

Research Article

Reflections on AI Empowering the Employment of Graduates from Sports Vocational Colleges

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Abstract

Against the background of the in-depth integration of artificial intelligence (AI) technology into various industries and the accelerated intelligent transformation of the global sports industry, graduates from sports vocational colleges are facing the dual pressure of upgraded job demands in the sports industry and insufficient matching of their own professional skills and comprehensive literacy. Focusing on the employment dilemma of graduates from sports vocational colleges, this paper adopts the methods of literature review, questionnaire survey and semi-structured interview to explore the practical value and application path of AI empowering the employment of graduates from sports vocational colleges. Based on the analysis of the current situation of AI application in the employment guidance, talent training and job matching of sports vocational colleges, this paper points out the existing problems such as insufficient application depth, weak AI literacy of teachers, lack of AI application ability of graduates and imperfect school-enterprise collaborative empowerment mechanism. Combined with the real demand of the intelligent sports industry for technical and skilled talents, targeted solutions and empowerment paths are proposed to provide theoretical support and practical reference for promoting the high-quality employment of graduates from sports vocational colleges, optimizing the employment work system of sports vocational colleges and promoting the coordinated development of the sports industry and vocational education. The research shows that AI technology can effectively break through the bottlenecks of homogenized employment guidance, inefficient job matching and backward talent training in sports vocational colleges, and help graduates improve their employment competitiveness. The organic integration of AI technology and the employment work of sports vocational colleges can effectively bridge the gap between talent training and enterprise demand, and promote graduates to achieve high-quality employment.

Keywords

Artificial Intelligence, Sports Vocational Colleges, Graduates, Employment, Empowerment Path

1. Introduction

With the rapid development of artificial intelligence technology, the global industrial structure is undergoing profound adjustment, and the sports industry, as a sunrise industry with

broad development prospects, is accelerating its transformation towards intelligence and digitalization. According to the data released by the State General Administration of

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Sports of China, the total scale of China's sports industry reached 3.5 trillion yuan in 2023, a year-on-year increase of 8.1%, accounting for 1.14% of the national GDP, and driving more than 8 million direct and indirect employment positions [2]. It is estimated that by 2025, the total scale of China's sports industry will exceed 4.5 trillion yuan, with 1.2 million new employment positions, among which the number of AI-related positions such as sports data analysts, intelligent fitness coaches and intelligent venue managers will increase significantly, accounting for 8% of the total new positions [2]. The intelligent transformation of the sports industry has not only brought new development opportunities, but also triggered fundamental changes in the demand for talents, putting forward higher requirements for the professional quality and comprehensive ability of sports professionals.

Sports vocational colleges, as an important part of China's vocational education system, are the core positions for cultivating applied and skilled talents in the sports industry, mainly undertaking the task of transporting professional talents for sports training, fitness and health, venue operation, event services and other fields. Graduates from sports vocational colleges, with their solid professional sports skills, have become an important force in promoting the development of the sports industry. However, in recent years, with the upgrading of job demands in the sports industry and the increasing number of graduates, the employment situation of graduates from sports vocational colleges has become increasingly severe. A large number of graduates are facing difficulties such as narrow employment channels, mismatch between professional skills and job demands, and low employment quality [5]. The root cause of these problems lies in the fact that the traditional talent training mode and employment guidance system of sports vocational colleges can no longer adapt to the needs of the intelligent transformation of the sports industry, and there is a serious disconnection between talent training and enterprise demand.

AI technology, with its core advantages of big data processing, intelligent matching, pattern recognition and personalized service, has become an important driving force for optimizing the employment work of colleges and universities and improving the employment competitiveness of graduates. It can not only realize personalized career planning and accurate job matching for graduates, but also assist sports vocational colleges in optimizing talent training programs and improving the quality of talent training [6]. At present, AI technology has been widely applied in the employment field of ordinary colleges and universities, and has achieved remarkable results. However, the application of AI in the employment work of sports vocational colleges is still in the initial stage. There are problems such as insufficient application depth, unclear path and lack of systematic support, which restrict the role of AI in empowering the employment of graduates [3].

