The Effective Academic Management Model of Art Design Education in Colleges and Universities Under Heilongjiang Province

Jiang Yuwei,
Somsak Chanphong and Nitwadee Jirrojpinyo
Bangkokthonburi University, Thailand
Corresponding Author, E-mail: 1601512130@qq.com

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Abstract

The objectives of this research were: (1) to examine the components of effectiveness academic management of art design education in colleges and universities under Heilongjiang Province. (2) to develop the effective academic management model of art design education in colleges and universities under Heilongjiang Province. (3) to propose the guideline to developing effective academic management of art design education in colleges and universities under Heilongjiang Province.

The research method was a mixed method, including qualitative research and quantitative research. The sample was 316 people from administrators, teacher leaders of university under Heilongjiang Province obtained by stratified random sampling technique. The key informants were 12 key informants including administrators, the dean of the School of Art and Design, the department of the Dean of the School of Art and Design, and lecturers of the School of Art and Design of university under Heilongjiang Province, obtained by purposive sampling method. The instruments used for data collection were semi-structured interview form, five-point rating scale questionnaires and focus group discussion form. Statistics used for data analysis included frequency, percentage, mean, Standard Deviation, Confirmatory Factor Analysis, and content analysis was employed.

Research findings were: ﹚1) there were five components of effectiveness academic management model of art design education in colleges and universities under Heilongjiang Province, which consisted of academic management goals of academic management, the method of digital technology, characteristics of academic management, application of digital technology and research on effectiveness academic management.﹚2) The components and indicators of effective academic management model of art design education in colleges and universities under Heilongjiang Province fits with empirical data for all indicators.﹚3) there were five guidelines to developing effective academic management of art design education in colleges and universities under Heilongjiang Province. There were 5 guidelines consisted of 36 sub-guideline.

Keywords: Effectiveness academic management; Art design education in colleges and Universities; Heilongjiang Province

Introduction

Under the universal aesthetic education system, in addition to recognizing beauty and establishing unique aesthetic needs, the education and research of art design majors are more practical. Design is one of the oldest and most basic forms of humanistic practice, but it has not been highlighted as an independent division of labor as a part of handicrafts in a long historical period. Design in the modern Western context in the 20th century is to deal with the "machine" tools that have changed the way people use their limbs. The body began to adapt to the new working state and slowly evolved, reshaping human behavior and perception of the world. Even affect human social relations. When people apply their own perception experience, emotional desire, and thinking creation to the optimization or innovation of tools, the initiative "design" with humanistic significance begins to provide management to provide theoretical and practical basis for art design education in colleges and universities under Heilongjiang Province, so as to improve the quality of art design education and cultivate high-quality art design talents. Through the research on the effectiveness of art design education academic quality management, it will enhance the management ability of universities under Heilongjiang Province to cultivate high-quality art design talents, improve the quality of art design talents training, and provide guarantee for regional talent protection. Heilongjiang economic development researcher has served as a teacher of art design in colleges and universities with more than 10 years of experience in art design teaching and education management. An Min (2016:114).

This research aims to evaluate the effective of academic quality management in the field of art and design education across 39 university institutions in Heilongjiang Province, China. Through an in-depth analysis of the critical factors influencing academic quality management, the objective is to establish and evaluate standards for academic quality management in art and design education. Additionally, it seeks to explore the evolution of these management practices, contributing to an understanding of the specialized development types and experiences necessary to cultivate leaders in this domain. This has profound implications for managers, educators, students, and society at large. The ability of Chinese public universities to adapt to societal changes and recognize their contributions to society will be pivotal for their future development. This research to explore the academic management effectiveness guideline to applied the higher art colleges and universities Heilongjiang Province, Understanding the most important academic management effectiveness may help to develop criteria for selecting and evaluating academic management, while understanding how academic management develops contributes to an in-depth understanding of the types or experiences of professional development necessary to develop such leaders. This will have a lasting impact on Administrators, educators, students and even the whole society. How Chinese public colleges and universities respond to the changes of the times and realize the role of back-feeding to the society will become an important issue for their future development.

By searching for higher education between 2013 and January 2023, CNKI included a total of 20 academic papers. It can be seen that there are relatively few studies on the academic management of digital media art, and there are even fewer academic management studies in Heilongjiang universities. Therefore, this study also has certain pioneering significance. Through reading the relevant literature, this paper sorts out and analyzes the related concepts and components of academic management, and puts forward the academic management model of digital media art discipline in Heilongjiang Province: The model

component of five components of effective academic management model of art design education in colleges and universities under Heilongjiang Province, which consisted of academic management goals of academic management, the method of digital technology, characteristics of academic management, application of digital technology and research on effective academic management.

