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The Effect Evaluation of General Education of University A Based on Digitalization and Innovation

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Abstract: General education has been developed in my country for many years, but at present, the relevant research mainly focuses on the purpose, curriculum and curriculum effect of general education, and there are few studies on the implementation effect of general education , and even fewer studies on the implementation effect of general education reflected by quantitative data indicators. This paper takes University A as the object to conduct empirical research, based on the design idea of the Wabash questionnaire applied to the field of higher education in the United States, combined with the actual situation of general education of undergraduates in University A, the original 9 indicators for evaluating the effect of general education are adjusted to 10 indicators. Taking the 2020 students of University A as the research group, a comparative analysis of the 10 indicators was carried out, and it was finally found that the students of University A had certain positive changes in the 10 indicators after general education, of which the largest increase is the ability of teamwork, and the smallest is the ability of self-confidence and tolerance.

Keywords: A university general education, implementation effect, effect evaluation

1 Introduction

Since 1995, the Ministry of Education has carried out the reform pilot work of "cultural quality education" in some colleges and universities across the country, which is very similar to the liberal arts education and general education advocated by many western countries. After years of practice and exploration, general education has been highly valued in many domestic colleges and universities, and it has become the consensus of many domestic colleges and universities to develop from the cultivation of professional ability and vocational ability to the cultivation of "social people" with all-round development. Among them, Tsinghua University, Peking University, and Fudan University have also gradually implemented general education by setting up general education colleges, reforming training models and core curriculum systems. Education-related courses, including ideological and political theory courses, foreign languages,

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computers, physical education, military theory and other general courses prescribed by the Ministry of Education, as well as personalized general courses offered by colleges and universities, but there are generally "scattered", "miscellaneous", The characteristics of "chaotic", general education courses and general education ability, subject characteristics, etc. have not been matched and coupled.

The contribution of general education to students' comprehensive quality ability has reached a consensus in foreign countries. There are two main aspects to the research on the implementation effect of general education. One is the research on the implementation effect of general education oriented by general education. As early as 1937, Walter of the Carnegie Association for the Advancement of Teaching proposed the concept of competency-oriented education: the judgment of students' learning achievements should not be limited by semester hours, but by what they show they can do[1]. Later, many universities in Europe and the United States began to reform the teaching system around the construction of college students' general ability, but it was relatively late to carry out related research on general ability, mainly focusing on engineering students' general ability construction[2]. It is representative of the related research conducted by Gokuladas in 2010[3]. He used whether college graduates can find a job as a dependent variable, and used graduates' admission scores, professional academic performance, language reasoning ability, logic and problem-solving ability as well as emotional intelligence, soft skills such as communication skills, leadership skills, teamwork skills, self-discipline and self-motivation are used as independent variables to study the employability of engineering graduates in India. Problem-solving ability and soft skills have a more significant impact on graduate employment status than professional academic performance. The second is the research on the implementation effect of general education oriented by multiple measurement indicators. After Harvard University began to implement the "core curriculum" in 1982, the United States began to evaluate the effect of general education in colleges and universities[4]. In the 1980s, the most popular in the United States was to use standardized tests to evaluate the effect of general education in colleges and universities, mainly including American college tests, the academic ability test of educational tests, and the college academic proficiency test of the college test agency[5]. There are standardized tests compiled by some places or schools.

The history of general education in my country can be traced back to the "general education" in the late Qing Dynasty. Since then, universities have experienced two stages of "specialist education" and cultural quality education. It was not until the 21st century that general education began to be emphasized and implemented. At present, research scholars in our country mainly focus on the integration of general education and professional education, the construction of general education courses, evaluation and other ideological and operational issues. In effect research, there is a lack of empirical data research.

This paper selects University A as the object, and conducts an empirical investigation from the perspective of the implementation effect of general education, which provides certain empirical data contributions for relevant theoretical research, and also provides a basic basis for the further improvement of general education in University A.

2 Related Work

With the advent of "information age", digital technology and management ideas have been applied and developed in various fields, and the educational management mode of higher education institutions has been transformed from institutionalized and template to personalized and characteristic, and the concept of student-centered education management has been emphasized. Since 1995, when China started to implement the pilot reform of "cultural quality education", general education has been developed for more than 20 years, from the initial imitation and learning to the present innovation and development, all based on the transformation of education management, among which digital technology, especially the application of information data, has played an important role in promoting the reform and management of general education teaching in China. In China, digital assessment of learning outcomes for university general education is being emphasized in many universities[6]. Tsinghua University's "National Survey of Student Engagement-China" (NSSE-China) has been used in dozens of universities[7]; Fudan University has developed and used the Fudan University General Education Student Survey[8]; and Central China Normal University has designed an assessment tool for the implementation of general education with personalized features according to the characteristics of the university. The adoption of these digital management tools provides an objective basis for universities to establish data result-oriented education and teaching reforms and lays the foundation for the innovative development of university general education.

