Research on the innovation of the meta-universe vocational talent training model from the perspective of resource dependence theory

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Abstract

With the proposal of "accelerating digital development and building digital China", China is doing its best to lay out the transformation and upgrading of education digitization and intelligence. The rapid development of frontier technology has promoted the change of industry-education integration in vocational education. Combining with the background of the meta-universe era, we introduce resource dependency theory to analyze the relationship between society, universities, and government in talent training mode. The frontier technologies such as virtual reality, artificial intelligence, big data, digital twin, etc. are used to explore the integration model and opportunities of vocational education industry-education integration, while innovative descriptions and creative imaginations are made for the future talent cultivation model of metaverse vocational education industry-education integration. Based on the resource dependency theory, the relationship between the metaverse and the integration of industry and education in vocational education is revealed based on "how to cultivate cross-border talents in the metaverse". There are more possibilities for classroom teaching in vocational education supported by new equipment and cutting-edge technology, which is important for innovative ways of talent cultivation, exploring new modes of talent cultivation, and establishing strategic layouts of talent cultivation.

Keywords: Metaverse; Vocational education; Talent training; Industry-education integration

1 INTRODUCTION

The Metaverse is currently one of the hottest concepts. The "Bulletin" believes that the Metaverse represents a new symbol, feature, trend, and format of technological revolution, industrial development, financial transformation, and social progress. The Metaverse is not only an aggregation of multiple technologies but also a convergence of various business rules. (Hou, 2022) The Metaverse is a large integration of emerging technologies such as virtual reality, artificial intelligence, big data, cloud computing, digital twins, the Internet of Things, and 5G networks, and the construction of these new types of infrastructure will significantly enhance computing power, display capabilities, interaction levels, speed, data storage capacity, and so on. Against the backdrop of Digital China, the concept of Edu-Metaverse, combining the Metaverse with education, has also begun to emerge, becoming an important educational philosophy globally. Edu-Metaverse refers to the application of the Metaverse in the field of education, where teachers, students, school administrators, and other relevant personnel create digital identities to engage in communication, learning, and interaction in virtual teaching environments. This educational activity integrates various intelligent technologies such as virtual reality, augmented reality, artificial intelligence, digital twins, and blockchain. At the inaugural Metaverse Education Frontier Summit in 2022, Song Maoen, Deputy Secretary-General of the China Internet Association, pointed out that the integration of the Metaverse and education can overcome spatial and temporal limitations in educational scenarios, reduce teaching costs, address disparities in educational resources, promote educational equality, and facilitate deeper interaction between teachers and students, achieving more effective mutual learning. (Zhang, 2022) Deepening the integration of industry and education is crucial for the reform, innovation, and development of vocational education in the digital economy era. To implement the "Opinions of the State Council on Promoting the Establishment of a Lifelong Vocational Skills Training System" and follow the requirements of "closely following the development changes of new technologies and new occupations, establishing a dynamic adjustment mechanism for occupational classification, and accelerating the development of occupational standards," the Ministry of Human Resources and Social Security of China plans to release information on 18 new occupations including robot engineering technicians in June 2022. Many of the newly announced occupations are digital professions generated by the development of the digital economy, such as digital twin application technicians, digital solution designers, business data analysts, and agricultural digitalization technicians. Guided by future industrial demands and aiming to cultivate interdisciplinary talents for the Metaverse, it is imperative to vigorously promote the training of high-skilled talents and increase the supply of high-skilled talents. The implementation of the school-enterprise cooperation talent cultivation model is the most typical representation of applying resource dependence theory to the field of education. (Bernard Marr, 2022) The complementary resources between schools and enterprises can promote innovative practices of talent cultivation in the Metaverse era, and the introduction of resource dependence theory explores new models of talent cultivation in vocational education-industry integration in the context of the Metaverse era, further promoting the development of vocational education-industry integration and school-enterprise cooperation in the Metaverse era.

