Research on Talents Cultivation Model of Application-oriented Undergraduate in the Era of AI

Chun-Xiao Mu

Email address: muchunxiao812@163.com

Management, Xi'an JiaoTong University City College, Xi'an, Shanxi, China

Abstract. The arrival of the era of artificial intelligence has created a new demand for talents in various industries. Colleges and universities, as the main source of talent supply, must adapt to the needs of the rapid development of artificial intelligence, adjust the specialty setting; We should strengthen cooperation with ai enterprises to adapt talent training in institutions of higher learning to the trend of intelligent development and promote the sound development of higher education. This study in order to promote the development of applied undergraduate colleges and universities personnel training mode reform as the goal, combined with the feature of artificial intelligence era, the era of cultivating in artificial intelligence, intelligent qualified talents social needed, in order to keep pace with The Times for our country's higher education personnel training career development provide some useful reference.

Keywords: Artificial Intelligence(AI), Application-oriented university, Talent training

1. Introduction

The State Council issued the New Generation of Artificial Intelligence Development Plan on July 8, 2017, and put forward the construction of high-end talent team as the top priority of AI development, forming China's AI talent highland; To strengthen the training of professional and technical personnel in basic research, applied research, operation and maintenance of artificial intelligence, to cultivate high-end talents required by the era of artificial intelligence, put forward new requirements for the training objectives of undergraduate education.[1]The State Council of China emphasizes "building intelligent campus, coordinating the construction of integrated intelligent teaching, management and service platform, using modern technology to accelerate the reform of talent training mode, and realizing the organic combination of large-scale education and personalized training."AI has become a hot topic of concern in various fields. The research on "AI + education" is in full swing. The cross-border integration of artificial intelligence and education has become an irresistible trend of the times. In the national AI development strategy, it is an important task for colleges and universities to seize the opportunity and stimulate the internal vitality of education to cultivate innovative talents by intelligent teachers[2].

2. Definition of related concepts

2.1 Artificial Intelligence

Artificial Intelligence (for short AI) is human-made intelligence.The term can be divided into two parts: artificial and intelligence.AI was formally put forward in 1956, but there is no unified definition of artificial intelligence up to now, but all agree that its core element is to enable machines or robots equipped with artificial intelligence to perform complex tasks that traditionally require human intelligence.The era of AI is a process of comprehensively advancing AI technology to all fields of human production and life based on cloud computing, big data and deep learning algorithms. It is an era of human-machine coexistence, a era of great social change, and an era of subverting traditional education.

The application and development of AI technology has greatly influenced and changed people's way of production and life. The rapid development of AI industry requires a large number of relevant professionals, which not only includes the emerging artificial intelligence industry and the intelligent upgrading of all walks of life, but also requires talents who can understand and use artificial intelligence technology. Based on the layout of the demand of traditional economic industries, colleges and universities must respond to the challenge brought by the new demand and timely make supply-side reform. For a best viewing experience the used font must be Times New Roman, on a Macintosh use the font named times, except on special occasions, such as program code.

2.2 "Application-oriented Undergraduate" and its Training Objectives

The "Application-oriented undergraduate" refers to the general undergraduate colleges and universities that take the application technology type as their educational orientation, rather than the academic type as their educational orientation. It is the undergraduate type that is opposite and different from the academic type. Application-oriented undergraduate course is jointly piloted by some provincial ordinary undergraduate colleges, national demonstrative higher vocational colleges and large national backbone enterprises to train application-oriented undergraduate professional talents to meet the needs of social and economic development. The cultivation goal of application-oriented undergraduate is to cultivate compound and application-oriented talents with certain professional knowledge, strong hands-on ability and innovation ability.

3. The need for talent in the age of AI

With the rapid development of the Internet of Things, cloud computing, 3D printing and virtual reality, the era of AI is accelerating. The biggest difference between it and the previous era is the rapid development of intelligent technologies such as image recognition, speech recognition and natural language processing, and the integration of intelligent products such as intelligent home, intelligent medical care and intelligent robots into People's Daily life. In the era of AI, the development of AI technology has subverted the development mode of enterprises, changed people's way of life, and also has a profound impact on traditional college education[1]. This series of changes have triggered the change of talent demand and put forward new requirements for talent training goals.

