Advances in Vocational and Technical Education (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/avte.2025.070124
ISSN 2523-5834 Vol. 7 Num. 1

Innovation of Talent Cultivation Mode for Economics and Management Majors under the Background of Digital Economy

Yue'e Guo[1,a], Haibo Jiao[2,b,*]

[1]School of Economics and Management, Yingkou Institute of Technology, Yingkou, 115000, Liaoning Province, China
[2]School of Information and Engineering, Liaoning Agricultural Vocational and Technical College, Yingkou, 115009, Liaoning Province, China
[a]38289338@qq.com, [b]550814725@qq.com
[*]Corresponding author

Keywords: Digital Economy; Economics and Management Majors; Talent Training Model; Interdisciplinary Integration; Innovative Teaching Methods

Abstract: In the context of digital economy, the traditional talent training model for business management is facing many challenges. Especially in response to the rapidly developing technological environment and increasingly complex market demands, traditional methods often have problems such as lagging course content, insufficient skill training, and disconnection between theory and practice. To this end, this paper proposes an innovative talent training model for business management based on digital transformation, aiming to improve students' comprehensive abilities and meet the demand for compound talents in the digital economy era by optimizing the curriculum system, strengthening interdisciplinary integration and innovating teaching methods. This paper first analyzes the specific problems existing in the training of talents in the current business and management majors, and proposes to solve them by introducing courses related to digital technologies such as artificial intelligence and big data, strengthening the project-driven practical teaching model, and deepening the integration of industry and education. In addition, this paper also ensures the efficiency and timeliness of talent training by refining the curriculum, clarifying various training objectives and detailed control, such as the frequency of course content updates, the arrangement of practical opportunities, and the degree of interdisciplinary knowledge integration. The results show that the experimental group scored 85.2 in terms of professional knowledge, which is significantly higher than the control group's 76.1, indicating that the optimized curriculum system has effectively improved students' professional knowledge. In terms of technical application ability, the experimental group scores 83.6, compared with 71.5 in the control group. Through these innovative measures, students' abilities in innovative thinking, data analysis, and interdisciplinary collaboration have been significantly improved, especially in digital application ability and employment adaptability, showing strong competitiveness, thus achieving precision and high-quality transformation of talent training.

1. Introduction

Given how quickly the internet economy is growing, the global economic structure and industrial pattern have undergone profound changes, and the traditional economic management model is facing unprecedented challenges. In order to better adapt to the development needs of the digital economy, this paper proposes an innovative talent training model for business management majors based on digital transformation. The program aims to improve students' comprehensive abilities, especially in digital technology application, data analysis and interdisciplinary collaboration, by optimizing the curriculum system, strengthening interdisciplinary integration, and innovating teaching methods, so as to cultivate compound talents that can adapt to the digital economy era. This paper first analyzes the main problems in the current talent training model for business and management majors; then proposes a series of innovative measures, including introducing courses related to digital technologies such as artificial intelligence and big data, strengthening project-driven practical teaching models, and deepening the integration of industry and education; and explores how to improve the efficiency and timeliness of talent training by refining curriculum settings, clarifying training objectives, and implementing specific teaching strategies.

This paper first outlines the research background and purpose, and clarifies the challenges and opportunities for the cultivation of business and management professionals in the digital economy era. It then reviews the relevant literature on talent management and training models to provide theoretical support for this study. Next, it introduces specific measures such as optimizing the curriculum system, interdisciplinary integration, and practical teaching design, focusing on how to improve students' comprehensive abilities through digital means. The experimental part describes in detail the settings of the experimental group and the control group, and demonstrates the impact of curriculum intervention on students' technology application ability, interdisciplinary collaboration ability, and employment competitiveness. Finally, it summarizes the research findings, discusses the limitations of the research, and looks forward to future development directions.

