

Research on the Path of The Digital Transformation of Education in The Era of Artificial Intelligence

Shaoyun Lin^{1,2}

¹ Ulaanbaatar Erdem University in Mongolia, Ulaanbaatar 11000, Mongolia

² Guangzhou Nanyang Polytechnic College, Guangzhou 510925, China

Abstract: The digital transformation of education is a process of driving the ecological reform of education through digital technology, so as to play the effect of education. This paper discusses the core concepts and challenges of the digital transformation of education. In the process of the digital transformation, schools face campus walls elimination, school boundaries continuously reconstruction, curriculum mode subversion, teaching practice restructuring, teachers' role transformation, professional ability needs to be reconstructed; students' ability weakening and learning ecology needs to be reshaped. Schools need to improve the digital infrastructure, build multiple digital platform, strengthen the systematic training of teachers, to carry out the integration of multimodal learning analysis of learning process tracking, provide man-machine collaborative personalized learning support and service four ways to build intelligent campus, comprehensive innovation teaching space, improve teachers' quality, create learning ecology at full speed.

Keywords: Era of artificial intelligence; digital transformation of education; path research.

1. Foreword

The application of big data is in the ascendant, and artificial intelligence has quietly arrived. With the ChatGPT fire circle, Sora, Wen Xinyi, Midjourney, Firefly, and other innovative AI products appeared. The AI storm set off on the Internet has swept all corners of the world. Artificial intelligence has gradually penetrated into various fields of society, causing profound changes in the economic structure, social life and working methods, and reshaping a new pattern of world economic development. The important role of artificial intelligence in global development has attracted widespread attention and high attention internationally. Many countries have promoted artificial intelligence into national strategies, introduced relevant policies and plans, and strive to seize the commanding heights of science and technology. The United States has promulgated the "Preparation for the Future of Artificial Intelligence" and "Strategic Plan for National Artificial Intelligence R & D". The European Commission has formulated the Sparc robotic innovation plan. The British and German governments have formulated the "Modern Industrial Strategy" and "Industry 4.0" respectively. In the plan, the Japanese government planned an artificial intelligence industrialization route and deployed a super intelligent society. The Chinese government released the "New Generation Artificial Intelligence Development Plan" on July 8, 2017, indicating the key tasks of my country's development of artificial intelligence and comprehensively deploying the development plan. Important strategic measures of discourse rights.

Under the impact and influence of the wave of artificial intelligence, the field of education is undergoing a deep change, and technology is reshaping the new form of education. In this context, school education should seize the opportunity, keep pace with The Times, adjust the educational objectives, improve the curriculum system and teaching mode, so as to realize the digital transformation and high-quality and balanced development of school education in the era of artificial intelligence. And this needs based on the profound

connotation of education digital transformation, understand the development trend of wisdom education, the correct understanding of the school education digital transformation facing the potential challenges, on this basis, according to the right path to promote teaching reform, the future education is promising education — this is this paper tries to try to complete the task.

2. Digital Transformation of Education and The Development Prospect of Smart Education

Driven by smart technology, the education sector is undergoing major changes in the digital transformation. This transformation not only affects the future talent training, knowledge dissemination and individual learning path, but also has an important strategic significance for social development and national competitiveness.

2.1. The Connotation of the digital transformation of education

As a concept of dynamic evolution, the connotation of educational digital transformation is also increasingly enriched with the deepening of technological progress and educational practice. Relevant experts and scholars dig into the connotation of the digital transformation of education, pointing out that the digital transformation of education is not a simple digital upgrade of traditional education models and methods, but a systematic change involving strategic planning, cultural transformation and capacity construction. First of all, the digital transformation of education is a process in which the education field actively adapts to the trend of the new round of scientific and technological revolution. Active adaptation as the core concept of digital transformation means that the field of education takes the initiative to carry out forward-looking exploration and practice of scientific and technological change, and shape a new business model with deep integration and two-way empowerment. Intelligent technology enables education practice innovation, gaining the