3.1 Talent with AI thinking

The thinking mode of the era of AI emphasizes the concept of "people-oriented, user first".In the context of artificial intelligence, social production and life need not only talents with knowledge and skills, but also talents with AI thinking. Firstly, AI thinking is one of understanding and respect.The development of artificial intelligence technology make customized production became a reality, the enterprise is more and more pursuit of optimization efficiency, customer more and more pursue consumption quality, customers can through a particular platform for the enterprise put forward ideas of design and production of enterprises, in accordance with customer demand for the optimization and upgrading of products, so as to meet the personalized needs of users, allows users to get the best experience. Secondly, AI thinking is a kind of equal cooperation thinking.The development of AI technology not only enables us to add many robot colleagues in our work, but also enables us to add many robot helpers in our daily life. Therefore, the thinking of equal cooperation is particularly important in the era of artificial intelligence.

3.2 AI application-oriented talents

With the continuous application and development of AI technology, the global pattern of artificial intelligence industry has undergone great changes. All countries have increased the investment in research and development and scientific and technological innovation, and actively distributed the AI industry.Therefore, AI application-oriented talents will become an important force to promote the development of intelligent industry. The so-called AI application-oriented talents refer to those who can integrate AI technology with traditional industries and promote the development of the industry with new technologies. They not only have a certain understanding of artificial intelligence technology, but also have a profound understanding of the development mode of the entire industry, and can timely formulate new development strategies based on constantly updated information. The rapid development of science and technology in the era of AI accelerates the development of the industry. For their own development, enterprises are bound to compete for talents integrating professional knowledge and skills as well as artificial intelligence technology[3].Therefore,AI application-oriented talents who master AI knowledge and can skillfully apply what they have learned to practice will be very popular in the new era.

3.3 Interdisciplinary talents

In the era of artificial intelligence, all kinds of new high-end technologies emerge in an endless stream, and the complexity of the work content in the intelligent working environment is greatly improved. Compound workers have become necessary talents in the society. In the era of AI, different industries are integrated with each other, and the boundary between industries is gradually broken, especially the integrated development between manufacturing and service industries. This greatly increases the scope of each worker's work. A worker is likely to be a designer, producer and seller of products at the same time. To accomplish these tasks well, individuals must have an understanding of knowledge and skills in different professional fields, including technical skills, maintenance and debugging of big data and intelligent equipment. Besides, they can communicate with customers in diversified ways to meet their needs.Therefore, Application-oriented universities should adjust their talent training goals in time and pay more attention to cultivating students' comprehensive professional

abilities,including interdisciplinary ability, innovation ability and independent thinking ability. It will be of great importance to cultivate interdisciplinary talents in the era of AI.

4.   The challenges of talent cultivation in the era of AI

4.1 The teacher's intelligence ability is poor, teaching concept and role positioning are not clear

The sudden outbreak of COVID-19 pandemic in 2020 led to a mandatory roll-out of online education and emergency online education software, highlighting the challenges facing teachers today. On the one hand, the lack of intelligent ability of teachers in colleges and universities has not paid enough attention to the application of AI in education. In online teaching, teachers, especially elder teachers, find it difficult to quickly get familiar with the functions of the platform, "resulting in difficulties in curriculum design, communication and interaction, classroom supervision and learning evaluation, thus increasing the work burden and affecting teaching feedback."Teachers pay less attention to the new teaching technology, and still mostly teach in the mode of "teachers speak and students listen", and their proficiency in the application of AI education technology is low. In the digital age, how to apply new media to effectively improve classroom teaching efficiency is by no means a simple problem of using technology, but an essential 'digital literacy' for teachers. On the other hand, teachers' ideology is Poor.Traditional education and teaching concepts are challenged, teachers apply information technology superficially, use it for the sake of use, fail to establish correct scientific and technological ethics, simply and compulsively apply it in teaching, not only do not free their hands, but also increase students' learning burden[4].

The popularization of intelligent devices and network information has brought subversive changes to classroom teaching in schools.When teachers move from offline to online, or to the path of mixed teaching,their roles are also changing.The traditional role of teachers has been unable to adapt to the requirements and standards of educational modernization, so the resolution of traditional role of teachers must break the shackles of the inherent ideas and reshape the role of teachers.The future will be the era of teachers and AI.

 In wisdom education under the background, the teacher will happen major changes, the role of artificial intelligence will replace the teacher a lot of work and teaching tasks, for failing to grasp skilled teachers will bring strong impact of artificial intelligent technology, such as homework correcting and decorate, formulation of teaching content, problems solutions such as the traditional teacher's role will be replaced by artificial intelligence. The change of teacher's role and concept will undoubtedly be profound and all-around.

