Design Major Teaching Management Reform in Private University of Guangdong Province

Tang Jie,
Sutida howattanakul and Somsak Chanphong
Bangkokthonburi University, Thailand
Corresponding Author, E-mail: 4448286@qq.com

****

Abstracts

The purpose of this study were: 1.To explore the factors affecting the reform of design major teaching for educational management in private universities in Guangdong Province.2.To formulating the reform plan of design major teaching for educational management in private universities in Guangdong Province.

This study adopted the mixed method of qualitative research and quantitative research. The total population consisted of about 680 full-time teachers and teaching administrators from 10 private universities design majors in Guangdong Province. The sample size was 248 according to the sample size scale developed by Krejcie and Morgan (1970). A quota sampling method was used to sample 248 full-time teachers and teaching administrators of design majors in private universities in Guangdong Province. The data collection tools included semi-structured interviews, questionnaires and discussion records of focus groups. The data obtained were mainly used for descriptive statistics and exploratory factor analysis.

The main results were as follows: 1. The main factors affecting the reform of design major teaching include four parts: 1.1 the quality management of teaching resources. 1.2 Teaching quality management of design specialty. 1.3 Design professional teacher quality management. 1.4 Design specialty basic education reform management. 2. The formulation to reform were: 2.1 The quality management of teaching in a large number of library materials and in line with international standard, update for the software, supervision for the laboratories, establish design studio environment for the combination of theory and practice. 2.2 The teaching quality management of ensure of student position in teaching activity, combined theory and practice, increase teacher –student communication ,logical thinking. 2.3 design professional teacher quality management for strengthen theoretical and practical, correct attitude and behaviour, strengthen tutoring, evaluate teacher's learning experience. 2.4 run basic curriculum system, intergrated modern design to basic course.

Keywords: Design Major; Educational Management; Educational Reform; Guangdong Private University

* Received: July 19 2023; Revised: August 28 2023; Accepted: August 29 2023

Introduction

Research Background

More than 100 years ago, the Bauhaus School in Germany not only redefined the meaning of design, but also established the modern design education system, which has had a profound impact on the fundamental design education system around the world. But until now, there are still many people equate art and design, think that art and design are one, and some people even generalize design as "functional art". This cognitive phenomenon is more common among people. If people's fundamental understanding of the design discipline is wrong, problems will occur in discipline construction, teaching management and talent training plans, and may even affect the development mode of the design discipline in society (Wang S. , 2002). "Even if there are hundreds of thousands of designers with such higher education in China in the future, they will not be able to change China's future design environment from a cultural level, if there is a lack of appropriate social and cultural structure conducive to design education," warned Professor Matthias from the School of Art of Kassel University in Germany. In China, there is a complete lack of design education, which begins in kindergarten in Europe. There is no museum of design and visual communication that can educate ordinary people about the general concept of design and explain what is good and bad design."(Matthias, 2006).

In order to promote the development of design discipline in China, Professor Liu Guanzhong set up the first department of Industrial Design in Central University of Arts and Crafts (now the Department of Fine Arts of Tsinghua University) after returning from Germany in 1984. Industrial design began to develop in China. Therefore, Professor Liu Guanzhong is also known as the "father of Industrial design in China (Guanzhong, 2021)".

Nowadays, the discipline of design, like the discipline of art, has become mysterious in people's understanding. In universities, some design fundamental education have also changed from the training of rational thinking to perceptual exploration. The contents of many fundamental courses are also mixed up with the contents of art disciplines. As a result, many students feel confused and confused in the process of learning design. Although they can find a design job after graduation, it is difficult to continue to work in their professional field. Under this premise, the teaching management and teaching reform of design specialty in universities are particularly important.

Research questions

(1) What is the factors of design major teaching reform for educational management in private universities in Guangdong Province?

(2) What is the design major teaching reform plan for educational management in private universities in Guangdong Province?

Research Objectives

(1) To explore the factors affecting the reform of design major teaching for educational management in private universities in Guangdong Province.

(2) To formulating the reform plan of design major teaching for educational management in private universities in Guangdong Province.

Research Methodology

This study adopted the mixed method of qualitative research and quantitative research. The data collection tools included semi-structured interviews, questionnaires and discussion records of focus groups. The data obtained were mainly used for descriptive statistics and exploratory factor analysis（EFA）. Research has three processes: preparation of research plan, research procedure and research report. The research procedure consists of three steps; (1) To find and discuss the variables affecting the education management factors of design major in Guangdong private colleges and universities; (2) To determine the variables affecting the educational management factors of design majors in Guangdong private colleges and universities; (3) Formulate guidelines for the management of design major education in private colleges and universities in Guangdong Province.

1. To find and discuss the variables affecting the education management factors of design major in Guangdong private colleges and universities.

1.1 Research Design

Researchers have studied the concepts, principles, theories and other relevant literature of design professional education, as well as the management and teaching reform content of design professional education. And adhere to the principle of seeking truth from facts, maintain a real scientific attitude, attach importance to the collection of relevant literature and data, refer to more than 130 relevant data. Domestic materials are mainly concentrated in museums and university libraries, while foreign materials are mainly from various excellent original translation works. In-depth interviews were conducted with 9 experts with more than 20 years of experience in the management of design education in private universities. The expert interview questionnaire was used to measure variable data during the study.

1.2 Key Informants

Among the 17 personnel from private universities in Guangdong Province who received the invitation to interview, a total of 9 key personnel agreed to accept the interview after obtaining the guarantee of anonymity. These 9 key informants have more than 20 years of experience in design education management. They will examine 67 variables from the literature survey.

