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EXPLORING THE DEVELOPMENT PATH OF ARTIFICIAL INTELLIGENCE UNIVERSITIES IN RESPONSE TO THE CURRENT STATUS AND PROBLEMS OF TYPICAL APPLICATION SCENARIOS OF ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION

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Abstract

The exploration of digital transformation in higher education around the world is becoming increasingly active, and universities around the world are taking stronger actions to promote digital education. Based on the analysis of the current situation of ten typical application scenarios of artificial intelligence in university action initiatives, administrative management, leadership, information literacy, learning environment, learning assessment, learning resources, scientific research, academic misconduct, green development, and educational welfare, the main problems related to the lack of action guidance, excessive dependence, fear psychology, evaluation risk, research crisis, environmental damage, and educational "hypothermia" in the scenarios were sorted out. Advocate global universities to explore new forms of "artificial intelligence universities" and design six action steps to actively promote the establishment of "artificial intelligence universities". Ensure that artificial intelligence becomes a truly beneficial tool for learners, teachers, researchers, education administrators, and relevant stakeholders, and accelerate the empowerment of artificial intelligence for the sustainable development of higher education.

Keywords

Artificial Intelligence; Higher Education; Application Scenarios; Educational Reform; Sustainable Development

1. Background

Artificial intelligence is changing the landscape of higher education with unprecedented power. EDUCAUSE emphasizes that artificial intelligence is the mainstream trend and core technology for the future development of higher education (Luo & Liu, 2024). The application of artificial intelligence in education provides enormous possibilities for the reshaping of educational forms, bringing profound changes in areas such as learning, teaching, management, and research. Harvard University, Massachusetts Institute of Technology, University of California have taken various measures to explore the innovative application of artificial intelligence in teaching and optimizing management processes, providing technical support for teachers and students to use artificial intelligence tools (Chang & Zhao, 2024). Oxford University, Cambridge University have jointly developed standards of the application of generative artificial intelligence in education for cultivating leadership skills for teachers and students in the era of artificial intelligence (Chu et al., 2024).

However, artificial intelligence may pose significant risks to learners, the teaching community, the education system, and society as a whole. With the deep integration of artificial intelligence into higher education, ethical issues such as data security, content security, and privacy protection have become unavoidable topics in the future development of higher education. In the field of education, artificial intelligence can simplify the teaching and learning process into computational and automated tasks, thereby diminishing the role and influence of teachers and weakening the relationship between teachers and learners. Faced with the opportunities and challenges of the era of artificial intelligence, UNESCO has released multiple documents, including “The challenges and opportunities of Artificial Intelligence in education”, “Beijing Consensus on Artificial Intelligence and Education”, "AI and education: guidance for policy-makers”, “Recommendation on the Ethics of Artificial Intelligence”, “AI Competency Framework for Students”, “AI Competency Framework for Teachers” to fully ensure that education keeps up with the pace of technological development.

2. Aim and Objectives

This study aims to analyze the current situation of the transformation of higher education by artificial intelligence and provide guiding suggestions for relevant issues. The objectives are as below:

(1) Analyzing the application of artificial intelligence in 10 main scenarios of higher education, including the AI Empowerment Action Initiative, optimization of administrative management, AI leadership, AI literacy of teachers and students, smart learning environment and learning assessment, open learning resources, AI empowerment of scientific research, prevention of academic misconduct, development of green education, and educational welfare;
(2) The main problems faced by artificial intelligence in higher education application scenarios;
(3) Suggestions for the use of artificial intelligence in different scenarios of higher education

3. Methodology

Based on literature review, this study analyzed the current situation of typical application scenarios of artificial intelligence in higher education. This research may not be able to cover all higher education institutions for in-depth exploration.

3.1 In the initiative of empowering higher education with artificial intelligence

By consulting the official websites of 84 top universities in the United States, it was found that all universities have to varying degrees established principles and guidelines for the application of artificial intelligence at the university level. In addition to macro level strategies at the university level, some American universities have also developed specific guidelines for the application of artificial intelligence in teaching and research fields (Liu, 2023). Based on an analysis of 31 universities in the top 150 of the Times Higher Education World University Rankings in 2023, including the United States, United Kingdom, Germany, Canada, Singapore, Australia, Japan, and Finland, 26 well-known universities have issued corresponding artificial intelligence initiatives and application guidelines to guide, regulate, and support teachers and students in better using artificial intelligence tools. The "Artificial Intelligence + Higher Education" initiative of well-known universities in the UK and the US has accumulated certain practical experience. The formulation and implementation of its initiative involve collaborative efforts among multiple departments, including teaching management departments, academic ethics committees, teacher training departments, information security departments, and various departments (Gao & Zhang, 2024).

