The Course and Textbook Construction of a "Basic Textile and Clothing Knowledge" Course

Taohai Yan[1,*], Yu Lin[1] and Yajing Shi[1]

[1]*Clothing and Design Faculty, Minjiang University, Fuzhou, Fujian 350121, China*
Corresponding author. Email: thyan@mju.edu.cn

ABSTRACT

To investigate the teaching content, teaching methods, and assessment methods of the "Basic Textile and Clothing Knowledge" course offered by Minjiang University in China, a comprehensive course system was formed, and after the course was reformed, the textbook construction of the course's "Practical Textile and Clothing Basic Guide" was developed. Minjiang University offered the public elective course "Basic Textile and Clothing Knowledge", and whose main content included basic knowledge about the entire textile industry chain and daily knowledge about textiles and clothing. The teaching format contained online and offline mixed methods of teaching, and the assessment of the teaching methods was a procedural assessment method. The research conclusions of this paper may be used as a reference for the construction of other basic courses.

Keywords: Basic Textile and Clothing Knowledge, course reform, online and offline course teaching methods, course content and format

1. INTRODUCTION

China's textile industry is a traditional pillar industry, an important civilian production industry, and an industry that creates international commercial advantages. It is an industry that combines technology and fashion, and it serves needs in industry and in the consumption habits of people's daily lives. It provides beautiful fabrics that enhance people's lives, increases cultural confidence, and contributes to a healthy ecological civilization. The industry drives related industrial development, stimulating domestic demand, promoting social harmony, expanding exports, and supporting domestic employment. In 2011, China's textile exports accounted for about 13% of China's total exports, and more than 20 million people were employed. The number of employees in corporate legal entities in the textile industry accounted for 16% of the number of employees in all national manufacturing enterprises[1].

1.1. Course's content

"Basic Textile and Clothing Knowledge" is a public elective course intended as an introduction for students who are focused on non-textile and clothing subjects. It is offered once per semester, and enrolls 60 elective students who spend 30 school hours on the course (one course per week, 45 minutes per school hour, usually during the 2nd-16th weeks of each semester). The main content of the course includes basic knowledge about textile materials, spinning, weaving, knitting, non-woven fabrics, printing and dyeing of fabrics, and clothing design and production. The teaching content and class hours of the "Basic Textile and Clothing Knowledge" course are shown in Table 1. After completing the course, students may acquire a practical understanding of everyday, "real life" applications of the extile and clothing techniques they learned about in the class sessions.

Table 1. Teaching content and class hours of the "Basic Textile and Clothing Knowledge" course

Teaching content	Teaching objectives	School hours
1. Textile raw materials	Introduce the types and characteristics of conventional fabrics	6
2. Melt spinning	Introduce the spinning methods and characteristics of conventional chemical fibers	2
3. Spinning	Introduce the method and characteristics of short fiber twisting into yarn	2
4. Woven	Introduce the method and characteristics of woven fabric	4
5. Knitting	Introduce the methods and characteristics of weft knitting and warp knitting	4
6. Nonwoven	Introduce the method and characteristics of non-woven fabric	2
7. Printing and dyeing	Introduce printing and dyeing methods and their characteristics	4
8. Clothing technology	Introduce the methods and characteristics of garment processing technology	2
9. Clothing design	Introduce conventional methods of clothing design	2
10. Clothing testing	Introduce the identification methods of different types of clothing fabrics	2

1.2. Course's textbook

The corresponding textbook for the course "Basic Textile and Clothing Knowledge" is titled "Basic Introduction to Practical Textile and Clothing". The textbook is suitable for basic courses such as the "Practical Knowledge of Textile and Clothing" and professional introductory courses with titles such as "Introduction of Textiles" and "Introduction of Clothing"—these latter classes are suitable as basic introductions to textile and garment technical training. The main content of the "Basic Introduction to Practical Textile and Clothing" textbook describes the basic knowledge that underpins the entire textile and apparel industry chain, including the technology, research, and development status of fiber materials; weaving and dyeing technologies; and clothing processing, selection, maintenance, and recycling. The textbook focuses on basic technical knowledge; common and practical knowledge; and basic knowledge of fiber materials, weaving, clothing processing, the relationship between body type and clothing choice; and the relationship between clothing comfort and fabric. The textbook includes information about the types of fabrics and their characteristics, practical knowledge about clothing materials, and practical knowledge about clothing maintenance. The textbook content was developed in cooperation with relevant industrial enterprises located in Fujian Province.

1.3. Course's goal

In the first semester of the 2017-2018 school year, we began to implement a pilot reform of the course that (now) uses the "Basic Introduction to Practical Textile and Clothing" textbook. In 2019, we began to construct a practical teaching textbook (the "Basic Introduction to Practical Textile and Clothing") for the course. After three years of development, the first draft of the textbook was completed.