2 Opportunities Brought to Vocational Education-Industry Integration in the Metaverse from the Perspective of Resource Dependence

The genesis of resource dependence theory can be traced back to the 1940s, referring to an organization's primary survival objective: to reduce its dependence on external critical resource suppliers and seek methods to influence these suppliers to ensure stable access to key resources. The publication of "The External Control of Organizations" by Jeffrey Pfeffer and Gerald Salancik in 1978 marked the formal establishment of resource dependence theory. The application of resource dependence theory in inter-organizational relationships often focuses on studying the relationships between corporate organizations, non-governmental organizations and governments, and networked economic organizations, as well as the role of these organizations in their internal and external environments (Analysis of the Impact Factors of Enterprise Undertaking Social Responsi-

bility in Vocational Education from the Perspective of Resource Dependency Theory). Resource dependence theory suggests that organizations rely not only on resources generated internally but also on those provided by the external environment. Organizations do not exist in isolation; they must be placed within relevant environments to obtain, absorb, and transform resources. By closely linking organizations with the external environment and forming a mutually dependent and influential resource network, organizations can grow more effectively(Huo Lijuan. Research on School-Enterprise Cooperation in Higher Vocational Education Based on Resource Dependency Theory.).

Resource dependence theory is highly relevant to the talent cultivation models in vocational education-industry integration under the Metaverse. In recent years, the popularity of the "Metaverse" has continued to rise and has even appeared as one of the "hot words" in the government work reports of various regions in 2022. Metaverse technology empowers industrial upgrading, livelihood services, and urban governance. The rapid development of the Metaverse promotes the digitization, intelligence, and informationization of various industries. The advancement of technology has significant effects on optimizing social resource allocation, promoting multi-party collaboration between schools and enterprises, and building and developing smart campuses. To vigorously develop the digital economy, local governments have proactively formulated numerous policies related to future fields such as quantum communication and the Metaverse, and the financial support for these initiatives has increased year by year, leading to the implementation of a large number of projects. Enterprises need to contribute to national development by building smart cities, continuously strengthening the research and development breakthroughs of key core technologies, and innovating exploration of cutting-edge technologies to accelerate the innovation and application of "Metaverse" related scenarios. As industries upgrade rapidly and adjustments accelerate, more and more people will join the "Metaverse" industry, including involvement in foundational architecture construction, backend infrastructure shaping, frontend equipment development, and scene content creation. To meet the needs of national and regional economic and social development and better satisfy the demand for high-quality higher education from the people, many universities have introduced elements of the "Metaverse" into their professional settings and adjustments in recent years. Universities focus on talent cultivation, and under the concept of integration of science and education, new talent cultivation models are more suitable for the development of the Metaverse era. Firstly, universities have the function of talent cultivation, but it is difficult to cultivate compound talents of the new era solely relying on their internal resources. The development of universities must rely on government policies and social funds. The source of university students comes from the external environment and can only rely on external supply. Ensuring sufficient student and financial resources is crucial as the base for talent cultivation. Governments and enterprises rely on the output of university talents and high-quality talents play a leading role in economic and social development. The quality of talent output serves as an evaluation indicator for universities. The cultivation of interdisciplinary talents in the Metaverse requires the joint support of universities, government departments, and enterprises, and there exists a resource-dependence relationship among the three.

2.1 Reshaping Metaverse Teaching Scenes and Restructuring Metaverse Teaching Methods under the Perspective of Resource Dependence

The main objective of the Metaverse virtual education knowledge circulation mechanism is to gather people together to learn in virtual scenarios of digital twins, which helps promote efficient knowledge circulation within social groups. Digital twins can create digital models for any physical or logical entity, whether it's a simple teaching object or a complex teaching environment. Relying on cutting-edge technologies in society, vocational education empowered by technology is likely to change the current teaching scenes and methods in universities. The transformation and upgrading of teaching scenes and teaching methods will alter the content, sensory experiences, and interaction modes of vocational education. The construction of virtual teaching scenes in Metaverse vocational education will make vocational education more immersive, and the possibilities of virtual teaching will be immeasurable. Virtual teaching scenes feature low cost and high efficiency, providing absolute advantages for teaching courses that are difficult to repeat, dangerous, or hard to realize,

such as medical diagnosis, flight training, astronomy, and large-scale mechanical construction. Under the empowerment of Metaverse technology, course design will become more complex, creative, and impactful, providing students with immersive and realistic learning experiences. Vivid learning experiences enable students to acquire more knowledge and practical skills, which is of great significance for students to quickly integrate into enterprises, adapt to enterprise operations, and cultivate new talents.

