Influences of librarians' service qualities on academic library *E-catalog* use

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Abstract: *This study is aimed at knowing the influences of librarians' service qualities on E-catalog use. It tries to split service quality into two main blocks, i.e. physical service quality and process service quality, and synthesizes service quality constructs in four different constructs based on SERQUAL constructs. A total of 220 valid samples from four universities with almost similar academic library E-catalogue systems were used for testing 5 hypotheses by means of the Smart PLS 2.0 software. The results show that reliability, responsiveness, assurance, and empathy positively influence librarians' service qualities. However, librarian service quality does not significantly influence E-catalog use.*

Keywords: *librarian's service quality, academic library, E-catalog, SERQUAL construct*

1. Introduction

The library is one of the university facilities that support all university services. The library does not only support facilities, but it also holds the role as academicians' knowledge resources. If the library is well managed, it will support the entire education system because, as literature resources, the library can enrich academic knowledge. However, Indonesian academic libraries face general problems such as lack of facilities, lack of settlement systems, and use of manual catalogue systems (Muttaqien, 2006).

Indonesian academic libraries do make improvement to cover those problems. The improvements not only focus on physical facilities but also on service qualities. Indonesian libraries make improvement by adopting informational technologies (IT) such as in the use of electronic catalogs (*E-catalogs*).

Academic library searching system faces two unique conditions for finding a literature. First, it can be done manually by asking literature information to the librarian. Second, it can be done through the E-catalog.

Within these conditions, library service qualities hold an important role that affects E-cataloging. A survey in academic libraries by Lapidus (2003) showed that 45% of respondents ask for help to the librarian, 30 % ask the library staff, and 25 % ask other students. In a further survey, Lapidus (2003) showed only 33% of students get librarian's help, 43% of librarians are willing to help, and 26% are not willing to help. Affiat (2006) showed that, in Indonesian academic libraries, 24.9% of library users feel that librarians do not give proper services, 63% give proper services and the rest 12.1% give perfect services. Base on both surveys, it can be concluded that librarian service qualities will affect willingness of library users to use their services. That condition will affect physical facility uses.

The *E-catalog* is one of academic library facilities that support overall service qualities of academic libraries. Nevertheless, that facility will not be used by library visitors if the entire library does not give good service qualities. Academic library visitors will reject using the *E*-catalog if librarian assist them to find literature. Service qualities can be split into two big parts: physical service quality and human service quality. Physical service quality focuses on physical facilities to support services like the building, rooms, furniture, etc. Human supported service quality relies on interaction between service dealer and service acceptors. Base on all of the phenomena above, this present study tries to understand the effects of human service qualities on academic library *E*-catalog use. The study focuses on all the aspects of human service qualities.

Service quality concepts have been introduced firstly by marketing researches. That concept can be defined differently among user perceptions, expectations, and perceptions of service performances. Qualities become a main issue when libraries develop their services. In general, service quality can be defined as how good a service is, and not necessarily how large or extensive it is (Orr, 1973 in Sahu, 2006). Service quality is also defined as the consumer's perception about how well services are accepted or not accepted. Scotti, (2007) found relation between perceived service qualities and consumers' satisfaction.

The quality of librarians' services can be classified into two dimensions: technical (outcome) dimension and functional (process) dimension (Gronroos, 1988 in Banwet and Datta, 2002). Technical quality or tangible quality can be expressed primarily as the quality and volume of literature available in the library. Functional quality or intangible quality referring to the manner in which the library services are delivered. The

service achieves quality in perception when its performance meets or exceeds the level of the consumer's expectations. (Banwet and Datta, 2002). The librarian role is part of functional (process) dimensions. The librarian is one of literature information sources besides physical facilities (*E*-catalog) as part of technical services. The present study separates technical dimension (*E*-catalog) from functional dimension (the librarian).

The functional dimension of service qualities in academic libraries has four aspects. First, reliability is a measure level of trust of library visitors on the librarian. Second, responsiveness measures responses of librarians when they give services to library visitors. Third, assurance measures safety feeling of library visitors when they ask for a service from the librarian. Last, empathy measures how friendly the librarians are when they serve the visitors. Each aspect will effect positively in overall librarian service qualities because all of the components form one integrative construct.

Psychology research shows employees' empathy can increase consumers' satisfaction. Barger and Grandey (2006) found that employees who smile to consumers will make the consumers smile too. The individual who has imitated a smile may now feel happier because of physiological changes such as an increase in oxygen enhancing exuberance (Zajonc, 1985 in Barger Grandey, 2006). Those researches show that employees (librarians) hold important roles in the service. Jerabek *et al* (2001), in an academic library survey, showed that 61% of visitors would ask for help from the librarian. Satisfied consumers are those who intend to repurchase the services and advise others to experience them (Zeithaml, 1988 in Banwet and Datta, 2002).