power of self-renewal; self-innovation in the field of education feeds back the development of intelligent technology, becoming the key force to promote the development of technology iteration, and laying a solid foundation for building an intelligent, inclusive and sustainable education ecosystem [1]. Secondly, the digital transformation of education is a systematic and fundamental change. It involves the innovation and improvement of educational concept, educational content, educational mode, educational evaluation and other aspects, which fundamentally changes our understanding of education. With the advent of the era of artificial intelligence, the concept of education presents new features such as the concept of outstanding knowledge, the learning concept of intelligent connection, the concept of open curriculum and the teaching concept of man-machine collaboration. These new characteristics make education no longer limited to the traditional knowledge transmission and skill training, but turn to the teaching mode that focuses on the all-round development of learners, personalized learning and man-machine collaboration. Finally, the digital transformation of education is a continuous process of deconstructing the old learning environment and building a new generation of learning environment. The digital transformation of education needs to constantly adapt to the needs of learning subjects and provide them with better educational support and services. The digital transformation of education should focus on the main business of education and teaching, build a three-dimensional and comprehensive teaching field, and form a learner-centered learning environment. The new generation of learning environment will usher in new technological breakthroughs in multi-modal perception, whole-chain analysis, cross-field integration and human-machine collaboration. These new technologies will promote the reform and upgrading of the learning environment, and provide better support and service [2] for education.

2.2. The development trend of intelligent education

The new technology represented by generative artificial intelligence provides more possibilities for intelligent education, and makes intelligent education present a personalized and ubiquitous development trend. At present, the academic research of intelligent education is in a period of vigorous development, the international community's awareness and acceptance of the research of intelligent education is constantly improving, and a cross-border research community is gradually forming. Intelligent education, as an obvious feature, is becoming more and more obvious, and has initially formed its own research object, theoretical system, discourse system and research methods. At the same time, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, China's smart education has gained new development opportunities. The coordinated development of digital economy, digital industry and smart society as well as the demand for innovative talents in the future have laid a solid foundation for building China into a strong educational country. At present, intelligent education is in a period of profound changes. Artificial intelligence technology enables the education industry, big data supports accurate decision-making, and man-machine collaborative teaching has become a reality. Digital literacy and skills require learners to shift from passive acceptance to active innovation. Learning mode,

teaching mode and education governance mode are all facing reconstruction. The new generation of smart campus, hybrid online and offline (OMO) model, ubiquitous learning environment, borderless schools and other new education models are gradually taking shape. In the future of education, we may adopt OMO education, "short video + live broadcast", "5G + VR / AR / MR" technology, holographic education, robot "teacher", mobile online learning, flexible teaching and active learning, and educational universe, and other forms of [3]. Educators should take the initiative to adapt to the changes of The Times, use technology to empower towards excellent education, and build a sustainable intelligent education ecosystem.

3. Potential Challenges of The Digital Transformation of School Education

While digital technology enables, enhances and reshaped education, it also produces a series of destructive to the original school education model. At present, school education is faced with the difficulties of elimination of campus boundary, subversion of curriculum mode, transformation of teachers' roles and separation of students' ability, which hides the challenges of rebuilding school space, reorganizing teaching practice, reconstructing professional ability and reshaping learning ecology.