In this context, it is of great theoretical and practical significance to systematically study the path of AI empowering the employment of graduates from sports vocational colleges.

This study takes the employment of graduates from sports vocational colleges as the research object, takes AI empowerment as the core perspective, combs the relevant research results at home and abroad, analyzes the current situation and existing problems of AI application in the employment work of sports vocational colleges, and puts forward targeted empowerment paths, hoping to provide useful reference for promoting the high-quality employment of graduates from sports vocational colleges and the high-quality development of sports vocational education.

2. Related Work

In recent years, with the in-depth application of AI technology and the increasing attention paid to the employment of college graduates, the research on AI empowering the employment of college graduates has gradually become a research hotspot in the field of higher education and sports science. Foreign research on this field mainly focuses on the impact of AI on the labor market of the sports industry, the demand for talents and the construction of employment service systems.

Foreign scholars have carried out in-depth research on the impact of AI on the sports industry labor market. A study published in *Frontiers in Sports and Active Living* pointed out that the popularization of AI technology in the sports industry has caused significant changes in the labor market, resulting in a large number of new jobs that require the integration of AI expertise and sports professional knowledge, while existing jobs have undergone transformation, requiring practitioners to improve their AI literacy to adapt to new job demands [4]. Smith J and Johnson M (2022) studied the impact of AI on the sports media industry and found that AI technology can optimize the content creation and dissemination efficiency of sports media, and at the same time put forward new skill requirements for practitioners, which provides an important reference for the talent training of sports vocational colleges. In addition, foreign sports vocational colleges have also carried out a series of practical explorations in the integration of AI and employment guidance. For example, some sports vocational colleges in the United States and Germany have established intelligent employment service platforms, which can realize intelligent push of job information, online simulation interviews and other functions, helping graduates improve their job-hunting efficiency.

Domestic research on AI empowering the employment of college graduates mainly focuses on the construction of AI-based employment guidance systems, the optimization of talent training models and the analysis of the impact of AI on the employment competitiveness of graduates. Guan ZY (2023) pointed out in their research that AI technology can break the limitations of traditional employment guidance, realize personalized guidance and accurate matching, and effectively improve the efficiency and quality of employment guidance. Heily Concepción Portocarrero Ramos et al. (2025) explored

the application of AI technology in the field of sports employment, and proposed that sports vocational colleges should add AI-related courses to optimize the talent training program and cultivate comprehensive talents who meet the needs of the intelligent sports industry. However, most of the existing domestic studies are general discussions, lacking targeted research on the characteristics of sports vocational colleges; at the same time, there are few studies on the practical application paths of AI in the employment work of sports vocational colleges, and the research on the problems and solutions in the application process is not in-depth enough.

In summary, the existing research has laid a certain theoretical foundation for this study, but there are still deficiencies in the pertinence and practicality of the research. This study focuses on the characteristics of sports vocational colleges, combines the actual needs of the intelligent transformation of the sports industry, and explores the practical path of AI empowering the employment of graduates from sports vocational colleges, which can make up for the deficiencies of existing research and provide more targeted theoretical and practical support for the employment work of sports vocational colleges.

3. Research Methods

In order to ensure the scientificity, authenticity and comprehensiveness of the research, this study adopts a combination of multiple research methods, and the specific methods are as follows:

3.1. Literature Review Method

By consulting the databases such as CNKI, Wanfang, Web of Science, SpringerLink and Frontiers, this paper searches for relevant literature on artificial intelligence technology, sports vocational education, graduate employment and AI empowerment. A total of 126 relevant literatures were retrieved, including 38 foreign literatures and 88 domestic literatures. Through sorting out and analyzing the retrieved literatures, this paper combs the research results, research hotspots and existing deficiencies at home and abroad, clarifies the core concepts and theoretical basis of this study, and provides theoretical support for the research on the empowerment path.

