Evaluating E-Service Quality of Agricultural Business Websites in China: E-S-QUAL Model Approach

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Abstract. This paper focuses on measuring electronic service quality of agri-business websites in China by means of E-S-QUAL scales in a service-and-commerce oriented setting. The research covers assessment of the e-service quality from 105 current and potential users including farmers, officials, peddlers, merchants and agri-business managers. The findings indicate that e-service quality from customers' perspective is obviously most related to efficiency. The confirmatory factor analysis confirmed the validity and reliability of the conclusion. Thus, efficiency is recommended to pay attention to for improving e-service quality of agri-business websites in China.

Keywords: e-service. agricultural business websites. E-S-QUAL model

1   Introduction

During recent decades, using of the Internet is continuous increasing and the differences between rural and city areas are constantly declining at the same time. According to the statistics of China Internet Network Information Center, up to December 2015, the total amount of rural Internet user is 195 million, which takes up 28.3% of total amount of Internet user in China[1]. And there is also a continuing 9.5% increase rate in Internet access time per capita, thus means a strengthen stickiness to Internet of the rural users. Rapid increasing number of Internet users in rural area offers the great opportunities for the dealing of agricultural business and distributions of information online. Some e-service websites were built up by the government and e-commerce enterprises as the platform to help farmer and local agricultural small-medium enterprises to access information for production and marketing[2].

According to the "Internet + Circulation strategy", developed by Ministry of commerce of the people's republic of China in 2015, the 1st specific task is to promote e-commerce into rural area[3]. One part of this task is to provide the conveniences for the e-commercial method in selling of agricultural products. This strategy set goals in promoting to break the "hard" bottleneck of information

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infrastructure and break the "soft" restriction of the business environment. In response to the goal, the government would continue to promote the development of rural communities as demonstration, and promote the normalization of online agricultural products deal, and support the channel construction and brand building of the E-service platforms for agricultural sector.

The government policy and the rapid growth of rural users of online shopping provide a potential bright future of online e-service websites in China. However, some characteristics of the users base and present industry environment make the development of this industry more difficult than e-commerce of other industries. These characteristics includes a low recognition of the agriculture e-service websites development and use, a lack of agricultural online payment tools, the information provided by the websites is not useful and updated[4-6].

In this paper, we employ the E-S-QUAL (e-core service quality scale) model to assess the quality of agricultural information and e-commerce websites in China based on user perceptions. The study extends beyond previous studies by investigating the service quality of both e-commerce websites and the government websites on agricultural sector which seems to have less particular attention to what has been happening in China.

2   Theoretical background

E-service quality was defined as "the extent to which a web site facilitates efficient and effective shopping, purchasing and delivery" [7]. The management of e-service quality would cover from the pre-purchase phase to the post-purchase phase. It may include both e-commerce and online non-commercial services. The online non-commercial service is usually provided by the government. The most essential trait that distinguishes e-service from traditional websites is the possibility of a valid transaction of buying and selling[8]. For traditional websites, only descriptive information is available rather than the function of trading.

Later research stepped for years and created several conceptual frameworks for measuring e-service quality. The SERVQUAL is the model that most widely and traditionally used to evaluate a service quality[9]. This methodology is based around 5 key dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Some latter models makes a progress in applicability and match the thesis of the studies in different fields better, such as the popular used SiteQual model developed by Yoo an d Donthu in 2001, WebQual model developed by Barnes and Vidgen in 2002, E-S-QUAL (electronic service quality) model developed by Parasuraman, Zeithaml and Malhotra in 2005[10-11][9].

Comparing the utility among SERVQUAL, SiteQual, WebQual, and E-S-QUAL Models, E-S-QUAL (electronic service quality) model is comparative mature and comprehensive one that meets our research needs[12]. This model is flexible and convenient for researchers to add variables modifying the questions in order to compatible with their research thesis.