2. Related Work

Many studies have explored the important role of talent management in improving organizational performance, enhancing organizational resilience, and promoting sustainable development of enterprises, but its applicability and specific implementation effects in different contexts remain controversial. The goal of Bouteraa and Bouaziz's study was to investigate how organizational resilience in Tunisian businesses during the COVID-19 pandemic is affected by talent management strategies. The results showed that talent development and succession planning only had a positive impact on the agility of the enterprise, while talent retention had no significant impact on the three dimensions of organizational resilience [1]. Nieto-Aleman et al. explored the impact of individual, organizational, and situational challenges faced by organizational ecosystems on Talent Management (TM), especially the challenges facing sustainable business strategies and innovation in a world that is becoming more digital. The results showed that high TM performance is a combination of multiple factors, not a single factor [2]. Through an assessment of literature, Febrian and Solihin examined how training, growth in human resources, handling talent, and participation by staff may enhance corporate culture. The results showed that: 1) employee participation helps improve organizational culture; 2) talent management helps improve organizational culture; 3) training and human resource development help improve organizational culture[3]. In the current highly competitive environment, attracting outstanding students and establishing a brand have become important tasks for universities. Taking VinUni as an example, Ai and Le Hoa proposed targeted policies to attract outstanding talents, but how to effectively disseminate these policies remains a challenge [4]. In the Nigerian hotel business, Abraham et al. investigated the connection

between corporate efficiency and the administration of talent. Performance was measured by process optimization and customer experience, and the resource-based perspective theory was used as the research basis. The results showed that there was a significant positive relationship between talent management and hotel industry performance, especially in terms of process optimization and customer experience [5]. Howe-Walsh et al. aimed to evaluate the talent management methods of small and medium-sized hotels in Nigeria during the COVID-19 crisis and adopted a resource-based perspective. The study found that the reactive and short-term talent management methods of hotel owners led to challenges during the epidemic and they were unable to rely on foreign talents to fill key skill gaps [6]. Sembiring and Damayanti investigated how human resource management affects the recruitment and retention of talent as well as how these factors affect organizational performance, particularly in big coal mining firms. According to the study, talent management was greatly impacted by talent acquisition, and talent management was highly impacted by talent retention [7]. Ajayi-Nifise et al. explored the human resource management perspective in the digital transformation of the banking industry, focusing on how to manage change and cultivate digital talents. In the wave of digitalization, banks embrace emerging technologies by reshaping business models and processes, while also needing to transform their workforce [8]. Al Awadhi and Muslim explored human resource management and talent management practices in the UAE, and proposed a conceptual framework, research hypotheses and their theoretical basis. The study showed that talent management is the key to organizational success, which can improve institutional effectiveness and productivity, provide an attractive working environment and reduce turnover [9]. Lassleben and Hofmann explored the priority attributes of Generation Z talents in terms of employer attractiveness, and analyzed whether gender-specific work values affect Generation Z talents' expectations of employers. The study found that Generation Z mainly expects an interesting working environment, a positive team atmosphere and supportive relationships with colleagues and superiors, while having lower expectations for services such as work-life balance [10]. In their analysis of a global sample of medium-sized manufacturing firms, Basco et al. discovered that risk aversion mediates family businesses' investment in people management strategies, while the level of industry rivalry acts as a moderator [11]. Although existing research has extensively explored the impact of talent management on organizational performance, resilience, and culture, it still faces bottlenecks such as incomplete theoretical frameworks, insufficient empirical research, and limited practical guidance in dealing with digital transformation, differences in industry characteristics, and cross-scenario applicability.

3. Method

3.1 Optimize the Curriculum System and Enhance Interdisciplinary Attributes

In the era of artificial intelligence, talents in business and management need to have a composite knowledge system. They must not only master the core knowledge of economics and management but also understand the basic principles of artificial intelligence, be proficient in using data analysis tools, and have good communication and teamwork skills. Therefore, when optimizing the curriculum system, it is necessary to reasonably introduce new courses on the basis of ensuring the status of core courses in business and management majors to cultivate students' new qualities and new abilities.

First, adding AI-related courses to the curriculum system, such as "Artificial Intelligence Basics", "Machine Learning", "Business Intelligence", etc. These courses can be used as core courses or elective courses to help students build an AI cognitive framework and lay the foundation for subsequent learning and application. At the same time, while maintaining the core courses of business management, colleges and universities have moderately increased the proportion of

modern information technology courses, so that students can use digital technology to solve management and economic problems.