Research Objectives

1. to examine the components of effectiveness academic management of art design education in colleges and universities under Heilongjiang Province.

2. to develop the effectiveness academic management model of art design education in colleges and universities under Heilongjiang Province.

3. to propose the guideline to developing effective academic management of art design education in colleges and universities under Heilongjiang Province.

Research Methods

The research procedures consisted of three steps;

Step (1) to examine the components of effectiveness academic management of art design education in colleges and universities under Heilongjiang Province. It was a qualitative research. The researcher has studied related literatures about the concept, principles, and theories, related research on academic management as well as in-depth interview from 12 key informants. Purposive sampling method was employed. Semi-structured interview form was used. Data collection was performed by the researcher. The collected data was analyzed by Content Analysis;

Step (2) to develop the effectiveness academic management model of art design education in colleges and universities under Heilongjiang Province,It was a quantitative research.Population consisted of 1,482 who were administrator, professor, and instructor. They came to 39 colleges and universities of academic managemsnt in Heilongjiang province , which are classified according to scale and professional skills of universities. The researcher determined sample size with Krejcie and Morgan's Table(1970).The sample size was 316 Administrators and Instructors with a stratified random sampling technique.The quality of questionnaires were assessed by content validity and reliability, The questionnaires were sent by online, mail, and researcher. The data of demographic variables were analyzed by descriptive statistics; frequency, and Percentage, Mean, Standard Deviation (SD), Confirmatory Factor Analysis (CFA) to reduce irrelevant variables;

Step (3) proposing guideline to developing effective academic management of art design education in colleges and universities under Heilongjiang Province. It was a qualitative research. Using Focus Group Discussion; 9 key from different outstanding academic management colleges with more than 5 years' experience under Heilongjiang Province. They are professionals with academic management experience relevant management experience to carry out work. The data from Focus Group Discussion was analyzed by Content Analysis.

Research Results

Step 1: Result of Content Analysis on Variables. to examine the components of effectiveness academic management of art design education in colleges and universities under Heilongjiang Province. Was explored and summarized;

The researcher reviews literature and found 85 Variables. Selected 13 famous researchers and counted the frequency of 14 Main Variables in the papers of 13 researchers, and total of 65 Main Variables with a frequency greater than 50% were identified, with 5 components consisted of Academic management goals, method of digital technology in the academic management, Characteristics of Academic Management, Application of digital technology and Research on the Effectiveness of Digital Technology and 58 indicators will be used for questionnaire distribution.

Step 2: Result of develop the effective academic management model of art design education in colleges and universities under Heilongjiang Province.

Part I: Result of Data Analysis on Questionnaire: Demographic Information

The proportion of men and women is basically the same. There are 171 women, accounting for 54.1% of the total, slightly higher than men. In age, 97 people are 25-35 years old, so there are more young and middle-aged management personnel in the school. The masters is at most 180, accounting for 55.9%，The number was the largest, followed by a undergraduate of 90 students, accounting for 28.7 percent. Among the positions of the respondents, 134 instructors accounted for 42.4%, the highest proportion. Among the respondents, the maximum number of working experience of 3-5 years was 143 people, accounting for 44.7 %, followed by 93 people with over 5 years, accounting for 29.6 %.

Part II Result of data analysis to develop the effective academic management model of art design education in colleges and universities under Heilongjiang Province.

The results of KMO test in the following figure show that the value of KMO is 0.972. Meanwhile, the results of Bartlett spherical test show that the P-value of significance is 0.000***, which is significant at the level, the null hypothesis is rejected, the correlation is variable, the factor analysis is effective, and the degree is suitable.

Table 1 The KMO test and the Bartlett's test

KMO		0.972
The Bartlett Spherlicity Test	Approximate chi square	15435.818
	df	1653
	P	0.000***

The following table shows the Cronbach's Alpha coefficient value of the model is 0.975, indicating that the reliability of the questionnaire is very good.

Table 2 Cronbach's Alpha coefficient value

component	Cronbach's alpha coefficient	Number item	sample
1	0.856	9	30
2	0.972	28	30
3	0.910	6	30
4	0.876	11	30
5	0.947	4	30
Total	**0.975**	**58**	**30**

The second part of the questionnaire survey data analysis results: the analysis of effectiveness academic management of art design education in colleges and universities under Heilongjiang Province in the digital age. The researchers analyzed the arithmetic mean (X) and standard deviation (S.D.) by comparing the derived arithmetic mean with a criterion based on Best concept.