4.2 Talent training objectives are out of step with market demand

The traditional training target is characterized by "emphasizing theory over practice" and emphasizing the accumulation of knowledge. The corresponding talent training mode has some problems, such as strong theory, weak practice, poor pertinence of professional courses and not obvious teaching effect of social participation[5]. For example,The cultivation goal of an application-oriented undergraduate marketing professional is to cultivate excellent graduates with all-round development of morality, intelligence, body and beauty. The

graduates are employed in various industrial and commercial enterprises,engaged in daily operation and management, market information collection and processing, etc. Such statements not only general, not highlight the professional characteristics, the development of modern technology of less to professional ability and core competency requirements put forward by reflection, The information identification ability, non-procedural ability, social emotional ability and digital ability required by the era of artificial intelligence for practitioners do not appear in the text of talent cultivation. Such a "construction blueprint" is difficult to cultivate the industry needs high-quality practitioners.Therefore, it hinders the improvement of students' personalized development and comprehensive practical ability, and does not pay enough attention to the influence of AI and other information technology, which makes the training goal of application-oriented talents disjointed with the market demand, and students' comprehensive ability cannot meet the requirements of enterprises. for an example see Figure 1
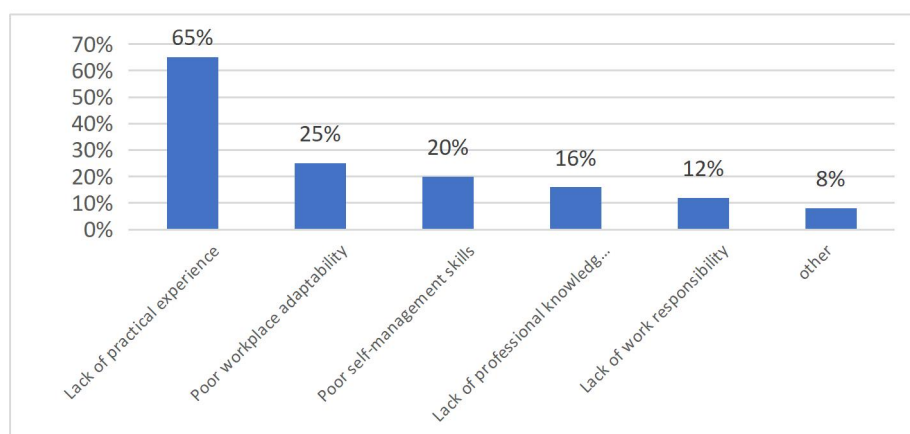

Figure 1 The main performance that the graduate does not satisfy the employer's position demand

4.3 The traditional teaching mode cannot meet the requirement of ability cultivation

The traditional teaching mode is centered on teacher, textbook and classroom, which is matched with indirect knowledge learning. In the ERA of AI, both the cultivation of professional ability and core ability need to be student-centered, so that students can summarize experience, develop and construct work ability through continuous practice. After a lot of research found that many current applied undergraduate colleges and universities, due to their own conditions, in the process of talent training, still adopts the traditional teaching mode,and the teaching material content irrelevant to the development of the new technology, such as many colleges and universities to open the electronic commerce basic course, the teaching material content seriously lagged behind the development of electronic commerce application technology, and "course content worth is strong,It can not be connected with other information technology courses and lacks practicality. This makes it difficult for students to master the new knowledge and technology of e-commerce, not to mention the cultivation of innovation ability. The college has not established a long-term mechanism for in-depth cooperation with enterprises[5].

5. The reform path of application-oriented undergraduate talent training mode in the era of AI

5.1 The structural model of personnel training mode system

On the basis of the demand for talents in the era of AI and the analysis of the status quo and challenges of talent training mode mentioned above, To really improve the efficiency of the AI era personnel training, solve the problem of AI compound talent training demand, must proceed from the whole system, research the connotation of the system, subsystem, component, environment, etc, and then on this basis to build the corresponding structure model of complex talent training mode system of AI.shown in the figure1, The construction of talent training model is a systematic project.for an example see Figure 2
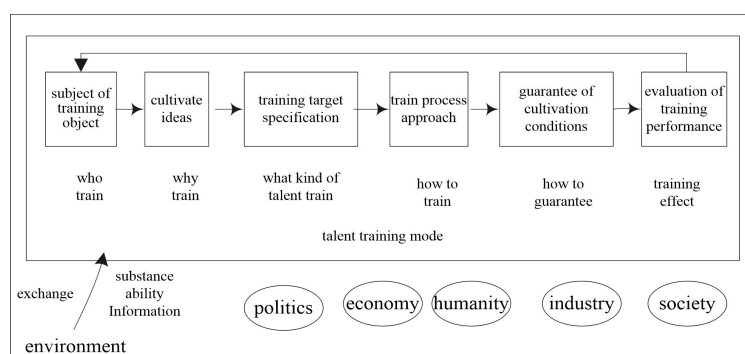

Figure 2 Talent training mode system

To construct the talent cultivation mode, we need to answer three key questions: "why to cultivate talent", "what kind of talent to cultivate" and "how to cultivate talent" . The talent cultivation mode is an open system which is composed of the subject of the cultivation object,the cultivation idea, the cultivation goal,the cultivation process, the evaluation condition, the cultivation performance evaluation and so on.