Digital technology empowers the transformation and upgrading of universities, while industry-education integration facilitates talent cultivation. Universities rely on digital technology from enterprises, and with the emergence of a large number of virtual education resources, teaching methods are also transforming traditional methods into intelligent, personalized, and dynamic ones. The teaching modes and experiences of excellent teachers will be AI-driven, trained into various styles of virtual digital teachers to match the needs of different types of students, realizing the transformation from single-teacher to dual-teacher or multi-teacher systems. Moreover, technological development is progressing towards conquering the human senses. Currently, there has been some development in virtual education equipment for vision and hearing in vocational education-industry integration. For example, the VR headset product Varjo Aero launched by the Finnish high-end headset manufacturer Varjo can provide immersive and realistic flight simulation experiences, which is significant for training pilots in learning and mastering high-difficulty driving techniques. The development of virtual education equipment for vision and hearing is becoming increasingly mature, but corresponding devices for touch, taste, and smell are still in the research stage. When all senses can be replicated and applied in virtual environments for vocational education, it will reconstruct the teaching methods of vocational education, providing infinite possibilities for student learning.

2.2 Relying on Various Resources to Promote Future Talent Cultivation and Create New Employment Opportunities

According to the data released by the Ministry of Education, the number of graduates in the 2022 academic year will reach 10.76 million, reaching a new historical high, and the employment situation is grim. Under the influence of the pandemic, the provision of job positions by enterprises has decreased, and the trend of job competition is more intense than before. The epidemic has exposed the weaknesses of traditional industries and accelerated the transformation of traditional enterprises into digital ones. 2021 marked the beginning of the metaverse era. Under the wave of the metaverse, technological innovation will inevitably drive the transformation of industrial structure, and the transformation of industrial structure will also inevitably require enterprises to introduce talents for the new era. The entity-based operation of industry-education integration should always focus on the "core business" of talent cultivation, and place the cultivation and construction of high-quality technical and skilled talents at the forefront of all work, responding to the expectations of all sectors of society with talents (Zhang, 2022) . To adapt to the development of the times and closely integrate with social needs, universities should jointly develop innovative courses for nurturing versatile talents with industry experts under the background of the metaverse era. Universities should develop interdisciplinary courses with professional characteristics, break the boundaries between traditional theoretical and practical courses, increase the proportion of practical courses, and adopt a new model of "industry-education integration + industry-academic cooperation" to foster students and promote the effective integration of theoretical knowledge and methods into the systematic application requirements of industries.

The premise for universities to obtain external resources is to have the ability to meet social needs. Based on the theory of resource dependence, the demand for enterprise reform and development has driven the innovation of vocational education. Multi-dimensional cooperation between enterprises, schools, and students has promoted the development of digital talent cultivation while deepening the integration of industry and education, ultimately contributing to social construction. In the future, the relationship between science and social needs will become increasingly close. Faced with the urgent need to solve numerous social, engineering, and technological problems, people have put forward stronger demands (Yan, 2020) for cooperation and integration between different disciplines. Therefore, to meet the rapid development needs of the metaverse, the key lies in the cultivation of cross-disciplinary talents for the metaverse. With the emergence of disruptive

technologies such as the Internet, artificial intelligence, and blockchain, higher education must cultivate students' cross-disciplinary integration capabilities, which are the foundation of advanced thinking skills. (Bai & Geng, 2020) Under the demands of society, learning a single discipline is no longer sufficient to meet students' needs. The metaverse era requires a large number of metaverse infrastructure builders, scene designers, NFT developers, virtual image designers, game designers, micro-behavior virtual designers, metaverse sales personnel, metaverse administrators, and so on. University students need the ability to analyze and solve problems from multiple disciplines to adapt to the development of a metaverse society. Therefore, as more and more people immerse themselves in the metaverse, it will create more new employment opportunities and job positions. Metaverse vocational education can help students grasp the rhythm of social development and cultivate versatile new talents with professional abilities, practical skills, and innovative consciousness to enter the metaverse era under the impetus of new technologies.

