

The Construction and Implementation of a Comprehensive Innovative Talent Training System for Clothing and Fashion Design Majors under the Background of the "Diversification and Multi-dimensionality" New Liberal Arts

Yin Jun¹, Duan Weijing², Yan Jun³, Zhong Weibing⁴, Yuan Hua¹

¹College of Fashion, Wuhan Textile University, Wuhan, China

²Finance Department, Wuhan Textile University, Wuhan, China

³Birmingham Institute of Fashion & Creative Art, Wuhan Textile University, Wuhan, China

⁴Science & Technology Institute (Research Service Center), Wuhan Textile University, Wuhan, China

Abstract: *The training system for composite innovative talents in the field of clothing and clothing design under the background of the "diverse and multi-dimensional" new humanities aims to strengthen the learning foundation of students' professional knowledge, deepen their professional understanding of clothing and clothing design through the mode of "skill integration, industry education integration, innovation and entrepreneurship integration, and interdisciplinary integration", and repeatedly demonstrate through design practice, Enable students to master professional knowledge of clothing design during the learning process, enhance their ability to apply theory to practice, fully explore the characteristics of diversified career development in the clothing industry chain, and ultimately serve the development of the clothing industry. The transformation and upgrading of the contemporary Chinese clothing industry is urgent. With innovation as the guide and innovation for development, the demand for clothing design professionals has shifted from application-oriented to composite innovative talents. The current gap in industrial talent demand is an important issue that clothing design educators need to consider.*

Keywords: *diversification & multidimensionality; cross-border mutual integration; composite innovative talents; fashion design profession*

1. Introduction

In the main points of the work of the Department of Higher Education of the Ministry of Education in 2023, it is proposed that the general idea of the work of the Department of Higher Education is: guided by "Thought of socialism with Chinese characteristics in the new era", comprehensively implementing and executing the spirit of the 20th CPC National Congress, grasping the new orientation, new deployment, new requirements, and new tasks for the development of higher education, accelerating the construction of new engineering disciplines, new medical disciplines, new agricultural disciplines, and new liberal arts disciplines, and With the construction of a strong higher education country as the goal, to comprehensively improve the quality of independent training of talents as the main line, to deeply promote the comprehensive reform of higher education as a pilot, to explore the construction of a Chinese-style higher education development model, to better serve the national regional economic and social development." Therefore, the cultivation of talents in clothing and apparel design should be centred on the goal of "character, knowledge and ability", with the aim of improving students' professional ability and character quality, and integrating the resources of the whole society for collaborative innovation^[1]. At the same time, the National Medium and Long-term Education Reform and Development Plan (2010-2020) issued by the State in 2010 clearly puts forward: "Establish the concept of diversified talents, respect personal choices, encourage individuality development, and cultivate talents in any style. Pay attention to the different characteristics of students and personality differences, the development of each student's advantageous potential." Fashion design professional training should pay more attention to the uniqueness of the students, according to the talent. After ten years of professional construction, the cultivation of clothing and apparel design talents is faced with changes in the external environment surrounding the teaching of the economy, society, culture, industrial development, technological

development, etc., as well as changes in students' humanistic qualities, learning and discursive abilities, and intellectual character. Therefore, it is necessary to carry out the reform and innovation of the talent training system.

2. Comparison of the clothing design professional talent training mode

Through the research on domestic and foreign well-known clothing and dress design education and teaching institutions, it is found that the institutions with outstanding educational achievements have the following characteristics in educational philosophy, teaching mode, teaching methods and other aspects:

2.1. Setting forward-looking cultivation objectives with the orientation of "development trend"

In recent years, the global economy, culture, society and technology have been developing rapidly, and institutions at home and abroad have been exploring the direction, mode and system of talent cultivation from different perspectives. The seminar on future education held by the Marangoni School of Design in Italy on 2 July 2022 highlighted the design of a system for cultivating students' relevant knowledge and abilities in the context of the "meta-universe". China Academy of Art focuses on "the needs and trends of large textile and garment design", and tries to cultivate independent designers with independent thinking spirit and innovative cross-border ability. Donghua University has clearly proposed to adapt to the development trend of digital technology in its cultivation objectives, which is also clearly reflected in the corresponding curriculum system.