1.3 Instruments

Qualitative research: Expert Interview Questionnaire will be used to measure variable data in the research process.

1.4 Data collection

Data collection were performed by researcher.

1.5 Data analysis

The collected data is comprehensively analyzed through the content results and the variables provided by 9 key figures.

2. To determine the variables affecting the educational management factors of design majors in Guangdong private colleges and universities.

Using the influencing factors of the education management of design majors in Guangdong private colleges and universities in Step (1) as a research tool, the researchers compiled a questionnaire and collected the samples to test the variables affecting the education management of design majors in private colleges and universities in Guangdong province.

2.1 Population and Sample

The total population consisted of about 680 full-time teachers and teaching administrators from 10 private universities design majors in Guangdong Province. The sample

size was 248 according to the sample size scale developed by Krejcie and Morgan (1970). A quota sampling method was used to sample 248 full-time teachers and teaching administrators of design majors in private universities in Guangdong Province. The data collection tools included semi structured interviews, questionnaires and discussion records of focus groups. The data obtained were mainly used for descriptive statistics and exploratory factor analysis (EFA).

2.2 Instruments

The researchers used a three-part questionnaire; Part I: Demographic variables (checklist), such as gender, age, professional title, education, etc. Part Two: The variables affecting the factors of educational management in the design profession (five-level Rating Scale) (67 items), Part three: Recommendations (open). The tool is the questionnaire compiled from step (1).

The quality of questionnaires were assessed by content validity and reliability. For the content validity, it was checked by five experts and analyzed by Item-Objective Congruence (IOC). The item value was ≥ 0.50. For the reliability, it was analyzed by Cronbach alpha at 0.80. The questionnaires were sent by online, mail and researcher.

2.3 Data collection

Expert interview data came from researchers' face-to-face interviews, and questionnaire data came from the Internet, email and social media.

2.4 Data analysis

Descriptive statistics were used to analyze demographic variables. Frequency and percentage. Descriptive statistics method is used to analyze the variables affecting the educational management of design specialty. Mean, standard deviation (S.D.). For the interpretation criteria of equalization classification, the best concept (John W. Best, 1977:190) was adopted for analysis, as shown in Table 1. The actor variables affecting the educational management efficiency of pottery design were analyzed through the questionnaire data to reduce the irrelevant variables. During the analysis, the data is divided into subgroups and the average of the key scores is calculated. The average score is less than 4.59, indicating that the level of variables affecting the education management of design major in Guangdong private universities is low. The average score is higher than 4.59, indicating that the level of variables affecting the education management of design majors in Guangdong private colleges and universities is relatively high.

Table 1 According to the Best (1977) evaluation criteria

Mean Score	Level
1.0-1.49	Lowest
1.50-2.49	Low
2.50-3.49	Moderate
3.50-4.49	High
4.50-5.00	Highest

3. Formulate guidelines for the management of design major education in private colleges and universities in Guangdong Province.

3.1 Research design

Using each variable of design education management in step (2), the researchers concluded and developed a plan for reform management of design education in private universities in Guangdong through focus group discussions with seven design education experts.

3.2 Key informants with education reform in design major

After determining the factors affecting the education reform of private universities in Guangdong Province, these7 key informants from the design major participated in the discussion of the revision of basic design courses. These seven key people have more than 10 years of teaching experience in the design profession.

3.3 Instruments

Focus group discussion

3.4 Data Analysis

Content analysis method was used to analyze the data.

