Research on Practical Teaching System for Design Profession with the Integration Characteristic of “Medicine, Art and Technology”

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Abstract. This paper analyzes the practical teaching system construction of various kinds of design profession. The interdisciplinary fusion takes art characteristic as the standard, with the implantable development in medicine and technology, successfully realizing the “studio” teaching reform, and introducing the educational philosophy of integrating “medicine, art and technology”. With School of Art at He University as example, M.A.T (integration of medicine, art and technology) innovative integrated curriculum is created based on the concept of universal design, which puts forward the innovative applied talent training mode, with the exploration of a set of creative teaching idea and teaching mode in line with school-enterprise cooperation “two-mentoring” in the project-driven teaching.

Keywords: interdisciplinary, teaching system, practice.

In today’s society development, the development of undergraduate education in applied comprehensive colleges all have their own characteristics, and the positioning of talent training goal. Talent cultivation of art higher education is based on the need of employment in social development. On the traditional curriculum system, it often pays more attention to the basic theory knowledge. According to the professional comprehensive evaluation index system of the provincial department of education, the proportion of practical hours for professional courses in the curriculum system should reach 70%, while some universities can not meet the requirement, thus it is very necessary to build and improve the practical teaching system. Based on practical teaching system
for design profession with the integration characteristic of “medicine, art and technology” under the universal design concept, it shall establish demand-oriented professional courses with ability as mainstream, construct the education concept of integrating medicine, art and technology, develop the teaching mode with the integration of medicine, art and technology and M.A.T (medicine, art and technology) characteristic and innovative curriculum. According to “Thirteen Five” plan, it shall improve teaching quality, enhance the comprehensive strength of school running and social influence, and construct private universities of high level in China. It shall cultivate compound applied innovative design talents with comprehensive ability of of medicine, art, technology, actively adapt to the new situation of the talent market demand change. Adapting, grasping and leading the new normal state is the key to take a position in Liaoning, facing the whole country art design field, especially comprehensive health field.

**Status quo of the researches at home and abroad**

He University in Liaoning is the only one which sets medical profession, art profession and technology profession at the same time. Since the design talents of comprehensive health industry are in great shortage, related industries and associations set up China creative and health industry alliance, science and art creative union of Chinese universities, etc., in order to fill the vacancy. Although union and association play a role, there are problems, for example, the system to foster talents is not systematic, and time can't be guaranteed, etc. This will require timely launching the targeted art specialty and teaching system.

**Establishment of creative teaching system**

**Objective of talents training**

According to the employment statistics of social cultural creative industry, now, many comprehensive colleges and universities are also beginning to set design profession to meet the social demand for talents. The reform and innovation of talents training mode becomes particularly important, and paraphrasing and copying training mode and curriculum system in other colleges and universities far cannot satisfy the target and demand of college talents training currently.

The “Thirteen Five” development plan of education career in He University, Liaoning, shows that medicine, technology and art are as a whole, with specially medical discipline characteristics, as well as the professional disciplines of arts, sciences and management. School of Art constantly makes innovation research, with the talent training mode reform of “integration of technology and cooperation of school and enterprise” as the important breakthrough to formulate the training objective. Each profession aims to cultivate the talents meeting the needs of socialist modernization construction,
and having the knowledge, ability and quality, coordinated development; under the guidance of universal design concept, it trains the talents that can master the basic theory of medicine and technology, grasp the basic professional design and the knowledge and ability of design and manufacture in comprehensive health field with professional characteristics with the integration of “medicine, art and technology”, and the innovative applied talents that are able to engage in design, innovation, teaching, manufacturing, etc. in the field of art, especially comprehensive health field.

**Connotation of constructing creative teaching system**

**Industrial demand**
The development of comprehensive health industry in China is facing a good policy environment. At the government level, the state shall pay attention to the people-oriented, and put forward the feasible new healthcare reform and the healthy development strategy of “healthy China 2020”. In the meantime of the comprehensive health industry with rapid development, the professional design talents in health field are in shortage, and the combination of traditional design industry and health industry design is superficial, causing the thinking curing, lacking innovation, and being unable to meet the needs of health industry.

