A STUDY ON THE SATISFACTION OF TEACHERS AND STUDENTS OF COLLEGES AND UNIVERSITIES IN NANCHANG AREA ON THE CONSTRUCTION OF DIGITAL EDUCATIONAL RESOURCES SHARING

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Driven by international trend of "resource sharing", the results of regional sharing practices in economically developed regions of China, and the successful demonstration of the Changbei Higher Education Library Alliance in Jiangxi Province, higher education institutions in the Nanchang area of Jiangxi Province are now embarking on a project of building and sharing digital education resources. The objective of the study was to determine the types of educational resources designed in the current digital educational resources sharing in Nanchang area, and to assess the satisfaction of teachers and students in Nanchang with the construction of digital educational resources sharing.

This paper uses a quantitative research method to investigate the satisfaction of teachers and students of Nanchang universities with the construction of digital educational resources sharing by extensively collecting domestic and foreign research data, drawing on domestic and foreign successful experiences, and combining theory and practice with a questionnaire survey method. As many teachers and students considered that the digital education resources provided by their schools were not rich and only average, and could only meet their basic teaching or learning needs. A significant proportion of teachers and students looked outside the school because the in-school resources could not meet their needs in terms of quality and quantity. Teachers and students are not satisfied with the digital education resources provided by their schools, with only some students and some teachers indicating that they are relatively satisfied or very satisfied.

Keywords: sales strategy; customer relationship management; customer needs; customer identification
Introduction

Research background
Since the 1990s, with the introduction of the concept of "information-based education" and the implementation of the "Information Highway" programmed in the United States, countries all over the world have begun to carry out the construction of information technology in education. Since then, the efficient opening up, utilization and sharing of educational resources have become important issues in today's society (Shen, 2010). At the same time, the contradiction between the worsening "digital divide" and the drastic increase in information demand has become more and more obvious. Many countries have realized the urgency and importance of the existence of differences in educational information resources and the problems they bring about, and they have begun to actively seek exchanges and co-operation at the inter-regional and inter-country levels (Jing & Li, 2011).

The United States has not only built regional networks such as AMIGOS, OPAC, Ohio 2net, INCOLSA and so on, but also cross-regional collaborative networks such as CLCNET, OCLC and so on, and its level of information resource sharing ranks among the top in the world. Germany has formed a multi-level, multi-system information resource sharing model, with regional library networks as the main form of sharing, and the sharing alliance is divided into three levels: regional, national, and international. Japan has built a national comprehensive information sharing system centered on NACSIS, including the National Union Catalog (NACSIS-CAT), the Interlibrary Loan System (NACSIS-ILL), and the retrieval system (NACSIS-IR), etc., targeting at academic information in the fields of humanities, social science, and natural disciplines, and uniting national, public and private universities (Hu & Lai, 2010). The United Kingdom has also built the BLDSC, which is famous for its massive collection and its occupation of the inter-library loan stage in the United Kingdom, which not only meets the documentary needs of more than four-fifths of the users in the United Kingdom, but also pushes the scope of the information service to internationalization.

The libraries of Jiangxi University of Finance and Economics, East China University of Transportation, and Jiangxi Agricultural University have also established the Changbei University Libraries Union. With the concept of sharing as its starting point, resource building as its foundation, and the development of information technology as its support, the alliance aims to realize the integration of sharing, service, and management, and to reduce costs, share resources, and benefit from each other, greatly expanding the information-sharing space of the libraries of the three universities, and providing a successful example of win-win cooperation among the libraries of the universities in Jiangxi Province (Li & Liu, 2010).

Driven by this international trend of "resource sharing", the results of regional sharing practices in economically developed regions of China, and the successful demonstration of the Changbei Higher Education Library Alliance in Jiangxi Province, higher education institutions in the Nanchang area of Jiangxi Province are now embarking on a project of building and sharing digital education resources (Zhuang & Sun, 2012).

Research problems
China's education resource sharing research is later than that of foreign countries, and the theoretical research is lagging the development of its practice.
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Although there are researches related to the regional sharing of digital education resources, the scope of the research is narrower, and it is mainly a case study on the practice of sharing digital education resources in economically more developed areas, and there is a lack of specialized researches and practical application researches on the sharing of different economically developed areas; and the study of the regional sharing of digital education resources in Jiangxi Province, although there are also related researches, they are only limited to the construction of service system at the theoretical level, integration policies, and digital literature in a small area (Xiao & Gu, 2012).

