

Research on the Integrated Construction and Application of the Digital New Form Textbook of "English for Naval Pilots"

Rouxin Wen, Zhuying Ji

Department of Basic Sciences, Dalian Naval Academy, Dalian, China.

29896274@qq.com

Abstract. Transforming self-developed online courses and developing new forms of multimedia, digital, intelligent, and fast iterative textbooks have become the trend of textbook construction and reform. Digital new form textbooks aim to break through the limitations of traditional books, improve textbooks' capacity and quality, modify teaching methods and provide innovative tools for the students to learn. The advantages of making teaching and learning more interactive, three-dimensional, vivid, and convenient have broken the constraints of traditional curriculum textbooks, and met the needs of continuously improving the quality of student cultivation in the academy. Taking "English for Naval Pilots" new form textbook as an example, this paper explores new directions for the development and application of digital textbooks.

Keywords: Digital; new form textbooks; construction and application.

1. Introduction

The 2022 Work Points of the Department of Higher Education of the Ministry of Education states that it is necessary to give new form textbooks the latest definition and attributes, develop and build a number of multi-media, digital, intelligent and rapidly iterating new form textbooks. The Implementation of the Construction of Vocational Education Teaching Materials in the 14th Five-Year Plan advocates the construction of digital textbooks with scientific arrangement, rich supporting resources, flexible presentation and appropriate application of information technology.

Under the advocacy of the national policy, the construction and application of new form teaching materials have become a common focus of institutions at all levels, and the transformation of digital resources into new form textbooks is a more scientific and convenient path for the construction of teaching materials nowadays. At present, as one of the key elements in deepening the reform of combat-oriented education, the construction and application research of digital new-form textbooks is crucial in military academies.

2. New digital textbooks meeting the new needs of teaching reform

2.1 Digital new form textbooks

The digital new form textbooks are a new type of interactive electronic learning materials that combine paper textbooks with digital resources and digital curriculum development. Applying the textbooks to students' learning and training processes will enhance teaching innovation, and improve students' learning interest and efficiency [1].

2.2 Characteristics of digital new form textbooks

The content of the textbook is uniformly arranged and designed to make it visually pleasing. The images and videos inserted are unified. For a certain knowledge or skill point, educational technology is flexibly applied through actual operations or scenario recording. The self-developed micro lesson videos are inserted into the textbook so make sure that the equipment and other contents which are difficult to show in the traditional textbooks are visually shown to the students through animation.

2.3 Value of digital new form textbooks

2.3.1 Breaking through the limitations of traditional textbooks, improving content capacity and quality

Digital new form textbooks realize the interconnection of knowledge systems by improving traditional paper books with limited capacity, slow update cycles, one-way communication, lack of interaction and feedback, and adopting various forms of expression, such as traditional graphics, texts, videos and animations.

2.3.2 Modifying teaching methods and providing innovative educational tools

A good textbook carries the knowledge system of a discipline. The textbook is integrated with multimedia teaching material to help students learn in a flipped classroom, which resulting in efficient learning, and forming a new teaching ecology. With abundant resources, the textbook not only serves as a tool for teachers to teach, but also provide a platform for students to engage in self-learning [2].

2.3.3 Granular content production improving the efficiency of textbook revision and optimization

The linear process of traditional textbook production mode makes its revision hard. The new form textbook's granular storage of graphics, videos, animations and other resources can realize dynamic and rapid reorganization and replacement of the content and enhance the effectiveness of textbook revision and optimization.

In short, the goal of constructing digital new form textbooks is to make teaching and learning more interactive, three-dimensional, vivid, and convenient.

3. Reality and reflection: the constraints of traditional textbooks--taking the textbook "English for Naval Pilots" as an example

The traditional teaching of the "English for Naval Flight" course is primarily based on the teacher's lecturing, which is relatively boring.

For the flight cadets who are poorly motivated and lack effective learning methods, it is difficult to stimulate their learning interest and enthusiasm in a lasting way, and cannot effectively cultivate their logical thinking ability and spatial imagination ability.

With the rapid development of modern educational technology, teachers use various multimedia teaching tools to attract students' attention by showing pictures, audios, videos and other teaching resources in the classroom [3]. However, in practice, due to the lack of integrated design in paper textbooks and effective support from the online course, compared with new form integrated textbooks, the existing curriculum textbooks cannot meet the new needs of personalized learning and innovative teaching.

4. Adaptation and transformation: the foundation of the existing digital new form textbooks--the construction of the digital resource "English for Naval Pilots MOOC"

Our Foreign Languages Teaching and Research Department has completed the "English for Naval Pilots" MOOC.