It shows an integral part of effectiveness academic management of art design education in colleges and universities under Heilongjiang Province, the arithmetic mean, Standard Deviation and level of each variable.

Table 3 Results of the coefficient of variation table of the questionnaire

Indicators	$\overline{X}$	S.D.	Sk	Ku	Level
Component 1 Academic management goals					
AMG1	4.27	1.02	0.30	1.09	Highest
AMG2	3.25	1.01	0.72	0.78	Moderate
AMG3	4.22	1.02	0.66	0.76	Highest
AMG4	3.56	0.98	0.80	0.45	High
AMG5	4.34	0.97	0.71	0.65	High
AMG6	4.05	1.00	0.67	0.79	High
AMG7	4.07	1.01	0.70	0.52	High
AMG8	3.57	1.04	0.76	0.39	High
AMG9	3.30	1.04	0.65	0.82	High
Component 2 The method of digital technology in the academic management					
MDT1	3.37	0.96	0.72	0.63	High
MDT2	3.34	0.97	0.79	0.49	High
MDT3	3.31	1.02	0.75	0.58	High
MDT4	3.36	0.99	0.66	0.73	High
MDT5	3.89	1.07	0.74	0.60	High
MDT6	3.94	1.04	0.72	0.59	High
MDT7	3.47	1.03	0.66	0.70	High
MDT8	4.05	1.05	0.77	0.41	High
MDT9	4.01	1.01	0.75	0.58	High
MDT10	3.33	1.01	0.75	0.58	High
MDT11	3.92	1.02	0.75	0.60	High
MDT12	4.08	0.97	0.45	0.75	High
MDT13	3.27	1.04	0.90	0.26	Moderate
MDT14	3.30	1.01	0.98	0.09	High
MDT15	3.33	1.01	0.86	0.28	High
MDT16	3.41	1.02	0.89	0.21	High

Indicators	$\overline{X}$	S.D.	Sk	Ku	Level
MDT17	3.94	1.02	0.83	0.32	High
MDT18	3.49	1.04	0.93	0.12	High
MDT19	3.51	1.00	0.85	0.29	High
MDT20	3.34	0.98	0.83	0.31	High
MDT21	3.30	1.02	0.85	0.20	High
MDT22	3.31	0.99	1.00	0.03	High
MDT23	3.30	1.01	0.90	0.30	High
MDT24	3.32	0.96	0.82	0.44	High
MDT25	3.52	0.98	0.83	0.27	High
MDT26	3.52	0.96	0.79	0.37	High
MDT27	2.95	0.99	0.85	0.24	Moderate
MDT28	3.56	1.01	0.84	0.27	High
Component 3 Characteristics of Academic Management					
CAM1	3.39	0.90	0.33	1.01	High
CAM2	3.53	0.94	0.81	0.34	High
CAM3	3.26	0.97	0.75	0.60	Moderate
CAM4	3.51	0.97	0.73	0.64	High
CAM5	4.24	1.01	0.82	0.34	Highest
CAM1	3.26	0.98	0.81	0.48	Moderate
Component 4 Application of digital technology					
ADT2	4.19	0.99	0.85	0.49	High
ADT3	3.44	1.00	0.88	0.38	High
ADT4	3.52	0.94	0.73	0.60	High
ADT5	3.34	1.01	0.72	0.61	High
ADT6	4.26	1.01	0.66	0.74	Highest
ADT7	3.42	0.98	0.78	0.50	High
ADT8	3.28	1.02	0.75	0.63	Moderate
ADT9	3.62	0.99	0.74	0.43	High
ADT10	3.62	0.97	0.74	0.61	High
ADT11	4.29	1.01	0.72	0.62	Highest
ADT12	3.28	1.00	0.84	0.44	Moderate
Component 5 Research on the Effectiveness of Digital Technology					
REDT1	3.21	1.04	0.76	0.54	Moderate
REDT2	3.21	1.02	0.73	0.53	Moderate
REDT3	3.44	0.97	0.89	0.21	High
REDT4	4.04	0.98	0.85	0.49	High