Moreover, although there are relevant studies on the regional sharing of digital education resources in Jiangxi Province, they are limited to theoretical studies on the construction of service systems, integration policies, and the sharing of digital literature resources in a certain small region, and there are fewer empirical studies and strategic studies on the current situation of the sharing of digital education resources among higher education institutions in the Nanchang region.

**The objective of the study**

The purpose of this paper is to investigate the current satisfaction of teachers and students with the construction of digital educational resources sharing in Nanchang area through the survey and analysis of the current situation of digital educational resources sharing in Nanchang area colleges and universities in a practical sense.

1. To determine the types of educational resources designed in the current digital educational resources sharing in Nanchang area.
2. To assess the satisfaction of teachers and students in Nanchang with the construction of digital educational resources sharing.

**Scope of the study**

The survey respondents are divided into two categories, one for the users of digital educational resources - teachers and students, and the other for the builders of digital educational resources, resource construction-related departments such as the Academic Affairs Office, Network Center, Educational Technology Center, the library and other staff.

The survey randomly selected 400 undergraduates, specialists and postgraduates from 20 colleges and universities in Nanchang area, such as Nanchang University, Nanchang University of Aeronautics and Astronautics, Jiangxi Normal University of Science and Technology, Jiangxi Normal University, Nanchang Engineering College, Jiangxi Institute of Foreign Languages and Trades, Nanchang University of Science and Technology, Jiangxi University of Finance and Economics, Jiangxi University of Science and Technology, Jiangxi Agricultural University, Jiangxi Police College and Jiangxi College of Traditional Chinese Medicine, and 200 teachers and some related staffs. 200 teachers and some related staff, related websites, the survey of the institutions covered a wide range, the object is more representative.

**Research significance**

From a theoretical point of view, this study will not only help to explore the factors affecting the regional sharing of digital educational resources in higher education institutions in Nanchang, reveal the meaning of regional sharing of digital educational resources in higher education institutions, and improve the theoretical framework and service system for
the sharing of digital educational resources in higher education institutions in the region, but also reduce or eliminate the "information gap" among higher education institutions in Nanchang to a certain extent, and promote the formation of the concept of regional sharing of resources as well as regional sharing and utilization of digital educational resources to meet the various information demands of regional users. It can also reduce or eliminate the "information gap" between universities in Nanchang to a certain extent, satisfy the multifaceted information demands of regional users, and promote the formation of the concept of regional sharing of resources as well as the maximization of regional sharing and utilization of digital education resources.

In terms of practice, this study, on the one hand, starts from the needs of education management, removes the time and space constraints, promotes the development and sharing of special and high-quality resources in Nanchang, avoids duplicated construction and unprovoked wastage of digital resources, and thus promotes the healthy operation and optimization of the functions of the universities in Nanchang; on the other hand, it also promotes the balanced development of the educational resources in Nanchang and the realization of educational equity, and further demonstrates the "serving society and serving people" principle of the universities. It also promotes the realization of regional balanced development of education resources and equity in education in Nanchang, further demonstrating the service objectives of higher education institutions to "serve the community and the people", and to promote the construction of a harmonious digital campus, a system of lifelong education, and a learning society.

Literatures review

**Digital education resources**

Digitized educational resources refer to "all educational resources in the form of electronic data in which words, images, sounds, animations, drawings, and other forms of information are stored in the carrier of non-paper media such as optical, magnetic, and so on, and reproduced by means of network communications, computers, or terminals", and belong to a type of educational resources. It includes "all educational and teaching resources that are self-developed and run on the Internet, such as teaching pictures, teaching materials, teaching curricula, teaching experiments, teaching courseware, shareware, and network course resources" (Wang, 2012).

In this paper, digitized educational resources are defined as all kinds of information resources that exist in digital form to support teaching and learning, such as libraries' digital literature resources, multimedia materials resources, online course resources, science resources, software resources and teaching management information resources (Lu et al., 2012).

Compared with traditional educational resources, digital educational resources have the following characteristics: extensive knowledge, convenient retrieval, interactive transmission, value-added dissemination and remote sharing.

