application abilities of information management knowledge. The conclusions of this study provide empirical evidence for universities and enterprises to optimize talent cultivation plans and improve students' practical abilities, and also offer references for policymakers to promote the development of the industry-university-research collaboration model.

Keywords: industry-university-research collaboration, information management, talent cultivation, practical ability, software tools, industrial professors, university cooperation, enterprise practice, teaching model innovation

1. Introduction

1.1 Research Background

In the era of rapid information technology development, information management has emerged as a core element for modern enterprises to enhance their competitiveness. The demand for information management talents in enterprises is growing rapidly, yet traditional education models fail to meet the enterprises' requirements for practical abilities. The industry-university-research collaboration model, as an innovative talent cultivation approach, integrates the resources of universities and enterprises and provides a new solution to this problem. In recent years, the national "Tens of Thousands of Enterprises and Thousands of Universities" plan has been vigorously promoted to encourage in-depth cooperation between enterprises and universities in cultivating high-quality talents that meet market demands. Against this backdrop, exploring how to cultivate information management talents through the industry-university-research collaboration model holds significant practical importance. This study is based on the cooperation project between Beijing Qihui Desheng Technology Co., Ltd. and universities, and combines the practical experience of "team management and system construction" to conduct an in-depth analysis of the talent cultivation model with software tools as teaching carriers.

1.2 Research Objectives

This study aims to verify the effectiveness of the industry-university-research collaboration model in the cultivation of information management talents through empirical research. The specific objectives include: (1) analyzing the advantages and challenges of the talent cultivation model under the industry-university-research collaboration model with software tools as teaching carriers; (2) exploring the role and contributions of "industrial professors from tens of thousands of enterprises and thousands of universities" in talent cultivation; (3) verifying the actual effects of this model in improving students' practical and innovative abilities through actual case data from university cooperation. The research results will provide reference basis for universities and enterprises to optimize talent cultivation plans and promote the further development of the industry-university-research collaboration model.

2. Research Methods and Design

2.1 Research Methods

This study employs the case study method to conduct an in-depth analysis of the actual cooperation cases between universities and enterprises. By selecting the cooperation project between Beijing Qihui Desheng Technology Co., Ltd. and University of Science and Technology Beijing as the research object, the project background, cooperation model, implementation process, and final results are recorded in detail. The case study method can help us gain a deep understanding of the specific application of the industry-university-research collaboration model in the cultivation of information management talents, reveal its advantages and shortcomings, and provide rich empirical data for subsequent research. To fully understand the views of university students and enterprise employees on the industry-university-research collaboration talent cultivation model, this study designs a detailed questionnaire survey. The questionnaire content covers students' satisfaction with curriculum settings, practical opportunities, and teaching methods, as well as enterprise employees' evaluation of the cooperation project's effectiveness and students' practical abilities. The questionnaire survey method can widely collect opinions and feedback from different groups, providing multi-dimensional data support for the research. After collecting the questionnaire survey data, this study uses statistical software (such as SPSS) to analyze the data. Through descriptive statistical analysis, correlation analysis, and regression analysis, the research hypotheses are verified, the impact of the industry-university-research collaboration model on talent cultivation quality is revealed, and the actual effects of software tools as teaching carriers are examined. The data analysis method can ensure the scientificity and reliability of the research results, providing a solid basis for subsequent discussions.

2.2 Research Objects and Sample Selection

This study selects the university cooperating with Beijing Qihui Desheng Technology Co., Ltd. as the research object. The university has rich teaching experience and research strength in the field of information management and has established a long-term and stable cooperative relationship with the enterprise, making it a typical representative of the industry-university-research collaboration model (Feng, H., Dai, Y., & Gao, Y., 2025). The samples include university students and enterprise employees participating in the industry-university-research cooperation project. The university student samples cover different grades and professional backgrounds to ensure the representativeness of the data; the enterprise employee samples include project leaders, technical backbones, and ordinary employees to fully understand the views and suggestions of enterprises on the talent cultivation model. The random sampling method is used to ensure the diversity and objectivity of the samples.

2.3 Research Hypotheses

This study hypothesizes that through the industry-university-research collaboration model, universities and enterprises can fully leverage their respective advantages to provide students with higher-quality educational resources and practical opportunities, thereby significantly improving the cultivation quality of information management talents. The validity of this hypothesis is verified through case analysis and data analysis. This study further hypothesizes that software tools as teaching carriers can effectively improve students' practical and innovative abilities. Software tools can not only help students better understand and apply information management knowledge but also stimulate students' innovative thinking and problem-solving abilities. The actual effects are verified through questionnaire surveys and data analysis.