From Table 3, it is found that overall, the 58 question arithmetic mean between 3.20 - 4.34, which indicates that the arithmetic mean (x) of the level value of the variable was moderate to high, and the S.D value was between 0.90 and 1.049, indicating that the respondents' opinions on the variable differ little.
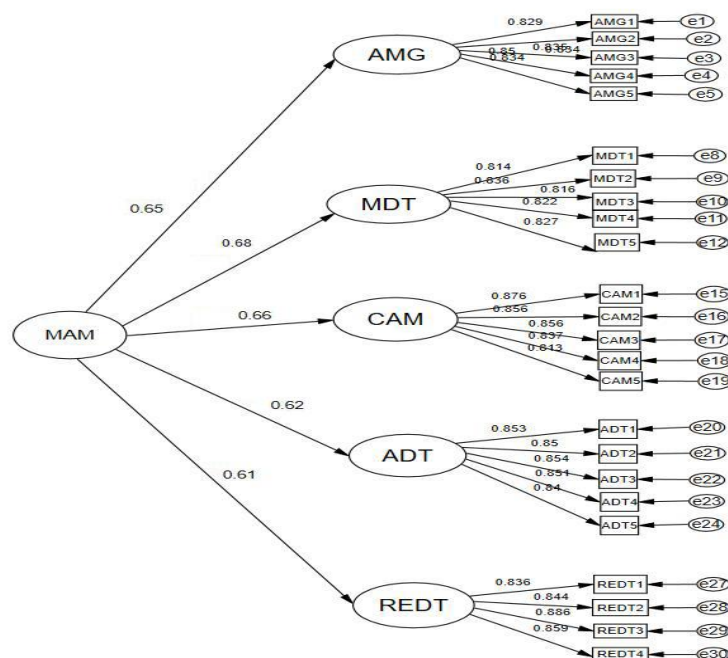
2.1 Factor loading coefficient table

Table 4 Factor loading coefficient table

path			λ	SE	p	Z	AVE	CR
AMG1	<---	A	0.829	-0.060	0.000***	-16.135		
AMG2	<---	A	0.834	0.061	0.000***	16.201		
AMG3	<---	A	0.850	0.057	0.000***	17.062		
AMG4	<---	A	0.835	0.058	0.000***	17.779		
AMG5	<---	A	0.834	0.059	0.000***	16.974	0.692	0.953
MDT1	<---	B	0.814	0.057	0.000***	17.631		
MDT2	<---	B	0.836	0.062	0.000***	17.459		
MDT3	<---	B	0.816	0.057	0.000***	18.160		
MDT4	<---	B	0.822	0.059	0.000***	17.116		
MDT5	<---	B	0.827	0.058	0.000***	17.784		
CAM1	<---	C	0.813	-0.065	0.000***	-14.673		
CAM2	<---	C	0.837	0.066	0.000***	16.073		
CAM3	<---	C	0.856	0.066	0.000***	16.420	0.719	0.927
CAM4	<---	C	0.856	0.068	0.000***	16.500		
CAM5	<---	C	0.876	-0.063	0.000***	-16.068		
ADT1	<---	D.	0.853	0.061	0.000***	15.535		
ADT2	<---	D.	0.850	-0.064	0.000***	17.779		
ADT3	<---	D.	0.854	0.064	0.000***	15.535	0.714	0.965
ADT4	<---	D.	0.840	0.061	0.000***	17.188		
ADT5	<---	D.	0.851	0.065	0.000***	15.454		
REDT1	<---	F	0.836	0.063	0.000***	15.535		
REDT2	<---	F	0.844	0.061	0.000***	15.172		
REDT3	<---	F	0.886	0.062	0.000***	14.526	0.734	0.917
REDT4	<---	F	0.859	0.061	0.000***	-14.720		

In addition, the factor loadings on the corresponding variables of each topic were all 0.6, P < Above 0.001, it is statistically significant.

Factor Model Based on Confirmatory Factor Analysis

Confirmatory factor analysis is used to test whether the relationship between factors and test items conforms to the designed research model.