In a library context, satisfaction on librarian service qualities will make library visitors reuse the library services in searching

literature information. That condition will make library visitors tend not to use the *E*-catalog. For this, the following hypotheses are proposed:

H1: Reliability will positively influence librarians' service qualities.

H2: Responsiveness will positively in-fluence librarians' service qualities.

H3: Assurance will positively influence librarians' service qualities.

H4: Empathy will positively influence librarians' service qualities.

H5: Librarians' service qualities will negatively influence *E*-catalog use.

2. Method

Sample

The sample of this study consists of students of economics and business who use the academic library of Gadjah Mada University, Indonesian Islamic University, Sanatadharma University and Yogyakarta Muhammadiyah University. The study uses the convenience-sampling survey method. The sample size is determined by 10 times most complex latent variable (Gefen, *et al.* 2000) and a priori power analysis. The power analysis is done to avoid type I and type II statistical errors (Erdfelder, *et al.* 1996). In business research, power analysis can use the power of 0.80 and alpha of 0.50 (Hair, *et al.* 1995). Based on the two concepts above, the minimum sample of the study is found to be 140.

Variable Definitions and Measurements

Librarians' Service Quality

A service quality is the level of "good" or "bad" a service is given by a librarian to library visitors. Service quality in this study refers to librarians' functional services as part of the whole library services. Service qualities can be measured by the SERVQUAL (reliability, responsiveness, assurance, empathy, and tangible) instrument (Sahu, 2006; Hauser and Paul, 2006), a powerful instrument to measure librarians' service qualities (Nitecki, 1996) that can be used perfectly for this kind of study (Quinn, 1997). The SERVQUAL instrument in library service measurement has been validated by many researchers (e.g. Cook and Thomson, 2000; Nitecki, and Hernon, 2000; Banwet and Datta, 2002). In this study, the researcher only uses four of the five components in the instrument (reliability, responsiveness, assurance, empathy) because "tangibility" is a component to measure physical facilities. The scoring uses the 1-7 Likert scale.

Research Model

Hypotheses of this research are tested by using the partial-least-square (PLS) model. The PLS is a proper model for prediction and theoretical building. It needs a relatively small sample (Gefen *et al.*, 2000). The other advantage of using PLS is that, first, it estimates a measurement model to ascertain the construct validity and reliability of the measures. Second, using indicators of latent constructs, it yields estimates of the structural model parameters, which test the strength of the hypothesized relationships. Finally, it is not restricted by the distribution requirements and sample size limitations of other structural equation modeling tools (Campbell and Fiske, 1959 in Ho *et al.*, 2003). The research model is shown in figure 1.

Figure 1. Research Model
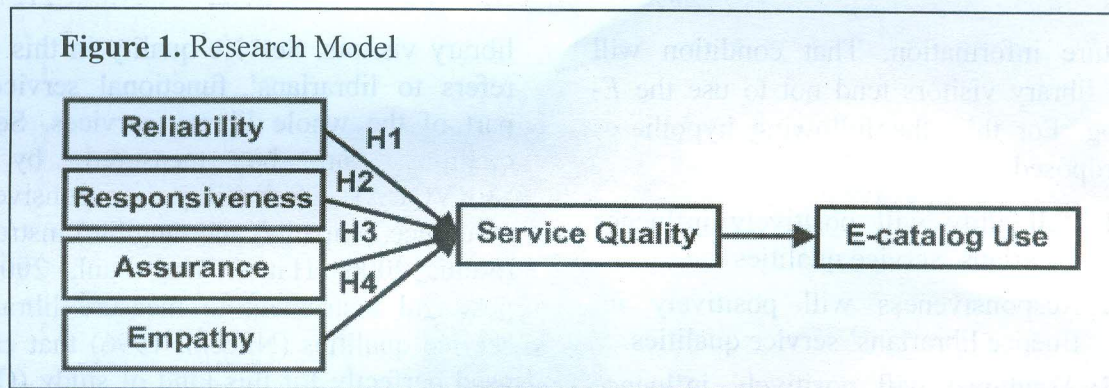
Pilot Study

A pilot study was conducted to capture the research phenomena in the research setting and to test the research instrument. Using 55 valid questionnaire items, the pilot study shows the research phenomena of the availability of the research setting and finds four questionnaire items that are not valid.

3. Findings and Discussions

Description

A total of 319 questionnaires are distributed directly to the respondents. From the 319 questionnaires, 220 are valid and 99 questionnaires are not valid (response rate being 55%). Post-hoc power analyses using an alpha level of 0.5 and "small" effect size (0.2) show the power of 0.997. Table 1 shows sample descriptions.