E-S-QUAL model consists of 4 basic dimensions: efficiency, fulfillment, system availability and privacy[9]. Efficiency means the ease and speed of accessing and

using the site; Fulfillment stands for whether the site' s promises about order delivery and item availability are fulfilled; the third one System availability represents the correct technical function of the site The last dimension Privacy tells the degree to which the site is safe and protects customer' s information.

In this research, users of e-service websites have an underlying focus on clear classification of agriculture products. According, as shown in Figure 1, we developed our hypothesis model and 8 hypotheses were developed hypothesis of 4 major e-service quality determinants, which are:

H1 The efficiency of agricultural e-service websites is positively relates to users' perceived value.

H2 The availability of agricultural e-service websites is positively relates to users' perceived value.

H3 The fulfillment of agricultural e-service websites is positively relates to users' perceived value.

H4 The privacy of agricultural e-service websites is positively relates to users' perceived value.

H5 The efficiency of agricultural e-service websites is positively relates to users' loyalty.

H6 The availability of agricultural e-service websites is positively relates to users' loyalty.

H7 The fulfillment of agricultural e-service websites is positively relates to users' loyalty.

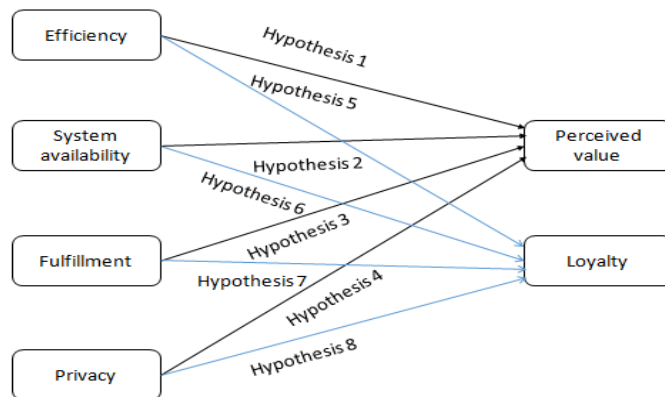H8 The privacy of agricultural e-service websites is positively relates to users' loyalty.

Fig. 1. H y p o t h e s i s Model

3   Research Methods

3.1   Measures

After conducting the in-depth interview with the experts, farmers and the websites managers, 16 items were adapted from the E-S-QUAL model and 6 items were considered out of the original 22 items. Considering the educational level of the users and the difficulty of user contact, the main purpose of the item reduce is to make the empirical study applicable in rural areas in China. It is a reasonable simplification and an accepted practice that has precedent by prior researchers. Respondents were required to quantified their agreement to the description based on the five-point Likert scale from (1) strongly disagree to (5) strongly agree. Table 1 shows the number and items used respectively in the constructs in details.

Table 1. Measurement model items

Items	Questions
Efficiency	
Present relevant information	This site makes it easy to find what I need to do.
Upload/search guidance	It enables me to post supply information/make search
Well organized information	quickly.
	Information at this site is well organized.
System availability	
Web site stability	This site is always available for agriculture product
Link effectiveness	search.
	Pages at this site do not freeze after I enter my order
	information.
Fulfillment	
Personalized	It delivers the most relevant results as specified.
recommendations	It has sufficient classification of agricultural products
Personalized category	to choose from.
Privacy	
Privacy policy	It is truthful about its supply information
Encrypted connection	It protects information about my searching behavior
Encrypted account	I believe the site will protect information about my pay
information	account (such as Alipay)
Perceived Value	
Overall convenience	The overall convenience of using this site.
Overall value	The overall value you get from this site for your
	money and effort.
Loyalty Intentions	
Positive introduction	Say positive things about this site to other people or
Recommendation	your peer.
Repeat purchase	Encourage friends and others to do business with/on
	this site.
	Do more business with this site in the coming months.

3.2 Data Collection

This study uses the users of Chinese top 5 e-service websites(www.zgncpw.com; www.lenw.cn; www.nongfafa.cn; www.cnhnb.com; www.ymt360.com) as the samples. 105 samples are selected from Beijing, Jiangsu, Shandong, Anhui, Hunan and Liaoning provinces. The users from these provinces may represent the real situation of the website adoption in south, north, east and west of China geographically. The questionnaires were delivered and collected through face to face, email, telephone and Wechat. The respondents are current and potential users including farmers, officials, peddlers, merchants and agri-business managers.

