

Research on the Design of University Textbook Management Systems under the Background of the Internet

Yanhua Zhu*

Shanghai Normal University, Shanghai 200234, China

*Corresponding author: Yanhua Zhu, pw1235@163.com

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Textbook management is an important part of college teaching management, which can affect the pace of high quality development in colleges and universities to some extent. However, from the current point of view, the university textbook management still has the problem of low information level. Even though the textbook management software has been widely promoted and applied, it has not formed a true information sharing platform in the sense. Therefore, the development of university textbook management system based on network technology has a very important display significance, this paper will launch the relevant analysis and research, just for reference.

Keywords: Internet; Universities; Textbook management; System design

Online publication: February 10, 2025

1. Introduction

With the continuous development of education in our country, the scale of running a school in colleges and universities has been expanded obviously, but it also puts forward higher new requirements for the management of teaching information and teaching process. Among them, in the management of various affairs in colleges and universities, textbook management is an indispensable and important part. Under the background of the Internet, how to use advanced modern science and technology to design a relatively perfect textbook management system has become an important research topic that universities need to solve urgently.

2. Analysis of the current situation of textbook management in colleges and universities under the background of Internet

2.1. Traditional university textbook management

2.1.1. It needs to face more tests

The management of teaching materials in colleges and universities is rather complicated. Schools generally order

teaching materials for the next academic year according to the remaining stock of teaching materials used in each semester and the stock of teaching materials in the textbook inventory and then purchase corresponding teaching materials from suppliers according to the number of newly enrolled students. At present, the management information of some college textbooks, such as managers, versions, etc., is more difficult to query, which will not only increase the difficulty of the management of college textbooks but also increase the difficulty of the implementation of textbook procurement personnel.

2.1.2. It is difficult to truly meet the supply-demand of textbooks

At present, there are still many problems in the management of teaching materials in colleges and universities, and the most direct reason is related to the expansion of college enrollment. With the continuous enrollment expansion of colleges and universities, the number of students increases rapidly, and the number and types of textbooks will also increase, but this gap is generally difficult to fill quickly^[1]. For a long time, the corresponding manual management of college textbooks has been low in efficiency, and the input, inquiry and update of textbook information are completed by human resources. Obviously, it is difficult to truly meet the supply-demand of textbooks.

2.1.3. The fault tolerance rate of the teaching materials management system is low

In traditional teaching materials management in colleges and universities, the manual operation of teaching materials management has a low fault tolerance rate^[2]. The specific performance is as follows:

- (1) The paper storage way is prone to many problems, such as file damage, information loss and so on.
- (2) There are many important materials in the management system that need to be sorted out and reviewed repeatedly, but considering the different quality and ability of the staff responsible for different links, there will always be information loss and other problems in the handover of work.
- (3) The information updating work of the management system is relatively cumbersome, and it is easy to have problems such as being unable to update or not updating in time.

2.1.4. It is difficult to adapt to the reform and change of universities

Generally speaking, the working mode of textbook management in colleges and universities mainly depends on the actual teaching needs of the school, while the working level and management mode of the administrators directly determine the actual management efficiency of the school^[3]. However, with the continuous expansion of the number of students enrolled in colleges and universities, the demand for the number of textbooks has increased significantly. In this situation, it is difficult to adapt to the reform and change of the traditional management mode of university textbooks, which mainly relies on manual operation.

2.2. The challenges brought by the Internet

First of all, the popularity of the Internet makes access to textbooks more diversified. Students can obtain required textbooks through online bookstores, electronic libraries, resource-sharing platforms and other channels, which undoubtedly puts forward new requirements for the management of textbooks in colleges and universities^[4]. Therefore, colleges and universities need to establish perfect channels for purchasing textbooks to ensure that students can obtain the required textbooks conveniently and timely. At the same time, they also need to strengthen the management of textbooks to prevent the inflow of pirated textbooks.

Secondly, under the background of the Internet, the quality control of teaching materials is also facing new

problems. A large amount of information and resources on the Internet make the content update and translation quality of teaching materials more complicated. The management of teaching materials in colleges and universities needs to introduce new quality control standards and establish a stricter review mechanism to ensure the quality and accuracy of teaching materials ^[5].

Finally, with the continuous popularization and application of various new technologies, colleges and universities need to strengthen the management and application of new technologies such as electronic textbooks and digital teaching resources to improve the applicability of textbook management.

2.3. Review of relevant research at home and abroad

Foreign countries pay special attention to the informatization development of university textbook management and set up a series of professional and technical teams ^[6]. For example, K. B. Saxena designed a college textbook management and information query system based on B/S structure by using Java, Java server pages and other technologies, which provides a lot of convenience for people to access the system ^[7]. Fuminori Toyasaki through the use of JSP and MySQL5.0 tools, in addition to the development of a college textbook management system based on the MVC mode, significantly improves the management ability of college textbook ordering, import and export ^[8].