Chi-square=1806.579; df=85; p=0.18; GFI=0.842; AGFI=0.917; TLI=0.901;
CFI=0.987; SRMR=0.024; RMSEA=0.032

Figure 1 Show the second order effective academic management of art design

2.2 Model Fitting Index

Table 5 Fitting index of confirmatory factor analysis model

	Numerical value	Excellent fitting index	Effective fitting index	Standard or not
χ^2/df	1.140	≤ 3	≤ 5	fit
chi-square	1806.57	-	-	fit
P-value	0.18	>0.05		fit
GFI	0.842	≥ 0.9	≥ 0.8	fit
TLI	0.901	≥ 0.9	≥ 0.8	fit
CFI	0.987	≥ 0.9	≥ 0.8	fit
NFI	0.986	≥ 0.9	≥ 0.8	fit
RMSEA	0.032	≤ 0.05	≤ 0.08	fit
SRMR	0.024	≤ 0.05	≤ 0.08	fit

From the Table 5，that the χ^2/df value is 1.140，comply with data standards; chi-square value is 1806.579，comply with data standards; P-value is 0.18，comply with data standards; GFI value is 0.842，comply with data standards; TLI value is 0.901，comply with data standards; CFI value is 0.987，comply with data standards; NFI value is 0.986，comply with data standards; RMSEA value is 0.032，comply with data standards; SRMR value is 0.024,comply with data standards.

2.3 : Model Evaluation

Table 6 Model Evaluation Form

Factor	Average variance extraction AVE value	Combination reliability CR value
Factor 1	0.654	0.944
Factor 2	0.644	0.981
Factor 3	0.643	0.900
Factor 4	0.632	0.954
Factor 5	0.630	0.872

Results can be used to represent the convergent validity of the variables within the factor)，Generally speaking, AVE higher than 0.5 or CR higher than 0.7 indicates that the convergent validity is high. As shown in the figure, the AVE and CR values of factor 1.2.3.4 are both higher than the critical value, indicating that the data convergent validity is good. The highest value was the influencing factor 1 and factor 2.

Step 3: Result of guideline to developing effective academic management of art design education in colleges and universities under Heilongjiang Province.

The focus group discussion to propose the guideline to improving effectiveness academic management of art design education in colleges and universities under Heilongjiang Province. 9 key informants include professors, directors, academic leaders and Head of department, dean of the School of Art and Design, the dean of the Department of Art and Design, and the lecturers of the School of Art and Design. key informants are different, not the same person, but they may have the same information.

The researcher sorted out and analyzed the discussions of 9 experts. There were 5 guidelines consisted of 36 sub-guidelines following conclusions;

3.1 Guideline to improving Academic management goals of academic management of art design education in colleges and universities under Heilongjiang Province. There were 4 sub-guidelines.

3.2 Guideline to improving the method of digital technology in academic management can streamline processes, enhance communication, and foster a more efficient learning environment. Here's a guideline to help you enhance digital technology methods in academic management: There were 9 sub-guidelines.

3.3 Guideline to improving Characteristics of Academic Management, Here's a guidelines to enhance academic management in this context: There were 12 sub-guidelines.

3.4 Guideline to improving Application of Digital Technology in Academic Management. Requires a systematic approach to enhance various aspects of administrative and educational processes. Here's a detailed guideline to help you achieve this: There were 6 sub-guidelines

3.5 Guideline to improving research on the Effectiveness of Digital Technology in the Academic Management of Art Universities in Liaoning Province. There were 5 sub-guidelines.

Discussion

Based on the research objectives, the discussion will be presented as follows:

4.1 Section 1 Discussion about major findings of objective 1

There were 5 components of effectiveness academic management model of art design education in colleges and universities under Heilongjiang Province. The major findings were revealed as such because Academic management as a part of the management of colleges and universities, the academic research has ported a very in the rapid development of information in the 21st century all kinds of digital technology in various fields, to the effective use of digital technology service in academic management, can greatly improve the efficiency of academic research improve academic research height and depth. For the academic management system of art design education in colleges and universities under Heilongjiang Province, the digital research of academic management is also an effective means to break through the academic bottleneck and improve the academic quality, which is a very important content in the modern and even future search management academy. The study of these five components can bring more opportunities for the academic management system of art design education in colleges and universities under Heilongjiang Province.

Component 1: The academic management goals of art design education in colleges and universities under Heilongjiang Province .This is an important component factor， The results are consistent with the directions of Xing Xishen and Li Jun (2021:61) From the research of Hua Lulu (2018:13), it is found that teaching reform should be promoted in depth ; Ye Lei (2017 : 15) proposed the optimization strategy of the academic information ecosystem in the digital environment in order to achieve the healthy development of the academic information ecosystem, improve the theoretical system of the information ecosystem, and promote the harmonious development of society.