Research Conceptual Framework

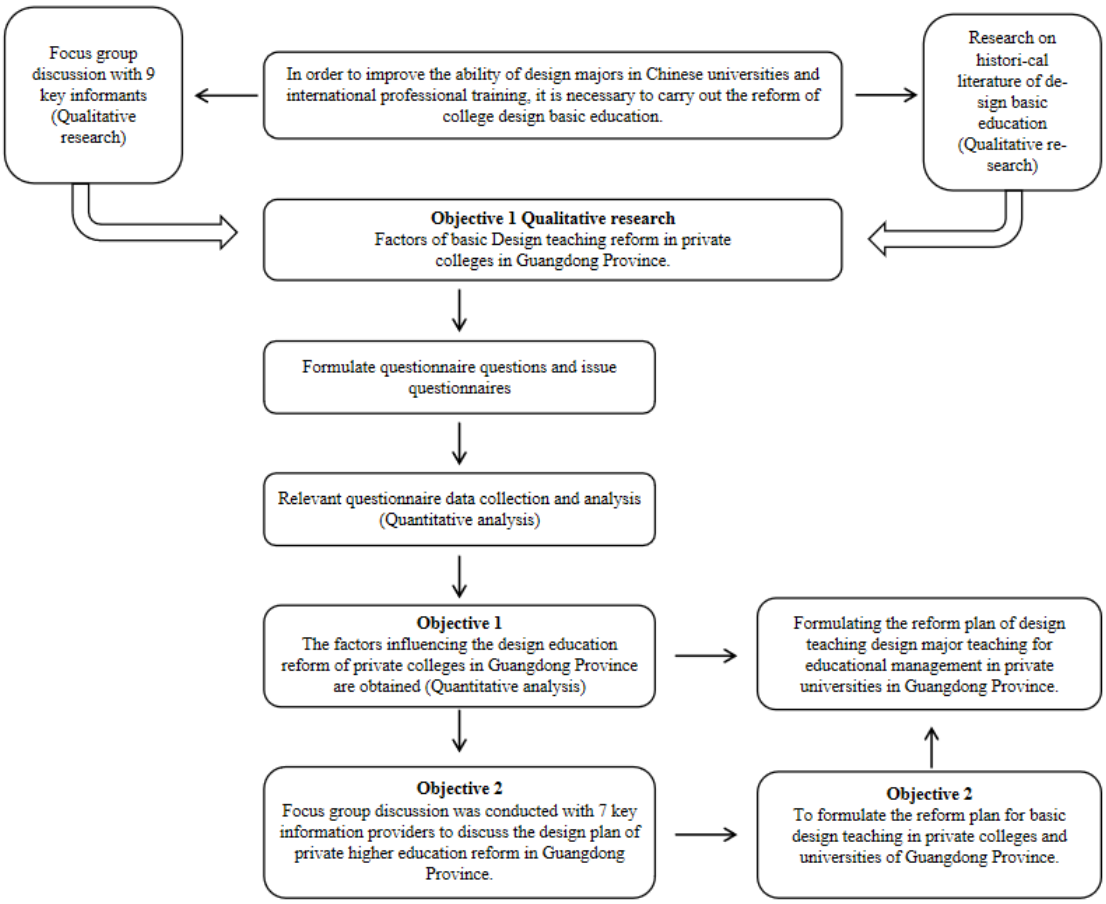

Figure 1 Research framework

Results

1. Result of Content Analysis for Variables

Through literature review and variable overview of related studies, a total of 31 variables were obtained. Some scholars have studied the dimensions of educational management of design majors and provided some suggestions for the factors affecting the reform of educational management of design majors in this study. The researchers chose a percentage variable greater than or equal to 50 percent. The results had 29 variables.

From the perspective of the development of private colleges and universities. Considering the relationship between the major components of the development of educational management of design profession, the improvement of basic education, student group management, teaching resources and teacher and leadership ability will affect the process of design profession reform. These four dimensions together constitute the necessary elements of design education reform in Guangdong private colleges and universities.

Based on the above research content, the researchers developed a semi-structured interview program. Then, the re-searchers conducted semi-structured interviews with 9 key information providers from private universities in Guangdong Province, which were obtained through purposeful sampling.

1. Result of Data Analysis for Research Objective 1

Based on the literature and interview results, a questionnaire survey of 67 items was set up, and the quality of questionnaires were assessed by content validity and reliability. For the content validity, it was checked by five experts and analyzed by Item-Objective Congruence (IOC). The analysis resulted in 60 valid projects. According to the 60 valid items in the final questionnaire, in order to study the reliability of the questionnaire, the researcher sent questionnaires to 30 non-sample people and collected data to consider the reliability results. Through SPSS software analysis and calculation, the final result is 0.938.

Table 2 Cronbach's Reliability Analysis

Cronbach's Reliability Analysis - Simplified format		
Items	**No.**	**α coefficient**
60	30	0.938

After passing the reliability test, about 300 questionnaires were distributed to the target population, 263 questionnaires were recovered, and 248 samples of main information providers were selected after invalid questionnaires were eliminated. Frequency and percentage results of questionnaire data analysis, see the Table 3 below for details:

Table 3 Frequency and percentage results of questionnaire data analysis

n=248

Population information				
Items	**Option**	**Frequency**	**Percentage (%)**	**Cumulative percentage (%)**
Gender	Female	89	35.89	35.89
	Male	159	64.11	100.00
Age	25-34 years	48	19.35	19.35
	35-44 years	127	51.21	70.56
	45-54 years	53	21.37	91.94
	More than 55	20	8.06	100.00
Your professional title	Teaching assistant	11	4.44	4.44
	Lecturer	78	31.45	35.89
	Associate Professor	83	33.47	69.35
	Professor	76	30.65	100.00
Your education background	Master	163	65.73	65.73
	Doctor	85	34.27	100.00
Total		248	100.0	100.0

The researchers analyzed the arithmetic mean ($\bar{x}$) and standard deviation (S.D.) compare the derived arithmetic mean with the standard based on the best standard. The scale score range was divided into five categories of teacher teams' cognition level of factors affecting design education management. To categorize average scores, searchers use a measure based on the best concept (John W. Best, 1997:190).

Table 4 Descriptive statistics

Items	Mean (□)	S.D.	Sk.	Ku.	Level
01. Strengthen the cultivation of students' design thinking and performance in the fundamental curriculum	4.298	0.753	-0.783	-0.051	High
02. Strengthen the cultivation of students' knowledge of design aesthetics in the fundamental curriculum	3.996	0.924	-0.674	-0.076	High
03. Strengthen the development history of modern design for students in the fundamental curriculum	4.069	0.872	-0.503	-0.698	High
04. Strengthen and cultivate students' learning of design software in the fundamental curriculum	4.234	0.775	-0.747	-0.000	High
05. Strengthen the cultivation of students' hands-on practice of making physical models in the fundamental curriculum	4.165	0.835	-0.740	-0.133	High
06. Strengthen the cultivation of students' technology and material cognition in the fundamental curriculum	3.770	1.149	-0.671	-0.335	High
07. Strengthen the cultivation of creative thinking and innovation for the changing world	4.194	0.954	-1.102	0.655	High
08. It is necessary to add design-related mathematics to the design foundation curriculum	4.206	0.878	-1.028	0.761	High
09. It is necessary to add design philosophy to the design foundation	4.129	0.926	-0.907	0.266	High