In China, the research on university textbook management systems is richer, but overall, its construction forms are mostly limited to three:

- (1) The system structure is simple, with fewer functions, just for the purchase of textbooks ^[9].
- (2) The system is relatively complete, flexible, and functional is also relatively high, but the actual application process is relatively rigid, and easily conflicts with the actual needs of many colleges and universities ^[10].
- (3) The textbook management system was developed and designed by colleges and universities in combination with their own actual situation, which is also a more reasonable form of system construction, but its stability and security need to be improved ^[11].

3. The demand analysis of university textbook management system under the background of the Internet

3.1. Functional requirements of the university textbook management system

The management of college textbooks is more complicated, involving more processes, and the functional requirements of various work are mainly:

- (1) Textbook ordering management needs, such as supplier input, textbook order details, etc. In the system, you can find the grade, class, teaching materials used information, order demand number and other content.
- (2) Teaching materials distribution management needs, such as the acceptance of teaching materials, teaching materials distribution and so on ^[12].
- (3) Textbook cost management needs, such as student cost, textbook cost details and summary, class cost inquiry, etc.

3.2. Analysis of user acquisition needs

The acquisition needs of the university textbook management system can be analyzed from the perspective

of different users, including the teaching affairs office, textbook management personnel, teachers and so on^[13]. For the teaching affairs Office, the school reviews, modifies and statistical integration of the use plan of textbooks, and uses the system to establish the textbook ordering plan. For the teaching materials management personnel, they can inquire about the teaching materials ordering plan establish the order through the system, and then purchase according to the order. After the end of the purchase, but also carry out textbook warehousing, management, warehousing and other work. Teachers can use the system to establish the textbook use plan for each grade and each class this semester, and they can also inquire about the details of the textbook in advance.

3.3. Facilitate the filling in of dynamic data of the Ministry of Education

In the traditional management of college textbooks, schools generally submit the relevant information about the selection and use of textbooks to the Ministry of Education after manual processing, proofreading and integration. On the whole, it needs to consume a lot of manpower, material resources and time, and the work is cumbersome and complicated. The university textbook management system under the background of the Internet is based on advanced information technology, which can provide more convenience for the Ministry of Education to fill in the dynamic data.

4. The design objectives of the university textbook management system under the background of the Internet

4.1. Further improve the efficiency of management

In recent years, the scale of colleges and universities has been significantly expanded, and the types and quantities of teaching materials are increasing, which brings many challenges to the management of teaching materials in colleges and universities^[14]. Therefore, under the background of the Internet, colleges and universities should give full play to the advantages of the Internet and design a modern and standardized textbook management system that is more in line with the reality of the Internet. In this way, the input, export and analysis of various data are based on and supported by modern technical means, which greatly reduces the consumption of human resources, can also save time, and is conducive to effectively improving the management efficiency of teaching materials in colleges and universities.

4.2. Better adapt to the development of the Internet era

With the continuous development of the Internet, the construction of the school's campus network has made phased progress, and the overall effect of textbook management has also been significantly improved. Strengthening the design and optimization of the university textbook management system is not only to better meet the needs of the development of the Internet era, but also to better realize the goal of digital campus construction, which is of great significance.

4.3. Based on the characteristics of textbook management

Under the background of Internet, colleges and universities have put forward new and higher requirements for the performance of textbook management systems. In the specific work, the textbook management personnel need to clearly understand the basic information of the school to use the textbook, including ISBN, publisher, author, etc., and evaluate the content, quality and cost performance of the textbook, and then provide the school with purchase suggestions or opinions^[15]. In this process, warehousing, payment methods, textbook prices, etc. will

affect the purchase and management of textbooks to a certain extent. Moreover, considering the administrative characteristics of colleges and universities, the transfer of transaction information is relatively slow. Therefore, if colleges and universities want to further improve the efficiency of textbook management, they need to design a management system that is more in line with the characteristics of textbook management.

4.4. The system is convenient for dynamic update

The management of teaching materials in colleges and universities is a dynamic process, which is because the inventory quantity of teaching materials, the situation of checking and filling gaps, and the situation of delivery to students are always in a constantly changing state, such as the quantity statistics, information collection, and planning of teaching materials. Therefore, the design of the textbook management system in colleges and universities should be convenient for administrators to dynamically update the relevant information.