Secondly, the course content is integrated, and the knowledge related to artificial intelligence and data analysis is integrated into the existing business and management courses instead of setting up new courses separately. For example, a data analysis module is added to the "Marketing" course, and artificial intelligence application cases are introduced to the "Financial Management" course to ensure the integrity and coherence of the course system.

3.2 Building a Digital Curriculum System

With the widespread application of technologies such as big data and artificial intelligence, the demand for traditional positions in economics and management has decreased, while the demand for high-quality talents with digital skills has increased. Therefore, it is necessary to build a digital curriculum system that integrates economics, management and computer engineering to cultivate compound talents with both business thinking and information technology capabilities.

Colleges and universities can adopt two main models to promote the construction of digital curriculum system: One is to introduce information technology courses into traditional business management courses, such as "Financial Sharing" and "Big Data and Financial Analysis", or directly offer computer professional courses. The second is to establish interdisciplinary majors, such as "Big Data Management and Application", to promote the deep integration of business management and technology. In addition, reforms should be carried out in terms of teaching content, teaching methods, and teaching models, such as introducing online education resources, increasing case teaching, and strengthening practical links to enhance students' digital capabilities.

3.3 Optimization of Professional Course System: "Personalization + Digital Technology" Course Group

For the construction of business and management professional courses, digital technology courses should be scientifically embedded in different professional modules to improve students' comprehensive abilities. Taking the "Financial Engineering" major as an example, optimization can be carried out in the following aspects:

(1) Analysis of job and capability matching

The capability requirements for digital finance jobs are clarified, and a "job-knowledge-ability" model is constructed, thereby forming a curriculum system that integrates "core financial courses + digital technology".

(2) Construction of the "Finance + Technology" Course Group

In the core courses, the cross-integration of finance and digital technology is achieved, such as the "Econometrics, Statistics, Data Structure and Algorithm" module, the "Finance, Securities Investment, Corporate Finance" module, and the "Financial Engineering, Financial Econometrics" module, and the newly added "Data Structure and Algorithm" course. At the same time, cross-disciplinary courses such as "Artificial Intelligence and Technology Frontiers", "Principles of Financial Technology", "Blockchain Finance", "Financial Big Data Technology and Applications" have been added, and course resources of information management and information systems majors have been introduced, such as "Blockchain Simulation Practice", "Python Financial Big Data and Quantitative Investment" and other special practical links to strengthen the combination of theoretical learning and practical training.

3.4 Talent Cultivation Strategy under the Background of "New Economics and Management"

Under the background of "new economics and management", colleges and universities should adjust their talent cultivation programs to meet the needs of digital economic development. Specifically, they can be optimized from the following aspects:

(1) Adjusting the curriculum system: Colleges and universities should strengthen the integration of modern information technology and economic management disciplines, and build a diversified teaching model that ADAPTS to the needs of social and economic development.

(2) Building a scientific evaluation system: Colleges and universities implement credit system assessment, optimize course credit distribution, implement reward and punishment mechanism, and encourage students to master new technologies and new abilities.

(3) Improving employment matching: Colleges and universities combine the future employment trend, optimize the curriculum, so that students' ability and job requirements are highly matched, and improve the employment competitiveness of graduates.

The goal of optimizing the talent training program for business and management majors is to enhance students' professional qualities, giving them an advantage in industry competition, while also strengthening their professional capabilities in related positions so that they can apply what they have learned.

4. Results and Discussion

4.1 Experimental Subjects

Undergraduate students majoring in business and management from a certain university are selected, covering finance, accounting, marketing, management science and engineering, etc., and randomly divided into an experimental group and a control group, with 120 people in each group, for a total of 240 people.

Experimental group: It receives the optimized "digital intelligence + business and management" curriculum system.

Control group: It continues to use the traditional business and management curriculum system.