**Sharing of digital educational resources in higher education**

Regional digital education resources sharing is a systematic project involving many factors such as policy regulation, technical support, fund allocation, human resources coordination and legal safeguards, etc.
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Its implementation should not only follow the basic attributes of systematic, scientific, hierarchical and purposeful resource construction, but also follow the unique principles of regional resource sharing, including the principles of resource optimization, sharing, mutual benefit and reciprocity. These include the principles of resource optimization, sharing, mutual benefit and reciprocity, special advantage, regional community, standardization, and so on (Huang & Liu, 2011).

The principle of resource optimization requires that regional tertiary institutions stand at the forefront of the times, face modernization, and devote themselves to the development of high-quality, effective and conveniently accessible digital educational resources, avoid the development of duplicated and useless resources, and form a regional model for the development of high-quality digital educational resources that has its own focus, complementary strengths, mutual dependence and interconnectivity, so as to enhance the efficiency of the development and utilization of digital educational resources (Huang & Huang, 2011).

The purpose of co-construction is to promote sharing, and sharing is also to further guarantee the sustainability of co-construction. Therefore, all tertiary institutions should uphold the principle of co-construction and sharing, cooperate with each other, divide up their work, complement each other's strengths, pool together regional resource construction funds, personnel, technology, etc., plan in a coordinated manner, and work together to construct educational resources and share the results of resource construction (Lei, et al., Wang, 2012).

The principle of mutual benefit is the starting point and destination of regional digital education resources sharing. How to balance the interests of the participating parties in the region, fully mobilize the enthusiasm of the participating parties, and safeguard the common interests for a win-win situation are the keys to the success of regional education resources sharing.

Given the different sizes, resource bases, equipment conditions, sources and levels of funding, and staff qualifications of the participating institutions, the costs and benefits to be gained by each institution vary greatly (Cen, 2009).

In order to safeguard the balance of benefits and expenditures as well as the motivation to participate, the participating institutions need to negotiate and formulate a mechanism for balancing the benefits in accordance with the principle of mutual benefit and reciprocity, set up a specialized coordinating body, and consciously uphold the relevant policies and regulations, so as to ensure that all the participating institutions will receive reasonable returns and rewards for their investment, and to promote the positivity and permanence of the sharing of digital education resources (Gao, 2010).

Commonality and individuality are contradictory unities. Co-construction does not mean uniformity. On the contrary, co-construction does not only require the universities in different regions to build up resources together, but also requires them to build up their own resources with special characteristics and advantages. Only with their own unique advantages can the digitalized educational resources of each region reflect their value in resource sharing (Xiong et al., 2010).

Therefore, all higher education institutions should follow the principle of distinctive advantages and develop their own distinctive resources according to their own characteristics of education, style of governance, subject needs, and professional expertise, etc.
They should complement each other's strengths, remove the false and preserve the true, extract the rough and make the best of them and develop their own distinctive resources according to their own needs, to build up their resource advantages and enhance the competitiveness and vitality of their education (He & Huang, 2011).

The process of sharing digital education resources among regional universities involves not only the construction of "things" such as resource libraries, but also the construction of "people" such as administrators, technicians, researchers, teachers, and students, and is a dynamic development process.

Therefore, all participating parties should form a regional community, cultivate common interests, visions and sentiments, and through the drive of common objectives and specific tasks, the macro-control of the government and the support of relevant training, activities and services, each of them should perform their own functions, display their own strengths, cooperate with each other, exchange experiences and communicate with each other emotionally, so as to accomplish the goal of regional sharing of digital education resources while continuously improving their own abilities (Hu, 2010).

Regularization and standardization have been the two major bottlenecks to the realization of resource sharing. The sharing of digital education resources among regional higher education institutions requires the adoption of uniform data standards, copyright protection agreements, sharing mechanisms, platform service mechanisms, evaluation, and feedback mechanisms, etc., to avoid the phenomenon of digital divide and conflict of interest, and to implement relevant policies and regulations, to ensure the sound development and standardization of regional resource sharing (Yang, 2011).

These principles are both independent of and mutually restrictive with each other. Only by following these principles can the regional sharing of digital education resources be put on a sound track of development, and the effectiveness of regional sharing of digital education resources be ensured.