3 Theoretical basis and research assumptions

3.1 Theoretical basis

In 2005, Wabash College carried out a nationwide study called the National General Education Survey, namely the WNSLAE project. The evaluation results are specific and detailed and have been greatly recognized by the industry. Based on the WNSLAE evaluation index, this paper will carry out corresponding research in combination with the training objectives of general education in University A[9-10].

3.2 Design of research indicators

In recent years, University A has vigorously promoted the role of general education in undergraduate education training. By reforming the undergraduate education training plan, increasing the proportion of general education courses, and enriching general education elective courses, it has built a university with its own characteristics. The structure and framework of general education, A university general education 1.0 era has been formed. Since University A does not have relevant documents and materials specifically to explain the goals of general education, this article is based on the strict compliance with the general education concepts described above, comprehensive reference to the general education course modules of University A, and combined with the WNSLAE evaluation indicators to determine 10 indicators of the general education implementation effect evaluation of University A are presented, including language expression ability, self-confidence and tolerance ability, judgment ability, teamwork

ability, innovative spirit, learning ability, practical ability, physical and mental health, multi-values and artistic accomplishment[11].

4 Data collection

This questionnaire refers to the design ideas and implementation experience of the Wabash questionnaire applied to higher education in the United States and combines the actual situation of undergraduate general education in University A to form a general education effect questionnaire in University A and use it as research information. main source. This survey takes the 2020-level undergraduates of University A as the population. Due to the complex composition of the overall student body and the large differences between the components, the stratified random sampling method is used to select samples according to the different departments. In the actual distribution of the questionnaires, the students who were surveyed were asked to conduct surveys at two stages before and after receiving general education for comparison. In the first stage, 1252 questionnaires of "A University General Education Effect Survey I" were recovered, and all of them were valid, with a recovery rate of 83.47. In the second stage, 1,364 questionnaires of "University A General Education Effect Survey II" were recovered, all of which were valid, with a recovery rate of 90.93. These valid questionnaires came from 8 different colleges, and the departments to which the valid questionnaires belonged accounted for more than 90% of the total number of colleges and departments in University A. SPSS 22.0 Chinese version software was used to organize and analyze the questionnaire data. The internal consistency test reflected by the 10 subscales in Questionnaire I was α=0.896; the internal consistency test reflected by the 10 subscales in Questionnaire II was α=0.914. The reliability coefficient of the whole set of questionnaires or scales is good and can be used for statistical analysis.

5 Data Analysis

Since the sample size of this study is large enough, these data can be regarded as approximately obeying a normal distribution, and all data can be compared using the paired sample t-test for differences between the two groups.

Table 1 Paired sample T-test data results of test indicators

Pairwise difference							
				95% of the difference confidence interval			
	Mean	Standard Deviation	Standard Error of Mean	Lower Limit	Upper Limit	t	Sig. (two-sided)
Pre-linguistic - Post-linguistic	-0.32902	1.00250	0.04626	-0.44412	-0.21392	-8.042	0.000
Pre-confidence and tolerance capacity - post-confidence tolerance capacity	-0.12066	0.66762	0.03624	-0.16089	-0.08043	-5.827	0.000

Pre-judgment ability - Post-judgment ability	-0.21254	0.84636	0.04968	-0.27823	-0.14685	-6.233	0.000
Pre- teamwork ability-post teamwork ability	-0.39618	1.17163	0.05468	-0.52391	-0.26305	-7.122	0.000
Pre-innovation spirit - post-innovation spirit	-0.12427	0.67485	0.05775	-0.17640	-0.07214	-5.256	0.000
Pre-learning ability - Post-learning ability	-0.24536	0.88468	0.05125	-0.30646	-0.18426	-6.464	0.000
Pre-practice hands-on ability-post-practice hands-on skills	-0.28364	0.91342	0.04903	-0.33243	-0.23485	-6.768	0.000
Physical and mental health before - physical and mental health after	-0.38274	1.12582	0.05214	-0.46332	-0.30216	-6.842	0.000
Pre-multi-values-post multi-values	-0.31226	0.96775	0.048659	-0.37790	-0.24662	-7.864	0.000
Pre-art training-post-art training	-0.32760	1.00140	0.05749	-0.39186	-0.26334	-6.144	0.000

From the analysis results, it can be seen that P=0.000<0.01, the difference before and after the 10 indicators of the implementation effect of general education in University A is obvious. All nine indicators showed some positive changes.

6 Conclusion

According to the detected data and analysis above, the students who participated in the survey as a whole were in terms of language expression ability, self-confidence and tolerance ability, judgment ability, teamwork ability, innovative spirit, learning ability, practical ability, physical and mental health and artistic accomplishment 10. There were some positive changes in each of the performance indicators, but the increase was very small. The largest increase is the teamwork ability, and the smallest increase is the self-confidence and tolerance ability. There are two main reasons. On the one hand, the students selected in this study received general education for a short period of time, only one semester. On the other hand, On the other hand, University A is a private university, and students' self-confidence and learning are inherently weak.

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