Component 2: The method of digital technology in the academic management. The results of this study are consistent with the theory or research results of Huang Linqi (2020:1), who believes that in the future , we should promote The digital construction of education management in colleges and universities keeps up with the pace of modernization and reform of higher education, and completes the mission of building morality and cultivating people . In addition, it is in the same direction as the research Cha Shijun's (2017 : 85-87) research found that strengthening the construction of academic leadership in universities must be based on the reform of academic organization management; the central task must be the development of academic leaders; international cooperation in scientific research must be the core task. A high-end practice platform, his research is different from this study in terms of focus, research field and research goals .

Component 3: Characteristics of Academic Management. The results of this study are consistent with the theory or research results of Yin Lihong (2020:158), who believes that academic management work lacks innovation; academic projects lack comprehensiveness ;Academic achievements lack serviceability. In addition, through the research of Tian Bei and Wang Zheng (2019 : 253) , it is found that standardizing scientific research behavior, sharing information resources, and providing scientific decision-making have become the direction of scientific research management in universities. The level of informatization and modernization of scientific research management provides strong support for the realization of scientific research management goals.

Component 4 : Application of digital technology of of art design education in colleges and universities under Heilongjiang Province. This research result is based on the theory or research of Xing Xishen and Li Jun (2021:57) it found that online education is a new form of "Internet education", a new form of education produced by the deep integration of modern information technology represented by the Internet and education , and Qin Corresponding to Xiaohui's (2014: 2) related with research of Yu Xiaohui (2016 :1) Aiming at the problems in the design of the current information-based education management platform, Combined with the characteristics of the current educational intelligent platform, a design scheme and implementation of an information-based education comprehensive management platform based on J2EE and MVC architecture is proposed, and management is used to promote the sustainable development of regional digital education resources. Educational resource development planning; creating an environment conducive to resource development and application; establishing an effective and feasible evaluation and incentive mechanism; timely training of educational resource personnel, and establishing a strong team to promote development through application.

Component 5 : Research on the effectiveness of Digital Technology of art design education in colleges and universities under Heilongjiang Province. This research result is based on the research direction is consistent with Wang Lei (2021 : 42). In addition, from the research of Liu Mian & Lin Maosen. (2020 :1), it found that teachers should do a good job in the introduction of new media technology in all links, and build a more cutting-edge smart education management framework, promote the application of new media technology.The management capability index is mainly evaluated through the three dimensions of planning capability, structural capability and implementation capability,

4.2 Section 2 Discussion about major findings of objective 2

Researchers consulted a large number of documents through the literature analysis method, The components and indicators model of effectiveness academic management model of art design education in colleges and universities under Heilongjiang Province. Based on the major findings, Studying from five components of effectiveness academic management model of art design education in colleges and universities under Heilongjiang Province, the 24 indicators are found and the model fits with empirical data for all indicators..

First, the research method is based on the valid data obtained by the analytical tools, with good validation results and good model results. The corresponding structural equation model was established by analyzing the model data by confirmatory factor analysis. Through model analysis, this study obtained a good model structure on the basis of available data analysis. However, in addition to the data itself, further research and analysis by experts in related fields are needed to better illustrate the validity of the model. Through the confirmatory factor analysis, the top three components of effectiveness academic management model of art design education in colleges and universities under Heilongjiang are component will be discussed.

Component 1: academic management goals of art design education. The results of this study are consistent with He Shanting Nitwadee Jirarotephinyo and Somsak Chanphong (2023:382), it is found there were five components and 23 key variables of the Academic Administrator Leadership model of the School of Foreign Languages in Higher Education under Hunan Province, which consisted of 1) Establishing clear academic goals 2) Academic focus of the Academic Administrator Leadership 3) Managing the Instructional Program 4)

Team Management (Staff) and 5); Organizing a good school atmosphere.

Component 2: The method of digital technology in the academic management .The results of this study are consistent with the theory or research results of Liu Xueming (2016 : 3-11) , who believes that strengthening academic management concepts and establishing a scientific university academic organization structure. In addition, in the same direction as the research results of Wang Yunwu (2016: 7) , it is necessary to break through the bottleneck of the development of educational informatization, speed up legislation, and use laws and regulations to regulate, constrain and guide the future development of educational informatization.

