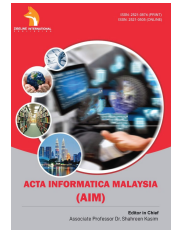


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## REVIEW ARTICLE

## EVALUATION ON ONLINE LEARNING RESOURCES BASED ON CUSTOMER SATISFACTION

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## ABSTRACT

In recent years, lifelong education has become widespread in the public, contributing to explosive development of modern distance education. Meanwhile, distance learners have gradually had more and higher demands for online learning resources. Despite abundant online learning resources at present, their overall quality is relatively low and they can hardly satisfy learners' learning demands. Based on customer satisfaction, the essay establishes evaluation indexes about online learning resources based on customer satisfaction, improves its development and proposes suggestions for improvement, which is of great theoretical and practical significance.

## KEYWORDS

customer satisfaction, online learning resources, evaluation indexes

## 1. INTRODUCTION

As early as 1998, the Ministry of Education promulgated *Revitalization Action Plan Facing the 21st Century*, in which the implementation of modern distance education projects, the forming of open education networks, and the building of lifelong learning systems were proposed (Hu, 2013). In the same year, several universities were approved to pilot works in distance education by the Ministry of Education. The later years have witnessed increasing education resources. In 2012, the Ministry of Education proposed "active development of modern distance education" and "the building of a National E-learning Resource Center", which can demonstrate great importance China has attached to distance education. Then, online learning resources are in large number but of low quality (Smooth, 2010). Nowadays, information technology has achieved rapid development and Internet has become widespread, bringing a large number of online learning resources and convenience to distance learners. In spite of a wide variety of online learning resources in wide areas, they have high repeat-ability, low authority and the overall low quality. Besides, as learners are different in terms of their own knowledge, learners with little knowledge will find it difficult to get access to the best learning resources the first time (Qizhi and Jie, 2008).

Researches in the essay can be conducive to improving customer satisfaction and online learning theories, perfecting archives for online education cases, and enabling more researchers to use these for reference. They can also help domestic organizations and enterprises build and improve their own online education resource centers (Shujin et al., 2013). The essay establishes evaluation indexes about online learning resources based on customer satisfaction and the ASCI model, and proposes constructive suggestions for online learning resources through analyzing the model.

Customer satisfaction theory. Customer satisfaction refers to a kind of subjective emotion and personal evaluation by users or customers after using or consuming a kind of product or service. Meanwhile, it is also a quantitative index of user satisfaction. In terms of online learning resources, the customer satisfaction refers to the subjective evaluation on online learning resources by online learners (Yi and Weidong, 2013). The evaluation is somewhat subjective, but given the fact that the topics are wide, the evaluation has some objectivity of collective will. People provide different evaluations owing to their different life and working environment. However, all of the satisfaction results are here through comparing expectations of resources before using them and actual feelings after using them.

ASCI model, namely American Customer Satisfaction Index, is the most complete customer satisfaction model with the widest applicability worldwide, which you can infer from Figure 1. The model consists of a large number of variables, none of which is the factor that can impact or reflect satisfaction (Xinhe and Qiong, 2007). These variables can be composed of two different kinds-causal variables and outcome variables. Causal variables include perception of quality, expectations of customers and perception of value, while complaints from customers and customer loyalty belong to outcome variables.

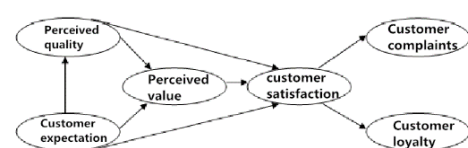


Figure 1: Schematic diagram of ASCI model

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## 2. THE ESTABLISHMENT OF EVALUATION INDEXES ABOUT ONLINE LEARNING RESOURCES BASED ON CUSTOMER SATISFACTION

Based on the above ACSI model, we can establish the initial model aimed at evaluations on online learning resources. In terms of variable setting, we can establish the following three variables as causal variables: expectations from learners, perception of quality from learners and perception of value from learners, and establish loyalty and complaints from learners as outcome variables (Xiaowei and Bo, 2013). The following paragraphs will analyze the three causal variables: Firstly, the analysis of learners' expectations. In ACSI model, customer expectations include three observable variables, respectively customers' expectations of products, reliable expectations of products and the overall expectations of products' quality. Correspondingly, learners' expectations on resources are also composed of three parts: personal expectations, reliable expectations and the overall expectations.