5. The design and implementation of the university textbook management system under the background of the Internet

5.1. Design and implementation of textbook ordering system

The textbook ordering system is mainly used and managed by the Teaching Affairs Office of the school and the textbook management personnel of each department, which mainly involves the review and management of the textbook ordering plan, the inquiry of the existing textbook information, the setting of book list information, the statistics of the number of textbooks, the contact of publishers and suppliers, and the statistics of textbook costs. The specific processing process can be designed, where it enters the number of books ordered by each department and each profession in the system, and the management staff will inquire whether there is relevant information in the school book library. If there is, fill in the textbook ordering information table, summarize the textbook ordering quantity, and finally output the textbook ordering summary table. If not, you need to add book information, and then carry out the above operation. Relevant administrators through the login system, will automatically enter the textbook ordering management system, select grades, classes, semesters, fill in the textbook information and the number of students ordering, the number of teachers ordering, and then in the selection of publishing house, you can purchase the basic information of the textbook to confirm, so as to achieve the textbook ordering.

5.2. The design and implementation of the textbook distribution system

The teaching material distribution system can realize the distribution and processing of teaching materials, that is, the teaching materials are distributed to various departments, classes and students, and the specific situation of the distribution of teaching materials is recorded in detail. If the quantity of textbooks is insufficient, the school can use the above ordering system to make up the order. Once the textbooks have been distributed, the system will automatically generate a collection notice, and each department can send a notice to the class or students to collect the books. If students find that the textbooks are damaged or missing pages, the management staff can return the books on the system, and use the modification function of the system to modify the textbook inventory, and finally complete the distribution of textbooks. The realization path is to select the teaching department, and then select the major, grade, semester, class, the relevant information query and confirmation, confirm the correct, you can click to confirm the book, and print the book information paper table. If the information is wrong, the above operations need to be carried out after checking the information is correct.

5.3. Design and implementation of teaching material fee system

The design of the textbook fee system is generally based on the inquiry function, such as student and class fee inquiry, textbook fee detail inquiry, textbook fee summary inquiry, and so on. For the application of the system, different inquiry methods can be established according to different roles, such as the teaching affairs office and management personnel can inquire about the textbook costs of different departments, the textbook costs of classes, and the teaching materials fees of students. Teachers can only inquire about the teaching materials cost of each class or student in the department. Students' inquiries are limited to their textbook costs.

6. Conclusion

In short, under the background of the Internet, colleges and universities must design a textbook management system that is more in line with their own needs according to the actual situation, to better meet their development needs and school-running needs. Among them, it is urgent to promote the transformation and upgrading of textbook management informatization. Specifically, it can be realized by designing several different systems such as a textbook ordering system, textbook distribution system, and textbook cost system.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Wang Q, 2022, Design and Implementation of Textbook Subscription System Based on Microservice Architecture, thesis, Nanjing University of Posts and Telecommunications.
- [2] Zhou Y, Song Y, 2023, Design and Implementation of University Textbook Subscription Management System Based on Workflow. *Information and Computer (Theoretical Edition)*, 35(11): 148–151.
- [3] Hu Q, 2022, Design and Implementation of University Textbook Management System Based on Recyclable Evaluation Model, thesis, Central South University.
- [4] Xiang B, Dong X, 2022, Design and Implementation of University Textbook Management System Based on Spring Boot. *Computer Knowledge and Technology*, 18(14): 12–15.
- [5] Zhu X, Pan T, Wen W, 2021, Analysis and Design of University Textbook Management System Based on Cloud Computing Platform. *Information Systems Engineering*, 2021(11): 81–84.
- [6] Zhu X, Xie X, Pan T, et al., 2021, Development and Design of University Textbook Management System Based on ASP.NET. *Computer Knowledge and Technology*, 17(23): 72–74.
- [7] Tang R, 2021, Research on Management System of Informatization Textbooks in Colleges and Universities Under the Background of “Internet +.” *Computer Knowledge and Technology*, 17(8): 137–138.
- [8] Bai J, 2020, Research on the Construction of University Information-Based Textbook Management System Under the Background of “Internet +.” *Information and Computer (Theoretical Edition)*, 32(17): 193–195.
- [9] Liang Z, 2020, Design and Implementation of University Textbook Information Management System Based on JBPM, thesis, Qilu University of Technology.
- [10] Cui Z, 2020, Design and Implementation of University Textbook Management System Under the Background of Internet, thesis, Zhengzhou University.

- [11] Zou Z, 2020, Design and Research of University Digital File Management System Under the Background of Internet. *Science and Technology Wind*, 2020(9): 33.
- [12] Chen Y, He Q, 2020, Business Analysis and System Design of University Textbook Management Based on Multi-Terminal. *Neijiang Science and Technology*, 41(3): 46–48.
- [13] Sun J, 2020, Research on University Textbook Management System. *China External Education*, 2020(6): 66.
- [14] Cheng Q, 2019, Construction of University Information-Based Textbook Management System Under the Background of Internet. *Heilongjiang Science*, 10(23): 76–77.
- [15] Cui Z, 2019, Design and Implementation of University Textbook Management System Under the Background of Internet. *Henan Science and Technology*, 2019(25): 38–40.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.