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Development of Cloud e-Bookcase System--- Perspective of User Satisfaction

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Abstract: To develop the cloud e-bookcase system, this study evaluate users' satisfaction on cloud e-bookcase system and results is referred to the system development. Thus, this study consider users concern on the system's guide service and respond to questions. Based on an analysis of the results, the system developer should focus on system quality and service quality.

Keywords: E-Bookcase, Cloud Service, e-Books, User Satisfaction

1. Introduction

The technology of e-books has consolidated a large number of multimedia applications and mobile technology. The e-Book has changed users' reading habits (Grimshaw, Dungworth, McKnight, and Morris, 2007; Kroski, 2009; Chang, 2013; Huang and Liang, 2014; Liang and Huang, 2014). This has boosted Readers for reading e-books. Thus, libraries have started e-book services for readers (Huang and Liang, 2014; Huang and Chiu, 2015; Huang and Chiu, 2015; Pažur, 2014; Pu, Chiu, Chen, and Huang, 2015). However, some mobile devices' specifications do not support the e-book need a large of computation speed and storage capacity. Thus, the use of Cloud-based e-Bookcase System can support mobile devices to conduct on searching, storage, and play e-Books (Lin, Wen, Jou, and Wu, 2014). To develop a success cloud e-bookcase system, this study should explore users' evaluation of the system. In this study, using system quality, service quality and user satisfaction to measure users' evaluation, and develop system with reference. Purposes of this study is following users' satisfaction, and providing suggestions for development of cloud e-bookcase systems.

2. Literature Review

2.1 Mobile Library Service and Cloud Bookcase

With the development of library e-book services and using the mobile devices, users will focus on the assistive functions, reading experiences and personalized portfolio (Richardson Jr, and Mahmood, 2012; Chang, 2013; Pažur, 2014). The e-bookcase system integrate searching function, e-Books player and personalized portfolio tracking (Liao, Li, Su, and Yu, 2012; Li, Liao, and Yu 2013). When e-bookcase system combines with cloud technology, it makes libraries share their storage space and computing resource to support a large of type of mobile devices (Mell and Grance, 2009).

2.2 User satisfaction

Schuchhardt, Scholbrock, Pamuksuz, Memik, Dinda, & Dick (2012) indicated the purpose of systems are to satisfy the end-user. User satisfaction refers to the degree of satisfying users' demand; in other words, it refers to the difference between actual effect and expected effect. When the difference is closely or actually effect exceeds expected effect, users' satisfaction is highly (Thong,

and Yap, 1996; DeLone and McLean, 2003; Petter, DeLone, and McLean, 2008).

User satisfaction is had an influence by system quality and service quality. System quality and Service Quality are positively effects to users' satisfaction (DeLone & McLean, 2003; Bharati, & Chaudhury, 2006). System quality refers to the expectation of ease of use, speed, reliability, and so on; Service quality refers to the expectation of speed and accuracy of the system's responses, and system supplier's level of professionalism, attitudes and response speed. These two dimensions have influence on user satisfaction (Pitt, Watson, and Kavan, 1995; DeLone and McLean, 2003; Petter, DeLone, and McLean, 2008). Through the perspective of end-user computing satisfaction, which based on users awareness to a system, the results support discussion above (Aggelidis, & Chatzoglou, 2012).

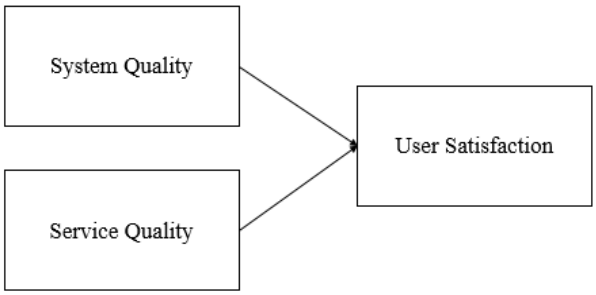

Figure 1. Research Dimensions

3. Description of Systems Used in This Study

The cloud e-bookcase system in this study include bibliographic searches, personalized management and e-book playing. The system is installed in the central computer facilities, servers provide computing resource and run the system. The system can be accessed through mobile networks. Users are verified personal ID and start using the system, and through interface run the application or operate personalized bookcases, and built-in players allow users to read e-books.