In terms of personal expectations, online learners always have high personal expectations on online learning resources. As these expectations have subjectivity, they are a kind of personal expectations, in which different users expect that online learning resources can satisfy their special demands (Jian and Chong, 2003). Owing to differences in learners' personalities, experience, and education backgrounds, they also have quite different personal expectations. In terms of reliable expectations, learners have high demands for the authenticity and reliability of online learning resources. They hope that resources they have access to have formal sources and high reliability. Before using online learning resources, learners infer the authenticity of resources mostly from the descriptions of other groups, such as classmates, teachers, colleagues and other users, and partly from some research reports.

Therefore, different learners have huge differences in the expectations on the reliability of online learning resources. In terms of the overall expectation, distance learners expect that the Internet can provide complete, professional and systematic learning resources instead of fragmentary ones (Zijuan and Yueming, 2007). There are two reasons for this. Firstly, a large number of online learners study while working. They do this in pursuit of the accuracy, convenience, simplicity and effectiveness of getting access to resources. Secondly, while learning online, they are more prone to loneliness and then wary of studying. So different kinds of exchange channels need to be provided in online learning resources to promote exchanges between learners and between learners and resource providers. So they can ensure the accomplishments of online learning tasks.

Then, perception of quality by online learners. In ACSI model, perception of quality refers to customers' true feelings and feedback after using products or services, mainly including the customization of products, namely personal demands for feedback, experience of products' authenticity and the overall evaluations of products' quality (Chen, 2004). Correspondingly, online learners' feelings of resources include "personal perception", "reliable perception" and "the overall perception". In terms of personal perception, online learners will have a kind of personal expectation on online learning resources before using them. After using, they will have objective evaluations on to what extent online learning resources satisfy their personal expectations and personal demands, which can be called learners' personal perceptions of resources.

Reliable perception refers to learners' specified evaluations on the reliability and credibility of resources after using them, which largely depends on the subjective evaluations of learners. The overall perceptions correlate with the overall expectations of learners. They refers to the overall assessments of the comprehensiveness of online learning resources, the accessible convenience and interactive levels of online resources (Man and Yunwu, 2014). The perception of value by learners represents the subjective feelings of users after weighing the quality and price of products or services, namely the cost performance. According to the ACSI model, factors of learners' satisfaction can be concluded in the

following two aspects, learners' expectations and learners' perception of quality, while the two aspects are composed of three parts. So the model is as figure 2 shows.

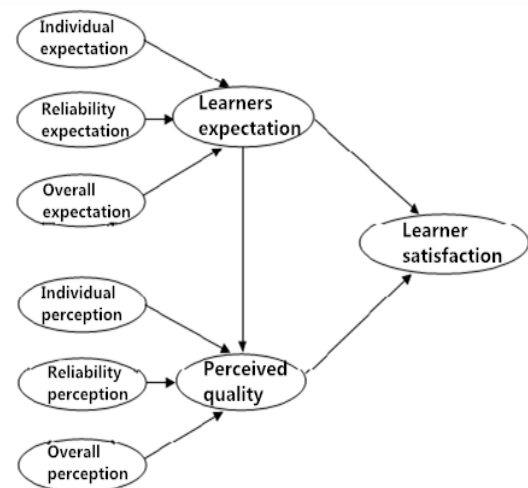


Figure 2: Evaluation model of network learning resources based on user satisfaction