3.1. Campus boundary is eliminated, and the school space is continuously rebuilt

The factory-school model attaches too much importance to the central position of formal curriculum and formal learning, and inadvertently spread the concept that "learning stops abruptly at the moment when it leaves school", which has become a resistance to the construction of a lifelong learning society. In the digital age, the physical walls of schools collapsed and became an opportunity for the high-quality development of school education. From the life campus in the agricultural period, to the wall campus in the industrial age, to the global campus in the information age and the digital intelligence era, the school education has experienced the transformation process of "no wall- -no wall- -no wall" [4]. However, the "no wall" education at the beginning and end is not the same. The former is the state of life education, while the latter is the state of school education with school as the center formed after strict and standardized knowledge classification and functions. The transformation from "no wall" to "no wall" makes the educational activities get rid of the shackles of time and space, and return to the origin of education. Schools have always played a central role in education, but with the advent of the era of artificial intelligence, they have completely lost their original functions. In this predicament, it puts us in the fear that the physical schools are dying out. Such concerns are not unfounded. Since the wave of information technology carries the Internet into schools, the walls of schools have begun to collapse. Especially in the digital age, the boundary of time and space in traditional school education has been completely broken, some educational functions of schools are differentiated, and their credibility is weakened. For example, the knowledge reserve function of the library is partially replaced by electronic books, and the collective teaching function of the classroom is scattered by the online conference room. Influenced by the influence of virtual network culture, the educational space of physical schools weakens the

controllability of students' learning activities, and poses challenges to the recognized and standardized academic level and teaching quality. However, the collapse of the campus wall does not mean the feasibility of establishing virtual schools. Physical schools provide students with face-to-face social and emotional communication opportunities, which cannot be realized in the virtual digital campus space. It can be seen that physical schools are still and will always be the most basic place for students' social activities [5]. In order to meet the so-called privilege challenge of face-to-face education, some scholars have put forward the concept of "bounded space, cyberspace and mobile space" [6]. Boundary space emphasizes the physical limitations in the school environment. Online education led by information technology makes cyberspace accepted and rationally applied by schools, while digital technology dominates the flow space — a place where the boundary and network nodes are constantly changing, surpassing the dichotomy of bounded space and cyberspace. Mobile space takes the readable digital data resources related to education as the key element, and relies on the allocation of educational space as a fully sensing and programmable environment to carry out educational and teaching practice. Digital technology cleverly connects the physical space and cyberspace, complementing and cooperating, across the concept of distance, and the time horizon of schooling. In essence, the digital transformation of the campus is the inheritance and transcendence of the physical space and the network space. The campus has shifted from a campus with physical walls to an Internet-assisted online campus, and is now gradually moving into a physical and virtual digital campus with blurred digital boundaries, when the school becomes an open office. School educators should seriously think seriously about what it means to have a global campus that extends from material to digital, how to continuously reconstruct the boundary of school campus in the mobile space, and reshape the school education ecology in the digital age has become one of the important challenges of contemporary schools.

3.2. Subruption of curriculum mode and reorganization of teaching practice

Digital school education has completely overturned the traditional teaching mode of "one piece of chalk, one platform, a ruler" and "teacher teaching and student learning", and turned the course teaching into a learner-centered mode. Before the Internet was involved in the school curriculum teaching, the course teaching was mainly carried out around the classroom physical space, and the teaching was carried out in the form of face-to-face teaching between teachers and students. This "classroom" course is a large-scale class teaching format of subject teachers, using the same teaching method to teach all students as "one person". Digital course has broken the formatting, immobilized course mode, personalized course and panoramic scene perception teaching allows students with different rhythm to master the learning content, realize the specific care to the individual students, effectively avoid the "underachiever digest, eugenics don't have enough to eat" [7]. After the digital transformation, the school curriculum has gradually changed from the original "lesson for one thousand" to "thousand thousand", and from the course for everyone to the course [8] for everyone. Using digital technology to carry out new teaching indicates the reform and rebirth of school curriculum teaching. Today's school education is conducted in many ways through software