2.2. Setting feasible graduation requirements with "multi-dimensional composite" as the competence indicator

From the research results, all institutions emphasise that students have multi-dimensional composite abilities such as professional ability, practical ability and innovation ability, professional thinking, multi-disciplinary cross-fertilisation thinking and innovative thinking, and require students to be able to apply multi-disciplinary knowledge flexibly in practice on the basis of mastering their own and other related professional knowledge. China Art Academy clearly puts forward the cultivation of students' "technical learning ability, logical thinking ability, systematic research ability, integration and innovation ability"; Zhejiang University of Science and Technology puts forward the enhancement of students' "professional vision and design thinking ability", Zhejiang University of Science and Technology proposes to improve students' "professional vision and design thinking ability", "design innovation and industrial integration and coordination ability", and "collaborative entrepreneurship comprehensive ability", and ultimately form the cross-cutting and comprehensive ability, as well as the cultivation and enhancement of operation and management ability required for students' fashion innovation and creativity and entrepreneurship.

2.3. Constructing a cross-fertilisation curriculum system with "fashion design" as the core course

In the eight institutions surveyed, all of them take "fashion design" as the core of the curriculum system, increase the number of general courses in humanities, social sciences, art history and culture, and set up professional development courses that are cross-fertilised within (between) discipline groups according to the characteristics of the disciplines of the school. For example, Donghua University, Zhejiang University of Science and Technology and Beijing Institute of Fashion Technology have similar disciplinary backgrounds. All of them are universities with multi-disciplinary backgrounds and the whole industrial chain of textile, materials and clothing, among which Donghua University's "Fashion Design Series Course" is the only national quality course among domestic fashion colleges and universities. Relying on a multidisciplinary background, Zhejiang Sci-Tech University was successfully approved as a national virtual simulation experimental teaching center for fashion design. While the China Academy of Art is a college with an art discipline background, there is substantial difficulty in cross-disciplinarity, but through a wide range of interdisciplinary elective courses such as humanities, social sciences, natural sciences and business, to broaden students' skills and horizons, and through the model of cross-school cooperation (the School of Design and Art of the China Academy of Art cooperates with the University of Science and Technology of China), The teaching and research direction of science and art integration and material innovation is put forward.

2.4. Taking "industrial clusters" as the resource advantage, realising the integration of "industry, education, research and learning"

The surveyed universities are all in countries or regions where the garment industry is relatively developed, and pay special attention to "integration of industry and education - professional docking - curriculum cohesion". Foreign universities will organize students to participate in the studio's practical projects with top partners such as LVMH, Kering, Swarovski, COACH, Luxottica, etc. (freshman to senior year), which will help students accumulate a lot of professional practical experience. Beijing Institute of Fashion Technology and Anta, 361 and other brands to carry out research cooperation to open the professional direction of sports functional clothing design, to achieve project-driven scientific research and turned into teaching resources [2]. The effective link of "industrial chain + innovation chain + education chain" has been realized. The China Academy of Art is an industry-university-research system jointly established by "National Philosophy and Social Sciences Laboratory", "National Experimental Teaching Demonstration Center", "Textile and Garment Research Institute", "China Silk Museum and International Design Museum Group", and takes the Yangtze River Delta textile industry cluster as the advantage of integration of production and education. In-depth cooperation with Haining leather industry, Tonglu wool spinning industry, Huzhou knitting industry, etc., set up a large number of project practice courses, and truly achieve "mutual integration and mutual driving force".

2.5. Integrate diversified faculty with the teaching form of "cross-border integration"

As the speciality of clothing and apparel design is characterised by the integration of theory and practical application, and the interweaving of foreign and domestic development, the structure of a single background faculty cannot meet the needs of cultivating complex talents. Parsons in the United States and Central Saint Martins College of Art in the United Kingdom have employed a large number of enterprise instructors to participate in the practical courses, and the China Academy of Art has also set up a comprehensive faculty team that brings together professional teachers, international faculty and industrial consultants, and has developed a curriculum system for future development. In the "Designer Brand Garment Design" course (Zhejiang provincial first-class course), a diversified expert tutor group consisting of on-campus course tutor team, off-campus industry tutor team and international tutor team has been set up, which can more comprehensively tutor students to complete the design and development of their works, and realise the docking with the industry. Zhejiang University of Technology has carried out collaborative talent cultivation work with many famous garment enterprises, implemented on-campus and off-campus dual tutor teaching mechanism, and enhanced the practical aspects of the course.