The "Basic Textile and Clothing Knowledge" textbook can improve the systematization of the knowledge required for the textile and clothing disciplines, so that students can understand the knowledge areas and thinking methods of different disciplines, and so that knowledge in different disciplines can be integrated. The course aims to deepen students' understanding of textile and clothing engineering and support the scientific literacy of students engaged in the textile and clothing disciplines. Technology and scientific research can improve students' logical thinking about textiles and clothing. The promotion of the textile and garment industries can improve students' innovation and entrepreneurialism and increase their employment options[2].

2. COURSE CONSTRUCTION

2.1. Reform of assessment methods

The "Basic Textile and Clothing Knowledge" course strengthens the assessment of the course learning process; prioritizes the cultivation of student ability; and conducts a multi-perspective, multi-dimensional, and diversified evaluation. Since the inception of the course, it has been regarded as a "school-wide elective course".

Over several years of teaching the course, we have innovated changes to the regular knowledge that is imparted by the course and increased grading from 20% to 100%. As part of the reform of the "Basic Textile and Apparel Knowledge" course, we have adopted a process evaluation method. At the beginning of the semester, the main lecturer formulated a process assessment plan, made specific arrangements for evaluating course progress and teaching links in the teaching calendar, and adopted a teaching implementation plan after it was approved by the college teaching steering committee.

The reform of the course increased the weight of the learning process assessment in the learning process, which now accounts for 100% of the total assessment ratio; this assessment comprehensively, objectively, and accurately evaluates students' usual learning situations; stimulates students' interest in learning; strengthens the mechanisms of students' learning processes; and improves classroom teaching quality. The system comprehensively assesses the content of the course to ensure the quality of the overall teaching effect of the course.

2.2. Reform of curriculum teaching methods

Based on the teaching status of the "Basic Textile and Apparel Knowledge" course, the project team involved in this study believes that the teaching mode of this course must keep pace with the times and actively make adjustments after thorough discussion. Online and offline teaching regimes require links, including a project guide for students to conduct effective previews before class, and a functionality that allows teachers to customize learning plans and provide online guidance based on students' learning data feedback. Teachers can explain the difficult and easy points that were brought up in class to guide students through a process of sharing and discussion. Students can make appointments to carry out practical learning independently, and teachers can provide guidance and answer questions in real time to effectively improve the quality of learning after class[3].

Full use should be made of the mainstream communication platform WeChat in a way that coordinates with classroom teaching to achieve online and offline mixed teaching methods. In the online teaching section, teachers may use the Minjiang University's network teaching platform to carry out teaching activities according to the syllabus, teaching courseware and teacher-recorded videos, and they

may also combine teaching resources from other schools to supplement their teaching. WeChat maintains an official account that is used to regularly edit and publish various types of course materials, along with records of teaching progress, to support students' independent learning. In addition, WeChat provides one-to-one or one-to-many outlets that allow for online communication and for the answering of questions online in real time. When students encounter difficult or confusing questions, WeChat provides micro-videos or voice recordings that help students distinguish the correct information instantly. Teachers are able to understand the problems encountered by students in a timely manner based on the WeChat platform data[4].

In offline classroom teaching, teachers use flipped classrooms and other methods to guide students to share and discuss issues, and to conduct targeted teaching activities. The teaching arrangement of the "Basic Textile and Apparel Knowledge" course has been adjusted to a two-part structure. (1) Online supplementary teaching, relying on video recorded by the course leader, including the extracurricular curriculum resources used to carry out pre-class preparation; online theoretical hours in this scheme accounted for 35%. (2) Offline lectures and demonstrations, in which teachers use PPT multimedia assistance, combined with the production of the weaving process, to explain difficult and error-prone points, and to guide students to share and discuss; offline theoretical hours in this scheme account for 65%[5].

The use of modern multimedia teaching methods combine with related audio and video and images. This course allows students to establish the context of the entire textile industry chain with multiple senses, and stimulate students' interest in learning continuously. Teachers guide students to connect these scattered "knowledge points" into a "knowledge line" from a different perspective and to find the law of development of textile science and technology. The mode of group discussion (4-5 people per group) and PPT report can deepen students' understanding and mastery of course knowledge, and establish a scientific exploration based on textiles initially. In this process, students are encouraged to look up data, collect information, analyze and sort out information, and cultivate the ability of teamwork to use curriculum knowledge to explore and dig rules comprehensively. While strengthening learning awareness of students, expanding ideas, and optimizing knowledge, they also are cultivated the ability to analyze problems, solve problems, organize and manage, cooperate and communicate, and learn independently. From the perspective of textiles, the basic depth of the entire textile industry chain is obtained. And formed "Knowledge" enables students to fully understand the entire textile industry chain.