4.2 Curriculum Intervention Measures (Experimental Variables)

Course system adjustment:

"Basics of Artificial Intelligence", "Business Intelligence", "Data Structure and Algorithm" and other contents have been added to the core courses.

The course content is embedded with new technology applications such as data analysis, blockchain, and financial technology.

It adopts a combination of online and offline teaching methods, using tools such as big data experimental platform and Python programming environment.

Innovation in teaching mode:

University introduces case teaching, such as intelligent financial analysis, intelligent risk control, supply chain optimization and other cases.

University adopts interdisciplinary project-based teaching, allowing students to participate in practical tasks such as "intelligent financial modeling" and "enterprise big data analysis".

University offer industry-university-research cooperation courses and cooperate with enterprises to provide real data and commercial projects.

4.3 Evaluation Indicators and Measurement Methods

In the evaluation of technical application ability, we focus on the students' use of Python, SQL and AI models, and conduct a comprehensive evaluation based on the course project scoring and practical operation tests. Especially in Python programming, SQL database operation and the application of artificial intelligence models, the students in the experimental group are able to skillfully use these tools, demonstrated strong technical ability, and have the ability to solve complex problems in actual work. SPSS or Python is used for data statistical analysis to compare the average score differences between the experimental group and the control group on various indicators.

Table 1. Data generation and descriptive statistics

count	120	120
mean	84.60	75.52
std	4.62	7.08
min	71.9	60.82
25%	82.14	69.69
50%	84.63	76.29
75%	86.91	79.63
max	97.31	101.96

In this experiment, we collect and analyze sample data from the experimental group and the control group, each group containing 120 samples. Through descriptive statistical analysis of the data in Table 1, the main statistical characteristics of the two groups are obtained and compared. The mean score of the experimental group is 84.60 and the standard deviation is 4.62, which shows that the scores of the experimental group are more concentrated and the overall level is higher. The minimum score is 71.9 and the maximum score is 97.31, which further verifies that the scores of the experimental group have a certain range of fluctuations. The mean of the control group is 75.52 and the standard deviation is 7.08, indicating that the score distribution of the control group is more dispersed and the overall score are lower than that of the experimental group. The minimum score is 60.82 and the maximum score is 101.96, showing the wide differences in the scores of the control group samples.

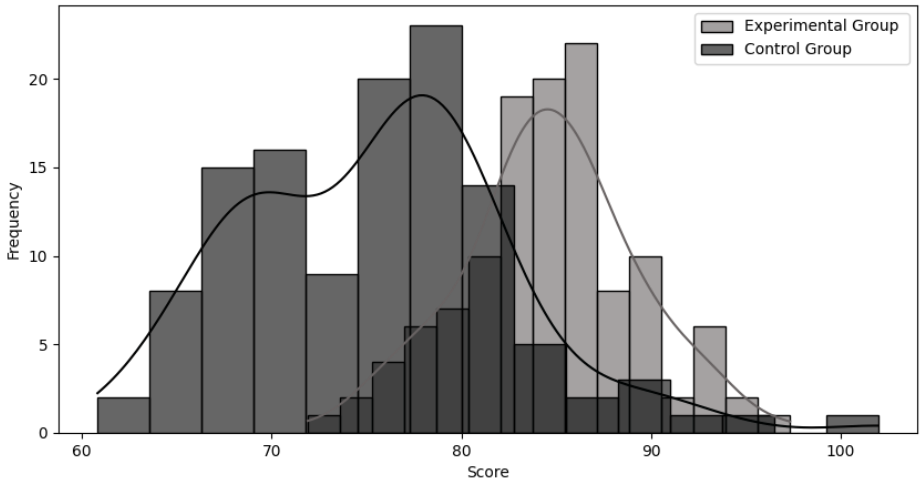

Figure 1. Frequency distribution histogram

As can be seen from the frequency distribution histogram in Figure 1, there are significant differences in the score distribution between the experimental group and the control group. The