programs written in code and relies on algorithms to implement its functional [9]. Test scores, class attendance records, body and mind check reports, and even online course clicks were translated into data and inserted into the algorithm program to produce personalized learning courses based on each student's unique data profiles. Digital for course teaching provides a time-saving "robot teacher", it not only can automatically evaluate homework, question answers, etc., provide immediate feedback and personalized academic advice, can also scientific analysis learning data, mining hidden course learning mode and trend, through the prediction function improve personalized course and teaching services. In addition, the AI system relies on multi-modal sensors to collect students' learning data, analyze students' learning status, and help teachers achieve the best presentation of teaching content, teaching methods and communication strategies. In this context, the concept of pre-specified curriculum is being overturned, and the concept of curriculum is increasingly inclined to the "running process" rather than the pre-specified "track". It should be noted here that the personalized course teaching mode is not the subversion of the preset learning results, but the emphasis on the generative and individual training goals, and also the implementation of teaching and teaching in accordance with their aptitude. Under the influence of the digital algorithm machine, the course teaching has opened the difficult transformation from the homogenized "classroom" mode to the personalized digital mode. From the original centralized classroom teaching to the scenario-based micro-course learning supported by digital technology, it is difficult to systematically construct the fragmented courses acquired by students in the personalized learning, and it is difficult to carry out the corresponding personalized course evaluation. The environment of teaching activities has become a combination of virtual and real conditions. In such a teaching space, how to deal with the relationship between teachers and students and how to ensure the presence of students have become the key issues of innovative curriculum teaching mode under the background of contemporary digital education. The digital form of education is not driven by increased productivity or the desire to replace teachers, but by [10] driven by teaching exploration of creating knowledge and ways of existence. How to balance the traditional centralized and standardized "classroom" curriculum teaching mode with the digital scene and personalized digital curriculum teaching mode, and reorganize the curriculum teaching practice has become a major challenge in the digital transformation of school education.

3.3. Teachers' role change, and their professional ability needs to be reconstructed

Artificial intelligence and teachers' wisdom blend together and grow together. As an advanced form of digital technology, artificial intelligence has redefined the role of teachers in The Times, enabling teachers to focus on the task of emotional education, and adhering to the original teaching intention of cultivating people by virtue. On the one hand, artificial intelligence can help teachers complete some mechanical repetitive labor, mainly for online classroom management, including course registration and student attendance; intelligent learning resource organization, including student check-in and task assignment; automatic scoring of many simple tests such as multiple choice questions, reading and

writing. These help teachers unload their administrative burden, let them focus on the face-to-face teaching with students, improve the difficult part of the other hand, artificial intelligence can assist students to collect, process and analyze their learning data through the functional externalization of human information construction ability, and provide reasonable educational reference for teachers by constructing "portrait" and customized personalized programs. Artificial intelligence assumes the function of knowledge information database. The massive learning resources and distance education mode of online platforms such as MOOCs make teachers not have to spend a lot of energy to become "encyclopedia", but to explore and construct the significance of curriculum together with students. In addition, ai education products and professional platforms can give full play to the teaching function of knowledge teaching and answering questions, and assume the traditional role of "teaching" and "clarifying" of teachers. On the other hand, teachers can use the prediction and evaluation function of digital technology to reflect on and improve the curriculum, pay more attention to the accumulation of their own educational experience and teaching wisdom, and return to the original intention of teaching. On the whole, artificial intelligence makes the teaching process more efficient and charming, and to a certain extent, it reduces teachers 'sense of job burnout, fundamentally achieves the effect of burden reduction, and provides a good opportunity for teachers' professional growth. However, with the advent of the fourth education revolution, many predictions suggest that the teaching profession will disappear with the development of artificial intelligence. The constant development of algorithmic culture seems to create the possibility of automated education, that is, to create "heartless educators". Digital technology-driven artificial intelligence is not only "erudite", but also good at teaching, which makes teachers faced with the dual dilemma of losing their subject status and teaching status. Especially with the diversification of information channels, teachers are no longer the only practitioners of official policies and curriculum standards in teaching, as well as the authoritative owners of legal knowledge. The channels for students to learn in advance and expand learning increase, and students are likely to master the knowledge areas not involved by teachers and replace teachers to gain knowledge voice. In the old education system, the public formed the stereotype of teachers as the owner of authoritative knowledge. Once the teachers began to frequently express their "not knowing", it would damage the teachers' prestige to some extent and lose their "control" over the students. In the face of the extensive integration of artificial intelligence in the teaching process, teachers' attitudes are polarized. Some teachers rely too much on artificial intelligence and show complete subjective tolerance for automated systems. On the one hand, they thanked the artificial intelligence for assisting them to successfully complete the repetitive and boring work. On the other hand, they relied on the "machine rationality" of artificial intelligence to carry out interactive work such as scoring and attendance, and relied on the scientific judgment and decision of the machine to avoid the negative impact of personal emotions. Some teachers are negative, resistance to artificial intelligence, for lack of confidence, think artificial intelligence not only squeezed their professional space, replaced their jobs, and changed their familiar with the work field, put forward higher requirements to the teaching work, thus produced more serious job burnout. In fact, it is