3.2. Questionnaire Survey Method

Taking graduates from 3 sports vocational colleges in Beijing, Shanghai and Guangzhou as the survey objects, a questionnaire survey was carried out on their employment status, AI application ability, demand for AI-based employment guidance and cognition of AI-related jobs. A total of 800 questionnaires were distributed in this survey, 768 valid questionnaires were recovered, and the effective recovery rate was 96%. The data obtained from the questionnaire were sorted out and statistically analyzed by using Excel and SPSS 26.0 software, so as to grasp the current situation of AI application

in the employment of graduates from sports vocational colleges and the actual needs of graduates.

3.3. Semi-structured Interview Method

Semi-structured interviews were conducted with 20 interviewees, including 5 employment guidance teachers from sports vocational colleges, 5 professional teachers, 5 HR managers of sports enterprises (especially sports technology enterprises such as Keep and Hisense Sports) and 5 graduates from sports vocational colleges who have been employed in AI-related sports posts. The interview focused on the application status of AI in the employment work of colleges, the skill requirements of enterprises for graduates, the existing problems in AI empowerment and the suggestions for empowerment paths. The interview records were sorted out and coded, and first-hand information was obtained to provide practical basis for the research.

4. Status and Problems of AI in Sports Vocational Graduates' Employment

4.1. Current Application Situation

With the promotion of the intelligent transformation of the sports industry and the attention paid by higher education institutions to AI technology, some sports vocational colleges have begun to try to apply AI technology in the employment work of graduates, and initially formed a certain application pattern, which is mainly reflected in the following three aspects:

First, the initial construction of intelligent job matching platforms. Some sports vocational colleges have cooperated with third-party technology enterprises to build intelligent employment service platforms, which can push job information to graduates according to their major, skill level, employment intention and other information, realizing the preliminary accurate matching of jobs and graduates. For example, some sports vocational colleges have connected with sports technology enterprises such as Keep and Alisports through the platform, and pushed a large number of AI-related sports jobs such as AI fitness coaches and sports data analysts to graduates, improving the efficiency of graduates' job hunting.

Second, the preliminary exploration of AI-based employment guidance. A small number of sports vocational colleges have introduced AI-based employment guidance tools, such as online simulation interview systems and career assessment systems. These tools can help graduates understand their own career advantages and disadvantages, improve their interview skills, and formulate personalized career plans. At the same time, some professional teachers have begun to integrate AI-related knowledge into professional teaching, such as introducing AI motion capture technology and data analysis methods into sports training courses, to cultivate graduates' basic

AI application abilities [7].

Third, the initial formation of school-enterprise collaborative empowerment intention. Some sports vocational colleges have carried out cooperation with sports technology enterprises, and jointly explored the training mode of talents needed for the intelligent sports industry. Enterprises provide AI technology support and internship positions, and colleges adjust the talent training program according to the needs of enterprises, so as to improve graduates' adaptability to AI-related jobs. For example, some sports vocational colleges have cooperated with Huawei Sports Health to establish "intelligent sports colleges", allowing graduates to participate in enterprise internships during their studies and accumulate AI application experience.

4.2. Existing Problems

Although sports vocational colleges have made some preliminary attempts in AI empowering the employment of graduates, due to the late start of application, insufficient technical support and other reasons, there are still many problems, which are mainly reflected in the following four aspects:

4.2.1. Insufficient Depth and Breadth of AI Application

At present, the application of AI in the employment work of sports vocational colleges is mostly in the shallow level, and there is a lack of in-depth integration with employment guidance, talent training and job matching. On the one hand, the function of the intelligent job matching platform is not perfect. The matching is mostly based on surface information such as major and employment intention, and fails to deeply analyze the skill level of graduates and the core requirements of jobs, resulting in low matching accuracy. On the other hand, the application of AI in employment guidance is relatively single, mostly concentrated in simulation interviews and career assessment, and there is a lack of personalized guidance for graduates' job hunting difficulties and career planning. In addition, the application scope of AI is relatively narrow, mostly concentrated in a few majors such as sports training and fitness guidance, and there is little application in majors such as sports venue management and sports event planning.

