Clothing Material Science Curriculum and Personnel Training

L. ZHAO¹,a,* D.-S. CHEN¹,b, X.-H. YUAN²,c, X.-H. LIN²,d

¹Faculty of Clothing and Design, Minjiang University, Fuzhou 350000, P.R. China
²Textiles and Clothing Technology Innovation Center, Fuzhou 350000, P.R. China

a binghuoyan2005@163.com, b mjuchen@126.com, c 156628693@qq.com,
d linxiaohua82514@qq.com
*Corresponding author

Keywords: Clothing material science, Teaching staff, Teaching material, Experiment and training, Course characteristic, Talent training.

Abstract. The Garment Material Science course inherited by the local institutions that are personnel training oriented. Underpinned by a foundation of the faculty, teaching material, experiment, training platforms and is explored in a variety of aspects, thus, to cover this balanced course curriculum. This curriculum also enables outstanding teaching characteristics that combine clothing materials with art and engineering, theory with practice and education with research that had established satisfying initial experiences.

Introduction

With the intention of adapting the development pace of the textile and garment industry on the west side of the Straits, Professor D S Chen and his team had possessed a strong sense of times and responsibilities since the establishment of Minjiang University of Clothing and Art Engineering. Aiming for high-end designs, the team began the theoretical exploration and training on Clothing design in 2003, to train innovative talents. Especially since the grant of the "Innovative Fashion Design and Engineering Talent Training Model Experimental Zone" program in Fujian province in 2007; followed by the "Art engineering and Specialised Clothing professional Talent and Entrepreneurship Training Model Test Zone" program in 2009; the team had inherited the advanced concept "Consistent with the training development demand, consistent with the building development demand, consistent with the service development demand"¹, and thereby to follow the path of art engineering.

For the meantime, the course is by the characteristics of "The combination of clothing materials with art and engineering, theory and practice, teaching and research"², forming a "Tri-combination" for our teaching, which also ingeniously making the Clothing Materials Science course special in our institution. The use of learning materials for the course is designed by Professor D S Chen, arts and engineering will be in separate lectures, highlighting our institution with the objective of talent training locally, and internationally in one. Another focus will be the clothing materials science and fashion design modules. In which, the garment processing course will be focusing on the horizontal integration with the clothing ergonomics and the clothing physiological hygiene units, thereby to complete the curriculum under the "Vast clothing materials" course³.
Course Construction Practice

Promotion of Teaching Reformation and Teaching Team Building

In recent years, the Fashion department in Minjiang University has attached close attention to the quality of staff and fellow members training. We have provided deliberate and demanding training for young teachers and achieved significant team building results. The core members of the group in this course have formed the "Clothing Engineering Teaching Team" and have been granted the Fujian education quality engineering project by the Provincial Department in 2008. The course of clothing materials science has been rated as an excellent course by the Fujian Province in 2006. Further, in 2008, it was promoted as the national quality course and finally was approved as the national quality resources sharing class in 2013. The successful teaching reformation has effectively promoted the staff of instruction quality. In order to continue with the development of in-depth teaching, we therefore created the clothing materials course design group, which currently includes: a doctoral tutor, two master tutors, seven other teaching and research staffs, three doctorate holders, two PhD students and four master's degrees holders, constituting an enthusiastic professional clothing teaching team. The team structure is in excellence quality and determined to provide the best garment education after the reformation. Moreover, it also guaranteed to provide adequate and reliable human resources for the course in long-term.

Strengthening Teaching Materials

By the results of the key person who completed the preparation of the "21st Century Higher Garment Institution' Teaching Materials Series" and "Textiles and Apparel Higher Education Twelfth Five—Year Plan for Ministries and Commissions", not only in Minjiang University had obtained an excellent teaching result, but also brought great impact to the University status. Based on this learning material set, leading us in receiving two prizes from the provincial teaching achievement award in 2005.
Based on the two achievements, such that our course have first published the "Clothing Materials Science" in the Donghua University Press for art students; and the publication of the "Clothing Materials Science" in the Chemical Engineering Publishing House for engineering students subsequently; the different needs between the cultivation of talents in arts and engineering was met, and in due course, "Clothing Materials Science Experimental Course" was published under the support of Donghua University Press.

**Experimental Platform, Training Base Development**

Explorations through long-term practices, the teaching method in the clothing materials science course not only retained the essence of traditional teaching methods but also implemented discussion and experiments, practical and other innovative teaching methods. An investment of more than 400 million Yuan was put into the laboratory equipment for testing clothing and textile materials performance, with nearly 300 advanced equipment and over 90% are advanced electronic equipment. The performance and application tests can be confidently carried out for different clothing materials. Also, the equipment is compatible with the supporting knitwear design laboratories, digital printing laboratories, fabric embroidery laboratories, and other fabrics related laboratories. The experiment rate is 100% to facilitate students in mastering the knowledge and skills for future needs.