10. It is necessary to perfect the course selection mechanism	4.040	1.005	-0.925	0.411	High
11. It is necessary to improve the tutor responsibility system on the fundamental of design	4.222	0.856	-1.303	2.200	High
12. Students need to have a clear understanding of the fundamental design teaching objectives	3.907	0.933	-0.750	0.486	High
13. Students need to have a clear understanding of the design fundamentals curriculum	3.903	0.917	-0.537	-0.203	High
14. Students need to have a clear understanding of the linkages between the content of the design fundamentals course and relate course	3.944	0.911	-0.729	0.446	High
15. Students need to have a clear understanding of the expanded body of knowledge for design fundamentals	3.746	1.032	-0.567	-0.193	High
16. Teachers need to focus on the design of fundamental learning process	3.685	1.044	-0.545	-0.233	High
17. Teachers need to pay attention to the design of fundamental curriculum schedule time	4.206	0.841	-1.023	1.041	High
18. Teachers need to pay attention to the setting of fundamental homework	3.734	0.927	-0.213	-0.423	High
19. Teachers need to pay attention to the scheduling of homework in the design of fundamental courses	4.190	0.844	-1.104	1.518	High
20. Teachers need to pay attention to the fairness and rigor of students' achievement	4.000	0.834	-0.506	0.077	High
21. Teachers need to pay attention to the level of classroom interaction for active learning	4.109	0.810	-0.939	1.499	High
22. Teachers need to pay attention to students' learning environment and learning climate	3.891	0.882	-0.428	-0.032	High
23. Teachers need to pay attention to their own level of theoretical knowledge	3.911	0.922	-0.697	0.328	High
24. Teachers need to pay attention to their own practical ability including teacher training	4.222	0.797	-1.146	1.864	High
25. University should provide design-related multimedia classrooms	4.222	0.766	-1.055	1.895	High
26. University should provide better equipped computer classrooms	4.190	0.805	-1.108	1.956	High
27. University should provide self-study classrooms with corresponding design	4.185	0.804	-1.151	2.132	High
28. University should provide library resources for design subjects	4.173	0.804	-0.938	1.186	High
29. University should provide complete and complete teaching materials	4.137	0.783	-0.859	1.230	High
30. Teachers should provide rich design teaching cases	4.246	0.764	-0.889	0.884	High
31. Teachers should provide rich design teaching guidance materials	4.169	0.822	-1.029	1.542	High
32. Teachers should provide rich resources for design competition	4.202	0.769	-0.740	0.462	High
33. The University should provide corresponding design model making laboratory	4.145	0.776	-0.729	0.572	High
34. University should provide corresponding laboratory teaching	4.173	0.741	-0.530	-0.241	High
35. The University should provide appropriate laboratory management personnel	4.141	0.800	-1.025	1.832	High
36. University should provide corresponding design practice and practice resources	4.069	0.799	-0.699	0.728	High
37. Teachers should have a certain industry, enterprise work experience, or have the relevant professional qualification certificate	4.020	0.906	-0.862	0.720	High
38. Teachers should be role models, rich strong sense of responsibility and professional spirit	4.101	0.874	-0.896	0.628	High
39. Teachers should respect students and be good at listening to their opinions and suggestions	4.226	0.783	-0.829	0.554	High
40. Teachers should be virtuous and rigorous in learning	3.871	0.900	-0.718	0.218	High
41. Teachers need to improve their comprehensive quality	3.827	0.951	-0.727	-0.059	High
42. The University should have a specialized organization for ensuring the quality of classroom teaching (such as teaching quality management Office, etc.).	3.730	0.946	-0.739	0.384	High
43. The University should have a systematic teaching and learning evaluation system (such as: supervision evaluation, student evaluation, peer evaluation, and quality assurance etc.).	3.532	0.993	-0.527	-0.152	High

44. The evaluation mechanism of University teachers should be scientific and effective	3.500	1.014	-0.517	-0.058	High
45. University should be inspected regularly by teaching supervisors or peer group teachers	3.552	0.980	-0.512	-0.141	High
46. The University should have a high degree of social recognition	3.661	0.934	-0.537	-0.058	High
47. The University should have a good campus cultural environment	3.601	0.964	-0.467	-0.212	High
48. The University leadership team and management team should have a clear division of jobs	3.573	0.950	-0.425	-0.183	High
49. Teaching needs to have a clear goal of talent cultivation	3.472	1.045	-0.504	-0.234	Moderate
50. Talent training system needs to combine theory with practice and highlight innovative thinking	3.532	1.033	-0.631	0.066	High
51. The curriculum should be challenging, innovative and advanced	3.565	1.008	-0.620	0.131	High
52. Teaching should be carried out according to the talent training program	4.016	0.795	-0.566	0.255	High
53. Teaching management team needs to have high management ability	4.044	0.841	-0.868	1.079	High
54. Teaching requires standardized implementation of teaching rules and regulations	4.077	0.794	-0.775	0.986	High
55. Teaching needs to optimize the course content	4.024	0.804	-0.749	1.130	High
56. Teaching needs to optimize teaching methods	4.036	0.812	-0.800	0.950	High
57. Teaching needs to optimize the course practice process and assessment method	3.899	0.940	-0.710	0.236	High
58. It is necessary for teachers to continue to improve their teaching level	4.028	0.865	-1.001	1.395	High
59. University need to pay attention to the rationality of teaching staff construction	4.032	0.834	-0.948	1.565	High
60. The University shall provide teachers with regular or irregular on the job training or short term training	4.286	0.710	-1.023	1.929	High

After the validity analysis of SPSS software, the mean value, standard deviation, kurtosis and skewness of each variable are analyzed. Finally, the validity test was carried out, the KMO value was 0.926.