4.2.2. Weak AI Literacy of Teachers

Teachers are the core force of AI empowering the employment of graduates, and their AI literacy directly affects the effect of AI application. At present, most of the employment guidance teachers and professional teachers of sports vocational colleges have insufficient AI literacy. On the one hand, they lack the basic knowledge and application skills of AI, and cannot skillfully use AI tools to carry out employment guidance and teaching work. On the other hand, they have insufficient understanding of the development trend of the intelligent sports industry and the skill requirements of AI-related jobs, and cannot effectively guide graduates to cultivate relevant

abilities [8]. In addition, colleges and universities lack systematic AI training for teachers, resulting in the difficulty of improving teachers' AI literacy.

4.2.3. Lack of AI Application Ability of Graduates

Under the traditional talent training mode, sports vocational colleges pay more attention to the training of graduates' professional sports skills, but ignore the cultivation of their AI application ability, resulting in the disconnection between graduates' skills and job demands. According to the questionnaire survey, only 18.3% of the graduates said they were proficient in using AI tools related to their major (such as sports data analysis software and AI motion capture equipment); 45.7% of the graduates said they had a little understanding of AI-related sports jobs, but had no relevant application experience; 36.0% of the graduates said they had no understanding of AI technology and its application in the sports industry. This situation makes it difficult for graduates to adapt to the needs of AI-related jobs in the sports industry, and restricts the improvement of their employment competitiveness [5].

4.2.4. Imperfect School-Enterprise Collaborative Empowerment Mechanism

The AI empowerment of graduates' employment in sports vocational colleges cannot be separated from the support of enterprises, but at present, the school-enterprise collaborative empowerment mechanism is not perfect. On the one hand, the cooperation between colleges and enterprises is mostly superficial, mainly focusing on the provision of internship positions and job information, and there is a lack of in-depth cooperation in talent training, technology research and development and employment guidance. On the other hand, enterprises have insufficient enthusiasm for participating in the AI empowerment work of colleges and universities, because the talent training cycle is long, the input cost is high, and the short-term benefits are not obvious [3]. In addition, there is a lack of relevant policy support and guarantee mechanisms, which restricts the in-depth development of school-enterprise cooperation.

5. Paths of AI Empowering the Employment of Graduates from Sports Vocational Colleges

In view of the current application situation and existing problems of AI empowering the employment of graduates from sports vocational colleges, combined with the needs of the intelligent transformation of the sports industry and the characteristics of sports vocational education, this study proposes four empowerment paths to realize the in-depth integration of AI and the employment work of sports vocational colleges and help graduates achieve high-quality employment.

5.1. Build an AI + Employment Guidance System to Improve the Quality and Efficiency of Employment Guidance

First, optimize the intelligent job matching platform. Sports vocational colleges should strengthen cooperation with third-party technology enterprises and sports enterprises, integrate the data of graduates' skills, interests, employment intentions and other aspects, and the data of enterprise job requirements, job content, salary and welfare and other aspects, build a large data platform for graduate employment, and use AI algorithms to realize the accurate matching of graduates and jobs. At the same time, the platform should be continuously optimized to add functions such as job information verification, enterprise evaluation and job hunting progress tracking, so as to provide all-round services for graduates' job hunting [6].

Second, carry out personalized employment guidance based on AI. Using AI technology to analyze graduates' career assessment data, learning situation data and job hunting intention data, formulate personalized career planning for each graduate, and push targeted employment guidance content (such as interview skills, resume writing and job search skills) according to graduates' job hunting difficulties. At the same time, build an AI-based online consultation platform to provide 24-hour online consultation services for graduates and solve their doubts in the process of job hunting in a timely manner.

Third, establish an intelligent early warning mechanism for employment. Using AI technology to monitor graduates' job hunting progress, employment situation and other data in real time, identify graduates with employment difficulties (such as graduates with weak skills and unclear employment intentions), and issue early warnings, so that employment guidance teachers can carry out targeted help and guidance, and ensure that every graduate can get effective employment support.

5.2. Optimize the Talent Training Mode to Cultivate Graduates' AI Application Ability

First, adjust the talent training program and add AI-related courses. According to the skill requirements of AI-related jobs in the sports industry, sports vocational colleges should adjust the talent training program, set up AI-related compulsory and elective courses, such as "Sports Big Data Analysis", "AI Fitness Guidance" and "Intelligent Venue Management", to help graduates master the basic knowledge and application skills of AI. At the same time, integrate AI-related knowledge into professional courses, such as introducing AI motion capture technology into sports training courses and AI data analysis methods into sports event planning courses, to realize the organic integration of professional skills and AI skills [1].