2.3. Reform of teaching content

The content of the "Basic Textile and Apparel Knowledge" course is based on the entire supply and demand chain of the textile industry, as outlined in the textbook "Practical

Textile and Apparel Fundamentals", which helps to innovate and optimize the course structure. Teaching content satisfies the goals of the teaching itself, and also introduces the topic of market operations. From theoretical teaching to practical teaching, the content of the textbook guides students to a basic understanding of textiles and of the various enterprises and career opportunities that are involved in the industry. Therefore, the teaching content, teaching methods, and teaching resources of the course must occasionally be adjusted to refresh and optimize the course structure and to increase new methods of applied teaching. The course content must remain integrated between, for example, the creation of raw fabric materials and the factors involved in fabricating textiles into consumer projects. The course content must remain current on issues related to the production of raw materials, the craft of spinning, the proliferation of professional images and media representations, other popular information, new technologies, and other content related to the actual needs of the textile markets, so that students can maintain market awareness during their learning process and form a good understanding of industry trends[6].

3. SIGNIFICANCE OF COURSE REFORM

(1) "Basic Textile and Apparel Knowledge" is a professional course that integrates disciplines and actively serves professional students of Minjiang University's School of Fashion. The course integrates several areas of knowledge and unifies students from multiple disciplines.

(2) "Basic Textile and Clothing Knowledge" focuses on teaching the basic practical knowledge that is closely related to daily life, including clothing selection, the basis for clothing sizing, and the basis for choosing clothing fabrics. The course outlines the various types of conventional fabrics, by methods such as the hand-sensing visual method and the burning method. Having a basic knowledge of the maintenance of various types of clothing improves the quality of students' daily life.

(3) The "Basic Textile and Apparel Knowledge" course is closely related to real life, in that it promotes textile and apparel safety and safety violation knowledge and actively provides in-depth explanations and context for various media reports about real-time issues in the textile and apparel industry.

(4) "Basic Textile and Apparel Knowledge" is an organic part of the practice of building a "textile and apparel professional group serving local characteristics", which helps to promote professional knowledge that serves local industries.

(5) The writing process of the "Practical Textile and Apparel Fundamentals" textbook occurred in cooperation with Fujian Huafeng New Material Co., Ltd., and the content is in line with the actual situation of this company. The content of the textbook covers the basic knowledge of the entire industry chain; the content is systematic, comprehensive, and basic; the textbook focuses on practicality and is suitable for professional introduction education. The compilation of teaching materials is

integrated into Minjiang Universtiy's application-oriented talent training philosophy, and more application cases will be compiled into these teaching materials based on the actual application of enterprises engaged in the textile and clothing industries. The compilation of teaching materials in this textbook will help to promote professional knowledge that may serve local industries.

4. CONCLUSION

The use of online and offline mixed teaching methods in the teaching process of the "Basic Textile and Clothing Knowledge" course helps improve teachers' and students' ability to use information technology for teaching or learning, and it can effectively stimulate students' enthusiasm for learning and cultivate their skills in information screening and analysis. The ability to independently process information supports the individualized training of students, plays an important role in cultivating new professional talents, and improves the quality of undergraduate teaching. The textbook discussed in this paper covers the basic knowledge of the entire textile industry chain and serves as a professional introductory textbook that actively serves the academic and practical needs of non-textile majors. It is conducive to the integration of knowledge in various disciplines.

ACKNOWLEDGMENT

REFERENCES

[1] Lin, Boqiang, and H. Zhao. "Technological progress and energy rebound effect in China textile industry: Evidence and policy implications." Renewable and Sustainable Energy Reviews 60(2016):173-181. DOI:10.1016/j.rser.2016.01.069

[2] Tao-Hai, YAN, & Dong-Sheng, CHEN. (2016). Discussion of Art Engineering Theory and Thesis (Design) Process Management of Clothing Discipline—Clothing and Design Faculty as an Example. DEStech Transactions on Social Science, Education and Human Science, (mess). DOI:10.12783/dtssehs/mess2016/9689

[3] Bian, Mingwei. "Course Practice Teaching Mode Based on the Exploration of Online and Offline Integration." 2015 Joint International Social Science, Education, Language, Management and Business Conference 2015. DOI:10.2991/jisem-15.2015.44

[4] Luan Hui, Wang Miao, Sokol Rebeccah L, Wu Shiyou, Victor Bryan G, Perron Brian E. A scoping review of WeChat to facilitate professional healthcare education in Mainland China.[J]. Medical education online,2020,25(1).DOI:10.1080/10872981.2020.1782594

[5] Ali Parizad, Hamid Reza Baghaee, Mohamad Esmaeil Iranian, Gevork B. Gharehpetian, J.M. Guerrero. Real-time simulator and offline/online closed-loop test bed for power system modeling and development[J]. International Journal of Electrical Power and Energy Systems,2020,122. DOI:10.1016/j.ijepes.2020.106203

[6] Ferruccio Mandorli, Harald E. Otto. Innovation in MCAD education toward competency development using negative knowledge: From theoretical framework to practical implementation[J]. Computer-Aided Design and Applications,2018,15(3). DOI:10.1080/16864360.2017.1397885