3.2 Integrating artificial intelligence into school administrative management

Artificial intelligence has great potential in educational administrative services, and some universities have adopted AI technology to optimize management processes (Tahiru, 2021). The large number of administrative tasks from enrollment to procurement will consume a significant amount of human and financial resources in universities, and artificial intelligence can simplify the process. The key advantage of using artificial intelligence to assist administrative management in universities is the ability to reduce costs and improve efficiency. Artificial intelligence systems can simplify college enrollment procedures, manage student registration, and schedule course teaching. This automation allows administrative staff to focus their energy on more complex responsibilities, thereby improving the operational efficiency of institutions (Schiff, 2021). One of the main implementation methods of artificial intelligence in university automation management tasks is through chatbots or other virtual assistants. Chatbots can coordinate teacher and student appointments, collect student feedback, assist students in applying for scholarships, and help answer questions about course arrangements, improving the efficiency of administrative staff (King, 2023). For example, chatbots from the University of Murcia in Spain and the University of Canberra in Australia can answer questions about campus and learning areas, providing timely answers to students' queries and helping to address human resource shortages (Rouhiainen, 2019).

3.3 Developing artificial intelligence to augment leadership

Artificial intelligence technology can ensure accountability, compliance, and transparency in universities, but achieving this goal requires excellent data governance capabilities (Jim & Chang, 2018). University administrators need to ensure the selection of appropriate solutions for empowering education with artificial intelligence, while understanding why data is collected and how to transform it into meaningful analysis. Both require university administrators to understand the basic working principles of artificial intelligence and value digital leadership in evidence-based decision-making (Beerkens, 2022). A survey of over 2500 leaders, artificial intelligence experts, and employees worldwide found that despite challenges and risks, artificial intelligence has the potential to catalyze human leadership into a new era. Harvard University, Stanford University, and the University of Chicago have launched a series of AI leadership courses aimed at helping leaders cope with today's constantly changing digital environment, guiding them to use AI driven knowledge to enhance decision-making effectiveness, improve operational efficiency, and maintain competitive advantage. At the same time, leaders must lead their teams to reach new heights in understanding artificial intelligence, in order to fully utilize the potential of AI driven team collaboration.

3.4. In cultivating the artificial intelligence literacy of teachers and students

Many universities around the world are actively strengthening the cultivation and improvement of artificial intelligence literacy among teachers and students, accelerating their adaptation to the era of artificial intelligence in teaching and learning. Abu Dhabi University provides AI application training for teachers (Abu Dhabi University, 2023). Stanford University and San Diego State University have released guidelines for teaching and learning artificial intelligence, providing guidance for teachers and students to standardize the use of artificial intelligence. In the report of “Growing the Artificial Intelligence Industry in UK” released by the UK government, it is pointed out that UK universities should offer master's degree programs in artificial intelligence transfer for undergraduate students in non-computer and non-data-science fields based on the needs of employers and students (Shen et al., 2023). In higher education, the UK vigorously promotes the disciplines of data science and artificial intelligence, with over 90 UK universities offering AI courses for undergraduate students and more than 200 AI graduate programs. German colleges and universities have improved the AI "major minor" curriculum system by building the AI "undergraduate master doctoral" through degree system to boost Germany's AI strategic action. Some German universities offer artificial intelligence minor courses to all students. These measures not only emphasize the systematic training of artificial intelligence professionals, but also focus on improving the artificial intelligence literacy of students from different majors (Wu & Chen, 2023).

3.5. In building a smart learning environment

Artificial intelligence technology provides important support for building smart learning environments, achieving accompanying data collection, environmental perception, precise chemical analysis, and personalized learning guidance (Huang et al., 2012). Building a smart learning environment is an important way to achieve personalized education, self-directed learning, collaborative learning, and lifelong learning on a large scale. Artificial intelligence algorithms are widely used to tailor learning experiences for students based on their learning styles, performance, and interests, thereby promoting better learning outcomes. For example, the use of intelligent robots can provide personalized tutoring for students, promote collaborative learning among students, timely evaluate students' learning situations, and create a more effective learning environment for universities (Oravec, 2023). A research team from Malaysia and Oman has created a learning process monitoring tool using machine learning algorithms based on students' GPA, attendance rates, etc., to help identify students with poor academic performance as early as possible and enable teachers to provide personalized support for students with academic warnings (Khan et al., 2021).