Table 5 Showed KMO-Meyer-Olkin and Bartlett's Test

KMO and Bartlett's test		
KMO value		**0.926**
Bartlett sphericity test	Approximate chi-square	13914.526
	df	1770
	p-value	0.000

This phase of analysis used factor extraction by principle Component Analysis (PCA) with orthogonal rotation et.al and varimax rotation. The used criteria for considering factors were as follows; (1) 0.35 or higher was a practically significant factor loading, (2) eigenfenvalues greater than 1 according to Kaiser's Criterion, and (3) there were more than 3 variables (Hatcher).

When consider the above Criterion, the number of components and the variance of variables were obtained as shown in Table 5.

Table 6 Principal Component Analysis

Variance interpretation rate table						
Factor	**Rotational front difference interpretation rate**			**Explanation rate of variance after rotation**		
	Characteristic root	Variance interpretation rate %	Cumulative %	Characteristic root	Variance interpretation rate %	Cumulative %
1	18.761	31.268	31.268	12.118	20.197	20.197
2	10.841	18.068	49.336	10.847	18.078	38.275
3	3.948	6.581	55.917	6.793	11.322	49.598
4	2.950	4.917	60.834	6.742	11.236	60.834

Based on the analysis of factor extraction and the information amount of factor extraction, it can be seen from the above table: A total of 4 factors were extracted from factor analysis, and the characteristic root values were all greater than 1. The variance interpretation rates of these 4 factors after rotation were 20.197%, 18.078%, 11.322% and 11.236%, respectively, and the cumulative variance interpretation rate after rotation was 60.834%.

On the basis of exploratory factor analysis (EFA), the variables were extracted and the key component variables were analyzed. It seems to have obtained the four effective components of the factors influencing the effectiveness of the design professional education management in Guangdong private colleges. Researchers then analyzed the corresponding relationship between variables and Component through the value of Factor loading coefficient, excluding factor load below 0.5, and named each Component according to the corresponding relationship between variables and Component, it can be divided into 4 components according to the results.

Table 7 Showed the factor loading, variables described in each of the main components after rotating the axis

Factor loading				
Variable	**Component**			
	1	**2**	**3**	**4**
Variable 11	0.448			
Variable 24.	0.715			
Variable 25	0.777			
Variable 26	0.780			
Variable 27	0.798			
Variable 28	0.783			
Variable 29	0.821			
Variable 30	0.851			
Variable 31	0.833			
Variable 32	0.799			
Variable 33	0.796			
Variable 34	0.796			
Variable 35	0.723			

Variable 36	0.723			
Variable 37	0.621			
Variable 38	0.647			
Variable 39	0.679			
Variable 40		0.740		
Variable 41		0.783		
Variable 42		0.746		
Variable 43		0.709		
Variable 44		0.703		
Variable 45		0.806		
Variable 46		0.801		
Variable 47		0.826		
Variable 48		0.741		
Variable 49		0.732		
Variable 50		0.774		
Variable 51		0.783		
Variable 52		0.790		
Variable 53		0.646		
Variable 54		0.727		
Variable 55		0.781		
Variable 56		0.802		
Variable 57		0.784		
Variable 58		0.408		
Variable 59		0.359		
Variable 60		0.286		
Variable 12			0.661	
Variable 13			0.673	
Variable 14			0.747	
Variable 15			0.713	
Variable 16			0.750	
Variable 18			0.712	
Variable 19			0.475	
Variable 20			0.674	
Variable 21			0.562	
Variable 22			0.767	
Variable 23			0.745	
Variable 01				0.675
Variable 02				0.817
Variable 03				0.822
Variable 04				0.823
Variable 05				0.861
Variable 06				0.698
Variable 07				0.741
Variable 08				0.739
Variable 09				0.587
Variable 10				0.547
Variable 17				0.473

In this study, the maximum variance rotation method (varimax) was used to rotate the data to find out the corresponding relationship between each factor and the research project. As can be seen from the above table, variables with common values greater than 0.5 for all research items indicate that there is a strong correlation between research items and factors, and factors can effectively extract information.

Table 8 Showed components of design major education management

Order	Assembly	Number of variables	Factor loading
1	Component 1	17	0.448-0.851
2	Component 2	21	0.286-0.826
3	Component 3	11	0.475-0.767
4	Component 4	11	0.473-0.861
	All	60	

On the basis of exploratory factor analysis (EFA), the variables were extracted and the key component variables were analyzed. It seems to have obtained the four effective components of the factors influencing the effectiveness of the design professional education management in Guangdong private colleges. Researchers then analyzed the corresponding relationship between variables and Component through the value of Factor loading coefficient, excluding factor load below 0.5, and named each Component according to the corresponding relationship between variables and Component, it can be divided into 4 components according to the results.

Component 1 can consist of 17variables, because variable “11. It is necessary to improve the tutor responsibility system on the fundamental of design” is below 0.5, it is removed, 16 variables are left.The researchers named it "**Quality management of teaching resources for design major**".