score distribution of the experimental group is relatively concentrated, with a significant increase in frequency between 80 and 90 points, and a shorter distribution tail, indicating that the scores of most members of the experimental group are concentrated in a higher range, consistent with the mean of 84.60. This is consistent with the standard deviation of 4.62 for the experimental group, indicating that its scores fluctuated within a certain range and are relatively stable. In contrast, the score distribution of the control group is more dispersed, with a relatively uniform frequency distribution between 60 and 90, and more samples in the low score range (such as 60 to 70 points), which is consistent with the mean of 75.52 and standard deviation of 7.08 of the control group. The score distribution of the control group has a long tail, showing a large fluctuation, and some samples have scores far lower than the experimental group, reflecting the large fluctuation of the performance of the control group. In general, the scores of the experimental group shows a high and concentrated trend, while the control group shows a more dispersed and unstable distribution. This difference is clearly reflected in the frequency distribution histogram, further verifying that the experimental group has a more consistent and higher overall performance.

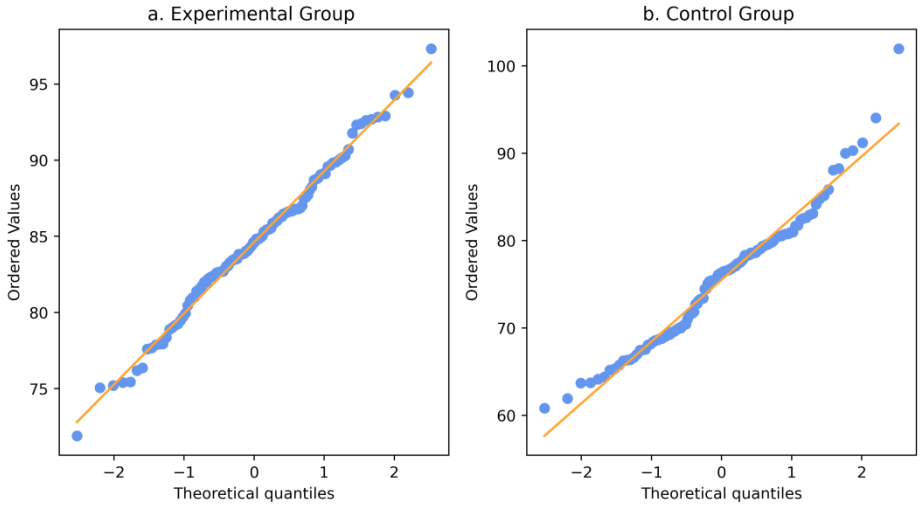

Figure 2. QQ plot (normal probability plot) analysis

The QQ plot (normal probability plot) analysis of the experimental group and the control group in Figure 2 can further understand the distribution of the scores of the two groups. The QQ plot of the experimental group shows that the data points are roughly distributed along the diagonal line. Although there is a slight deviation at the tail of the distribution, most of the points are still close to the theoretical value of the normal distribution. This shows that the scores of the experimental group are close to the normal distribution, the data distribution is relatively stable, and there is no obvious skewness or outliers, which further verifies the concentration and stability of the scores of the experimental group.

In contrast, the QQ graph of the control group shows a more obvious trend of deviation from the diagonal line, especially at the tail of the distribution, where the data points deviate far, indicating that the score distribution of the control group may be skewed or asymmetric. This deviation shows the greater volatility and imbalance of the scores of the control group, and some low- or high-scoring samples may have a greater impact on the data distribution. From the results of the QQ graph, the scores of the experimental group are more in line with the normal distribution, showing better balance and consistency, while the control group shows more deviations and fluctuations, which further supports that the intervention effect of the experimental group may have a positive effect on the stability and concentration of the scores.

Student learning feedback and employer evaluations are collected to analyze the impact of curriculum adjustments on actual employability.