3.6. Artificial intelligence improves the quality and efficiency of learning assessment

Artificial intelligence has high efficiency, accuracy, and objectivity in evaluating student learning (Slimi, 2023). The artificial intelligence scoring and feedback system has accelerated the evaluation process for educators. Automated grading through robots or platform systems to assist teachers in correcting homework and providing timely feedback to students. For example, The National Assessment Program-Literacy and Numeracy, as Australian national level education quality monitoring project, uses computer adaptive testing and automatic scoring systems to monitor education quality, improve education quality, and enhance curriculum teaching (Yuan & Li, 2023). When test data shows that students begin to forget their learning content, artificial intelligence will push relevant learning resources to arrange for students to review and practice accordingly, ensuring the consolidation of their knowledge.

3.7. In building open educational resources

Artificial intelligence has the potential to promote personalized learning and continuous professional development through open educational resources, meeting the personalized learning pathways and lifelong learning needs of different learners. Taking the 42 Double First-Class universities in China as an example, most of their online

teaching resources are scattered across multiple departments such as libraries, academic affairs offices, information technology centers, and teacher teaching development centers. Among them, the teaching materials, reference materials, and test resources are mainly focused on library construction, while MOOCs and online learning platforms are mainly managed by departments such as the Academic Affairs Office. Due to the separation of its online teaching process from the construction of digital teaching resources, students cannot directly access the original text of textbooks and teaching materials when learning on the platform (Li & Huang, 2022). Compared to foreign universities, the construction and development level of digital resources in C9 Alliance universities in China is lower than that of Ivy League universities in the United States. The number of library databases in Ivy League universities in the United States far exceeds that of C9 Alliance universities in China, and the language coverage of database resources is also more extensive. For example, the Harvard University database covers up to 460 language types (Yu, 2024).

3.8. Empowering scientific research with artificial intelligence

Artificial intelligence tools can serve as a starting point for researchers to conduct research, assisting in the development of research design processes and proposing hypotheses based on given data. Generative artificial intelligence can help university researchers design experiments, organize literature, promote research collaboration among personnel, enhance data collection in scientific research, achieve simulation and automation of scientific experiments, and save researchers a lot of time and energy (Jong & Bus, 2023). Artificial intelligence can predict future developments or outcomes based on historical data, inspire new ideas in scientific prediction, identify patterns and relationships in large datasets, discover patterns and trends that human researchers may not immediately see, and help researchers make wiser decisions. Artificial intelligence tools can help researchers identify text errors, polish text, and detect plagiarism during the drafting and publication stages of research reports.

In addition, artificial intelligence can help create visually appealing research data representations and improve audience understanding. Artificial intelligence tools can achieve translation between various languages, expand the ways to acquire knowledge in different language forms, support researchers to publish articles in languages other than their mother tongue, and enhance the attention of their own research. Universities around the world have made active efforts to promote the development of this field. For example, Kyrgyzstan Technical University, Helsinki University in Finland, and Madras Institute of Technology in India actively promote the development of artificial intelligence translation models.

3.9. Collaborative development of artificial intelligence and green education

From a broad perspective, consider the benign interactions between humans and nature, humans and technology, and humans and humans, improve the marginal benefits of scientific and technological development, and better integrate modern technologies represented by artificial intelligence into the process of human development (Yang & Xiong, 2023). UNESCO advocates for environmentally friendly artificial intelligence tools to control the negative impact of artificial intelligence on the environment, especially carbon emissions. With the help of artificial intelligence, universities can proficiently manipulate the deployment of renewable energy. University data information centers known for their high energy consumption can be powered by renewable energy and use artificial intelligence to regulate cooling mechanisms to save energy (Huang & Dmitry, 2021). In addition, commuting vehicles in universities can use green energy, and the deployment of electric vehicles can be optimized by artificial intelligence to predict traffic demand and adjust vehicle allocation accordingly (Mischos et al., 2023). By strategically utilizing artificial intelligence to maximize the use of renewable energy, universities can significantly reduce energy expenditures and pave the way for a sustainable academic environment.