The central computer facilities provide resource to support applications and storage space, reducing the burden on the terminal device, so that the terminal device may use e-books' applications which require a higher level of implementation on hardware.

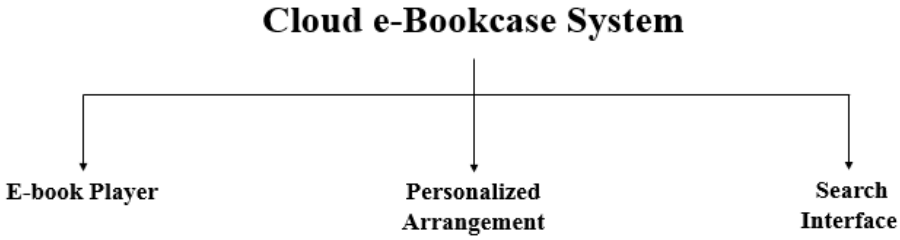

Figure 2. The structure of the Cloud e-Bookcase system

Figure 3. Interface of Cloud e-Bookcase System

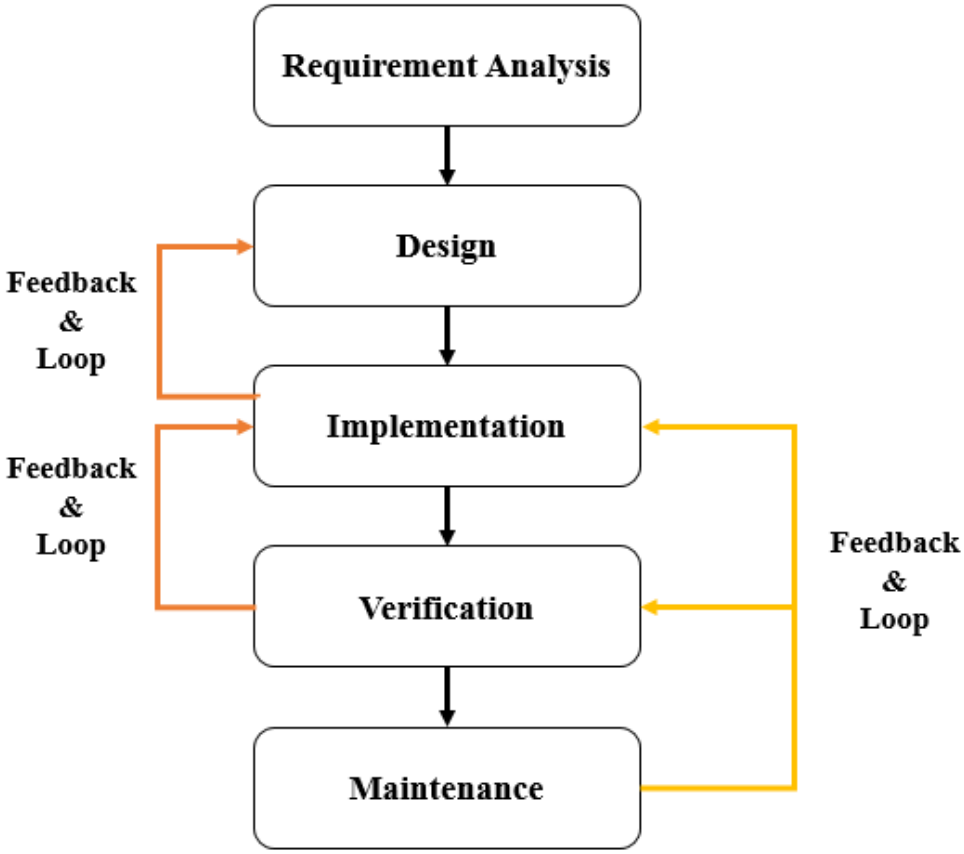

Figure 4. Development of Cloud e-Bookcase System

4. Method

This study uses questionnaire survey method to investigate. The questionnaires are retrieved and analyzed after using the system. A 5-point Likert scale is adopted in the questionnaire, 36 questions remain on the questionnaire. Participants from three universities in southern Taiwan were chosen. Three hundred copies of the questionnaire were administered, and 123 valid copies remained, yielding a valid response rate of 41%.

5. Results

This study uses the SmartPLS 2.0 M3 to perform statistical analyses.

5.1 Validity Analysis and Reliability Analysis

Validity and reliability analyses were conducted the effectiveness of the questionnaire. Validity analysis is examining the level of compliance between the participants' comprehension and dimensions definitions. Factor loading larger or equal to 0.5 is applied as the assessment standard (Hair, Black, Babin, and Anderson, 2010); Reliability analyses is examining whether the repeated measurements items are consistent (Hair, Black, Babin, and Anderson, 2010). Composite reliability (CR) larger or equal to 0.7 is applied as the standard (Bagozzi and Yi, 1988). Table 1 shows the result. The CR in this study ranges between 0.903 and 0.928, while the Factor loading ranges between 0.692 and 0.868. The test results are all larger than the standard value, therefore, the questionnaire has decent validity and reliability.