2.3 Seeking Multi-Source Resource Integration to Break Boundaries and Explore the Path to Educational Equity

The metaverse will greatly expand human activity space, leading to significant changes in people's worldviews, ways of thinking, and lifestyles. In addition to its impact on individuals, the Internet of Things and virtual worlds will change the operation mode of vocational education, promoting the development of vocational education and employment support. Scholars have proposed promoting the equitable development of vocational education in underdeveloped areas through the construction of "dedicated classrooms, master classrooms, and top-tier network classrooms" through industry-education integration and school-enterprise cooperation. These "three classrooms" use information technology such as the Internet and artificial intelligence to deliver high-quality educational resources to promote educational equity and improve teaching quality. (Zhao, 2022; Huang et al., 2022) In 2022, the State Council Office issued the "Implementation Plan for Rural Construction Action," emphasizing the promotion of deep integration of digital technology with rural production and life, continued implementation of digital rural pilots, further improvement of the quality and coverage of rural communication networks, and promotion of the extension of "Internet Plus" services to rural areas(Huang, et al., 2022). With the implementation of this policy, as smart devices are deployed and digital infrastructure is established, educational resources in rural schools and communities will also be significantly improved. In the future, metaverse vocational education is likely to narrow the gap in the application capabilities of urban and rural teachers and alleviate the problem of uneven distribution of educational resources, promoting educational equity and universal values. When digital identity replaces traditional identity, the social capital structure in students' real lives becomes less important, and the gap between poor and non-poor students will narrow.

K20 Educators, a globally inclusive learning platform founded in the United States, is developing a virtual world called Eduverse. Eduverse is a web3 virtual environment designed for educators, connecting education workers and coordinating professional learning, educational technology, work, and activities across the entire education sector. It helps education workers create, research, and share future learning concepts related to virtual worlds and distance learning, creating gamified virtual non-conference events and aiming to build the world's largest network of education workers and professional learning centers, facilitating knowledge sharing and breaking down global educational barriers. This interactive remote education combining practical teaching with virtual experiences can also help schools in remote areas access excellent teacher resources, improve the uneven distribution of educational resources, and promote educational equality. Global School Forum (GSF) is a UK-based company that provides educational support services, aiming to provide quality education to children in low- and middle-income countries through the Internet, striving to change students' learning outcomes, unleash their potential, and achieve educational equity. GSF plans to serve more students through Eduverse. Similar platforms to Eduverse include Gather, founded in San Francisco, California, USA, which creates a virtual school experience for educators and students. This gamified classroom format is popular among students, and its online virtual teaching experience is comparable to real classrooms. This new talent development model breaks the limitations of space and time, effectively integrates teaching resources,

and deepens the use of online teaching platforms, giving students more opportunities to access cutting-edge teaching information. Looking ahead based on the current situation, the technological development of the metaverse era will comprehensively and multi-dimensionally promote the transformation of talent development models.

3 THE METAVERSE BRINGS INNOVATIVE MODELS OF INDUSTRY-EDUCATION INTEGRATION

Since the late 20th century, digital technology has been driving teaching forward. In recent years, technologies represented by VR, AR, MR, and XR have been widely regarded as the epitome of the metaverse era. The introduction of smart devices in vocational education assures the cultivation of diversified, systematic, and cross-occupational compound talents, and is of great significance for promoting the development of employment in the metaverse. Virtual reality technology records rich educational process data, serving as the basis for evaluating educational efficacy, which in turn has led to a series of changes(Li, et al., 2022).

3.1 The New Form of Classroom Teaching Mode Constructed by Cutting-edge Technology

The classroom is the main battlefield of educational informatization and the primary place where technology integrates learning systematically. During the pandemic, technology has been crucial for continued learning. According to UNICEF, global education for 91% of students was interrupted due to the COVID-19 pandemic. As a result, both students and teachers must adapt to a new way of learning. Research has shown that the use of VR devices in the classroom has a positive impact on student exams and learning. Virtual reality teaching can break down barriers between subjects and help demonstrate how different theories can be applied to real-life situations.