**Teaching concept**
It adheres to the concept of school running “all for students” to cultivate national rejuvenation people with aesthetic consciousness, independent personality, free spirit and the unity of knowing and doing, and play the advantages of the platform with the integration of “medicine, teaching, industry, study and research”.

**School characteristics**
It adheres to constructing creative industry with evident features, and is the international applied technology university of “leading in China and famous in China” with the top education system of eye health industry, to create Chinese “Stanford”.

**Introduction to creative teaching system**
Based on training objective, School of Art establishes and implements the integrated curriculum teaching system of MAT based on the concept of universal design, namely the integration of Medical, Art and Technology, aiming to cultivate students’ comprehensive qualities, and in the traditional education target, it means, based on the master of medicine (natural science) : medical knowledge; art (social sciences) : aesthetics, art and design; technology (technology and ways of expression) : engineering, process, material, technology, the integration of medicine, art and technology is strengthened. With universal design concept of design and production in matching, it eventually reaches the harmony of designer and user.
Advantages of creative M.A.T. teaching system

The connotation of creative M.A.T integration course teaching system confirms the transformation from the pure school education in the past to social education of university-enterprise cooperation, combining the theoretical knowledge for learning and then gradually transforming toward practice learning. It should strengthen students to get quality training from general education, namely, general (common required course) education, liberal art (optional course) education; strengthen the construction of employment service system, and do a good job of full employment services. Innovative “college students' career planning” course helps students examine, introspect, establish dream, independently plan development goals, and realize the ideal of life. According to the profession position characterized by the integration of “medicine, art and technology” at School of Art, and under the guidance of universal design concept, it cultivates innovative applied talents training, and the goal can bring out a series of power quality indexes, including Conceive, Design, Execution and Ethics, Result, and Innovative. Values go through the whole curriculum system. It aims to improve students' humanistic quality, cultivate students' innovative spirit, improve professional practice ability, and develop personality, as well as provide the basic and comprehensive quality for their better work and life in the future.

Integration of art and technology

Subject crossing and subject integration are interdisciplinary, and to cultivate diverging thinking pattern with rich inspiration of art and design, full of rigorous scientific way of thinking. Theory of art (artistic beauty) and engineering (technology and way of expression) are blended and combined to input art into engineering knowledge and technology, and make engineering in aesthetic idea. It is the basic characteristics and properties of art and engineering disciplines, and the driving force for the industrial culture creative industry in the human production and living.

Integration of art and medicine

Relying on the advantages of comprehensive health system and eye industry of He Group, it pays attention to making the students highlight health design skills on the basis of design. It requires making the students learn the mystery between art and life sciences and their mutual fusion in the evolution process of human social development, to enable students to dare to make innovation and cherish life, and to become creative talents with innovation in medicine, science, art, humanity literacy on the basis of being a good designer.

Attention to innovation of students' perceptual understanding

It shall illustrate economic development trend, find change ideas, so as to achieve open thinking, form innovation consciousness, and master art
cutting-edge technology. It cultivates students with the accumulation of art knowledge, skills, and methods; understanding of culture and respect for culture; ability to find, change and innovate aesthetic consciousness; good language expression ability, team cooperation ability and execution ability.

Teaching concept of universal design throughout the whole teaching system

Curriculum system integrates the related concept of “universal design”, the consciousness of “human-oriented idea”, and applies the design principle of universal design in practice. It fully embodies “people-oriented” thought, respects and safeguards human dignity and value. With green design and sustainable development as design principle, the nationwide design concept reflected in universal design is explored with innovation, to cultivate students with ideological basis of humanism and sustainable development as the main design thinking, concern about people's survival and development, for the innovation and inheritance of traditional design concepts under the background of new era.