Table 1: Results of Reliability and Validity Analysis

Construct	Item	Factor Loading	Composite Reliability
Service Quality	SVQ1	.843	.928
(SVQ)	SVQ2	.780	
	SVQ3	.802	
	SVQ4	.868	
	SVQ5	.801	
	SVQ6	.842	
System Quality	SQ1	.692	.903
(SQ)	SQ2	.775	
	SQ3	.790	
	SQ4	.792	
	SQ5	.815	
	SQ6	.814	
User Satisfaction	US1	.833	.924
(US)	US2	.806	
	US3	.794	
	US4	.807	
	US5	.806	
	US6	.863	

5.2 Analysis of Influencing User Satisfaction of System Quality and Service Quality

Using path coefficients and T-values to analyze the influence and significance of dimensions. Table 2 and Fig. 4shows that system quality and service quality influence user satisfaction are significance that positive influence on user satisfaction with the cloud e-bookcase system.

Table 2: Results of structural model examination.

Relationship	T-Value	Path coefficient (β-value)	Result
SQ -> US	2.310	0.218	**Significance**
SVQ -> US	3.194	0.240	**Significance**

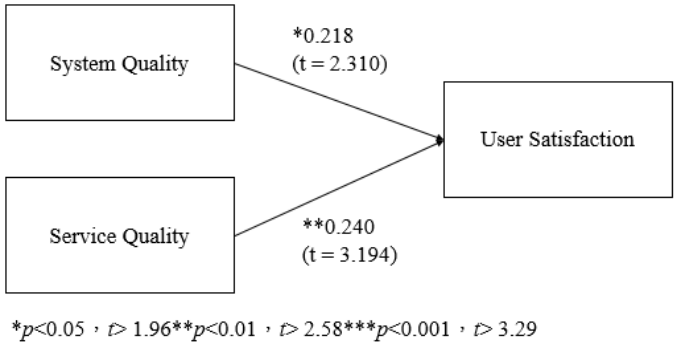

Figure 5. Results of the Research Dimensions

6. Conclusion

System quality has a significant positive influence on user satisfaction (β-value=0.218, t-value=2.310). Thus, developer should pay attention on the search function, system performance and smoothness of the operation. Service quality has a significant, positive influence on user satisfaction (β-value=0.240, t-value=3.194). Thus, developer should focus on the system's guide service and respond to questions. Based on the results, developers should focus on system quality and service quality that development or improvement of cloud e-bookcase system.

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