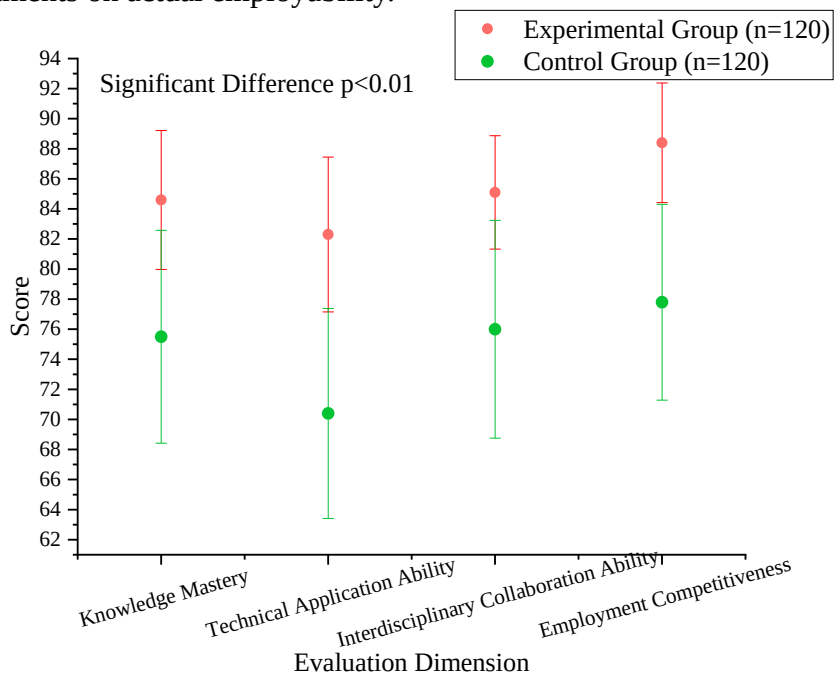

Figure 3. Student learning feedback (experimental group vs control group)

According to the student learning feedback data in Figure 3, the experimental group performed significantly better than the control group in all evaluation dimensions. First, in terms of knowledge mastery, the average score of the experimental group is 84.6, while that of the control group is 75.5, indicating that the students in the experimental group have significantly improved their mastery of professional knowledge, and the optimized curriculum system helps students better understand and absorb the course content. Second, in terms of technical application ability, the experimental group scores 82.3, higher than the 70.4 of the control group, indicating that the students in the experimental group have significantly improved their practical operation ability. This may be closely related to the addition of technical application courses such as artificial intelligence and data analysis in the new curriculum, as well as more practical links. Finally, in terms of interdisciplinary collaboration ability, the experimental group scores 85.1 and the control group scores 76.0. This gap reflects that the experimental group students perform better in teamwork and interdisciplinary projects, and the new curriculum setting effectively promotes students' integration and cooperation ability in different disciplines. Overall, the excellent performance of the experimental group in knowledge mastery, technology application and interdisciplinary collaboration verifies the effectiveness of the curriculum system adjustment, indicating that the innovative teaching model can significantly improve students' comprehensive quality and practical ability.

Table 2. Employer evaluation (experimental group vs control group)

Evaluation Dimension	Experimental Group (n=120)	Control Group (n=120)	Significant Difference
Job Fit	90.3 ±4.12	78.9 ±6.30	$p < 0.01$
Job Performance	87.5 ±4.38	76.1 ±5.52	$p < 0.01$
Professional Skills	85.8 ±5.01	74.3 ±7.04	$p < 0.01$
Teamwork	88.1 ±4.65	77.2 ±6.91	$p < 0.01$

According to the data in Table 2, the experimental group performs significantly better than the control group in all evaluation dimensions. The experimental group scores 90.3 ± 4.12 in "job fit", while the control group scores 78.9 ± 6.30, with a significant difference ($p < 0.01$). In terms of "work performance", the experimental group scores 87.5 ± 4.38, while the control group scores 76.1 ± 5.52, also with a significant difference ($p < 0.01$). In terms of "professional skills", the experimental group scores 85.8 ± 5.01, while the control group scores 74.3 ± 7.04, and the difference is also significant ($p < 0.01$). In the dimension of "teamwork", the experimental group scores 88.1 ± 4.65, while the control group scores 77.2 ± 6.91, and the difference is also significant ($p < 0.01$). In summary, the experimental group performs significantly better than the control group in all evaluation dimensions, indicating that the experimental group has more significant effects under relevant training or intervention measures.