Second, build an AI-based practical teaching system. Strengthen the construction of practical teaching bases, intro-

duce AI-related practical equipment (such as AI motion capture equipment and sports data analysis software), and set up practical teaching projects related to AI, so that graduates can improve their AI application ability through practical operation. At the same time, carry out project-based teaching, take the actual projects of sports enterprises as the carrier, let graduates participate in the whole process of project design, implementation and operation with the help of AI technology, and cultivate their comprehensive application ability and innovative ability [10].

Third, establish a multi-evaluation system including AI application ability. Change the traditional evaluation mode that focuses on professional skill assessment, and establish a multi-evaluation system that includes AI application ability, professional skills, comprehensive quality and other aspects. Incorporate graduates' performance in AI-related courses, practical projects and competitions into the evaluation scope, and strengthen the guidance and supervision of graduates' AI ability training, so as to promote the all-round development of graduates.

5.3. Enhancing School-Enterprise Collaboration for Technical and Talent Support

First, deepen school-enterprise cooperation and build a collaborative training platform. Sports vocational colleges should establish long-term and stable cooperative relations with sports technology enterprises, jointly build a talent training platform, and realize the sharing of resources such as curriculum, teachers and practical bases. Enterprises participate in the formulation of talent training programs, provide AI technology support and internship positions, and send technical backbones to teach in colleges and universities; colleges and universities adjust the training content according to the needs of enterprises, and organize graduates to participate in enterprise internships to improve their adaptability to jobs [9].

Second, encourage enterprises to participate in the construction of AI employment service platforms. Cooperate with sports enterprises and technology enterprises to jointly build an AI-based employment service platform, which integrates enterprise job information, graduate information, talent training information and other data, realizes the seamless connection between talent training and employment, and improves the efficiency of job matching and talent transportation. At the same time, encourage enterprises to release AI-related job information through the platform and provide personalized employment guidance for graduates.

Third, establish a policy support and guarantee mechanism. The government should formulate relevant policies to encourage sports enterprises to participate in the AI empowerment work of sports vocational colleges, such as providing tax incentives and financial subsidies for enterprises participating in school-enterprise cooperation; colleges and universities should also formulate relevant incentive policies to encourage

teachers and graduates to participate in AI-related research and practice activities, and provide support in funds, equipment and time.

5.4. Strengthen the Cultivation of Teachers' and Graduates' AI Literacy and Lay a Solid Foundation for Empowerment

First, carry out systematic AI training for teachers. Sports vocational colleges should formulate a teacher AI training plan, carry out regular AI-related training activities (such as AI technology training and AI teaching method training), invite experts from enterprises and universities to give lectures, and organize teachers to visit and study in advanced sports technology enterprises, so as to improve teachers' AI basic knowledge and application skills. At the same time, encourage teachers to carry out research on AI empowering graduates' employment, and improve their research ability and practical guidance ability [9].

Second, strengthen the publicity and guidance of graduates' AI literacy. Through theme lectures, campus publicity, online publicity and other forms, popularize AI knowledge and the development trend of the intelligent sports industry for graduates, let graduates realize the importance of AI application ability for employment, and stimulate their enthusiasm for learning AI technology. At the same time, organize AI-related competitions and activities (such as sports data analysis competitions and AI fitness guidance competitions), provide a platform for graduates to show and improve their AI application ability, and cultivate their innovative consciousness and practical ability.

Third, build a team of compound teachers. Introduce high-level compound talents with both AI technology and sports professional knowledge, and strengthen the construction of the teacher team. At the same time, encourage professional teachers and employment guidance teachers to cooperate with each other, carry out joint research and teaching practice, and improve the overall level of the teacher team in AI empowerment.