2.6. Improve the awareness and ability of innovation and entrepreneurship with the background of "innovation competition and entrepreneurship incubation" and the platform of collaborative education

At present, the cultivation of students' innovation and entrepreneurship consciousness and ability is the focus of the professional talent training goals of colleges and universities at home and abroad. Through the optional course module of "Off-campus Cooperative Practice", Donghua University has set up six practical elective courses, including "Intangible cultural heritage Research Training and Social Practice", "Digital Art Creation and Fashion Brand Practice", and has effectively improved students' innovation and entrepreneurship ability through the guidance of "Fashion Design Competition creation". The workshop module of Zhejiang University of Science and Technology is the most distinctive. The tutor course plan is set up in the first and second semester of the third grade respectively. Students participate in the tutor course plan, and the creative works or entrepreneurial products are the output form, which can connect with the innovation and entrepreneurship competition. Beijing Institute of Fashion Technology proposed 7 innovative design thematic modules such as "Sustainable Design", "Redesign of Chinese Traditional Culture" and "Social Innovation Design" to provide a platform for students to practice innovative design [3]. China Academy of Art's "Designer Brand Clothing Design" is a simulated entrepreneurial project-type course. It relies on off-campus tutor resources, innovation and entrepreneurship projects, and combines the horizontal project of the course tutor to assist the commercial implementation of the course.

3. Main Problems Solved

3.1. Problems in the construction of cross-curriculum system corresponding to talent training objectives

The existing curriculum system lacks knowledge cross-fertilisation within (between) disciplines, and the teacher team lacks cross-border integration, making it difficult to cultivate composite talents [4]. The concept of art and design disciplines based on the classification of traditional knowledge classification method itself inevitably cuts the wholeness and complexity of the objective reality to a certain extent. Project-based courses such as "Clothing Innovation Design" have the problems of single disciplinary knowledge and insufficient innovation; in "Garment Design" and "Clothing Brand Design", there are problems such as the introduction of fewer industrial resources and insufficient objectivity in the evaluation standards of teaching achievements.

3.2. Problems in the setting of professional modules matching the direction of talent cultivation

The settings of the existing professional direction modules (clothing art design, pattern making and clothing design, marketing and clothing design, image and clothing design, knitting and clothing design) are out of touch with the actual talent demand. Clothing design professional discipline is a discipline with strong practical characteristics, when the course content is detached from the industrial base, it is easy to cause formal teaching, theoretical teaching of the void. Therefore, it is necessary to change the problem of timeliness of students' understanding of industry dynamics through industry docking and market research in the course [5]; and solve the problems of insufficient in-depth understanding of the clothing consumer market and unclear demand for talents' ability in the clothing industry through the operation of actual projects.

3.3. The problem of teaching mode innovation corresponding to the talent cultivation method

The actual teaching results of existing innovation and entrepreneurship education are not outstanding. To improve students' innovation and entrepreneurship ability, it is necessary to cultivate students' interdisciplinary thinking, critical thinking and discursive ability. Thinking determines the direction of ability construction, and there is a lack of critical thinking exploration courses based on humanities, sociology and philosophy in the existing curriculum system. At the same time, it is necessary to rely on practical innovation and entrepreneurship practice courses, combined with competitions, to transform innovative works into entrepreneurial products, prompting the practice of the main object to produce specific innovation and design behaviours, and to form effective experience [5].

3.4. The problem of setting up a quality assurance system corresponding to the results of talent cultivation

The traditional quality assurance system for the teaching of clothing design majors tends to show a lack of process, teaching randomness and subjective evaluation. Classroom teaching is often influenced by teachers' self-consciousness, and there is a general tendency for the process to take precedence over the results in the evaluation mechanism, ignoring the process of generating students' assignments, with a single evaluation subject and a strong subjectivity in the evaluation process.

4. "Multi-dimensional" fashion design teaching system design

In the context of the construction of "new liberal arts", with the implementation of "moral cultivation" as the fundamental task, through the construction of diversified teaching resources of "integration of arts and sciences, integration of industry and education, integration of mass innovation and cross-disciplinary integration", the construction of multi-disciplinary cross-teaching teams of "art, textile, management, computer", and the formation of cross-border teaching practical training mentor teams of "enterprise mentors + school teachers" [6]. Construct the multi-dimensional composite ability system of students, and finally improve the four-stage course system of fashion design major of "Teaching (knowledge teaching) - Learning (systematic learning) - Research (innovative research) - Creation (entrepreneurial practice)". The results of the project have strengthened students' professional knowledge base, broadened students' interdisciplinary knowledge, broken students' cognitive boundaries, formed independent thinking ability, improved students' ability to apply theory to practice, and completed the training goal of the coordinated

development of students' "character, knowledge and ability" (as illustrated in Fig.1).