impossible to eliminate the role of human teachers in education in the era of digital intelligence. Due to the human communication attribute of education, no matter how intelligent educational software is, it cannot replace the role of human teachers. However, there is no doubt that AI will change the work form of teachers and promote the biggest change in the teaching profession. The emergence of virtual education space does not mean that teachers no longer need to be on the site to carry out teaching. On the contrary, digital technology makes the teaching role of teachers more important and undertakes more core emotional teaching tasks in the face-to-face classroom interaction with students. The inclusion of digital technology and artificial intelligence in the educational environment requires teachers to accurately grasp the role of teachers in The Times, and how to realize the professional development of teachers in the digital environment has become a difficult problem.

3.4. Students' ability is weakened, and the learning ecology needs to be reshaped

Industry 4.0 has subversively changed the teaching mode and field, and also brought the learning mode into the more personalized, ultra-high intelligent, portable, global and virtualization stage [11]. First of all, artificial intelligence effectively integrates individual information search and construction ability, integrates and equalizing the corresponding capabilities, and realizes the generalized domestication of [12]. Since ancient times, the challenge of space seems to mean that only a few economically rich and conscious people can enjoy the right to "travel" across distance. Digital technology easily breaks down this class difference and provides every student with an equal opportunity to learn beyond time. Secondly, big data has unique advantages in supporting personalized learning and adaptive teaching [12]. The adaptive learning system driven by digital technology is gradually taking shape, which will eventually fundamentally change the learning style of students, so that each student can conduct deep learning according to their own pace and interests. The operation of digital algorithms and automated programs make information acquisition simple. Speech recognition, visual simulation, expert system, natural language processing and other technologies make information processing fast and accurate, providing unprecedented convenience for students' learning. By facial emotion recognition, automatic difficulty adaptation and stealth assessment technology of artificial intelligence integrated management system, from the learning performance, learning motivation, self-efficacy, cognitive load, and other aspects to collect students 'learning characteristics, through the learning data framework to monitor the students' learning progress, evaluate the students 'learning level, predict the students' learning trend, to assign adaptive learning tasks.

At the same time, the continuous penetration of digital technology and the continuous expansion of learning space pose a challenge to students' digital literacy. Students with insufficient digital literacy have poor performance in both digital adaptability and self-management ability, and are too dependent on large-capacity storage and automated operation procedures of artificial intelligence. They began to be used to storing and thinking about a lot of content without relying on their heads, but replacing their own knowledge construction process with the automation of algorithm programs, taking the automatic output of AI as the result of learning, and

producing the utilitarian idea that achieved the final learning effect with the least energy. In the digital wave, students become the tide riders with ease, soak in the ocean of knowledge, but lose the consciousness and ability to set sail and even roam. It can be seen that the functional externalization of artificial intelligence on students' information construction abilities will, to some extent, lead to the withdrawal of non-logical intuitive construction abilities. The direct presentation of artificial intelligence to knowledge and decision-making not only brings great convenience, but also leads to machine rationality, which to a large extent makes students lazy in thinking and weakens part of their thinking ability.

