



Optimization and Model Construction of College Career Education Under the Background of Artificial Intelligence

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Abstract:

While AI has profoundly changed the way of human production and life, it also has a profound impact on the quality of College Students' employment. Based on the survey data of employment quality of graduates of an applied undergraduate university in Guangzhou in 2020, through spsspro analysis, it is found that the informatization level of college graduates plays an important role in employment satisfaction. In order to comply with the development of artificial intelligence era and realize higher quality employment of graduates, it is imperative to optimize career education and construct a new model based on the new technology of artificial intelligence. By analyzing the realistic demands of career education optimization under the background of artificial intelligence, combined with the new characteristics of integration, innovation and lifelong embodied in career education, this paper puts forward a new model and implementation path of "artificial intelligence + career education" from the aspects of curriculum, learning and environment.

Keywords: *Artificial intelligence; Career education optimization; Mode construction; Promotion of information technology.*

1 INTRODUCTION

With the rapid development and application of new generation information technologies such as artificial intelligence, big data and the Internet of things, emerging technologies including mobile payment, 3D printing and driverless are emerging, and industrial digital applications have been realized [8]. The resulting career changes and organizational changes have also had a profound impact on the quality of college students' employment and college career education. Under the background of artificial intelligence, how do college students manage themselves and quickly integrate into the rapidly changing environment brought by national economic development and scientific and technological development? We carry out theoretical and empirical analysis from the impact of artificial intelligence on college students' employment, and explore the optimization of college career education and its model construction.

2 PRACTICAL EFFECT AND INFLUENCE OF ARTIFICIAL INTELLIGENCE ON COLLEGE STUDENTS' EMPLOYMENT QUALITY

2.1 Theoretical Research

As for the impact of artificial intelligence on employment, theoretical research has been on the rise year by year since 2017. Specific studies vary, but the main view is that the impact of artificial intelligence on employment has creation effect and substitution effect [6]. Under these two effects of artificial intelligence, the total employment will remain basically stable, and the greatest impact is mainly reflected in the structural impact on employment [3]. On the one hand, the substitution effect will replace boring jobs such as repetitive and mechanical labor [5] [7]. On the other hand, the creation effect will create new jobs that are more in line with the needs of social development [1] [2]. Some studies have shown that key universities have stronger ability to deal with risks, mainly by improving students'

professional skills and guiding students to form good personality characteristics [10], while the employment work of application-oriented undergraduate universities is still insufficient in dealing with career change [9].

2.2 Empirical Analysis

The impact of artificial intelligence on employment should see both negative and positive effects, so as to achieve the comprehensiveness and objectivity of understanding [4]. But for college graduates, especially those with AI related technologies, we think it should have a greater positive impact.

2.2.1 Data Source

The survey data of employment quality of graduates of an applied undergraduate university in Guangzhou in 2020 were filled in through WeChat, and 2511 valid samples were obtained. Among the students participating in the survey, there were 1732 students majoring in artificial intelligence, big data, Internet of things, computer information technology and other related majors, accounting for 69% of the total number of students participating in the survey.

2.2.2 Variable Selection

Dependent variable: analyze graduates' employment satisfaction according to the survey results of graduates'

employment quality. The dependent variable is bounded by employment satisfaction, and select the result of "overall satisfaction with work" in the questionnaire.

Key independent variable: the key independent variable selects the survey result of "what is your obvious competitiveness compared with graduates of similar schools". The main reason is to further investigate the correlation between the level of information technology, professional ability and graduates' employment quality, so as to explore the practical basis and entry point of college career education optimization under the background of artificial intelligence.

Other independent variables: the influencing factors of employment satisfaction are related to students' salary, career planning and career development prospects. Therefore, the above variables are selected as the control variables. The meanings and descriptions of relevant variables are shown in Table 1. background of artificial intelligence, how do college students manage themselves and quickly integrate into the rapidly changing environment brought by national economic development and scientific and technological development? We carry out theoretical and empirical analysis from the impact of artificial intelligence on college students' employment, and explore the optimization of college career education and its model construction.

Table 1 Variable definition and descriptive statistical results

	variable name	sample size	average value	standard deviation	median	variance
dependent variable	overall job satisfaction (1 = satisfied; 0 = dissatisfied)	2511	0.859	0.348	1	0.121
key independent variable	compared with graduates from similar schools, what is their obvious competitiveness? (1 = computer level and information search ability; 2 = professional ability; 3 = time management and project management ability; 4 = communication expression and teamwork ability; 5 = relearning and pressure resistance ability; 6 = others)	2511	2.658	1.776	2	3.153
other independent variables	satisfaction with compensation and benefits	2511	0.713	0.453	1	0.205
	is there a career plan	2511	0.912	0.283	1	0.08

variable name	sample size	average value	standard deviation	median	variance
satisfaction with career prospects	2511	0.801	0.399	1	0.16

2.2.3 Model Selection

Because the dependent variable is taken as 0 or 1 and the independent variable is not normally distributed, the logistic regression model is selected and the model is set as

$$logit(p) = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4$$

(formula 1)

2.2.4 Result Verification

The results show that "compared with graduates from similar schools, what is their obvious competitiveness?" For each additional unit, the probability of overall job satisfaction of 1 is 18.32% lower than that of 0, that is, the informatization level of graduates plays an important role in their employment satisfaction. In other words, the higher the information level of graduates, the higher their employment satisfaction, on the contrary.