3.10. Enhancing Educational Welfare through Artificial Intelligence

Human machine collaboration will become a common form of higher education in the era of intelligence. It is worth noting that mental communication, emotional expression, and value cultivation that machines cannot achieve are important components of education. Although chatbots can provide quick and effective responses, they currently lack empathy and cannot provide emotional communication, and cannot replace interaction between teachers and students. Therefore, universities should strive to find a balance between using chatbots to improve efficiency and providing human support when needed, to ensure the best learning experience for students. Stanford University, Massachusetts Institute of Technology, and Carnegie Mellon University have added communication courses, humanities and arts courses, and ethics courses in the cultivation of artificial intelligence professionals to promote students' physical and mental health development (Chen et al., 2022). In the era of artificial intelligence, the core value of university teachers lies in enhancing students' noble moral literacy, stimulating their creativity, and shaping their rich emotions. The Australian National University has developed a framework and guidelines for accountability in artificial intelligence, including ethical considerations, safety, and human values in AI systems, which can help build trust between students and teachers

4. Findings: Main Problems Faced by Artificial Intelligence in Higher Education Application Scenarios

4.1 There is a lack of action guidance for the "compass"

The popularity of artificial intelligence has exceeded the speed at which most universities adjust their governance structures. According to a survey conducted by UNESCO on over 450 higher education institutions worldwide, approximately 13% of universities have established systems or strategies related to artificial intelligence, and most universities lack a comprehensive and in-depth understanding of the use of artificial intelligence (UNESCO, 2024)。In the absence of action guidelines at the school level, the application of artificial intelligence in higher education may have adverse effects on data security, knowledge diversity, educational equity, and inclusiveness.

4.2. The extreme effects of "excessive lack" and "excessive dependence"

It is difficult to empower school administrative management processes through artificial intelligence in resource scarce universities, and the problems in data collection and processing are particularly prominent。However, in resource rich universities, the consequences of excessive reliance on artificial intelligence for educational management are unimaginable. Artificial intelligence should not replace human decision-making without human supervision. At the same time, the excessive use of intelligent technologies such as smart headbands, robots, and smart touch screen devices in education ignores real social life and interpersonal relationships, resulting in students' preference for virtual digital life and digital identity.

4.3. There is room for improvement in the realm of "human vehicle integration"

Undoubtedly, the future will be filled with artificial intelligence and powered by it. Although artificial intelligence can help improve the leadership effectiveness of managers, neglecting the cultivation of the intrinsic leadership skills of leaders in the era of artificial intelligence will not make them better leaders. Relying solely on artificial intelligence is like buying a top tier sports car, but neglecting the driver's driving skills. The introduction of artificial intelligence into the workplace by university administrators is a significant turning point in education. Artificial intelligence is like an amplifier, with the potential to bring significant benefits or harm in the workplace. University administrators need to fully utilize the abilities of artificial intelligence and humans to enhance their leadership, by integrating the strengths of both and learning to overcome their limitations, in order to achieve better leadership results.

4.4 There is an urgent need to overcome the "fear mentality" of teachers

A survey conducted by UNESCO's IESALC on nearly 1300 people (61% of whom are higher education workers) found that 43% of them have not tried using ChatGPT. The reasons for the low adoption rate include concerns or fears about using artificial intelligence technology. Artificial intelligence technology has triggered a crisis of professional identity, knowledge identity, and emotional identity for teachers. Artificial intelligence technology has triggered teachers' anxiety and unease in knowledge education by enabling students to easily access vast amounts of knowledge and information (Chen, 2023). University teachers play a core role in integrating artificial intelligence technology, particularly in reflective evaluation, teaching, and maintaining academic integrity. As called for by UNESCO, many universities have indicated that they will invest funds in training teachers in artificial intelligence technology. This call has received support from many students, who expect teachers to support and guide them in using artificial intelligence tools responsibly in their learning.

4.5 Seek an "open and interconnected" learning environment

The development of smart learning environments has been hindered by issues such as scene fragmentation, data silos, and poor information sharing (Wu et al., 2024). How to seamlessly integrate various intelligent services in a smart learning environment at the level of intelligence and knowledge, and build an open and interconnected learning environment, is an important research topic (Huang et al., 2017). In addition, in the current smart learning environment, the algorithms and services related to educational data mining and learning analysis are isolated and do not yet have the ability to provide personalized services to cope with complex learning situations (Zhou et al., 2022).