Tabel 1
Sample Description

Panel A.		
Categories	Average	N
Age	21,2 years	213
Computer use	6,4 years	192
Invitation per month	5,51 times	220
Panel B.		
Categories	Amount	Percentage
Gender (N=202)		
Male	98	49%
Female	104	51%
Purpose going to library (N=220)		
Searching literature for homework	210	95%
Searching extra reading materials	71	32%
Want to read in library	55	25%
Others	48	22%
Reason using E-catalog (N=220)		
Knowing precise literature	138	63%
Limit information about literature	80	36%
Want find literature immediately	175	80%
Just want to try	27	12%
Others	9	4%

Validity and Reliability

The construct validity and the reliability of the instrument are shown in Table 2. This table shows that all AVE and communality values are higher than 0.5 (>0.5) and all of the composite reliabilities and Cronbach's Alpha have values higher than 0.7(>0.7). The values show convergent validity and reliability of the constructs are satisfied.

Table 2
Constructs validity and reliability

	AVE	Communality	Composite Reliability	Cronbach's Alpha
ASS	0.735567	0.735567	0.917522	0.880118
EMP	0.75642	0.75642	0.925301	0.892269
EU	1	1	1	1
RELI	0.774741	0.774741	0.873052	0.709913
RSP	0.83458	0.83458	0.937979	0.900426
SQ	0.624276	0.624276	0.947993	0.939449

Discriminant validity can be shown by compareing the construct correlation with the root AVE. Table 3 shows that the discriminant validity has been fulfilled.

Table 3
Discriminant validity

	ASS	EMP	EU	RELI	RSP	SQ
ASS	**0.857652**					
EMP	0.696327	**0.869724**				
EU	0.122507	0.083147	**1**			
RELI	0.678201	0.586876	0.147996	**0.880194**		
RSP	0.801639	0.60488	0.156399	0.649169	**0.913554**	
SQ	0.941079	0.829093	0.128494	0.757672	0.899399	**0.790111**

Hypothesis Testing Results

This study uses one hypothesis model to answer all the hypotheses. The model runs once using the Smart PLS M2.0. The hypothesis test model is shown in Figure 2 and the results are shown in Table 4.

Figure 2: Hypotheses Test Model
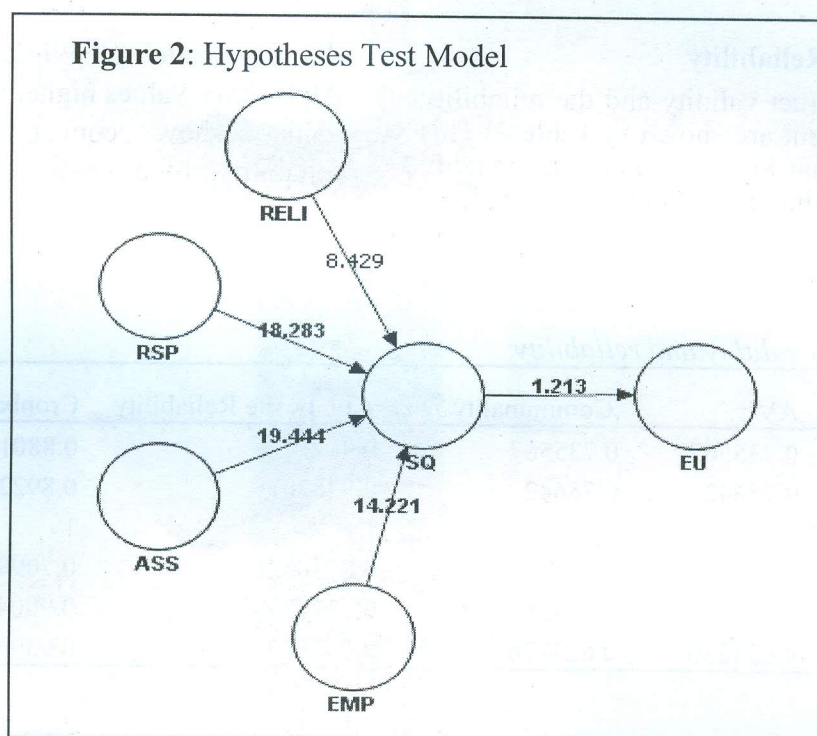
The analysis results show positive significant influences of Reliability on Librarians' Service Quality (H1), Responsiveness on Librarian Service Quality (H2), Assurance on Librarian Service Quality (H3), and Empathy on Librarian Service Quality (H4). However, positive but non significant influence is found in the correlation between Librarian service qualities on E-catalog use (H5). In other words, Librarians' Service Quality has relatively weak influence on E-catalog use.