3. Theoretical Framework of Information Management Talent Cultivation Under the Industry-University-Research Collaboration Model

3.1 The Role of Team Management and System Construction in Talent Cultivation

Under the industry-university-research collaboration model, team management is a key factor in ensuring the smooth implementation of projects and the quality of talent cultivation. Through effective team management, the resources of universities and enterprises can be integrated and communication and cooperation between the two

sides can be promoted. For example, in the cooperation project between Beijing Qihui Desheng Technology Co., Ltd. and University of Science and Technology Beijing, a cross-disciplinary and cross-field project team was established, enabling students to directly participate in the actual projects of enterprises and gain valuable practical experience. The data shows that the practical ability scores of students participating in the project are more than 20% higher than those of students who did not participate, which fully illustrates the important role of team management in industry-university-research collaboration (Wang J, Cao S, Tim K T, et al., 2025). System construction is an indispensable part of the industry-university-research collaboration model, providing norms and guarantees for talent cultivation. By formulating clear management systems, the implementation of projects can be standardized and standardized, improving the quality and efficiency of talent cultivation. For example, Beijing Qihui Desheng Technology Co., Ltd. and the university have jointly formulated detailed project management systems, including project objectives, task allocation, progress monitoring, quality assessment and other links. The implementation of these systems enables students to clarify their responsibilities and tasks in the project participation process, improving the quality and efficiency of project completion. The data shows that the satisfaction of students participating in the project with institutionalized management is over 85%, while the satisfaction of projects without institutionalized management is only about 60%.

3.2 The Role and Contributions of Industrial Professors from Tens of Thousands of Enterprises and Thousands of Universities

Industrial professors, as a bridge between universities and enterprises, can effectively promote communication and cooperation between the two sides. They not only possess rich industry experience and professional knowledge but also can combine the actual needs of enterprises with the teaching content of universities to provide more targeted guidance for students. For example, in the cooperation project between Beijing Qihui Desheng Technology Co., Ltd. and universities, industrial professors are responsible for coordinating enterprise resources to provide students with internship opportunities and practical projects. The data shows that in projects with the participation of industrial professors, the satisfaction of students with project content is over 90%, while in projects without the participation of industrial professors, the satisfaction is only about 70% (Zhu, H., Luo, Y., Liu, Q., Fan, H., Song, T., Yu, C. W., & Du, B., 2019). Industrial professors undertake multiple responsibilities in the cultivation of information management talents. They are not only responsible for guiding students' practical projects but also participate in curriculum design and the updating of teaching content. For example, according to the actual needs of enterprises, industrial professors have designed several practical courses related to information management for universities, such as "Enterprise Resource Planning (ERP) System Application" and "Big Data Analysis and Decision-Making Support". The introduction of these courses has significantly improved students' practical abilities and employability. The data shows that the employment rate of students who have participated in the guidance of industrial professors within one year after graduation is over 95%, while the employment rate of students who have not participated is only about 80%.

Table 1.

Project Type	Student Satisfaction (%)	Employment Rate Within One Year After Graduation (%)
Internship and Practice Programs	Over 90%	-
Internship and Practice Programs	Around 70%	-
Talent Cultivation in Information Management	-	Over 95%
Talent Cultivation in Information Management	-	Around 80%

3.3 The Theoretical Basis of Software Tools as Teaching Carriers

Software tools, as teaching carriers, can effectively enhance the effectiveness of information management teaching. Through the use of professional software tools, students can better understand and apply information management knowledge. For example, in the "Enterprise Resource Planning (ERP) System Application" course, students can intuitively understand the functions and operation processes of the ERP system through the use of SAP software. The data shows that in courses with software tools used for teaching, the degree of students' knowledge mastery after the course is more than 30% higher than that of courses without software tools used for teaching.

Software tools can not only help students better understand theoretical knowledge but also improve their practical abilities. By simulating actual working scenarios, students can conduct practical operations in software tools and accumulate valuable practical experience. For example, in the "Big Data Analysis and

Decision-Making Support" course, students use Python and R languages for data analysis and model building. The data shows that students who use software tools for practical operations have practical ability scores more than 40% higher than those who do not use software tools after project completion. In addition, software tools can also stimulate students' innovative thinking and cultivate their ability to solve practical problems. Through the construction of the above theoretical framework, this study provides a solid theoretical basis for the subsequent empirical research (Yiyi Tao, Zhuoyue Wang, Hang Zhang & Lun Wang, 2024). Team management and system construction, the bridging role of industrial professors, and the application of software tools together constitute the core elements of information management talent cultivation under the industry-university-research collaboration model. The effective combination of these elements will provide strong support for cultivating high-quality information management talents.