Moreover, there are more than ten well-established internship contacts, allowing exclusive actives for students to visit the enterprise practice, corporate internships, summer social events, teaching internships and so on. It is undoubtedly that student in the more advanced and superior teaching environment inside and outside the school or participating in research or tasks provided by internships; the practical ability can be continuously strengthened and are welcomed by the community and recognition.

**Bring Teaching Reformation as the Starting Point and Strive to Improve the Quality of Personnel Training**

Over the past few years, we mainly focus on classroom building based on the characteristics of our garment students, and actively create and encourage students to learn and accumulate knowledge from the teaching environment. In recent years, students have received more than 100 awards at the provincial level. For example, student Hu Jinfeng won the first National College Graduation Costume Design Competition in Women's Best Creative Design Award; student Dong Yue won the Chinese Copyright (creative) Industry Exposition Gold Award; student Guo Fangping won the Sixth China International Warp Leisure Class Fashion Design Competition with Bronze; student Yuching won the fifth national three-dimensional cut clothing design competition with bronze; Chen Linghui was awarded by the Provincial Committee with the Haixi Venture Star Award and etc.

**Core Concept of the Course Construction**

Our University (Minjiang University) implemented the strategy, "Talent Training in Consistent with the Demand", hence to be student-oriented to improve their future employment competitiveness. Using entrepreneurship as the fundamental starting point, this leads us to a formation of marketing service to meet the talents’ demand and allowing us to follow the path of social service improvisation. The clothing materials science course’s structure inherited the concept of talent training and the formation of three different teaching characteristics of the
curriculum components, including but not limited to the lectures, practicals and the seminars. The focus in lectures is to reinforce students' theoretical knowledge; the practicals concentrate on improving students' ability to analyze and problem-solving ability; last but not least, the seminars focus on cultivating students’ innovative spirit and academic potentials. These three parts together have highlighted the practical experiencing and research learning, therefore to support a solid theoretical foundation for students, developing innovative entrepreneurial spirit and strong practical ability to provide a knowledge system protection.

Lectures aimed at the market development as a basis, to introduce the new technologies and cross-disciplinary teaching content. Practical modules take industry demand as guidance, to set up an effective platform for both the theory and real practice, therefore to train the practical ability of the students, strengthen their adaptability and practicability. During the seminars, students are asked to declare their research projects and carry out research-based learning. We provide relevant lectures, to guide students in accessing relevant information from literature to the application of scientific research projects, writing academic reports, and academic papers, combined with participation in the national vocational skills competitions, greatly improving students’ innovative spirit and comprehensive ability.

On this basis, the creative formation of this unique local institution of the clothing materials science curriculum, using teaching materials designed by Professor D S Chen, these exceptionally highlighted our institution in the outstanding motives for talents training, locally and internationally. We have the combination of teaching materials with both arts and engineering, the combination of theory and practice, the combination of teaching and research, creating of the "tri-combinations" as our teaching characteristics; other focuses are on clothing materials science course and costume design, garment processing modules with the lateral expansion, and focusing on clothing and ergonomics, clothing, physical hygiene course with horizontal integration, forming a comprehensive "Vast Clothing Materials Science.

Summary

Six students have successfully enrolled in the “Undergraduate Innovative Experimental Project” by The Education Department of Fujian in quality engineering in 2007 and 2008 and five students have also been approved in the same programme in 2011. Furthermore, six students have also been accepted and approved in "Undergraduate Innovation and Entrepreneurship Program" by the same department in 2012. In the meantime, "Hakka traditional costumes and cultural tourism product design and development" and "Research on fibre art costume design” had also been approved as national undergraduate innovation and entrepreneurship training project in 2013. In the same year, five students have also been approved the provincial innovation and entrepreneurship training program.

In recent years, students have been receiving more than 100 awards at the provincial level. This includes Miss Hu Jinfeng who has won the Creativity Award in the National College Graduates Costume (women) Design Competition, Dong Yue who won the gold medal for the China (Taiwan) Copyright (Creative) Industry Excellence Exposition, and Guo Fangping who won the bronze award of the 6th China International Warp-knitting Leisure Fashion Design Competition. The students that earned the bronze awards of the 5th National Cut- Students were also awarded the League Committee of the Haixi Venture Star Award.
Based on solid theoretical foundation and strong practical ability, there is cumulative of more than 100 people that entered to the textile fabric division and other vocational qualification certificates. For the talents that possessed a "Vocational qualification certificate" and "Diploma" and other dual-card that create conditions to improve the employability of talent and market competitiveness.

Through talent training model reformation, this obviously promoted the overall quality of the development of students and strengthen the enthusiasm of the students to learn and hence to enhance the employment competitiveness for them in recent years. In such competitive condition, the graduate employment rates in costume design and engineering professional even achieved and maintained more than 98, where these graduates in the workplace were praised by their employers.

Acknowledgement
This research was financially supported by the Clothing Material Experiment Moocs Construction Foundation (JAS151318).

References