4.6 the evaluation of "double-edged sword" cannot be ignored

The main risks of using artificial intelligence tools for evaluation are opaque evaluation results and unclear evaluation criteria. The complexity of education cannot be evaluated in a simple set of quantitative and variable ways (Alam & Mohanty, 2022). Viewing data or code superficially may lead to solutions that are technology oriented rather than educational. Students use artificial intelligence for learning, and then evaluate their learning outcomes through AI, effectively removing human factors from the process. In addition, although artificial intelligence scoring tools can be helpful in environments with large class sizes, evaluating students' learning in an automated manner may reduce their interest and motivation in learning. The artificial intelligence evaluation

system needs to fully consider aspects such as data collection, feature extraction, model training, and evaluation indicator design to ensure a beneficial teaching and learning cycle (Han & Xu, 2024).

4.7. The 'research crisis' behind artificial intelligence

Although articles on the field of artificial intelligence in higher education continue to grow, only 1.4% of research involves ethical, challenge, and risk issues (Zawacki-Richter, O. et al., 2019). Many researchers have overlooked the impact of relevant factors on learning outcomes. There are specific ethical challenges to using artificial intelligence for research in higher education environments. The ethical process in higher education lags behind the development of artificial intelligence, and the existing review process has not reached a consensus on how to manage, process, and interpret data predictions in an ethically responsible manner, which cannot guarantee whether algorithms are interpretable or transparent (Samuel & Derrick, 2020). As an important function of higher education, research still has a long way to go in terms of ethical norms for the use of artificial intelligence. For example, in Malaysia, issues such as academic misconduct and irresponsible publishing practices are key challenges to research integrity.

4.8. The 'black' hidden beneath the 'green'

Although artificial intelligence can address sustainability issues by building low emission infrastructure and creating climate change prediction models, it can also hinder sustainability by consuming natural resources. Artificial intelligence has multiple impacts on the environment, such as soil pollution, deforestation, biodiversity degradation, toxic waste disposal, groundwater pollution, radioactive waste generation, air pollution, and significant electricity consumption. If universities neglect to guide teachers and students to understand the environmental damage caused by artificial intelligence, it will have a negative impact on the sustainable development of humanity.

4.9. there is a need for "warming up" education

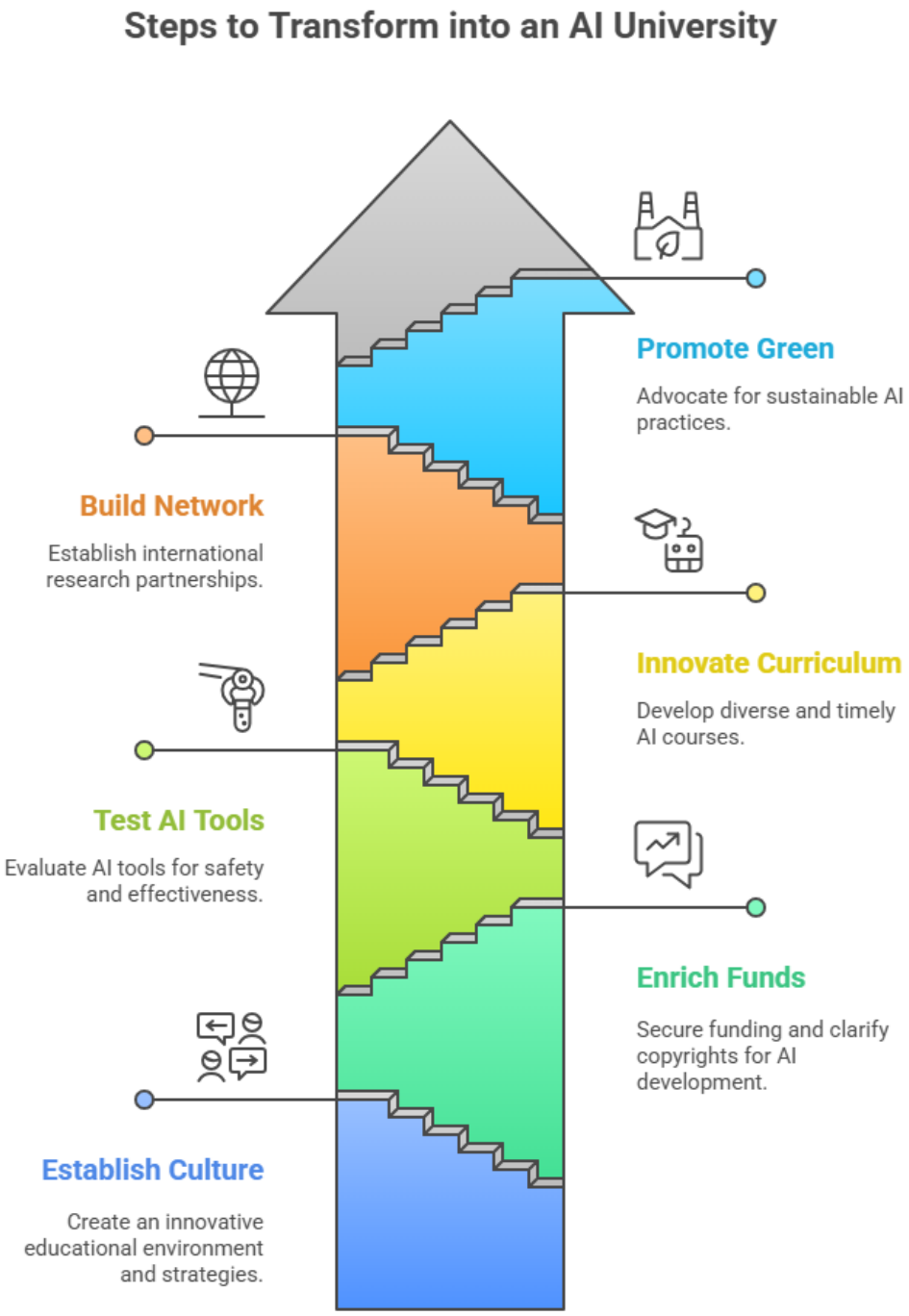
The characteristics of intelligent machines will weaken teachers' emotional education and human care, hindering students from growing into "warm" individuals (Zhang, 2020). Teachers and students are prone to blind worship of artificial intelligence technology and neglect the negative impact of technology on education. Students' emotional needs and expressions are obscured, leading to changes in self-awareness, thinking, judgment, and attitude (Shen et al., 2022). From the perspective of student welfare and development, artificial intelligence can basically meet the personalized learning needs of college students, but it weakens their communication and emotional communication abilities. According to research statistics, 43% of college students neglect normal interactions with others due to artificial intelligence, and 35% of college students are facing emotional communication crises (Hu et al., 2022).