British scholar Marr stated that the future metaverse will combine augmented reality (AR), virtual reality (VR), and artificial intelligence into an immersive imaginary world, which will have a huge impact on the development of educational technology. (Bernard Marr, 2022) Technological tools can help students establish a deeper connection and interaction with the learning content. For example, an AR application called Froggipedia developed by Apple's iOS system explores and discovers the unique life cycle and complex anatomical details of frogs. Students can study the internal organs of frogs without actually dissecting them, thus expanding their learning experience. Similarly, an application called SkyView, also developed by Apple's iOS system, allows students to explore the universe using augmented reality overlays of the night sky. Anyone can point their mobile device upwards to identify stars, constellations, planets, and even satellites. Steam, an American game software company, has designed a cartridge application that can be connected to VR headsets. The Steam VR Art Museum allows students to view world-class artworks at home or in the classroom without being limited by travel, crowds, or glass barriers.

The development and popularization of technological tools are likely to guide new directions for vocational education. Affected by the pandemic, the employment situation for university students is severe. Students inevitably need to interview when applying for jobs, and often there is only one chance to impress the interviewer. A student may have an excellent resume and be very suitable for the position, but if not adequately prepared for the interview, the chances of getting the job will be low. Therefore, the British soft skills training platform VirtualSpeech focuses on training communication skills such as public speaking, sales, and leadership. By building immersive and realistic virtual reality, it simulates interview scenes of large companies to help students improve their interview effectiveness. VirtualSpeech uses leading VR job interview applications to help students practice answering interview questions. Students can choose specific industries and answer competency-based interview questions to build confidence and practice critical thinking skills, learning concise and effective interview communication. Students can learn what to do and what not to do in interviews in 180° virtual reality online videos and practice multi-person interview speeches. They can upload their interview videos to VR applications for immediate interview assessment feedback. With the unique combination

of online courses and virtual reality practice, VirtualSpeech's VR job interview scenarios provide students with a unique immersive learning method, allowing them to practice answering hundreds of interview questions from top companies such as Google, Apple, P&G, and Deloitte in advance, reducing nervousness during real interviews and enhancing interview confidence. VirtualSpeech leverages the immersion of virtual reality to provide students with excellent opportunities to practice interview skills and receive feedback. Similar virtual interview platforms include HireVue in the United States and Convenient Noodle AI Interview in China, where more college students will practice and receive guidance on virtual recruitment on online platforms in the future.

The era of Industry 5.0 is imminent, with a vast digital network connecting people, things, and computing devices, and intelligent manufacturing and smart factories gradually emerging. Universities are important bases for talent cultivation. To adapt to the changes of the times and improve the effectiveness of talent cultivation, cooperation between schools and enterprises is an important way to cultivate innovative and intelligent talents.

3.2 The New Model of Practice Teaching Empowered by the Metaverse

Utilizing intelligent big data to develop cooperative practical teaching models between schools and enterprises, and cultivating innovative intelligent talents, first requires advancing the construction of AI campuses and the application of AI technology in teaching. Digital twinning technology, through cooperation between schools and enterprises, seamlessly connects the innovative ideas of university faculty and students with those of enterprise professionals in real-time, further deepening the digital transformation of universities and enterprises, and realizing the innovation-driven transformation of universities and enterprises based on the integration of the virtual and real worlds. School-enterprise cooperation in jointly developing cutting-edge practical courses such as artificial intelligence, big data, cloud computing, and edge computing can help students face challenges in practical environments, fully exercise their opportunities for insight and independent problem-solving abilities, improve the quality of student learning, better adapt to relevant work, and strengthen students' academic and career goals.

Virtual scenarios provide students with scenes that replicate real-world challenges, allowing them to gain firsthand experiences similar to those they may face in the future, and gain a deeper understanding of the characteristics of various industries during vocational education. This real-world experience is especially important for professionals such as surgeons. Medical students primarily learn in classroom environments, with limited opportunities for hands-on experience in surgery. The UK medical education platform Fundamental VR has pioneered a new way for medical students to immerse themselves in surgical experiences before entering the surgical ward, using multi-mode simulations incorporating VR, mixed reality, and mobile devices. They can observe surgeries and even view the surgical process from a first-person perspective. VR enables students to experience the feeling of surgery in advance, and simulated training not only instills confidence in students during their work but also equips them with the knowledge to address unexpected issues. Guangdong Ximmerse, a leading enterprise in the field of AR/MR interactive technology, addresses the demand for virtual simulation training in vocational education by leveraging MR mixed reality technology. Based on professional curriculum systems and matching practical software content, the company provides multi-mode, diversified virtual simulation teaching and training in project-based, task-based, game-based, assessment-based, and cooperative modes, solving the training difficulties of invisibility, inaccessibility, high cost, high-risk, and difficult collaboration, improving the overall quality of training, and enhancing the degree of virtual simulation informatized teaching. The company utilizes MR mixed reality technology to provide MR virtual simulation teaching for different education industries such as animal husbandry veterinary, automotive maintenance, management and business, and semester education, ensuring the effectiveness of teaching and training while fully utilizing school resources and saving education costs.