4   Results and Discussion

As our result shows(Figure 2), all the hypotheses can be proved positively. The correlation coefficient(p<0.05) between the four dimensions and perceived value are 0.644, 0.516, 0.537 and 0.446 It is higher on average than correlation coefficient(p<0.05) between the four dimensions and loyalty, which are 0.434, 0.374,0.406 and 0.299. It indicates that the e-service website user have recognized and committed to the usefulness of the websites, but degree of trust is not high.

   Efficiency affects perceived value and loyalty most with 0.644 and 0.434, while privacy affects are less with 0.446 and 0.299. The possible reason for this result is that the online website for agricultural business is still a relative new technology and information access method to most of Chinese farmers and related workers. There are many uncertainties in the field so what they care most is whether the websites could help them sell their products in a fast and low-cost way. So efficiency becomes really important in this process. In addition, because the majority of current e-service were supported by the government, most of the information posted on these websites and the methods of the information access are so be considered reliable. Both the location and telephone number are used for better communication and a more smooth trading experience. So farmers and the related workers do not worry much about their personal information appear online.
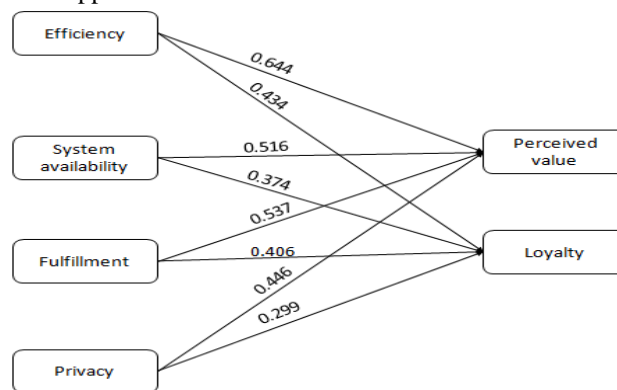

Fig.2. Research Model Results

The effects of system availability are 0.516 on perceived value and 0.374 on loyalty. The effects of fulfillment are 0.537 on perceived value and 0.406 on loyalty. It seems that the users have received the benefits of the adoption of the websites. Compared with traditional way of selling agricultural products in the market without knowing market demand, coming to an agreement online first will save farmers a lot of cost of transportation. Websites also shorten the distance between buyers and sellers. The less the middlemen process, the more profit be obtained by the sellers and the lower price that buyers pay.

Based on the results, we put forward some suggestions to these agricultural business websites. With the aim of raising the efficiency, the first suggestion is to set up a powerful system to collect and classify all the information users provide online. the agricultural e-service website platforms failed to develop a mobile suited user interface. The report of CCNIC shows that the use of cell phone to get online is 20% more than the use of personal computers[1]. Let people find the information they need most by using simply device and easy use techniques. Time will be saved and more commercial opportunities will be created. Besides setting up the system by the professional designers, listening to user experience, collecting and analyzing their data is also important. The reflection directly from the users is the first-hand valuable response to any online system. China is such a big agricultural country that the feedback from thousands of Chinese farmers and agricultural small and medium businesses will be meaningful for the development of the whole online agricultural industry.

The second suggestion is that the popularization and promotion funding is also necessary in the process of online agricultural business development. Although the advantages of online agricultural business is obvious, these websites will benefit the society only if it is indeed applied into farmers' daily business. However, in our research, there are still 44.7% or even more contact people don't know much about these websites. They are the people who need the websites to get the information and to upload the information that they want others to be noticed. If these people could get access to the website, it is helpful to improve the whole trading system by raising its utility. Take Korea as an example. Korea begins to invest e-commerce platform in 2000. In order to promote this new business pattern, government will awards farmers who use these online agricultural business websites. What is more, The Ministry of Agriculture, Forestry and Fisheries of Korea also invite experts to help farmers make their own web page, to train their online business skills and to provide free softwares for farmers to experience the new trading ways. Farmers do not need to pay for taking part in these activities.