4.10. Academic misconduct caused by artificial intelligence

Disrupting the originality of knowledge is one of the most prominent challenges faced by the use of artificial intelligence tools in academia, including generating false citations and even plagiarism (Nakazawa et al., 2022). There have been many examples of students using artificial intelligence tools to cheat in universities. The direct use of generative artificial intelligence technology by students to complete assignments, papers, and even exams has triggered a serious academic integrity crisis. Research shows that over one-third of the summary content created by ChatGPT has not been recognized by academic reviewers (Thorp, 2023). A survey conducted in the United States found that 30% of 1000 college students heavily rely on artificial intelligence to complete most of their assignments. Among them, 17% of these students have submitted works made by artificial intelligence without any modifications.

5. Discussion and suggestion: Actively exploring new forms of “artificial intelligence university” in the future

“Artificial intelligence university” can be defined as a higher education institution that uses artificial intelligence technology to improve its functions and operations, by integrating artificial intelligence into various fields of education such as management, research, teaching, and learning, in order to enhance the efficiency, effectiveness, and individualization of higher education. The primary task of the "Artificial Intelligence University" is to enrich and expand students' educational journey, enabling them to interact positively with complex artificial intelligence tools and technologies, possess relevant skills in the field of artificial intelligence, and apply them to practical task challenges. The "Artificial Intelligence University" attaches great importance to the cooperation with industry partners, ensuring that the school's educational talent cultivation philosophy and teaching methods can keep up with the latest developments in artificial intelligence, and prepare students with necessary professional knowledge and skills for employment positions after graduation. The figure of Steps of Transform into an AI University is shown as below.



Step 1: Establish "culture", formulate "strategies", and enhance "cognition"

To become an 'artificial intelligence university', it is necessary to first establish a culture of innovative education development, formulate action strategies for artificial intelligence, enhance the confidence of faculty and staff, and overcome their fear or suspicion of artificial intelligence. Universities should gather all academic departments, administrative departments, and relevant student representatives on campus to conduct in-depth discussions on the development plan of artificial intelligence. At the same time, consulting with other major stakeholders outside the school, such as technical experts from enterprises, research partners, members of educational alliances, and parents of students, to jointly carry out planning and development work. Universities can refer to the strategic framework proposed by UNESCO IESALC to develop the following process: Defining the current development situation; Deciding which artificial intelligence tools to use and how to use them; Evaluate the effectiveness of artificial intelligence and its impact on educational equity, and develop scientific artificial intelligence strategies to promote

the sustainable development of higher education. Universities need to establish artificial intelligence expert committees or working groups to continuously and regularly review the implementation process of strategies.