The virtual world provides students with the latest skills, preparing them for their careers and significantly increasing their employability "error tolerance." In simulation training, they can freely make mistakes with-

out harmful consequences but gain valuable lessons from them. Virtual scenarios provide a safe space for students to make mistakes and learn from them. Students expand the boundaries of learning space in realistic and delicate virtual scenarios, playing various roles and interacting and learning in different times and spaces, preparing themselves in advance for entering the workplace.

4 CONCEPTUALIZATION OF VOCATIONAL EDUCATION INDUSTRY - EDUCATION INTEGRATION TALENT DEVELOPMENT MODEL IN THE METAVERSE ERA

Technological advancements are reshaping our workplaces and altering the way businesses operate, and the global nature of commerce means more young people will seek employment in different locations and departments. Educational activities are no longer confined to classrooms but also involve learners' formal and informal learning activities in different scenarios and at different times.(Zhai, et al., 2022) The metaverse helps reflect learners' knowledge, abilities, qualities, and personalities from multiple perspectives. In the metaverse era, learners need to be innovative and adaptable to navigate the constantly changing labor market. Therefore, deepening the long-term mechanism of informationized school-enterprise cooperation is of great significance for promoting student progress and cultivating skills and mindsets that meet social demands. With the advent of Web 3.0, a plethora of platforms for acquiring vocational skills will emerge. Vocational education is no longer confined to physical campuses; students can learn from anywhere, making the world around them more open. With the promotion of cutting-edge technology, enterprises, and schools will be more closely connected and deeply integrated, and vocational education will become more creative and practical. In the metaverse era, career guidance teachers transition from being instructors to being guides. Teachers use virtual teaching environments to stimulate students' interest in learning, increase classroom participation, and help students acquire necessary vocational skills to be able to navigate future jobs.

4.1 Classroom Innovation in Vocational Education in the Metaverse

NVIDIA, the American artificial intelligence computing company, has launched the Omniverse platform for the metaverse, providing a foundational virtual world simulation and collaboration platform. Currently, Omniverse serves various industries, including warehousing and logistics management, industry, climate, and urban development. In the future, by integrating student blockchain digital identity information, Omniverse's digital twin technology may open up a new landscape for vocational education. Imagine this scenario: combining enterprise job requirements with student learning requirements, schools use NVIDIA's Omniverse to render 1:1 real-time vocational simulation scenes. After setting up the simulation environment, time frame, and scenario, teachers can conduct learning through virtual classrooms, promoting the quality of vocational education through group discussions, reflective journals, one-on-one tutoring sessions, group chats, and other methods. Feedback from intelligent learning systems encourages students to reflect on their actions and decisions. Vocational education classrooms supported by cutting-edge technology can provide students with a more realistic and engaging learning environment. The realistic, visual, and participatory nature of scenario-based classrooms can stimulate student interest, enhance classroom efficiency, and increase student participation in the learning process. Immersive experiential teaching will break free from the constraints of long teaching times, high costs, and scarce educational resources, bringing new development opportunities to vocational education.