On the other hand, digital education, to some extent, constructs adaptive learning systems in a way of de-socialization and de-scenario. Artificial intelligence technology uses the structure containing the knowledge and experience of human experts to simulate the human thinking process, and realizes human-computer interaction with students through questions and answers. In the man-machine dialogue, individual learners interact with the learning content in a closed environment, and students appear as an individual identity divorced from the society, which can be independent of the social space implied in the classroom, family or community. In the virtual digital learning space, the socialization function of education is seriously weakened, and students are forcibly implanted into the set social, cultural and political order, students' consciousness and ability to independently conduct social interaction are weakened, and the growth of students' social emotion is affected. Long-term interaction between students and soulless AI machines will lead to the loss of social skills and the weakening of values. In addition, artificial intelligence itself has no moral consciousness and social emotion. Even if the so-called correct values are embedded in the algorithm culture of digital technology, this content is difficult to be explicit as data for algorithm analysis and judgment, which cannot guarantee that artificial intelligence can complete the task successfully. It can be seen that the digital environment driven by artificial intelligence support changes the learning experience and results by influencing students' learning thinking and learning style, while schools need to build a "learning ecosystem" [12] by promoting the coevolution of learners and learning environment to promote the sustainable development of education. How to effectively build an intelligent learning ecology and make rational use of artificial intelligence software and platforms to provide personalized learning services has become an urgent problem to be solved in the process of promoting education digitalization.

4. The Construction Path of The Digital Transformation of Education in The Intelligent Era

The rapid development of artificial intelligence technology has brought many opportunities and challenges to the digital transformation of education, and has also made the path of the digital transformation of education complicated and uncertain. Schools should grasp the education change opportunity, by perfecting the digital infrastructure, build multiple digital platform, strengthen the systematic training of teachers, to carry out the integration of multimodal learning analysis of learning process tracking, provide man-machine collaborative personalized learning support and service four

ways to build intelligent campus, full, full, comprehensive, full, full speed to promote the digital transformation of school education, creating new ecological school of wisdom education.

4.1. Improve the digital infrastructure and build a diversified digital platform

The school is a complex learning community, the construction of intelligent modern school environment, to build a student center intelligent campus is the key to achieve the quality and efficiency of school education, transformation and upgrading [8]. Create a campus smart education ecosystem by improving the internal digital infrastructure. The improvement of digital infrastructure, such as the comprehensive coverage of broadband network, the increase of intelligent equipment and the construction of multi-functional venues, is the necessary content of promoting the construction of intelligent campus, and also the basic element to increase the initiative and participatory teaching content in intelligent education. First of all, in terms of hardware, smart glasses, wearable devices, mobile tablets, VR glasses and other hardware devices can further simplify the collection, integration, support and analysis of data in the learning platform. In terms of software, the school selects and improves the intelligent tutoring system and adaptive learning system as much as possible; secondly, based on the improvement of digital infrastructure, the school needs to gradually establish four platforms. First, the use of social education information technology, the joint construction and sharing system, Establish a school digital resource platform for shared storage and sharing, Convenient for school administrators, teachers and students to inquire and use anytime and anywhere; Second, to establish a school-led cloud monitoring platform for home-school-community cooperation, Using big data and artificial intelligence technology to carry out long-term intelligent monitoring of the school's sustainable development, teachers' professional growth and students' lifelong development, Regular reflection and adjustment; Third, the establishment of campus intelligent teaching platform, Promote the mixed teaching mode of combining virtual and reality, By designing intelligent teaching framework, innovative digital teaching tools, developing learning prediction models, strengthening online learning platforms, building virtual laboratories and other digital technology means, Enrich the course resources, Expand the learning field, Monitor the progress of the students, Assign the adaptive learning tasks, Improve students' learning motivation and participation; Fourth, to establish a teaching and research cooperation platform beyond the school wall, Stimulate teachers' innovative experience, Let the teaching wisdom of teachers in the digital practice. The teaching and research community under the digital space is the key node of the current digital transformation of education. In the later stage of the educational intelligent system still needs to be continuously improved, upgraded and maintained, so as to keep pace with The Times and provide the most basic guarantee for education and teaching.