Component 3: Characteristics of Academic Management. Because the characteristics of Academic Management was importance components to provide high-quality education, meet the needs of the industry, develop students with practical skills and innovative capabilities, and enhance professional competitiveness. The results of this study are consistent with the theoretical or research findings of Shen Hao (2022) incorporating digital media principles and practices into the curriculum to improve students' learning and creative thinking skills. Educators need to adapt teaching methods and content to the modern digital environment. Such as improving student engagement, critical thinking and problem-solving skills. Finally, it is helpful to realize the goal of academic management of digital media art major of Zhejiang University. Ma Linzhu (2022) found that integrating design thinking and methods with other professional curriculum objectives in digital media arts is conducive to improving the quality of talent cultivation in this field. The importance of design thinking and methods as a core discipline to improve professional metacognitive ability and optimize metacognitive strategies.

Component 4 : Application of digital technology of art design education in colleges and universities under Heilongjiang Province. Component 4 : Application of digital technology of art design education in colleges and universities under Heilongjiang Province. Because application of digital technology of art design education, helps the digital media arts profession make the most of its resources, provides advanced facilities and technologies, supports teaching and research needs, promotes professionalism, develops outstanding students, enhances competitiveness, and advances the field of digital media arts.

Component 5 : Research on the effectiveness of Digital Technology of art design education in colleges and universities under Heilongjiang Province. Because research on the effectiveness of Digital Technology of art design to promote the advancement of the digital media arts profession, encourage students and faculty to conduct innovative research, expand the boundaries of knowledge, improve the quality of education, enhance the competitiveness of students, and enable the profession to constantly adapt to the rapidly evolving digital media field. The results of this study are consistent with the research results of Wu Guanying(2021,1). Ng recognized the profound impact of digitalization on animation, media and virtual reality, while highlighting the potential of digitalization to promote creative expression and innovation. Together, these resources emphasize the importance of interdisciplinary collaboration and digital literacy skills development.

4.3 Section 3 Discussion about major findings of objective 3:

There were total five guideline to improving effectiveness academic management of art design education in colleges and universities under Heilongjiang Province. There were 5 guidelines consisted of 36 sub-guideline. The results of this research are more comprehensive and effective method to improve effectiveness academic management model of art design

education in colleges and universities under Heilongjiang Province. By accelerating the construction of digital education resources, helping Heilongjiang Province to digitize, personalize, and upgrade education, design and implement an information-based education comprehensive management platform based on J2EE and MVC architecture, promote the level of regional digital education, and use the Internet of Things to realize academic literature Automatic management function, so as to promote students to improve learning efficiency and make full use of learning tools, help students understand and master the latest knowledge inside and outside the school and at home and abroad, and provide online forums for students to exchange new insights and express new opinions. At the same time, it is also necessary to actively train teachers to improve the academic management capabilities of teachers and managers, improve teachers' scientific research capabilities and teaching efficiency; The utilization rate realizes the intelligent development of art design education in colleges and universities under Heilongjiang Province.

1. Guideline to improving Academic management goals of academic management, there were 4 sub-guideline following; 1) Using digital academic management tools to help students understand 2) Improving the academic management capabilities of teachers and administrators 3) Realizing the intelligentization of education and teaching in of art design education and 4) Promoting academic management and teaching transformation. The results of this study are consistent with the theory or research results of Zhang Lihui (2021: 196) , improving the quality of professional personnel training and improving the academic management capabilities of teachers and managers , thereby promoting the development of China's art and design industry, for Make due contributions to the construction of socialism with Chinese characteristics in the new era . At the same time, this conclusion Ye Lei. (2017 : 15) is in the same direction as research of Huang Linqi (2020: 1) , it is found that in the future, we should follow up the concept update, standard formulation, platform construction and talent training. The pace of modernization and reform of higher education has been completed.

2. Guideline to improving method of digital technology in academic management, There were 9 sub-guideline following; 1) Assess Current Technology Infrastructure 2) Identify Specific Needs and Goals 3) Research and Select Appropriate Tools 4) Provide Training and Support 5) Implement Seamless Integration 6) Enhance Communication Channels 7) Streamline Administrative Tasks 8) Facilitate Data Analysis and Reporting 9) Ensure Data Security and Privacy that strengthening academic management concepts and establishing a scientific university academic organization structure. In the same direction as the research results of Wang Yunwu (2016: 7) , it is necessary to break through the bottleneck of the development of educational informatization, speed up legislation, and use laws and regulations to regulate, constrain and guide the future development of educational informatization. In addition, through the research of Wang Lei (2021 :42), it was found that colleges and universities should change the traditional management model, be student-oriented, and improve the current management mechanism and work platform