4.2 Innovation in Industry-Integrated Teaching Practice

The deep integration of artificial intelligence and education continuously enhances the scientific nature of education, promotes the democratization of education, and provides new momentum for the intelligent development of education and the all-round transformation of old and new educational forms(Wang & He., 2022). The UK's VirtualSpeech, a soft skills VR training platform, has already demonstrated the embryonic form of metaverse vocational education in simulated interviews. If the equipment is further enhanced, the future de-

velopment prospects of vocational education are currently immeasurable. In April 2022, Finnish VR headset manufacturer Varjo announced the official launch of the metaverse streaming cloud platform (Varjo Reality Cloud). Suppose vocational education learning or workplace simulation interview teaching is conducted on this platform. In that case, career guidance teachers can immerse themselves in realistic 3D virtual interview scenes or vocational education learning places by wearing headsets. Career guidance teachers can transmit virtual interview scene data to students in real-time and update it through the Varjo meeting platform, allowing students to receive interview guidance from a "first-person perspective," replicating the exact feeling of a real workplace interview. This approach enables students to have a more intuitive, clear, and accurate understanding of the interview situation, thereby improving the effectiveness of career guidance. Varjo provides students with immersive interview simulation training, reducing cognitive burdens in education through immersive learning, and enabling students to achieve better vocational education results, preparing them adequately for future real-world job interviews. In addition to headsets, emerging devices such as haptic gloves, haptic skins, wristband-style AR sensors, AR glasses, and more are believed to play unique roles in the development of vocational education.

4.3 Precision Monitoring Creates a New Landscape for Student-to-Job Matching

Recruitday Metaverse is the Philippines' first metaverse technology job-matching platform, helping users access resources related to cutting-edge technology. Through platform data analysis, Recruitday Metaverse matches job seekers' skills with relevant positions. The platform creates a virtual space for tech professionals, matching potential employers based on users' skills and experience and arranging interviews. Job selection is determined based on users' interests, helping clarify their career goals and select corresponding employment opportunities. Randstad, the Dutch multinational human resources company, collaborates with Google Cloud through the blockchain smart contract platform Cypherium. By leveraging technologies such as digital identity and digital signatures, Randstad effectively matches talent with enterprise needs, enhancing the perception of both businesses and talent and achieving precise job matching.

In the wave of the digital economy, traditional employment models are greatly impacted, and job platforms play a crucial role as information intermediaries. Big data enables precise matching of job positions. By collecting student information using cutting-edge technology, schools can assess student situations, implement career education guidance, and adjust teaching content and corporate practices based on students' characteristics. Through industry-education integration, schools can focus on nurturing students' strengths, ultimately aligning their abilities with job requirements, which plays a significant role in promoting innovative employment service models. In the future, students will establish their digital identities, and tokenize unique experiences, achievements, works, and even evaluations from university professors into non-fungible tokens (NFTs). Companies and schools will derive career intelligence analysis results from refined student data, which will then be transformed into career prediction models. As the predictive capability of the models strengthens, the collected data on student career education becomes more abundant and accurate. Precisely grasped student career education data by schools plays an important guiding role in understanding students' career positioning, adjusting job matching, and analyzing the employment environment. Precise data also plays an important guiding role in adjusting teaching content and methods promptly and has significant practical significance in achieving a high degree of talent matching with enterprise positions.

5 CONCLUSION

As real life and virtual life become more closely integrated and increasingly interactive and personalized, vocational education will be presented in a completely new way in the metaverse. Universities need to help students adapt to the era and follow the trends of the times. Introducing the resource dependency theory, a school-enterprise cooperation system guided by the government can help explore and promote pilot projects integrating vocational education with the metaverse. Conducting integrated practices of industry and education under new technological concepts can continuously enhance the innovation and entrepreneurship

abilities of college students, which is of great significance for promoting innovation in the metaverse and education, entrepreneurship practice in the metaverse, and research transformation in the metaverse. By inviting experts to exchange and discuss new directions, models, and content of vocational education integration in the metaverse, analyzing big data on demand in various industries, establishing a metaverse vocational information think tank, deeply integrating digital technology into the teaching and research scenes of vocational education integration, promoting resource integration and sharing, and promoting the integration and transformation of industry, academia, and research resources, exploring the path to establish metaverse vocational education practice bases according to the demands of segmented markets. Integrated vocational education integration in the metaverse can promote the landing and development of vocational education applications in the metaverse, and through the deep empowerment of technology in education, promote the transformation of talent training models in all aspects and angles with cutting-edge technology, helping students become interdisciplinary and compound talents in the era of the metaverse.

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