4.2. Optimize the systematic training of teachers and comprehensively improve digital literacy

Teachers are the key driving force for the digital transformation of educational schools, and they play the role

of strategic decision makers in developing curriculum resources and carrying out teaching activities. In teaching activities, it can help promote the generation of students' digital literacy to a large extent, and cope with the challenges such as ability separation and social separation brought about by digitalization. Schools should organize and carry out systematic training of teachers' plain character ability to effectively improve the digital literacy of the overall teachers. The key to improving teachers' digital literacy is to regard it as collaborative and continuous practice. In the context of digitalization, schools need to first clarify that artificial intelligence has brought revolutionary changes to the training work, tailor long-term training programs for teachers with the help of digital technology, and provide close follow-up support. Secondly, update cognition and change teachers' teaching thinking and methods, especially for senior teachers with long-term traditional teaching experience. Thirdly, to enhance teachers' awareness and ability of rational use of digital technology in teaching practice. The digital gap status of teachers and their familiarity with technical equipment will affect the enabling effect of digital technology on school education. So training to provide the operation principle of digital equipment and platform, including learning prediction system, concept mapping tools, computer-aided test system, online ilation system, etc., let the teacher on the basis of theoretical knowledge training consciously, actively change technology in the practice of consciousness, through many training, mastery, and accurately selection and application of these tools. At the same time, the teaching experience and wisdom of senior teachers will be integrated into the decision-making process of the intelligent system, so that the learning system can act as the intelligent mentor, and realize the symbiosis and longevity of artificial intelligence and teachers' wisdom. Another key point of the training is to help teachers master the ability to reflect on the relationship between teaching and learning in the digital environment, and to adjust their teaching methods, teaching contents and teaching tools with excellent tools such as Microsoft AI Tay chatbot.

4.3. Carry out the learning process tracking of integrated multimodal learning analysis

In the current transformation wave of digital education, it is particularly important to carry out the learning process tracking of integrating multi-modal learning analysis. Multimodal itself is an objective symbol system with rich connotations and various forms, and its unique representational ability has attracted much attention in the educational field today. In the context of digital transformation of education, the accompanying data acquisition equipment can be used to perceive and collect multi-modal visual, auditory and tactile information in a non-interventional way to intelligently identify the learning state of learners, so as to make a comprehensive, objective and fair analysis and evaluation of the learning process. Through a comprehensive and objective analysis and evaluation of the learning process, we can not only fully grasp the learning status of learners, but also provide more accurate and personalized educational support for the problems and puzzles in learning. This can not only help to improve the learning efficiency, but also can stimulate the learners' interest in learning, and promote the improvement of their independent learning ability. In general, the application of multi-modal technology provides a new and efficient learning mode for teachers and students, making personalized

education possible, injecting new vitality and learning problems into the sustainable development of China's education cause, and providing more effective learning support and personalized education for teachers and students.

4.4. Provide personalized learning support and service of human-machine collaboration

This path emphasizes the complementary characteristics of human intelligence and machine intelligence, and on this basis, aims to effectively integrate the two in the field of education. It advocates the efficient interaction and cooperation between the teaching subjects and the intelligent learning system, so as to achieve the overall improvement of the education quality. Specifically, we can use artificial intelligence, big data, cloud computing and other cutting-edge intelligent technologies to build a learning system with highly intelligent features, and then provide personalized and adaptive learning support services. In this process, through in-depth analysis of learners' learning behavior and feedback information, we can accurately identify their learning needs and difficulties they face. Next, according to the personal characteristics of learners, we can customized provide learning resources and strategies that meet their needs. In addition, we can also adjust the difficulty and depth of the learning content in real time according to the learners' answers, questions and feedback in the learning process, so as to fully adapt to the learning progress and personalized needs of the learners. This path aims to give full play to the advantages of human wisdom and machine intelligence, promote innovation and development in the field of education, and provide learners with more efficient and personalized learning experience.