Artificial intelligence universities should create an environment and cultural atmosphere conducive to professional development for faculty and staff. Based on online course learning resources developed from credible sources such as UNESCO, provide systematic training for faculty and staff starting from the introduction of "what is artificial intelligence". The "Artificial Intelligence University" should actively organize seminars, forums, and other types of academic activities to create learning and exchange opportunities for faculty, students, and stakeholders, discuss the impact of artificial intelligence on higher education, and jointly develop strategies to adapt to artificial intelligence. The professional development of faculty and staff can be carried out from multiple levels, including within the school, the education industry, and beyond. Universities should help faculty and staff understand how to use different artificial intelligence tools and the limitations of each tool, and take incentive measures to encourage more faculty and staff to engage in AI related development, teaching, and research. Through informal guidance such as peer support, share good teaching practices and methods of using artificial intelligence tools to improve the artificial intelligence skills of faculty and staff.

Step 2: Enrich "funds", clarify "copyrights", and enhance "leadership"

Becoming an "artificial intelligence university" requires developing a budget for research, development, and use of artificial intelligence. For universities without relevant funding, external sponsorship, financing, and other means may be considered under the premise of legality and compliance. When universities collaborate with external enterprises and organizations to develop artificial intelligence, they should clarify the copyright ownership of the developed technology. In universities with strong data architectures, informed decision-making based on data will become particularly important, providing effective school development strategies for reducing dropout rates and more. Many universities need to purchase artificial intelligence tools developed by enterprises, which will involve a shift in the allocation of financial funds for the school. University administrators should ensure a full understanding of the possibilities and limitations of these tools, and use limited funds to maximize educational effectiveness.

University administrators should ensure that the use of artificial intelligence technology is beneficial for the long-term development of the school. Therefore, regardless of the geographical location or stage of development of universities, university administrators need to possess responsible leadership in implementing artificial intelligence. Through the analysis of a study of 25 global AI thought leaders, it was found that the optimistic attitude of the public towards AI's ability to help complete daily administrative tasks and open up greater opportunities for collaboration is roughly on par with the pessimistic attitude towards AI's potential to promote bias and inequality, especially when using AI without understanding its basic principles (Chubb et al., 2022). Therefore, university administrators need to invest time and energy, actively improve their knowledge and skills related to artificial intelligence, and enhance their leadership in artificial intelligence.

Step 3: Test the "drug", establish "standards", and refuse to "go it alone"

To become an "artificial intelligence university", it is necessary to carry out artificial intelligence experimental actions, analyze their safety and effectiveness, and share the experimental results. Although the education sector cannot completely replicate the food and drug supervision and management methods, there is an urgent need to find an alternative to "free growth". In educational technology, 'education' precedes' technology '. As educational technology promotes rapid development in education and the economy through artificial intelligence, AI educational tools should be kept above standards similar to healthcare products, rather than benchmarking media technology or general consumer goods standards. Many universities are investing heavily in research on generative artificial intelligence technology and launching customized tools throughout the school. This school centered approach is both too big and too small: there is no 'minimum viable product validation standard' or other research and development process to verify the practicality of these tools before providing artificial intelligence products to every student, faculty, and staff. At the same time, there are similarities in the needs of students and educators from different universities, and relying solely on the development and research tools of our own university may lead to wastage of resources.

Step 4: Innovate the "curriculum", stimulate "research", and organize a "marathon"

With the continuous changes in the labor market stimulated by artificial intelligence, "AI universities" need to provide innovative and diverse courses in a timely manner. In the context of a lengthy process of curriculum reform, "artificial intelligence universities" should actively seek course cooperation with high-quality enterprises in different depths and modes. It is worth noting that the curriculum reform of "artificial intelligence universities" needs to be carried out under the supervision of relevant higher education regulatory agencies, and how to find the best balance between educational flexibility and innovation is a problem that needs to be continuously explored.

As an interdisciplinary and complex research field, the study of artificial intelligence should involve researchers from different fields. The next breakthrough point of artificial intelligence is predicted based on its interdisciplinary nature. Artificial intelligence universities should actively play their research role, gather excellent

interdisciplinary research teams, establish interdisciplinary artificial intelligence experimental centers, explore new knowledge in the field of artificial intelligence, study the impact of artificial intelligence on education, and jointly promote the technological development of artificial intelligence. For researchers at the 'Artificial Intelligence University', ethics training in artificial intelligence will become an important part of their professional growth.