## 3. THE ANALYSIS OF THE APPLICATION OF EVALUATION INDEXES-THE NATIONAL E-LEARNING RESOURCE CENTER

### 3.1 Case Situation

The National E-learning Resource Center is subordinate to "projects of E-learning resource centers for online education", which are aimed to promote the construction of E-learning resource centers, integrate education resources from multiple parties, improve the development and sharing of quality resources and promote resource sharing in online education and lifelong learning (Yubin et al., 2013). Project construction mainly consists of four parts. Firstly, we focus on integrating resources, establishing resource databases and application systems, and building adequate resources and platforms for resource sharing. Secondly, improvements should be achieved in education platforms of RTVU, and further explorations should be made in course links and the connectivity mechanisms. Then, we support different access modes to mainly solve problems users confront when they use digital TVs and hand-held terminals to have access to resources. Finally, in the process of the project, an integrated application mode will be established and improved to include resource collections, resource sharing, mutual recognition of credits, the protection of intangible assets, efficiency evaluations, and resource operations.

### 3.2 Questionnaire Design and Samples

The essay collects users' information through online questionnaires. Online questionnaires mainly include learners' general information, like gender, age, education level, major, and position. Meanwhile, we should analyze the current situation where participants utilize online learning resources in the National E-learning Resource Center. In the survey, three channels are used to distribute online questionnaires. Firstly, messages are posted on the official website of the National E-learning Resource Center. Secondly, emails are sent to online resource users who have registered online. Thirdly, questionnaires are posted on the official forum or the personal space of those who are in charge of this. Through this method, we have collected 200 questionnaires, among which 198 are valid and 2 are invalid. SPSS software will be used to analyze data collected from the questionnaires.

Firstly, according to certain analyses, gender of customers in the sample is rationally distributed with the concentration of certain age group. Among learners in the survey, male/female ratio is 1.25:1, and age mainly concentrates between 15 and 30. The age distribution is shown in figure 3.

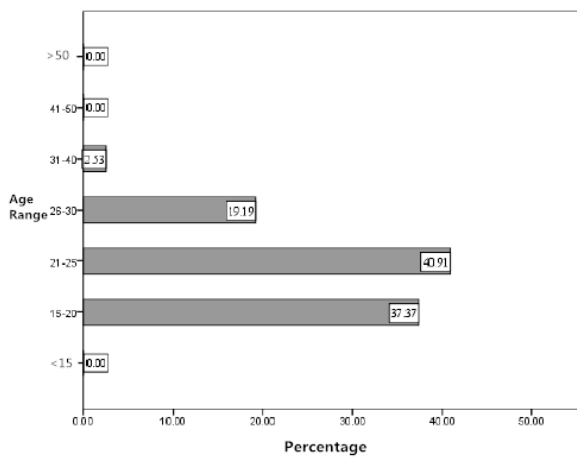


Figure 3: Age distribution map

Next, participants have relatively complicated education backgrounds, covering a wide area, but their types of education are relatively concentrated. Participants who are engaged in online learning generally study E-commerce, accounting, management science and engineering, communication engineering, civil engineering, human resources, computer information technology, law, financial investment, insurance and so on.

### 3.3 The Reliability and Validity Test of Model Indexes

In the experiment, we rely on SPSS software to analyze the reliability and validity of data from questionnaires. The reliability is measured in Cronbach  $\alpha$ , while the validity is measured in KMO. Results are shown in Table 1.

Table 1: Reliability measurement		
Index	Number	Cronbach $\alpha$
First order index	2	0.783
Second order index	7	0.827
Third order index	18	0.841
Learners expectation	3	0.923
Perceived quality	4	0.819
Gross list	21	0.827

From the above table, it is easy to reveal that Cronbach  $\alpha$  coefficients are all above 0.70 and Cronbach  $\alpha$  coefficient of the whole scale almost reaches 0.83. So the questionnaire has a high level of reliability. In other words, evaluation indexes have a high level of reliability and credibility. SPSS software is used to measure the validity of questionnaires. Results are shown in Table 2.