5. Conclusion

Human beings are facing an era of increasing technology. Technology, nature and man are accelerating and effectively integrating, and artificial intelligence extends the physical and mental strength of human beings. So, can "artificial intelligence + education" extend the "education ability" of human education, enhance students "learning ability", teachers' "teaching ability" and leadership of principals? All this also depends on our unremitting efforts. Philosopher Heidegger has outlined the image of the modern world, so what kind of world education image will "artificial intelligence + education" outline? In the blueprint of "Education 2030 Planning", and even in the "2050 Education Vision", can the vision of intelligent education in the future be realized? In short, artificial intelligence is having a profound impact on everything around us. Yuval Harari, the author of A Brief History of the Future, repeatedly reminds people that the future has come, and the future is beyond imagination! Therefore, we expect that the intelligent education under "artificial intelligence + education" can go beyond imagination, effectively promote the deep integration and mechanism innovation of information technology and education and teaching, and bring us a surprising educational reform.

Acknowledgment

1.Scientific Research Planning project of Guangdong Vocational and Technical Education Society "Research on digital Upgrading of Human Resource Management Professional Personnel Training in Higher Vocational

Colleges" (202212G178);

2. Curriculum Reform Project of Guangzhou Nanyang Polytechnic College—Post Course Competition and Certificate Integration project 《 Human Resource Management》 (NY-2022CQ-GKSZ004);

3. Guangzhou Nanyang Polytechnic College of Higher Education Teaching Reform Project "Research on Digital Upgrading of Higher Vocational Colleges" (NY-2022CQ-JG001);

References

- [1] Sun Yechao, Ma Hemin. Analysis of the challenges of the digital transformation of education and its governance path[J]. Sun Yechao, Ma Hemin. Analysis of the challenges of the digital transformation of education and its governance path, 2022, (1): 60-76.
- [2] [England] Anthony Seldon, [England] OladMeji Abiddoye. Translation, by Lv Xiaozhi. The fourth education revolution: How Artificial Intelligence changes education[M]. Beijing: China Machinery Press, 2020. 169.
- [3] Bayne, S., Jandrić, P. From anthropocentric humanism to critical posthumanism in digital education [J]. Knowledge Cultures, 2017, 5(2): 197-216. [9] Williamson, B. Big data in education: the digital future of learning, policy and practice [M]. New York: Sage, 2017.
- [4] Bayne, S. Teacherbot: interventions in automated teaching [J]. Teaching in Higher Education, 2015, 20(4): 455-467.
- [5] Zhu Zhiting, Dai Ling. Comprehensive wisdom leads to the digital transformation of education[J]. Open education research, 2023, 29(2): 4-11.
- [6] Zhou Feng. Generative artificial intelligence: functional externalization or capacity withdrawal[N]. The Chinese Journal of Social Sciences, 2023-04-18(07).
- [7] He Kekang. The emerging information technology since the 21st century has had a great impact on the deepening of education reform[J]. Research on audio-visual education, 2019, 40(3): 5-12.
- [8] Jiao Lizhen. The connotation, characteristics and cultivation path of digital literacy of journal editors in the era of artificial intelligence: based on the perspective of ChatGPT[J]. Journal of Xinyang Normal University (Philosophy and Social Sciences Edition), 2023, 43(5): 80-85.
- [9] Wang Han, Tong Yuying. Artificial intelligence: a new opportunity for college students to study independently and efficiently[J]. Journal of Qilu Normal University, 2020, 35(6): 15-21.
- [10] KNOWLES M S. The Development of Self-Directed Learning [J]. Journal of Humanistic Psychology, 1975, 15(2): 23-39.
- [11] Zhao Zhen. Cultivation and evaluation of independent learning ability[J]. Modern educational technology, 2018, 28(12): 6-11.
- [12] Chen Baohong, Shan Weilong. Research on the cultivation of college Students' independent Learning Ability under the "Internet +" threshold: Take College English as an example[J]. China's audio-visual education, 2021, 419(12): 139-145.