Table 2: Logistic regression results

term	regression coefficient	standard error	Wald	P value	OR value	ORvalue 95% confidence interval	
						upper limit	lower limit
constant	-0.257	0.252	1.036	0.309	0.773	0.472	1.268
compared with graduates from similar schools, what is their obvious competitiveness?	-0.202	0.04	25.556	0.000***	0.817	0.755	0.883
Is there a career plan	0.411	0.216	3.619	0.057*	1.508	0.988	2.302
satisfaction with compensation and benefits	2.95	0.196	227.035	0.000***	19.107	13.018	28.045
satisfaction with career prospects	1.654	0.155	113.928	0.000***	5.227	3.858	7.082
dependent variable: overall job satisfaction							

Note: ***, ** and * represent the significance levels of 1%, 5% and 10% respectively

Table 3: Classified evaluation indicators

accuracy	recall	accuracy rate	F1	AUC
0.89	0.89	0.894	0.892	0.916

According to the values of accuracy and recall, the model is reasonable and the analysis results have high reference value.

3 OPTIMIZATION AND MODEL CONSTRUCTION OF COLLEGE CAREER EDUCATION UNDER THE BACKGROUND OF ARTIFICIAL INTELLIGENCE

Both theoretical research and empirical analysis results show us the fact of a professional world, that is, the development of artificial intelligence must have higher requirements for workers' professional knowledge and skill level. In fact, in addition to these, under the background of artificial intelligence, there are higher requirements for workers' soft skills such as interpersonal communication, mutual cooperation, information communication, innovation and creation [4]. The traditional career education in colleges and universities needs to be optimized and reconstructed in order to improve students' ability to deal with career change and adapt to the development of the era of artificial intelligence.

3.1 Realistic Demands of Career Education Optimization under the Background of Artificial Intelligence

The development of artificial intelligence has brought a revolutionary impact on the traditional concept of education and teaching. Career education in colleges and universities should pay more attention to the exploration of the external world. The optimization and construction of career education model originates from the realistic demands of external society. It pays attention to what talents society needs under the background of artificial intelligence.

3.1.1 Demands of Economic Development

The era of artificial intelligence is a new era supported by modern science and technology. The mastery and application of higher-level knowledge and technology in all walks of life has spawned an emerging economy, and there is a large gap of highly skilled and intelligent talents. Career education in colleges and universities should meet the needs of social and economic development, guide students to understand and adapt to the uncertainty of the environment based on the application of artificial intelligence, and quickly integrate into the era of remote, digital and automatic artificial intelligence.

3.1.2 Policy Guarantee

In 2016, China entered the first year of artificial intelligence. In 2017, China promulgated the development plan for a new generation of artificial intelligence, which proposed to "systematically plan and layout the development of artificial intelligence at the national strategic level", which provided a good policy

guarantee for career development and education in the artificial intelligence environment [4]. At present, many colleges and universities have begun to put the development plan of smart campus into action. The evaluation links of career education need to rely on the information sharing platform. We should further break through the space-time constraints and enhance the diversification of students' self-choice.

3.1.3 Demands of Information Ecological Reconstruction

The innovation of information technology has broken the traditional education mode. Emerging technologies such as Internet of things, big data and artificial intelligence are playing an increasingly important role in the field of Education [11]. The traditional self exploration centered career education should also break the existing process, turn the perspective to the external world, further integrate resources and create a more personalized and intelligent education ecology.

3.2 New Characteristics of College Career Education Optimization under the Background of Artificial Intelligence

Artificial intelligence promotes the innovation of thinking mode, more and more man-machine collaborative innovation has been realized, and people's cognitive style and cognitive level are more and more dependent on intelligent network. Career education under the background of artificial intelligence serves the overall situation of economic and social development. Its optimization process will be inseparable from modernization and intelligence, reflecting the new characteristics of integration, innovation and lifelong.

3.2.1 Integration

Career development is a dynamic process of interactive construction between self and society. It needs to collect, analyze and reorganize a large amount of knowledge and information to form an objective and accurate career decision in line with personal reality. The rapid development of artificial intelligence technology enlarges the capacity of these information infinitely, and also makes it possible to realize resource integration in the shortest time.

3.2.2 Innovation

The information age is an era of continuous innovation, as well as an era of knowledge renewal, technological upgrading and industrial change. Artificial intelligence has changed the original relationship between individuals and organizations, and borderless career has gradually become the norm, which has brought the reorganization and reconstruction of various elements

of career education and provided a new supply mode for career education. Students' exploration in their values, interests and abilities is more diversified, so they can choose learning methods and learning contents that are more in line with their personalized needs, so as to promote personalized and diversified career development.