Table 2: Validity measurement	
Kaiser-Meyer-Olkin metric for sampling sufficient degree	0.764
Bartlett spherical inspection Chi square	677.783
df	190
Sig.	0

From the above table, it is easy to reveal that KMO is 0.764, above 0.5. This can reflect that the data has a high level of significance. From the above results of reliability and validity, the reliability and validity of evaluation indexes are both relatively high. Therefore, datum collected from the questionnaires are relatively feasible and reliable for research and analysis.

### 3.4 Analysis of Questionnaire Results

In terms of learners' expectations, participants have high expectations on resources in the National E-learning Resource Center. The average levels of expectations in the three parts are above 4.1. In terms of the quality of contents, learners have a relatively high satisfaction with the scientific level of online learning resources, as high as 3.95, but they have low satisfaction with the timeliness of online learning resources, only 3.49. Satisfaction with other contents hardly vary, all above 3.5. Satisfaction results are shown in figure 4.

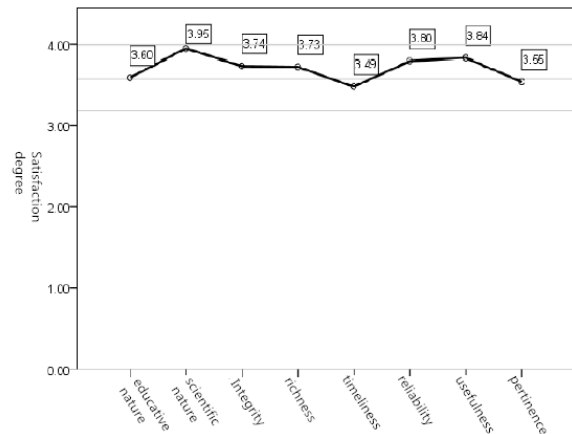


Figure 4: Content quality learner satisfaction

In terms of form quality, participants have high satisfactions with resource diversity, resource rationality and resource identification, all above 4.0, from which we can see that participants are relatively satisfied with resources in the National E-learning Resource Center. Meanwhile, while integrating resources and deepening research methods, the National E-learning Resource Center will promote the standardization of resources and greatly diversify resources so that all online learners can all have high satisfactions with resource diversity, resource rationality and resource identification.

In terms of technical quality, participants have high satisfactions with technical quality of resources in the National E-learning Resource Center. It is generally analyzed that the average satisfaction level is above 3.7. As the National E-learning Resource Center has attached importance to the improvement of technical fields, participants have high satisfactions with the stability, safety and compatibility of resources, but there are still some improvements. The National E-learning Resource Center still needs further explorations. It should pay attention to the stability, safety and compatibility of learning resources and continue to improve in the process of practices to improve satisfactions of participants.

In conclusion, resources in the National E-learning Resource Center can generally satisfy actual demands of online learners. The form satisfaction participants have with online learning resources ranks the top, but participants have the lowest satisfaction with the operation of resources. Participants have high expectations on resources before using them, while after using, most people find the overall satisfactions are below their expectations. That can demonstrate the gap in terms of participants' feelings towards resources between before using and after using. This requires that researchers need specified indexes that lead to low satisfactions, find out their causes and continue to improve and perfect their satisfactions.

### 4. CONCLUSION

Based on customer satisfaction, the essay establishes online learning resource models, gets access to users' datum through real surveys, and concludes and analyzes research results. In the following research, we reflect the shortcomings, which lays a foundation for further research in the next stage. The research introduces customer satisfaction theory, refers ASCI model, establishes the evaluation model of online learning

resources based on customer satisfaction, and establishes specified evaluation indexes. Through distributing questionnaires, we examine and evaluate the reliability and validity of indexes, have the final evaluation index and apply these to the evaluation on the National E-learning Resource Center. Theory has great guiding significance to practice. Practice is aimed to create theory, while theory is finally aimed to guide practice and promote leapfrogging development of practice. Despite the fact that it is not satisfactory to apply theory into practice, there will be no progress in practice without the support of theory. We believe that with the help of science and research, our online learning resources will continuously improve on the basis of customer satisfaction and form an increasingly perfect online learning resource system.

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