To sum up, the hierarchy structure of artificial intelligence compound talent training can be divided according to the general structure of talent training mode as follows table1:

Table 1: Applied talents training mode in the era of AI

structure division	content
tsubject of training object	Students,college,employers, governments, scientific research institutions, industry associations, families and other aspects of collaborative participation, students are both the object of training and the subject of training
cultivate ideas	"Practice education", "one specialty, many abilities","compound development, collaborative innovation" and other diversified integration ideas
training target specification	Cultivating AI compound talents needed by the society, focusing on quality

train process approach	Driven by practice and coordinated by many parties;based on specialty, subject integrated; students as this, teaching and learning,learn for use; Both the integration of production, education and research system training
guarantee of cultivation conditions	make full use of human, material and financial resources;optimize the allocation of resources and environment; Improve institutional guarantee
evaluation of training performance	comprehensive system,coordination, dynamic feedback evaluation system

5.2 Strengthen the development of teachers specializing in AI

Driven by artificial intelligence, the industry insight and professional level of teachers directly affect the quality of talent training, and strengthening the construction of teachers is the primary issue to be considered in higher education. Teachers should have a full grasp of artificial intelligence,and adjust teaching methods and optimize traditional teaching modes in a timely manner from "approaching" AI to "walking into" AI, from "zero distance" to "negative distance" with AI. Application-oriented universities should improve the incentive policies for teachers' re-learning, provide financial help for teachers' re-education, encourage teachers to go out, keep abreast of the recent development of international AI technology,and broaden their professional perspectives.By referring to the training philosophy of international top universities, the professional quality and skill level of teachers are improved, and the development of outstanding AI talents and the innovation of advanced AI technology are accelerated in China[6].

5.3 Establish data department, Data driven teaching management

The introduction of AI professional reform is based on a large number of continuous data in colleges and universities.The application advantages of AI in professional reform should be given full play. "Data center" department should be set up at the university level to collect information, conduct data analysis, and serve the administrative departments and schools of the university.See Figure3 for details:
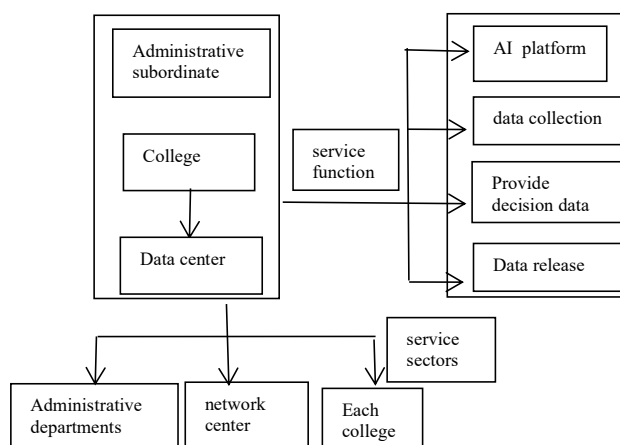
Figure 3: Data center architecture and functions

The data center department belongs to the university and at the same level as the network center, administrative departments and colleges.Network centers, administrative departments, and colleges have increased responsibilities for transmitting data to data centers, The data center performs a variety of data analysis on the basis of aggregated data serving various administrative departments and colleges.

5.4 Based on The Python language, a school-wide general education course is constructed to cultivate students' general programming ability

AI technology have entered colleges and universities,and gradually influence on the professional training,to make real professional reform into AI era, so the local colleges and universities should be repeated research into the feasibility and generality of AI technology, open like English computer basic education, mathematics, philosophy, education, etc.Suitable for all the various professional general courses. Python is suitable for popularization as a general education course because of its universality and versatility. The teaching of Python in the whole school is conducive to the cultivation of data-driven decision-making ability and general programming ability of students.

6. Conclusions

To sum up, the AI era has come, the traditional structure of education in colleges and universities has cannot meet the changes in the social market demand driven by artificial intelligence, which requires carrying personnel training and education of colleges and universities for their own to adjust the education structure, teaching environment, with artificial intelligence as a starting point, create based on the teaching content, teaching form and teaching system framework of integrated education, In order to achieve the diversification of talent training, to meet the needs of social development.

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