5. Conclusion

This paper studies the innovation of talent training mode for business management majors, focusing on how to improve students' innovation and technology application capabilities through digital transformation and interdisciplinary integration. During the research process, we design and implement a series of experiments, and further improve students' abilities in technology application, data analysis, and interdisciplinary collaboration through means such as curriculum system optimization, practical teaching enhancement, and industry-education integration. Experimental data show that after the adjustment of the innovative talent training mode, students' actual employment ability has been significantly improved, especially in technology application ability and the ability to solve practical problems. However, this study also has some limitations. The results of the course adjustment are mainly analyzed through subjective evaluations of students and employers, and there is a lack of quantitative tracking of students' specific employment performance. Nevertheless, this study provides useful ideas and practical experience for the innovation of talent training models in business management majors, and contributes to the promotion of the cultivation of high-quality talents in the digital age. In the future, with the continuous development of technology and changes in market demand, talent training models will pay more attention to close connection with industry needs, and pay more attention to interdisciplinary, diversified and personalized teaching design, to further improve the quality and efficiency of talent training.

Acknowledgement

Project Number: CAWDKT2002
Project Title: Research on the Talent Cultivation Mode in Which the Industry-Education Integration Community Facilitates the Logistics Industry to Adapt to New Qualitative Productive Forces
Project Number: ZJ2024B120
Project Title: Research on the Innovation of Talent Cultivation Mode for Economics and Management Majors under the Background of the Digital Economy
Project Number: LnzkB202324
Project Title: Research on the Strategies of "Talent Revitalization" in Rural Areas of Yingkou

References

[1] Bouteraa A, Bouaziz F. Do talent management practices improve organizational resilience? An empirical study within Tunisian companies[J]. African Journal of Economic and Management Studies, 2023, 14(2): 271-288.

[2] Nieto-Aleman P A, Ulrich K, Guijarro-Garc á M, et al. Does talent management matter? Talent management and the creation of competitive and sustainable entrepreneurship models[J]. International Entrepreneurship and Management Journal, 2023, 19(3): 1055-1068.
[3] Febrian W D, Solihin A. Analysis of improving organizational culture through employee engagement, talent management, training and development human resources[J]. Siber Journal of Advanced Multidisciplinary, 2024, 1(4): 185-195.
[4] Ai T H, Le Hoa N T. Strategy of VIN University to attract talent in the northern market of Vietnam[J]. International Journal of Advanced Multidisciplinary Research and Studies, 2023, 3(1): 972-980.
[5] Abraham K O, Ufomba E R, Adubasim E I. Relationship between Talent Management and Organisational Performance in Hospitality Industry in Nigeria[J]. Academic Scholars Publishing League (ASPL) International Journal of Management Sciences, 2025, 12(3): 1-12.
[6] Howe-Walsh L, Kirk S, Oruh E. Are people the greatest asset: Talent management in SME hotels in Nigeria during the Covid-19 crisis[J]. International Journal of Contemporary Hospitality Management, 2023, 35(8): 2708-2727.
[7] Sembiring E, Damayanti N. Talent attraction, talent retention, and talent management as a mediating on organization performance[J]. Ultima Management: Jurnal Ilmu Manajemen, 2023, 15(1): 58-76.
[8] Ajayi-Nifise A O, Odeyemi O, Mhlongo N Z, et al. Digital transformation in banking: The HR perspective on managing change and cultivating digital talent[J]. International Journal of Science and Research Archive, 2024, 11(1): 1452-1459.
[9] Al Awadhi T H, Muslim S B. Reviewing the relation between human resources practices, talent management and succession planning in UAE public sector[J]. Information Sciences Letters, 2023, 12(4): 1271-1283.
[10] Lassleben H, Hofmann L. Attracting Gen Z talents: do expectations towards employers vary by gender[J]. Gender in Management: An International Journal, 2023, 38(4): 545-560.
[11] Basco R, Bassetti T, Dal Maso L, et al. Why and when do family firms invest less in talent management? The suppressor effect of risk aversion[J]. Journal of Management and Governance, 2023, 27(1): 101-130.