3.2.3 Lifelong Learning

With the rapid development of economy and science and technology in the era of artificial intelligence, people are increasingly pursuing the realization of high-level self-worth on the basis of increasingly rich material culture. The necessity and urgency of lifelong learning are highlighted. The era of lifelong career is gone forever. People pay more attention to personal learning, growth

and development needs, which also makes the concept of lifelong learning more and more popular.

3.3 Construction of Career Education Model in Colleges and Universities under the Background of Artificial Intelligence

The construction of career education mode in colleges and universities under the background of artificial intelligence takes the external world as the foothold and takes the mode of "artificial intelligence + career education" to explore the implementation path from the aspects of curriculum, learning and environment, which mainly reflects the systematic change and influence of artificial intelligence on curriculum teaching in colleges and universities.

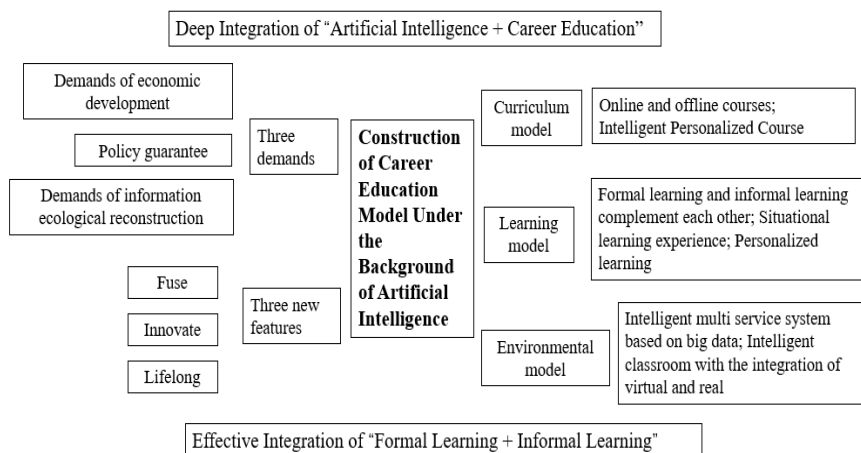


Figure 1: Model construction of career education under the background of artificial intelligence

3.3.1 Curriculum Model

The era of artificial intelligence provides college career education with courses and teaching contents that can be selected at any time on demand, and can timely present the cutting-edge knowledge and content of modern career education. Mu class, micro class and other online courses emerge in endlessly, and online learning has become the norm. In 2020, affected by the epidemic, the career planning course will carry out online teaching. The teaching resource platform selected by the research group is the superstar course, which has richer and richer teaching contents than before. Students can self-study the specified content online, and then present their learning experience in writing in the online classroom. Students' "autonomy", "exploration" and "cooperation" are more sufficient and their subjectivity is more obvious than before. Multiple roles such as teaching presentation, homework correction and online guidance also promote teachers to actively learn and master the necessary knowledge and technology of online teaching, which is further close to the needs of the era of artificial intelligence.

3.3.2 Learning Model

Artificial intelligence and big data provide students with rich learning resources and personalized learning environment. The learning space is not limited to the traditional classroom. Formal learning and informal learning complement each other. The research group once conducted an after-school survey on 36 students who participated in online teaching of career planning. In the open question about "feelings of online teaching", most students said they could accept it. They even thought that "learning content is richer", "they feel a different learning atmosphere", "they have gained a lot of knowledge", "they are not distorted at all, which is in line with the assumption of the course" and "it is a new experience". There are also a small number of students who prefer offline teaching. They said that "they lack the opportunity to meet", "they still like offline classes in the classroom" and "online courses are easy to be distracted". With the gradual advancement of smart city and smart campus, online learning space will be further promoted. College career education should strengthen the data

collection and analysis of teaching process, and strengthen the practical application of high-quality online resources in the learning environment.

3.3.3 Environmental Model

Smart campus is an educational ecosystem integrating virtual and reality based on big data, cloud computing and other information technologies. First, it combines information technology with career services, online teaching, career evaluation and employment services to form a new model of digital and information-based career services; Second, based on big data analysis and student growth curve analysis, realize the dynamic evaluation of career education and provide personalized and customized career guidance for students; Third, build a career education intelligent management platform with teacher-student interaction and student-student interaction to meet accurate and intelligent career planning and employment guidance services.

4 CONCLUSIONS

Li Kaifu once predicted that in the next five to 15 years, repetitive work, routine work and optimized work will be gradually replaced by artificial intelligence, while complex and creative work is relatively safe and difficult to be replaced. When doing career education in colleges and universities, we should always think about what changes artificial intelligence will bring to society and what impact it will have on college students' employment? Under the background of artificial intelligence, we need to pay attention to the ability of students to adjust their career plans in the face of uncertain events, so as to enable students to improve AI related skills and realize the diversification and sustainability of individual career development. At the same time, career education is not only classroom teaching, but also includes all elements such as enterprise, family and society to form an organic system. Only by keeping up with the development of high and new technology in the era of artificial intelligence and focusing on the needs of social development can we truly and effectively realize high-quality employment.

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