Cultivation objective and M.A.T. curriculum teaching system structure

The “Thirteen Five” development plan of education career in He University, Liaoning points out continuing to push forward the quality education of full personality, innovating creative education and further integrating with talent cultivation, strengthening students' comprehensive quality training, and making the education of full personality throughout the whole process of talent training including general education, professional education, student activities, counselor work, etc. It shall enable students to build up knowledge, ability and quality structure to meet the needs of lifelong learning and to adapt to social development and change, to have good leadership skills, business ability, innovation ability, grateful spirit, and then to become a real man with a healthy body and mind as well as independent personality. It is characterized by talent training of national revival with aesthetic consciousness, independent personality, free spirit, unity of knowledge and doing.

According to the profession position characterized by the integration of “medicine, art and technology” at School of Art, He University and under the guidance of universal design concept, it cultivates innovative applied talents training, and the goal can bring out a series of power quality indexes, including Conceive, Design, Execution and Ethics, Result, and Innovative. Values go throughout the whole curriculum system.

Cultivation features of M.A.T. curriculum teaching system

Interdisciplinary (cooperative education)

It take social demand as orientation and connotation development as target, optimizes profession setting, adjusts profession positioning, and strives to
construct the main disciples of integrating medicine, technology and art as a whole.

**Studio system (applied talent)**

Based on the implementation of the “studio” personalized and practical teaching mode in School of Art, the teaching method of “industry, academics and research as a whole” with the mutual integration of studio and classroom is realized, and the hackerspace team from innovation and creative to start-up is built. Project targets all students in School of Art, and is integrated into the whole process of personnel training, to stimulate students’ understanding ability of Conceive, Design, Execution Ethics, Result, and to cultivate real innovative applied talents.

**Double-professionally-titled team (school-enterprise cooperation studio)**

In the first year, students take drawing lessons and various professional courses; in the second and third year, targeted and specialized study and project practice is executed. At the same time, in spare time of the third year, studio (professional elective courses) is selected to implement the distributary teaching, and in the corresponding training rooms, the studio teaching by imitating the real working environment is conducted. The project’s practical training and exercise ability are carried out in the studio. In the fourth year, students can carry out special study and practice with more intensification; according to their own special skill and future development direction, they can develop the ability of graduation design, comprehensive practice and innovation, etc., to lay a good foundation for getting into the social work.

**Universal design (people-oriented)**

It sets the course of introduction to universal design, of which teaching objective has biggest difference from other courses, namely, universal design concept. The key to take performance evaluation of education for students is mainly focused on their understanding of the concept of universal design. “DESIGN” standard is used to examine students’ understanding of the concept of universal design. In teaching design process, the learning tasks from easiness to difficulty are made, to gradually guide students.

**International communication (opening the eyes to the whole world)**

It should strengthen international exchanges and cooperation, organize field trips, investigation, research, with the depth understanding of design industry trend, explore the latest design concept and medical health system. It has established the long-term exchange mechanism “exchange student” with University of the South in Malaysia.

**Conclusion**

According to the characteristics of art education, innovation is made for teaching mode reform, with integration of medicine, art and technology.
Establishment of creative integration teaching system has important guidance and promotion effect on various professional reform. The characteristic M.A.T (medicine, art, technology) curriculum system in He University puts forward the innovative applied talents training mode, carrying out the education teaching reform within the scope of School of Art. In addition to the professional ability training, M.A.T curriculum system puts more emphasis on the cultivation of the students’ creative thinking, learning initiative, innovation ability, personal values and personal career planning, communication skills, team cooperation ability and the sense of social responsibility, and enables students to master the major knowledge and apply it to the actual work. Curriculum system construction take major disciplines (medicine, art, technology) as the center, which can promote the organic connection between disciplines and support each other, integrate studio project training and ability training requirements, and promote knowledge to spread, project training, and ability cultivation in crossing and integration.

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