Table 9 Component 1

Variable	Presentation	Factor loading
01	Teachers need to pay attention to their own practical ability including teacher training	0.715
02	University should provide design-related multimedia classrooms	0.777
03	University should provide better equipped computer classrooms	0.780
04	University should provide self-study classrooms with corresponding design	0.798
05	University should provide library resources for design subjects	0.783
06	University should provide complete and complete teaching materials	0.821
07	Teachers should provide rich design teaching cases	0.851
08	Teachers should provide rich design teaching guidance materials	0.833
09	Teachers should provide rich resources for design competition	0.799
10	The University should provide corresponding design model making laboratory	0.796
11	University should provide corresponding laboratory teaching	0.796
12	The University should provide appropriate laboratory management personnel	0.723
13	University should provide corresponding design practice and practice resources	0.723
14	Teachers should have a certain industry, enterprise work experience, or have the relevant professional qualification certificate	0.621

15	Teachers should be role models, rich strong sense of responsibility and professional spirit	0.647
16	Teachers should respect students and be good at listening to their opinions and suggestions	0.679

Component 2 can consist of 21variables, because variable “58. It is necessary for teachers to continue to improve their teaching level, variable“59. University need to pay attention to the rationality of teaching staff construction” and variable“60. The University shall provide teachers with regular or irregular on the job training or short term training” are below 0.5, they are removed, 18 variables are left.The researchers named it "**Teaching quality management of design specialty**".

Table 10 Component 2

Variable	Presentation	Factor loading
01	Teachers should be virtuous and rigorous in learning	0.740
02	Teachers need to improve their comprehensive quality	0.783
03	The University should have a specialized organization for ensuring the quality of classroom teaching (such as teaching quality management Office, etc.).	0.746
04	The University should have a systematic teaching and learning evaluation system (such as: supervision evaluation, student evaluation, peer evaluation, and quality assurance etc.).	0.709
05	Theevaluation mechanism of University teachers should be scientific and effective	0.703
06	University should be inspected regularly by teaching supervisors or peer group teachers	0.806
07	The University should have a high degree of social recognition	0.801
08	The University should have a good campus cultural environment	0.826
09	The University leadership team and management team should have a clear division of jobs	0.741
10	Teaching needs to have a clear goal of talent cultivation	0.732
11	Talent training system needs to combine theory with practice and highlight innovative thinking	0.774
12	The curriculum should be challenging, innovative and advanced	0.783
13	Teaching should be carried out according to the talent training program	0.790
14	Teaching management team needs to have high management ability	0.646
15	Teaching requires standardized implementation of teaching rules and regulations	0.727
16	Teaching needs to optimize the course content	0.781
17	Teaching needs to optimize teaching methods	0.802
18	Teaching needs to optimize the course practice process and assessment method	0.784

Component 3 can consist of11variables, because variable “19. Teachers need to pay attention to the scheduling of homework in the design of fundamental courses” is below 0.5, it is removed, 10 variables are left.The researchers named it "**Design professional teacher quality management**".

Table 11 Component 3

Variable	Presentation	Factor loading
01	Students need to have a clear understanding of the fundamental design teaching objectives	0.661
02	Students need to have a clear understanding of the design fundamentals curriculum	0.673
03	Students need to have a clear understanding of the linkages between the content of the design fundamentals course and relate course	0.747
04	Students need to have a clear understanding of the expanded body of knowledge for design fundamentals	0.713
05	Teachers need to focus on the design of fundamental learning process	0.750
06	Teachers need to pay attention to the setting of fundamental homework	0.712
07	Teachers need to pay attention to the fairness and rigor of students' achievement	0.674
08	Teachers need to pay attention to the level of classroom interaction for active learning	0.562
09	Teachers need to pay attention to students' learning environment and learning climate	0.767
10	Teachers need to pay attention to their own level of theoretical knowledge	0.745

Component 4can consist of11variables, because variable “Teachers need to pay attention to the design of fundamental curriculum schedule time” is below 0.5, it is removed, 10 variables are left.The researchers named it "**Design specialty basic education reform management**".

Table 12 Component 4

Variable	Presentation	Factor loading
01	Strengthen the cultivation of students' design thinking and performance in the fundamental curriculum	0.675
02	Strengthen the cultivation of students' knowledge of design aesthetics in the fundamental curriculum	0.817
03	Strengthen the development history of modern design for students in the fundamental curriculum	0.822
04	Strengthen and cultivate students' learning of design software in the fundamental curriculum	0.823
05	Strengthen the cultivation of students' hands-on practice of making physical models in the fundamental curriculum	0.861
06	Strengthen the cultivation of students' technology and material cognition in the fundamental curriculum	0.698
07	Strengthen the cultivation of creative thinking and innovation for the changing world	0.741
08	It is necessary to add design-related mathematics to the design foundation curriculum	0.739
09	It is necessary to add design philosophy to the design foundation	0.587
10	It is necessary to perfect the course selection mechanism	0.547

Based on exploratory factor analysis, the variables were extracted as key component variables, and important variables were obtained by analyzing the most likely conditions. It seems that four effective components of influencing factors of the effectiveness of design education management reform in private colleges and universities in Guangdong Province were obtained.