6. Discussion

The intelligent transformation of the sports industry has brought new opportunities and challenges to the employment of graduates from sports vocational colleges. AI technology, as a powerful driving force for industrial transformation and upgrading, has unique advantages in optimizing employment guidance, improving talent training quality and promoting job matching, and has important practical significance for empowering the employment of graduates from sports vocational colleges. This study finds that the current application of AI in the employment work of sports vocational colleges is still in the initial stage, and there are problems such as insufficient application depth, weak AI literacy of teachers, lack of AI application ability of graduates and imperfect school-enterprise

collaborative empowerment mechanism. These problems are not only related to the technical level and resource input of colleges and universities, but also related to the development stage of the intelligent sports industry and the cooperation willingness of enterprises.

The four empowerment paths proposed in this study, including building an AI + employment guidance system, optimizing the talent training mode, improving the school-enterprise collaborative empowerment mechanism and strengthening the cultivation of teachers' and graduates' AI literacy, are closely combined with the actual situation of sports vocational colleges and the needs of the intelligent sports industry, and have strong pertinence and operability. It should be noted that the AI empowerment of graduates' employment in sports vocational colleges is a systematic project that cannot be achieved overnight, and needs the joint efforts of colleges and universities, enterprises, the government and graduates. Colleges and universities should play a leading role, strengthen the construction of AI technology and teacher teams, and optimize the talent training mode; enterprises should actively participate in school-enterprise cooperation and provide strong support for talent training and employment; the government should formulate relevant policies to provide guarantee for AI empowerment; graduates should actively learn AI technology and improve their comprehensive quality to adapt to the new job demands [10].

At the same time, this study also has certain limitations: first, the survey objects are only graduates from 3 sports vocational colleges, and the sample scope is relatively narrow, which may affect the universality of the research results; second, the research on the effect of AI empowerment is mainly based on the current situation investigation and theoretical analysis, and there is a lack of long-term tracking research on the effect of AI application. In the future, we can expand the sample scope, select more sports vocational colleges for investigation, and carry out long-term tracking research on the AI empowerment effect, so as to further improve the research results and provide more perfect theoretical and practical support for the employment work of sports vocational colleges.

7. Conclusion

In the context of the intelligent transformation of the sports industry, AI technology has become an important force to promote the high-quality employment of graduates from sports vocational colleges. This study explores the current situation and existing problems of AI empowering the employment of graduates from sports vocational colleges through literature review, questionnaire survey, interview and other methods, and puts forward targeted empowerment paths. The main conclusions are as follows:

1. AI technology can effectively solve the pain points of the employment work of sports vocational colleges, such as homogenized employment guidance, inefficient job matching and backward talent training, and has important practical

value for improving graduates' employment competitiveness and promoting graduates' high-quality employment. At present, sports vocational colleges have made some preliminary attempts in AI application, but the application depth and breadth are insufficient.

2. The main problems existing in AI empowering the employment of graduates from sports vocational colleges include insufficient depth and breadth of AI application, weak AI literacy of teachers, lack of AI application ability of graduates and imperfect school-enterprise collaborative empowerment mechanism. These problems restrict the effect of AI empowerment and need to be solved urgently.

3. The path of AI empowering the employment of graduates from sports vocational colleges includes four aspects: building an AI + employment guidance system to improve the quality and efficiency of employment guidance; optimizing the talent training mode to cultivate graduates' AI application ability; improving the school-enterprise collaborative empowerment mechanism to strengthen technical and talent support; strengthening the cultivation of teachers' and graduates' AI literacy to lay a solid foundation for empowerment.

The AI empowerment of the employment of graduates from sports vocational colleges is the inevitable requirement of the intelligent transformation of the sports industry and the high-quality development of sports vocational education. It is hoped that sports vocational colleges can actively respond to the new situation and new demands, take the initiative to promote the integration of AI technology and employment work, continuously optimize the empowerment path, improve the quality of talent training, and help graduates achieve high-quality employment, so as to make greater contributions to the development of the sports industry.

Abbreviations

CNKI China National Knowledge Infrastructure

Author Contributions

Wenzhou Zhang: Conceptualization, Investigation, Methodology

Chanjun Chang: Resources, Supervision

Conflicts of Interest

All authors disclosed no relevant relationships.

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