Works of setting such a complex and mature system could not be done by certain one or two departments. The cooperation and the information share also play a significant role in Chinese agricultural e-service. The responsibility of various social parts are also different. Government may give the financial and policy support to the running of the online websites. Some institutes takes charge of developing and optimizing the system based on the big data analysis. Some related social non-profit agricultural organization could take the role of advertising and introducing the new online business pattern to farmers and other users to lead them experience the convenience   and usefulness of the website systems.

The last one is about privacy. Though it is not so important in the current process, we believe that people will care about the protection of their personal information when the whole system develops to be mature. The government or other type owners of the website should pay attention to regulate and monitor the information posted online. They need try their best to prevent the personal information leaking. If not, more and more troubles will appear and less people will be willing to use the websites any more.

5 Conclusions

This article investigates the current e-service website use in agricultural business in China. The e-service quality was evaluated in terms of the four dimensions: efficiency, system availability, fulfillment and privacy. We found that efficiency of the website e-service influence the users' willingness to adopt the new e-service website systems. As the main e-service website in agri-business sector are supported and controlled by the government, the privacy was not considered by the users as a sufficient condition of adoption. Therefore, efficiency is recommended to be paid attention to for improving e-service quality of agri-business websites in China. With the aim of raising the efficiency, suggestion about setting up a powerful system to collect and classify all the information farmers provide online, launching an advertisement and introduction campaign of these website and looking at privacy problems are beneficial to take.

References

1. China Internet Network Information Center.: Research Report on rural Internet development in 2015. 9-10 (2016) . (in Chinese)
2. Information center of the Ministry of Agricultural.: Interview of the officer from Information center of the Ministry of agriculture, July 29, 2016, Access from: http://www.moa.gov.cn/ztzl/12316szn/hdjj/201607/t20160729_5222142.htm, Access date: July 30, 2016(in Chinese)
3. Ministry of Commerce of the People's Republic of China.: The Ministry of Commerce issued the "Internet plus circulation" action plan " May 16, 2015,Access from: http://www.gov.cn/xinwen/2015-05/16/content_2863204.htm,   Access date: July 30, 2016(in Chinese)
4. Ma Yinping.: Application status and policy of agricultural electronic commerce. Chinese Journal of Agricultural Resources and Regional Planning, 26-29（2005）. (in Chinese)
5. Ma Qingshan.: Research on the electronic commerce platform of China's agricultural products. Observation. 16-17(2012). (in Chinese)
6. Li Shengjun.: The potential risks and Countermeasures of agricultural electronic commerce under the background of Urbanization. Agricultural Economy.35-36(2015). (in Chinese)
7. Zeithaml A.Valarie., Parasuraman A., Malhotra Arvind.: A Conceptual Framework for Understanding e-Service Quality: Implications for Future Research and Managerial Practice. Marketing Science Institute, Cambridge, 2000, Report No. 00-115.
8. Filipe Sá. , Álvaro Rocha. , Manuel Pérez Cota.: From the quality of traditional services to the quality of local e-Government online services: A literature review. Government

Information Quarterly.149-160(2016).

9. Parasuraman, A., Zeithaml, A. Valarie and Malhotra Arvind.: E-S-QUAL-A multiple-item scale for assessing electronic service quality. Journal of Service Research. 213-233(2005).

10. Yoo Boonghee, Naveen Donthu.: Developing a Scale to Measure the Perceived Quality of an Internet Shopping Site (Sitequal). Quarterly Journal of Electronic Commerce. 1,31-46(2001).

11. Barnes Stuart., Richard T.Vidgen.: An Integrative Approach to the Assessment of E-Commerce Quality. Journal of Electronic Commerce Research.3,114-27(200).

12. Jurgita Zemblyt.: The Instrument for Evaluating E-Service Quality[J]. Procedia - Social and Behavioral Sciences. 801-806(2015).