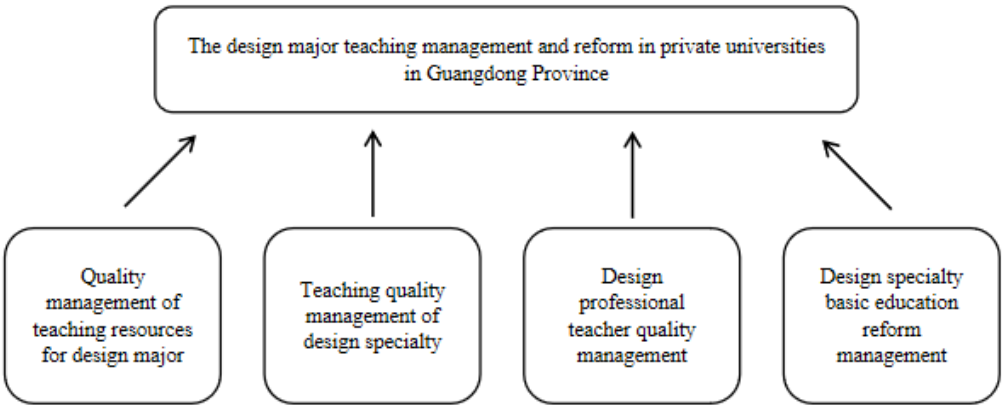

Figure 2 Shows the components that influence the effectiveness of design education management in private colleges and universities in Guangdong Province

2. Result of Data Analysis for Research Objective 2

Through qualitative research, quantitative research and factor analysis, the researchers obtained the factors that influence the effectiveness of design professional education management in private universities in Guangdong province. A total of 7 experts participated in the discussion of the four sections of the panel. Finally, the relevant contents were summarized, and a total of 21 guidelines were sorted out in 4 parts, among which some guidelines advocated by experts had multiple meanings.

1. Quality management of teaching resources for design major.(1) A large number of library materials on the subject of design, and in line with international standards.(2) Create a good learning atmosphere and environment.

(3) Computer The computer room needs to update the software from time to time.(4) Model laboratories need good supervision and practical guidance.(5) It can establish a relevant design studio environment, so that students can better realize the combination of theory and practice.

2. Teaching quality management of design specialty.(1) Ensure the principal position of students in teaching activities.(2) Design teaching must be combined with theory and practice, only hands-on creative thinking.(3) It is necessary to increase teacher-student communication and interaction between students.(4) The design major should not only cater to liberal arts students like the art major, but also need the logical thinking of science students to help improve the quality of basic teaching.

3. Design professional teacher quality management.

(1) It is necessary for teachers to constantly strengthen their own theoretical and practical level.(2) It is necessary for teachers to correct their teaching attitude and behavior.(3) It is necessary for teachers to strengthen after-class tutoring and guide students' initiative in

independent learning.(4) It is necessary to objectively evaluate teachers' learning experience and background.

4. Design specialty basic education reform management.(1) Design thinking training should run through the whole design basic curriculum system.(2) The content setting of basic design course should be different from that of basic art course.(3) Popularize and understand the correct modern design aesthetics.(4) The history of modern design plays a very important role in the learning process of basic design, which needs to be integrated into every basic course. It is necessary to explain relevant historical cases and their origin in the course of basic learning, not just as a separate theoretical course.(5) It is necessary to add mathematics courses in the design of basic courses.(6) It is necessary to include philosophy courses in basic design courses, because a lot of philosophical thinking plays an important role in the understanding of design.(7) It is necessary to strengthen the relevant hands-on practice process to improve students' model making ability.(8) It is necessary to learn the traditional production process and timely contact with science and technology to develop new materials.

Conclusion

Through historical research, books, literature and the Internet, researchers find the factors that influence the reform of basic teaching. In the variables proposed, the researchers found that although the data of teaching quality, teaching resource allocation, teaching quality and supervision can achieve the corresponding satisfaction effect, but the differences of opinions on the design of basic teaching reform management are very large. Just as Professor Matthias from the School of Art of Kassel University in Germany warned, if there is a lack of appropriate social and cultural structure conducive to design education in China, even if there are hundreds of thousands of designers with such higher education in the future, they will not be able to change the future design environment in China from the cultural level (Matthias, 2006).

The phenomena causing differences in education management of design profession include the following:1.There is no unified teaching content management. Through in-depth interviews with 7 experts, it is known that in the domestic education management of design majors, it is very difficult to find a unified talent training plan among different schools. Moreover, it is difficult to find a unified and perfect design system in the teaching content, and it is difficult for students to compare similar majors with each other. This is different from other research disciplines based on rationality. However, the different cognition of educational management of international design leads to students' lack of accurate positioning of their basic design learning content. That is, the students take the basic courses which the school arranges. This requires perfect and unified teaching content management, which is consistent with the standardized curriculum reform framework proposed by Zhang, Deqi Zhang, Deqi (Zhang D. &., 2009). He，Jin (He, 2023)holds the same view.2. Educational background restrictions of teachers and leaders. Through visiting various schools, it is found that the education background of many teachers and even old professors majoring in design comes from art major. This phenomenon not only exists in private colleges and universities, but also exists in a large number of public colleges and universities. The educational management system in the new era needs to improve the quality of teachers themselves, optimize the structure of teachers, and create a team of qualified teachers. This is consistent with the views put forward by Xiong, Caicai (Xiong, 2021).3. Not familiar with the relationship between industrial production and design. Because the basis of modern design is two industrial revolutions in Europe, and because