3. Guideline to improving characteristics of Academic Management, There were 12 sub-guideline following; 1) Establish Clear Academic Goals and Objectives 2)Develop Comprehensive Curriculum 3)Foster Interdisciplinary Collaboration 4)Promote Research and Innovation 5)Enhance Teaching and Learning Methods 6)Ensure Quality Assurance and et al.The results of this study are consistent with the theoretical or research findings of Shen Hao (2022) incorporating digital media principles and practices into the curriculum to improve students' learning and creative thinking skills. Educators need to adapt teaching methods and content to the modern digital environment. Such as improving student engagement, critical thinking and problem-solving skills. Finally, it is helpful to realize the goal of academic management of digital media art major of Zhejiang University. Ma Linzhu (2022) found that integrating design thinking and methods with other professional curriculum objectives in digital media arts is conducive to improving the quality of talent cultivation in this field. The importance of design thinking and methods as a core discipline to improve professional metacognitive ability and optimize metacognitive strategies.

4. Guideline to improving application of Digital Technology in Academic Management. There were 6 sub-guideline following; 1) Comprehensive Needs Assessment 2) Set Clear Objectives 3) Invest in Suitable Digital Tools 4)Customization and Integration 5)Training and Capacity Building and 6) Enhance Communication Channels. This research result is consistent with Cao Lijuan (2019 : 7-41). it is found that the development of key IoT technologies such as 5G , IoT identification, edge computing, and LPWAN can effectively promote the improvement and development of academic management systems, Looking forward to the development trend of the Internet of Things, it puts forward policy recommendations and application methods to promote the development of the Internet of Things in China,

5. Guideline to improving research on the Effectiveness of Digital Technology in the Academic Management, There were 5 sub-guideline following; 1(Improving the current management mechanism and work platform 2(Promoting the education supervision model 3(Using the most comprehensive and diversified research methods 4(Doing a good job in the introduction of new media technology and 5(Measuring the satisfaction of teachers and students. In addition, from the research of Wang Tianfu (2021 : 88) , it is found that promoting the development of digital technology academic management practice requires innovative research ideas, research paradigms, research methods and technologies. With Kwon Mirin (2020 : 1)the research . In addition, in the research of Yan Zichun, Li Xin, and Wang Weinan(2019:5),it was found that digital technology promotes the continuous development of research topics such as value acquisition and creation methods related to digital transformation activities.

Syntheize the overall finding as diagram

Figure 4.3 Guideline to developing effective academic management of art design education in colleges and universities under Heilongjiang Province

Recommendation

1. Recommendation for Policies Formulation

1. Strengthen the goal-oriented academic management system and improve organizational efficiency.

2. Establish an academic management system ecosystem to promote the sustainable development of the academic management system.

3. Establish a characteristic academic management system for art colleges .

4. Establish a sound academic management mechanism and form a complete academic management system.

2. Recommendation for Practical Applications

Based on these findings, the researchers put forward some ideas for the practice of effective academic management of digital media art in Universities in Heilongjiang Province:

1. Establish clear policies and norms to clarify the development direction and objectives of the discipline: In the discipline management of digital media arts.

2. Provide teacher training to enhance teacher education and research capabilities:

3. Strengthen industrial cooperation, integrate practice and theory, and improve the quality of education: Close cooperation with the digital media industry was essential to

improve the quality of education.

4. Make regular assessment and adjust strategies according to the results.

5. Encourage students to participate in research and practice and cultivate innovative ability.

6. Establish an academic exchange platform to promote cooperation and resource sharing.

3. Recommendation for Further Research

1. Research to conduct long-term faculty resource analysis to identify trends and uncover best practices for more effective faculty planning, recruitment, and retention. Such an analysis can reveal faculty turnover rates, hiring practices, and faculty backgrounds to guide future resource allocation decisions.

2. Research to gain insight into staff satisfaction and student perceptions of the quality of education through regular surveys and feedback mechanisms. This will help improve working conditions, improve teaching effectiveness, and optimize resource allocation.

3. Research to investigate the professional development needs of faculty and staff to provide relevant training, mentorship, and resource support for their continued growth in the field of education.

4. Research to analyze the latest trends and technologies in the subject area to adapt the course content to ensure alignment with industry needs and provide a hands-on educational experience.

5. Research to assess the effectiveness of the curriculum through continuous monitoring of student engagement and academic achievement and take action to improve curriculum design and teaching methods.

6. Research to analyze factors that influence academic research outcomes, including publication citations, patents, and industry collaborations, to assess research quality and impact.

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