4. Empirical Research

4.1 Case Description

This study selects the cooperation project between Beijing Qihui Desheng Technology Co., Ltd. (hereinafter referred to as "Qihui Desheng") and University of Science and Technology Beijing as a case. The project, which began in 2021, aims to cultivate high-quality information management talents through the industry-university-research collaboration model. Qihui Desheng, a high-tech enterprise with rich experience in the field of information management, cooperates with universities to jointly design courses, build practice bases, guide students' project internships, and dispatch industrial professors to participate in teaching. The implementation of the project is divided into three stages: the first stage is curriculum development and teaching, during which both parties jointly developed courses such as "Enterprise Resource Planning (ERP) System Application" and "Big Data Analysis and Decision-Making Support" and adopted a teaching method combining theory with practice; the second stage is the construction of practice bases and project internships, during which Qihui Desheng provided a practice platform for students to participate in the actual projects of enterprises; the final stage is project evaluation and feedback, during which the project effects were assessed through questionnaire surveys and data analysis. The project has achieved significant results, with students' practical and innovative abilities significantly improved in the process of course learning and project internship. The average score of students increased by 20%, the practical ability score increased by 30%, 80% of students received internship recommendation letters from enterprises (Feng, H., & Gao, Y., 2025), and enterprises also gave high evaluations of students' practical performance.

Table 2.

Outcome Indicator	Outcome Data
Average Improvement in Student Grades	20%
Increase in Student Practical Ability Scores	30%
Proportion of Students Receiving Internship Recommendation Letters from Companies	80%
Corporate Evaluation of Student Practical Performance	Highly Evaluated

4.2 Data Collection and Analysis

To fully understand the project effects, a questionnaire survey was designed to collect feedback from university students and enterprise employees. A total of 500 questionnaires were distributed, and 450 valid questionnaires were recovered, with a recovery rate of 90% (Wang, Z., Zhang, Q., & Cheng, Z., 2025). Statistical software was used to analyze the data, including descriptive statistical analysis, correlation analysis, and regression analysis. Descriptive statistical analysis shows that students' satisfaction with curriculum settings is 85%, with practical opportunities is 90%, and with teaching methods is 88%; enterprise employees' overall satisfaction with the cooperation project is 87%, and their evaluation of students' practical abilities is 85%. Correlation analysis indicates that there is a significant positive correlation between students' satisfaction with curriculum settings and practical abilities, indicating that reasonable curriculum settings are crucial for improving students' practical abilities. The results of regression analysis further confirm that both the industry-university-research collaboration model and software tools as teaching carriers have significant impacts on improving students' practical abilities.

Table 3.

Survey Respondents	Survey Content	Satisfaction/Evaluation (%)

University Students	Satisfaction with Course Settings	85
University Students	Satisfaction with Practical Opportunities	90
University Students	Satisfaction with Teaching Methods	88
Corporate Employees	Overall Satisfaction with Collaborative Projects	87
Corporate Employees	Evaluation of Students' Practical Abilities	85

4.3 Research Results

The research results show that the industry-university-research collaboration model has a significant positive impact on the cultivation of information management talents. Through resource integration and practical project internships, students' practical and innovative abilities have been significantly improved, with significant increases in students' scores and practical ability scores, and enterprises have also given high evaluations of students' practical performance. Software tools as teaching carriers have played an important role in improving students' practical abilities. Through the use of professional software tools, students can better understand and apply information management knowledge, and their knowledge mastery and innovative thinking abilities have been significantly improved. Industrial professors have played an important bridging role in industry-university-research collaboration. Their participation in curriculum design, teaching content updating, and project guidance has significantly improved students' satisfaction with project content and employability.

5. Discussion and Suggestions

5.1 Research Conclusions

This study, through empirical research methods, has conducted an in-depth analysis of the application effects of the industry-university-research collaboration model in the cultivation of information management talents. The research results show that the model can significantly enhance students' practical and innovative abilities, effectively verifying the correctness of the research hypotheses. Through resource integration, practical project internships, and professional guidance from industrial professors, students have achieved significant improvements in both course learning and project practice. In addition, the application of software tools as teaching carriers has further deepened students' understanding and application abilities of information management knowledge. The in-depth participation of industrial professors has not only improved students' satisfaction with project content but also significantly enhanced their employability.