The "Artificial Intelligence University" can hold competitions for teachers and students to participate in artificial intelligence related activities. For example, a hackathon is a time limited fast-paced event that brings together students, faculty, and enterprise technology experts to propose solutions to specific challenges, aimed at encouraging collaboration, enhancing critical thinking, and fostering creativity. Following the format of the hackathon, the artificial intelligence skills competition organized by the "Artificial Intelligence University" should start from stimulating the innovation ability of teachers and students, and enhancing their problem-solving and teamwork skills.

Step 5: Transform into a "brain trust" and build an "international network"

Artificial intelligence universities should actively advocate for the development and supervision of national artificial intelligence standards, strategies, and laws. By utilizing the professional knowledge and research capabilities of the "Artificial Intelligence University", it can provide valuable advice to policy makers and other universities in planning "Artificial Intelligence + Higher Education" development and training programs, ensuring that artificial intelligence technology serves the interests of humanity and promotes sustainable social development.

The "Artificial Intelligence University" should consider establishing an international research partnership of "Artificial Intelligence + Higher Education" to enhance global dialogue capabilities, promote interdisciplinary cooperation, and encourage cross institutional joint development of responsible artificial intelligence practice plans and strategies, further comprehensively addressing ethical issues in artificial intelligence. The global network needs to consider the participation of universities at different stages of artificial intelligence development, and higher education institutions of different types and regions can contribute unique insights, experiences, and ethical considerations. Meanwhile, high-quality enterprises are also an important component of global partnerships. Incorporating different perspectives and voices in the "Artificial Intelligence + Higher Education" development initiative to ensure that the application of artificial intelligence is more inclusive and context sensitive, comprehensively reflecting the global landscape of AI empowering higher education.

Step 6: Become a "publicity ambassador" to promote "green" development

The 'Artificial Intelligence University' can utilize internal resources to open free public forums for teachers, students, and local communities, introducing them to artificial intelligence and its applications in daily life, including its impact on privacy, bias, and ethics, and helping to eliminate biases related to gender, race, and culture. "University of Artificial Intelligence" shall publicize news, videos and lectures about AI through its official website, official account and other channels. Through interdisciplinary communication and expert interviews, among other forms, we will delve into the impact of artificial intelligence on the future of humanity, focusing on the core issues of concern to teachers and students.

With the urgent global demand for sustainable energy solutions, many companies have responded positively. Artificial intelligence universities also have unique advantages in minimizing carbon footprint and advocating sustainable development. The "Artificial Intelligence University" needs to cooperate with enterprises from all aspects and perspectives in green and sustainable development projects, and use artificial intelligence to support eco-friendly actions. The "Artificial Intelligence University" uses artificial intelligence to improve the efficiency of energy intensive systems, fine tune the operation of HVAC, lighting, and water supply systems, and reduce energy use. At the same time, the 'Artificial Intelligence University' plans educational activities to cultivate the sustainable development awareness of teachers and students, guide their 'green practices' in the era of artificial intelligence, and sow the seeds of a greener global ecology for the future.

6. Conclusion

This article proposes specific steps for the development of universities in the intelligent era. The ten application scenarios covered in this article comprehensively demonstrate the interaction between artificial intelligence and higher education, revealing the various changes in the education landscape in the era of artificial intelligence. It is necessary to continuously consider the impact of changes in artificial intelligence technology on various scenarios of higher education, and the iterative cycle of scenario recognition and generation requires the use of new methods such as social experiments to define new demands for educational reform. Social experiments and simulation should be accelerated in the field of higher education to promote research on educational reform. Regardless of the scenario, student growth, teacher development, and environmental upgrading are key directions for technology enabled education. The education governance towards a smart society should not only ensure the standardization and orderliness of the integration of technologies such as artificial intelligence into the education ecosystem, but also utilize new technologies to help form a precise, refined, and efficient education governance mechanism,

achieving modernization of the education governance system and capabilities. Artificial intelligence provides another opportunity for higher education institutions to showcase their value to society, just as they did during the pandemic. Whenever a major crisis arises, higher education institutions have the potential to become a beacon for humanity. Universities need to responsibly implement artificial intelligence, carefully analyze its potential advantages and ethical risks, and meet the development needs of students, teachers, and stakeholders.

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