The resources include 29 videos, course introduction video, supporting resources, question bank, PPTs, etc. All of these MOOC resources are the foundation for the construction of digital new form textbooks.

5. From MOOC resources to new form integrated textbooks

5.1 Digital textbook development process

The framework for designing and implementing digital textbooks is divided into five stages: analysis, design, development, implementation, and evaluation. The analysis stage includes learner , objective and application environment analysis, emphasizing that the design of digital textbooks should start from needs and also meet the teaching objectives of the discipline. The design stage is made up of the design of learning tasks, textbook content and evaluation methods. In the development stage, screen verbal expression is the focus, which refers to the design of media elements presentation and contains material collection, interaction design, script writing,, creating interaction and function combination, as well as layout design.

5.2 Tools used for digital textbook development

Sigil software and Founder's Flying software can be used for the development of digital textbooks. In addition, many educational technology companies currently provide digital resource editors, which are a new form of textbook producing and editing tool that can add, edit, and lay out multimedia resources such as texts, images, audios, and videos. In addition, they also provide digital resource platform licenses and can convert all resources in MOOC construction into digital new form textbooks [4].

5.3 From MOOC resources to the new form integrated textbooks

By utilizing the tools used in the development of digital textbooks and following the development process, all resources from MOOC construction are ultimately produced into a digital new form textbook. Its characteristics are as follows:

First, rapid iteration: the loose-leaf paper textbook can be disassembled and updated at any time to achieve iteration, reflecting the timeliness of knowledge. Second, digitization: knowledge points are equipped with QR codes, and after scanning the codes, there are various digital resources such as explanatory audios and videos that can be edited at any time. Resources upgrade interactively, facilitating expanded learning. Third, multi-media: it can achieve full-scene support, full terminal adaptation anywhere. Fourth, intelligent: it can track learning behavior, evaluate the process, and analyze learning effectiveness.

6. Application of digital new form textbooks

The application of digital textbooks for teaching activities is a resource-based teaching process. Digital textbooks can serve as teaching aids to provide strong support for teachers to carry out classroom teaching, and can also use the internet to help students engage in self-directed learning, research, and problem-solving, in order to acquire more knowledge.

In the design of the teaching process, teachers, based on teaching objectives, use relevant animations, videos and other resources from digital textbooks to improve teaching and learning experience, and use them to carry out various modes of teaching, such as tutoring, demonstration, drill, Q & A, testing, etc., to greatly improve students' learning styles and enhance their interest in learning to a greater extent.

Students can log in to the platform at any time in their spare time, use digital textbook to engage in online learning, questioning, and communicating to improve their learning efficiency.

Teachers create the course and new form textbook, and edit/issue course and textbook online; bind the course and textbook with the corresponding class and develop a learning plan.

Before class, students can view their learning plan and tasks through the learning portal or mobile terminal, and get access to the learning task module to complete the learning plan.

In class, students can not only learn through face-to-face teaching, but also watch the online course, learn new media textbook content, and learn through live streaming. They can participate in

virtual training through group discussions and other forms of communication with other students. Teaching can also be organized in the form of projects, questions, and flipped classrooms. In class, practice, discussion, and problem-solving are the main focuses. After class, teachers answer questions and students review what they have learned through the online course and new form textbook, finish homework tasks, group discussions, and paper assignments. Students can take online exams, obtain grades and professional learning results.

7. Summary

In short, with the continuous development of technology, advanced and cutting-edge digital technologies will lead the changes in the field of education, innovate and optimize traditional teaching methods and concepts, and better reflect the essence and purpose of education. Digital mobile three-dimensional textbooks are not only a manifestation of knowledge display, but also a transformation and practice of educational ideology. In order to implement the military education policy of the new era, the digital new form textbooks constructed and applied have adapted to the new teaching demand of improving the quality of pilot training in the academy.

References

- [1] LI Kun. Application and Practice of New Form Integrated Textbooks. Liaoning Higher Vocational Journal, 2022, 24(6): 1-3.
- [2] FEI Jianguang, LIU Shiqing. Basic Characteristics and Development Principle of Digital Teaching Material. Journal of Huzhou University, 2022, 44(6): 71-77.
- [3] YU Nan, JIN Yuxing. The Practice and Thinking of Three — dimensional Teaching Material Construction under the Background of “Three Basic Questions of Teaching” Reform—An Example of Computer Application Foundation. Journal of Kaifeng University, 2021, 35(2): 69-72. .
- [4] DAI Yang. From Digital Textbook Publishing to Learning Scene Construction: Knowledge Service of Educational Publishing Enterprises for Smart Education. Publishing Journal, 2022, 30(4): 83-91.