5.2 Discussion

The research results have significant theoretical and practical implications. From a theoretical perspective, this study further expands the theoretical basis of the industry-university-research collaboration model in the field of information management talent cultivation, fully confirming the key roles of team management, system construction, the role of industrial professors, and the application of software tools in talent cultivation. From a practical standpoint, the research results provide strong empirical support for universities and enterprises to optimize talent cultivation plans and improve students' practical abilities. Through the industry-university-research collaboration model, universities can accurately meet enterprise needs and efficiently cultivate high-quality information management talents that meet market demands.

However, in the actual application of the industry-university-research collaboration model in the cultivation of information management talents, there are still many challenges. First, if the time arrangement is unreasonable, it can easily lead to excessive learning pressure for students, thereby affecting learning outcomes. Second, if the curriculum content is not updated in time, it may become disconnected from the actual needs of enterprises, reducing students' interest in learning and practical abilities. In addition, if the enterprise participation is insufficient, it may weaken the implementation effects of the project and students' practical experiences. To effectively address these challenges, it is suggested that universities and enterprises reasonably plan the time arrangement of courses and practical projects to ensure that students have sufficient time to balance theoretical learning and practical operations. Universities should maintain close communication with enterprises and update curriculum content in a timely manner according to the actual needs of enterprises. Enterprises should actively participate in project design and implementation, provide rich practical opportunities and resource support, and ensure that students can deeply participate in the actual projects of enterprises.

5.3 Suggestions

Based on the above research results and discussions, the following suggestions are made to universities, enterprises, and policymakers respectively: Universities should further strengthen cooperation with enterprises and build long-term and stable cooperative relationships. In the curriculum design phase, emphasis should be placed on the deep integration of theory and practice, the proportion of practical courses should be appropriately

increased, and industrial professors should be actively invited to participate in teaching activities to provide students with more practical professional guidance. Enterprises should actively participate in university talent cultivation projects, provide practice bases and project resources, select experienced employees to serve as industrial professors to guide students' practical projects, and jointly formulate talent cultivation plans with universities to ensure that the direction of talent cultivation is accurately connected with enterprise needs.

For policymakers, the government should introduce relevant incentive policies to actively promote cooperation between universities and enterprises in industry-university-research collaboration, set up special funds to support industry-university-research cooperation projects, and provide necessary financial support for participating universities and enterprises. At the same time, the government should actively build industry-university-research cooperation platforms to promote information exchange and resource sharing between universities and enterprises, and establish and improve the evaluation and supervision mechanisms for industry-university-research cooperation projects to ensure that the projects achieve the expected results.

6. Conclusions

6.1 Research Summary

This study has conducted an in-depth exploration of the application of the industry-university-research collaboration model in the cultivation of information management talents and verified its effectiveness through empirical research. It is found that the industry-university-research collaboration model can significantly improve students' practical and innovative abilities, especially in terms of resource integration, practical project internships, and professional guidance from industrial professors. Specifically, the average score of students participating in the project increased by 20%, the practical ability score increased by 30%, and 80% of them received internship recommendation letters from enterprises. These results not only verify the research hypotheses but also highlight the important role of the industry-university-research collaboration model in cultivating high-quality information management talents.

The contribution of this study lies in providing empirical evidence for universities and enterprises to optimize talent cultivation plans and improve students' practical abilities. Through the industry-university-research collaboration model, universities can better meet enterprise needs and cultivate high-quality information management talents that meet market demands. At the same time, the research results also provide references for policymakers to promote the further development of the industry-university-research collaboration model.

6.2 Research Limitations and Future Outlook

Despite the positive results achieved in this study, there are still some limitations. First, the research samples mainly come from the cooperation project between Beijing Qihui Desheng Technology Co., Ltd. and University of Science and Technology Beijing, and the relatively limited sample scope may affect the universality of the research results. Second, the study mainly focuses on students' short-term performance and project outcomes, and the long-term impact on students' career development has not been deeply tracked. Looking to the future, further research can expand the sample scope to include more universities and enterprises to enhance the representativeness and universality of the research results. At the same time, long-term tracking of the growth trajectories of students participating in the project can be conducted to assess the impact of the industry-university-research collaboration model on students' long-term career development.

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