**Expectation model**

Expectation model is short for Expectation-Disconfirmation model, whose theoretical basis comes from social psychology and organizational behavior in the 70's. Olshavsky and Miller's article "Customer Expectation, Product Performance and Perceived Product Quality" in 1972 and Anderson's article "Customer Dissatisfaction: The Effect of Inconsistency between Expectation and Perceived Quality" in 1973 both explored the expectation-disconfirmation theory. Olshavsky and Miller's "Customer Expectations, Product Performance, and Perceived Product Quality" in 1972 and Anderson's "Customer Dissatisfaction: The Effect of Expectations and Perceived Quality Inconsistency" in 1973 both explored the basic framework of expectation-inconsistency theory, and these two studies, together with Cardozo's experimental study a little earlier, were the basis of the expectation-inconsistency theory. These two studies, along with Cardozo's experimental study a little earlier, form the basis of this model.

The expectancy model posits that satisfaction is achieved through a two-stage process. Prior to purchase, customers form "expectations" about the product's performance, i.e., the benefits and utility that the product will provide, and after making the purchase, they compare the true level of performance obtained from consuming the product with their pre-purchase expectations, resulting in a gap, or "inconsistency," which is the first stage (Cao, 2011).
This is the first stage. In the second stage, the customer by the "inconsistency" of different situations to make different "satisfaction" response: when the actual performance and expectations are the same, that is, "inconsistency" is zero, the customer produces "Moderate Satisfaction" (Moderate Satisfaction); when the actual performance exceeds the expectation, i.e., when the "inconsistency" is positive, it leads to Satisfaction; and when the actual performance does not meet the expectation, i.e., when the "inconsistency" is positive, it leads to Satisfaction. When actual performance fails to meet expectations, i.e., when the inconsistency is negative, it leads to Dissatisfaction. Therefore, the expectation model includes three basic variables: expectation, inconsistency and satisfaction (Zheng & Hu, 2011).

Expectation is the customer's expectation of product performance, inconsistency is the difference between performance and expectation, where performance is the benefit obtained by the customer, and satisfaction is the final attitude and evaluation of the customer. The expectation model is the basis of customer satisfaction theory (Wu, 2011).

This study designs a questionnaire based on the five different levels of customer expectations of products in the expectation model: Very satisfied, Comparatively Satisfied, Average, Less satisfied, Very dissatisfied and conducts a satisfaction survey on the construction of educational resource sharing to teachers and students of Nanchang University.

**Research methodology**

This paper uses a quantitative research method to investigate the satisfaction of teachers and students of Nanchang universities with the construction of digital educational resources sharing by extensively collecting domestic and foreign research data, drawing on domestic and foreign successful experiences, and combining theory and practice with a questionnaire survey method.

The questionnaires were self-administered and divided into two parts: the first part was for basic information and the second part was the formal content of the questionnaire, which was mainly related to access to digital educational resources, attitude towards and satisfaction with the digital educational resources constructed in the schools, sharing of digital educational resources within and among schools, demand for digital educational resources and the need to share digital educational resources in a regional context. The questionnaire is based on a closed-ended questionnaire with the following five aspects: attitude, participation and willingness to pay for the sharing of digital education resources in the region.

The questionnaires were mainly closed-ended, distributed collectively in an anonymous manner, and collected on the spot, so that the information obtained was real and valid. In addition, in order to further ensure the effectiveness and scientificity of the questionnaire, a small-scale trial test was conducted before its official distribution, and relevant experts and teachers were invited to evaluate the questionnaire, and according to the teachers' and students' responses to the questions and the filling in situation as well as the guidance of the experts, the questionnaire was constantly revised, so as to make the design of the questionnaire more closely related to the actual situation of the teachers and students. For the frequency analysis of multiple choice, there are two types of percentages, one is the percentage of responses, i.e. the number of responses selected divided by the total number of
Responses selected; the other is the percentage of cases, i.e. the number of responses selected divided by the total number of valid responses.

In this study, the percentage of cases was used in all multichoice frequency analyses, which was the percentage of those who chose that particular answer out of the total number of respondents who filled in the form.

A total of 600 questionnaires were distributed, 599 questionnaires were recovered, with a recovery rate of 99.83%, and 578 questionnaires were valid after de-duplication and de-oblation, with a validity rate of 96.49%.

Among them, 400 questionnaires were issued to students, 400 questionnaires were recovered, with a recovery rate of 100%, and after de-duplication and de-waste treatment, 388 questionnaires were valid, with an effective rate of 97.00%; 200 questionnaires were issued to teachers, 199 questionnaires were recovered, with a collection rate of 99.5%, and after de-duplication and de-waste treatment, 190 questionnaires were valid, with an effective rate of 95.48%.