Table 4
Hypotheses Test Results

	Coefficients	t-statistics	P-value
ASS -> SQ	0.405374	19.44399	0.0000
EMP -> SQ	0.285599	14.22122	0.0000
RELI -> SQ	0.093982	8.429421	0.0000
RSP -> SQ	0.340672	18.28306	0.0000
SQ -> EU	0.128494	1.212703	0.1133

Discussions

Contrastive results have been found on the influence of librarians' service qualities and *E*-catalog use. This study hypothesizes negative correlations but the results show positive influences. To understand this contrast, observation has been done. The observation uses interviews to one of the librarians at each sample library. The observation results are shown in Table 5. The results show that librarians tend to suggest to visitors to use the *E*-catalog. On the other hand, librarians always use librarian the *E*-catalog to help visitors at the first time.

These results also explain that the library *E*-catalog holds a supporting role (part of whole services) not a replacing role (separate services). In this case, librarians tend to use the E-catalog to support their services for the visitors. In other words, technical and process service dimensions in the *E*-catalog searching system cannot be separated because the *E*-catalog used by the librarians helps visitors to find literature.

Table 5
Librarian observation results

Literature to search:	
Shapiro, C. & Varian, H. (1999), *Information Rules - A Strategic Guides to the Network Economy*, Harvard Business School Press, Boston.	
Faculty of Economic and Business Gadjah Mada University library	
Questions:	**Reactions:**
Is that book available?	Not give answer yes or no
How find that book?	Suggest to use E-catalog.
Librarian actions:	
That suggestion is the only service.	
Faculty of Economic Indonesian Islamic University library	
Questions:	**Reactions:**
Is that book available?	Not give answer yes or no
How find that book?	Directly give help with librarian's E-catalog and indirectly suggest using visitor's E-catalog.
Librarian actions:	
Librarian searches literature with librarian's catalog with any possible key words to found literature.	
Faculty of Economic Sanatadharma University library	
Questions:	**Reactions:**
Is that book available?	Not give answer yes or no
How find that book?	Suggest using E-catalog by give access to researcher to use visitor E-catalog in library.
Librarian actions:	
After researcher searched literature with visitor's E-catalog and not founded, librarian helped researcher found literature with librarian's E-catalog.	
Faculty of Economic Muhammadiyah Yogyakarta University library[*]	
Questions:	**Reactions:**
Is that book available?	Not give answer yes or no
How find that book?	Directly give help with librarian E-catalog without any recommendations visitor's E-catalog usage.
Librarian actions:	
Librarian helped searching literature with key word author name without tried others alternatives. Then, librarian concludes that literature not available.	

[*]: Researcher had no access to visitor's E-catalog when interview (observation)

In this study, hypothesis 5 (H5) is developed using theories and logic that the *E*-catalog system is replacing librarians' services. Data analyses find contrastive results. The advanced analysis results from the observation explain that separation is needed in the service quality roles of information systems which support (part of) whole system or information system from the replace (separate services) system (example: the

ATM machine replacing the bank teller). This separation is a new theoretical contribution that requires to be considered in future research.

Positive correlation has been found and tested between service quality and system use (Wang, 2007 and Wang and Liao, 2007). Wang (2007) investigated the *E*-commerce success and Wang and Liao (2007) investigated the *E*-Goverment success, both in Taiwan. Both researches show positive significant correlation between service quality and system use. Positive correlation in both studies can happen because both researches are set in systems which support services.

4. Conclusion and Limitations

This study has been aimed at knowing the influences of librarians' service qualities

on *E*-catalog use. The study has tried to split service qualities into the two main blocks; there are physical (facilities) services quality and process (human) services quality. The study has also synthesized service qualities in four different constructs based on the SERQUAL components. The main question of this research is "Do librarianns' service qualities influence academic library *E*-catalog use?"

This study has used 220 valid samples from four universities that have almost similar academic library *E*-catalogue systems. Before running hypothesis tests, power analyses have been conducted to get practical significances. Hypotheses have been tested using the Smart PLS 2.0 software. Hypothesis testing results are shown in Table 6.

Table 6
Hypothesis Testing Results

Hypotheses	p-value	Conclusions
H1: Reliability will positively influence Librarian Service Quality	0.0000	Supported
H2: Responsiveness will positively influence Librarian Service Quality	0.0000	Supported
H3: Assurance will positively influence Librarian Service Quality	0.0000	Supported
H4: Empathy will positively influence Librarian Service Quality	0.0000	Supported
H5: Librarian services quality will negatively influence E-catalog use.	0.1133	Not Supported

This research has some limitations: (1) The sample has been taken only from four universities in the same city that have homogeneous cultures, (2) The sample has been taken from systems that are already implemented. These limitations make this study cannot be used to take the whole picture of the system life cycle, (3) There are certain biases on the self-reporting survey techniques.

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