our country has not experienced industrial revolution, many teachers are unable to bring the practice of industrial production into teaching, so that students in the study is difficult to combine design and industrial production process. The combination of theory and practice is the most core part of design. If design cannot be used in practice, the meaning of design profession will not exist. Ding, Hong(Ding, 2021) In his "The Enlightenment of Bauhaus education Model to modern design education", it is mentioned that design major should conform to the educational concept suitable for industrial production.4. Our high school liberal arts and science education policy. Through interviews with students, it is found that many students who pass the policy of liberal arts and science are invariably students who cannot continue to study liberal arts, and students learn liberal arts not out of interest and love, but helpless choice. Because of this, liberal arts students lack their own mathematical calculation and thinking ability in college, and there are generally no courses on mathematics in college design majors, so mathematical logical thinking in design is difficult to be accepted by students majoring in design. The major of arts and science in high school leads to the limitation of the development of design major. Meanwhile, in the process of learning design, many students pursue the expression of artistic self-sensibility, but ignore that design is a logical thinking ability based on rationality to find, analyze and solve problems in detail. In our country, design majors of universities are divided into liberal arts. In the college entrance examination, it is necessary to carry out tests for sketch, color, creation and other special talents. This also affects the students' attention to the improvement of skills and the training of emotional creation in the study of design, thus ignoring the rational thinking that design is based on human needs. Sun, Guangyong (Sun, 2006)also believes that for a long time, college entrance examination has a great impact on school resource allocation policies, teachers' teaching methods and students' learning methods.

According to the analysis of the above data, the results of these discussions will be incorporated into the basic education reform plan of private colleges in Guangdong Province.

The reform plan of basic design teaching in private colleges and universities in Guangdong Province can be divided into 4 parts, which are total of 21 guidelines.7 experts have worked out relevant teaching reform plans. In the teaching reform scheme design basic curriculum content reform management, design basic teaching content reform is particularly important. This point has been unanimously agreed by 7 experts, and these opinions on the management of teaching reform are consistent withZhang,li(Zhang, 2022),Zong,mingming (Zong, 2008)，Liu,Guanzhong (Liu g. , 2008),Zhang,Hui, (Xiaoyong, 2023)Huang,Caiyan (Huang, 2023), Zheng,Yingli(Zheng, 2021),Zhao,Xiaoqin (Zhao, 2014),Li, Xiaotong(Li, 2021),Wang, Shouzhi (Wang S. , 2002),Shi,Lin(Shi L. , 2018),Wang,Yong (Wang Y. , 2015),Kenya Hara(Hara, 2017) Ding, Hong(Ding, 2021)，the proposed design professional needs on the basis of teaching reform, basic needs to reconstruct the teaching content are also highly consistent.

Recommendations

Through this study, we can improve the curriculum content of basic education of design in private colleges in Guangdong province, formulate the reform plan of basic education of design, and promote the development of education management of design major in private colleges in Guangdong province.

The researchers suggest that it is necessary to systematically classify, deeply analyze and deeply reflect on the model of educational leadership of design majors, so as to gain an insight into the nature and inevitability of its development, evolution and change. By this way, we should plan information by the process reached for the future in design major teaching management. Only in this way we can clearly understand the future trend of the research of educational leadership model of design specialty.

References

Ding, H. (2021, 3). The Enlightenment of Bauhaus education Model to modern design education. *Beauty and The Times*, pp. 120-122.

Guanzhong, L. (2021). *Thoughts on Chinese industrial design.* Jiangsu: China.Jiangsu Phoenix Art Publishing House.

Hara, K. (2017). *Designing design.* Guangxi Normal University Press.

He, J. (2023, 1). Research on the reform and development of Higher Education in the New Era. *Journal of Heilongjiang Teacher Development Institute*, pp. 1-3.

Huang, C. (2023, 2). Innovation thinking on teaching reform of design foundation based on professional competence standard of design industry. *Western Leather*, pp. 45-47.

Li, X. (2021, 9). Effective strategies to improve the quality of basic education of art design. *Popular Literature and Art*, pp. 176-177.

Liu, g. (2008). *Comprehensive modeling design basis.* Higher Education Press.

Matthias, G. t. (2006, 5 20). An "outsider"'s "inside" thinking. *Art Newspaper*.

Shi, L. (2018, 5). sing cross-border thinking to promote the innovation of design education in colleges and universities. *Modern University Education*, pp. 106-111.

Sun, G. (2006, 1). Curriculum environmental factors and their impact on curriculum reform. *Educational Exploration*, pp. 20-22.

Wang, S. (2002). *History of world modern design.* China Youth Publishing House.

Wang, Y. (2015, 11). Research on Curriculum system reform of Industrial design Basic education in engineering colleges. *Heilongjiang Higher Education Research*, pp. 166-168.

Xiaoyong, Z. C. (2023, 1). Teaching Reform of Landscape design for Environmental design majors in universities. . *Fine Arts Education Research*, pp. 112-114.

Xiong, C. (2021, 11). Influence of art design teaching reform in the new era on school education management mode. *Footwear Craft and Design*, pp. 46-47.

Zhang, D. &. (2009, 5). The overall design and implementation of the basic education curriculum reform in Finland. *Foreign Education Research*, pp. 59-63.

Zhang, l. (2022, 7). University curriculum system optimization and "Design Basis" teaching reform. *Education and teaching forum*, pp. 61-64.

Zhao, X. (2014). *Design basis, the formation of the design thinking in education.* Hebei normal university.

Zheng, Y. &. (2021, 12). Based on the credit system in colleges and universities teaching management effectiveness factors and countermeasure analysis. *The decision to explore*, pp. 75-76.

Zong, M. (2008). *Basis of three-dimensional design.* Oriental publishing center.