Finding and conclusion

Determination of the type of educational resources

According to different resource classification methods, digital educational resources can be divided into different categories.

This paper, based on the summary of relevant information and the construction of educational resources sharing in Nanchang area, decides to start the investigation with the following different kinds of educational resources: library digital literature resources, multimedia material resources, subject resources, network course resources, software resources, and teaching management information resources.

Satisfaction analysis

To analyze the satisfaction level, we should first analyze the attitudes of students towards the construction of digital educational resources in their colleges and universities. At present, the digital educational resources in colleges and universities are mainly library digital literature resources, multimedia material resources, subject resources, network course resources, software resources and teaching management information resources.

Survey data show that teachers and students basically hold a general attitude towards the digital educational resources built by their institutions, the number of people with rich attitude is relatively small, only more than 40% of teachers and students think that the library digital literature resources built are relatively rich, and the number of people with rich attitude towards other digital educational resources built basically stays at 10%-20%.
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Table 1 - Attitudes of students and faculty towards digital educational resources in their institutions
(made by the author)

<table>
<thead>
<tr>
<th>Resource</th>
<th>Teacher</th>
<th>Student</th>
</tr>
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<tbody>
<tr>
<td>Library digital literature resources</td>
<td>42.11%</td>
<td>42.01%</td>
</tr>
<tr>
<td>multimedia material resources</td>
<td>21.05%</td>
<td>17.53%</td>
</tr>
<tr>
<td>subject resources</td>
<td>11.58%</td>
<td>20.36%</td>
</tr>
<tr>
<td>online course resources</td>
<td>11.58%</td>
<td>16.24%</td>
</tr>
<tr>
<td>software resources</td>
<td>10.53%</td>
<td>18.30%</td>
</tr>
<tr>
<td>teaching management information resources</td>
<td>20.00%</td>
<td>21.13%</td>
</tr>
<tr>
<td>Abundant</td>
<td>55.79%</td>
<td>53.87%</td>
</tr>
<tr>
<td>General</td>
<td>8.42%</td>
<td>7.37%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not clear</td>
<td>10.53%</td>
<td>10.53%</td>
</tr>
<tr>
<td>Abundant</td>
<td>69.47%</td>
<td>65.98%</td>
</tr>
<tr>
<td>General</td>
<td>8.42%</td>
<td>7.37%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
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</table>

Analysis of the satisfaction situation of faculty and students with the digital educational resources built in their institutions

More than 60% of the students and faculty are satisfied with the digitized educational resources built, and only about 25% of the students and faculty are dissatisfied or very dissatisfied.

Table 2 - Teachers’ and students’ satisfaction with the construction of digital education resources in their institutions
(made by the author)

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Teacher</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>N 6</td>
<td>N 16</td>
</tr>
<tr>
<td>Comparatively Satisfied</td>
<td>N 52</td>
<td>N 89</td>
</tr>
<tr>
<td>Average</td>
<td>N 27.37</td>
<td>N 22.94</td>
</tr>
<tr>
<td>Less satisfied</td>
<td>N 18.95</td>
<td>N 25.00</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>N 4.21%</td>
<td>N 4.38%</td>
</tr>
<tr>
<td>total</td>
<td>N 100%</td>
<td>N 100%</td>
</tr>
</tbody>
</table>

Although most teachers and students are relatively satisfied with the digitalized educational resources constructed in their schools, a considerable proportion of teachers and students are still dissatisfied with the digitalized educational resources constructed in their schools, and the digitalized educational resources constructed do not fully meet the needs of teachers and students.

Conclusion

As many teachers and students considered that the digital education resources provided by their schools were not rich and only average, and could only meet their basic teaching or learning needs. A significant proportion of teachers and students looked outside the school because the in-school resources could not meet their needs in terms of quality and quantity. Teachers and students are not satisfied with the digital education resources provided by their schools, with only some students and some teachers indicating that they are relatively satisfied or very satisfied.

Recommendation

Based on the survey and analysis of the current situation, this study has explored the satisfaction of teachers and students with the sharing of digital education resources in regional universities and achieved the research objectives. However, the sharing of digital
education resources in regional higher education institutions involves a wide range of contents and influences many factors, and with the progress of society and regional economic development, there are still many problems that need to be solved in the future, and the development situation is still serious.

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