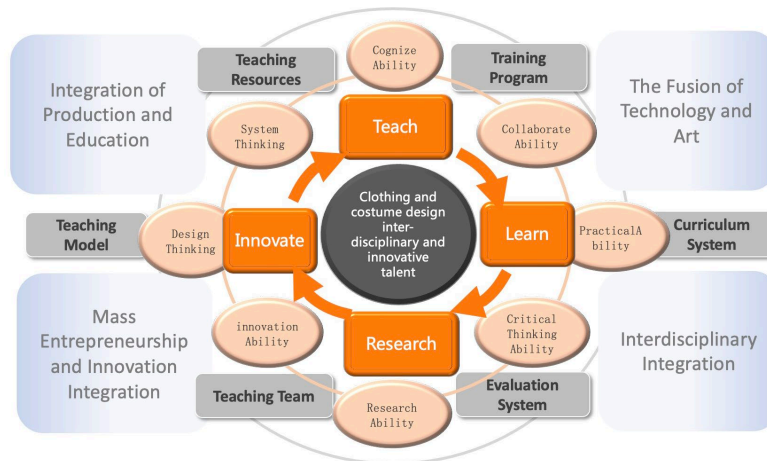


Fig.1. "Multi-dimensional" fashion and clothing design professional compound innovative talent training system construction framework

4.1. Setting graduation requirements based on the indicator of composite ability; designing the curriculum system based on the characteristic of interdisciplinary integration.

The teaching aims to cultivate students' multi-dimensional ability. It emphasizes that students can have both professional ability, practical ability and innovative ability when they graduate, and have professional thinking, interdisciplinary integration thinking and innovative thinking. It also enhances students' three abilities: "professional vision and design thinking ability", "design innovation and industrial integration coordination ability", and "collaborative entrepreneurship comprehensive ability". Finally form the cross-over, comprehensive ability and operation and management ability of students' fashion innovation, creativity and entrepreneurship.

With "Fashion Design" series courses as the core of the curriculum system construction, general courses in humanities, social sciences, art history and culture are added, and professional development courses with cross-integration within (among) subject groups are set up according to the discipline characteristics of the school (as illustrated in Fig.2). Relying on the multi-disciplinary background of the whole industry chain of textiles, materials, clothing, etc., we establish a cross-over research laboratory and propose a forward-looking teaching and research direction of science and art integration and material innovation.

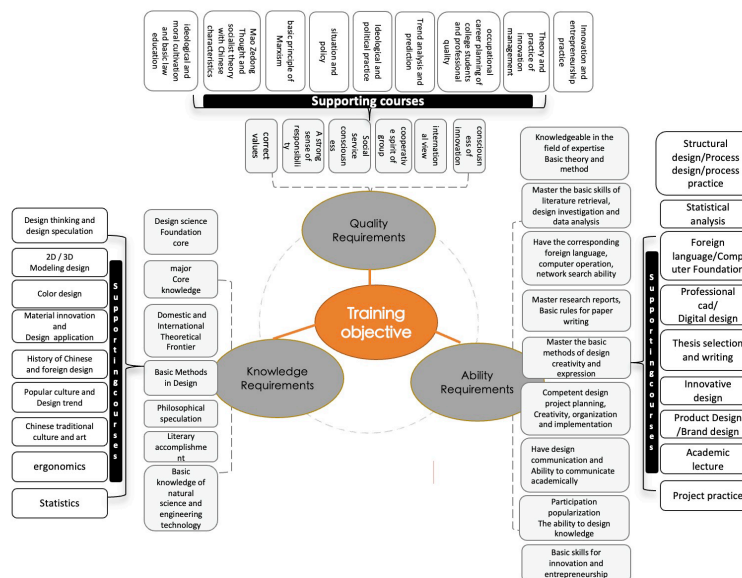


Fig.2. Curriculum architecture diagram corresponding to training objectives

4.2. Realise the integration of "production, teaching, research and learning" by taking the advantages of local industrial resources, and set up the teaching team with diversified cross-border teaching forms to solve the problem of teaching module setting.

Based on the OBE theory and oriented to the results of talent cultivation, we think about the setting of teaching modules. We cooperate with famous apparel enterprises to set up functional apparel labs and innovative apparel art design labs, so as to realise the effective linkage of "industry chain+innovation chain+education chain" by project-driven scientific research and transforming it into teaching resources, and set up a large number of project practice courses to truly realise "mutual integration and mutual power". In the practice courses, a large number of enterprise tutors are hired to participate in the development of a future-oriented curriculum system. In the courses of "Garment Design" and "Clothing Brand Design", a diversified expert tutor group consisting of on-campus curriculum tutor team, off-campus industrial tutor team and international tutor team is formed, so that it can more comprehensively tutor students to complete the design and development of the works and achieve the docking with the industry.

4.3. Construct a teaching quality evaluation system based on the principle of guaranteeing teaching quality

Construct the units (as illustrated in Fig.3) of student self-assessment, tutor mutual assessment, one-on-one evaluation, group evaluation, mid-term evaluation and final general evaluation to strengthen the process management of students' works, standardise the formative nature of the design teaching process, and solve the current subjective and one-sided evaluation method of design professional teaching based on the results and the effect as the criterion, so as to ensure the validity and objectivity of the evaluation of the teaching results.

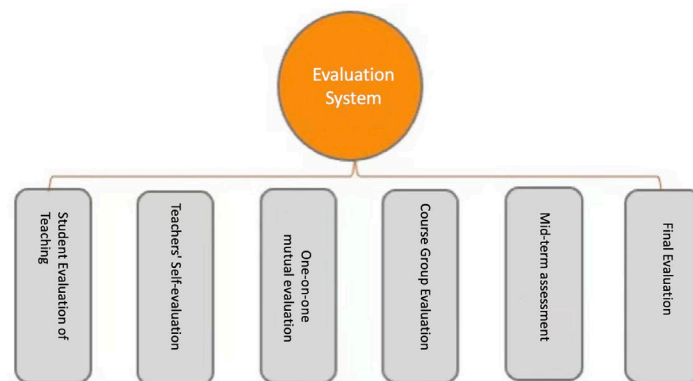


Fig.3. Multidimensional teaching evaluation system

5. Conclusion

The characteristics and innovations of the "multi-dimensional" new liberal arts background of the clothing and apparel design professional complex innovative talents training system are: (1) Theoretical innovation based on the educational concept in the context of the times. The innovation of education and teaching theory of fashion design in the context of "new liberal arts" is integrated with the times and matches with the national strategy and local economic development. (2) Practical innovation of teaching system based on multidisciplinary background. Integrating multidisciplinary resources, breaking disciplines, professions, industries, barriers, integrating teaching resources of design disciplines, computer disciplines, engineering disciplines, art disciplines, and industry elites, and forming a cross-border teaching team [7]. (3) Innovation of teaching means based on the background of technological innovation. Integrating multiple teaching means, adopting on-line and off-line fusion teaching, industry-teaching fusion teaching, and project-based teaching. (4) Innovation of teaching material design based on the background of professional course characteristics. Integrate multi-dimensional resources, create a multi-dimensional laboratory for the new liberal arts design major with "integration of arts and sciences, integration of industry and education, integration of dual-creation, and interdisciplinary cross-fertilisation", and innovate professional teaching materials.

The teaching system is divided into four phases of teaching practice: (1) "Teaching" - in the first year of university study, you need to complete the study of basic clothing design courses, and focus on basic clothing theory, design methodology, clothing pattern and process, history of clothing development, clothing effect drawing, clothing pattern and other subjects. , clothing effect drawing, dress pattern and other courses, to market research work as an entry point, and gradually understand the basic theory and design method of clothing design. (2) "Learning" - In the second year stage of the university, the Wuhan Textile and Clothing Digital Research Centre, Hubei Clothing Culture and Art Research Centre, and Hubei Non-legacy Research Centre are taken as the bases to enhance the students' independent learning ability. Apparel design theory, the latest case study, comparative study, project study mainly, forming a study group, in-depth analysis of knowledge points, and proficiency in apparel design methods. (3) "Research" - In the third-year stage of university study, the on-campus innovation project as a guide (school Da Chuang project, provincial Da Chuang project), and the off-campus practice base (Wuhan Kaichen International Trade Co., Ltd. and Shenzhen Slannod Garment Development Co. Internship base) as the basis, the project consciousness is carried through the learning process, starting from the market research and user experience, to improve the students' innovation ability and apply the theory of clothing design in practice. (4) "Creation" - In the third and fourth years of university study, on the basis of completing the courses of garment design and clothing brand design, students focus on creating brands and entrepreneurial practice projects as the core to develop the systematic linkage of the four plates (foundation, structure, design and marketing). The students are systematically linked to the four major courses (foundation, structure, design and marketing) and complete their entrepreneurial practice with the help of a number of innovation and entrepreneurship incubators in the province (Redt Innovation Park, Jiahai Innovation Park, etc.). The results of the practice will be used to help students find employment and improve the deficiencies in the fashion design programme.

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(2) 2022 Wuhan Textile University Graduate Teaching Reform Project "Research on Training Plan for Improving the scientific research and Innovation Strength of Design Graduate Students in the Context of New Liberal Arts"(No. 202201036);

(3) 2022 General Project of Ideological and Political Education for Graduate Students of Wuhan Textile University "Research on the Fusion Training Mode of" German and Art Dual Core "of Ideological and Political Education and Double Innovation Education for graduate students of Design Majors".

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