Antecedents of customer loyalty : Does service quality suffice[1]?

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ABSTRACT

This study reports on an investigation of the antecedents of customer loyalty in an academic library setting. A structural model is presented to test the relationships between web-based library service quality, service value, customer satisfaction and customer loyalty based on theoretical underpinnings in the literature on service quality and customer loyalty. The study provides empirical data on library users' behavioral intentions, which helps understand the nature of customers' loyalty towards web-based library services. Participants included postgraduates and academic staff from four research intensive universities in Malaysia. Structural equation modeling was carried out to test the modeled relationships between the four construct in this study. This study provides insights into the antecedents of customer satisfaction and customer loyalty as findings revealed that service quality and service value have a direct effect on customer satisfaction, which then directly impacts customer loyalty.

Keywords: Customer loyalty; Service quality; Customer satisfaction; Academic libraries; Malaysia.

INTRODUCTION

An increased familiarity with the Internet has resulted in library users' expectations of information services to be greatly influenced by their experiences with web-based retrieval systems (Fast and Campbell 2004 cited in Bawden and Vilar 2006), search engines, notably Google (Griffths and Brophy 2005; Ross and Sennyey 2008) and transactional sites, such as Amazon and eBay (Dempsey 2005). These expectations are then channeled to academic libraries, causing a phenomenon that libraries are facing competition from alternative information providers (Snoj and Petermanec 2001; Griffiths and Brophy 2005; Ross and Sennyey 2008).

The crux of the situation is that librarians have realized that users have choices for fulfilling their information needs and some of these choices are taking library customers away from the library (Hernon and Whitman 2001). The Denmark's Electronic Research Library (DEFF 2007) report describes the situation as:

> *The shift from collections to connections and the changes in the*
> *information environment from a situation of information scarcity to*

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[1] This paper reports part of the findings of a PhD research: Kiran, K. 2011. *Development of an integrated scale for the measurement of web-based library service quality.* (PhD dissertation). University of Malaya.

> *information overload has together with increased use of search engines created a new breed of self-sufficient users who do not see the library as the centre of their information environment.*

In order to maintain their relevance, academic libraries have made changes to their library services to synchronize with the changing needs of its technologically inclined clientele. Evidence of it is in the uptake of web-based services and social media technologies to enhance current services and/or initiate new library services to users. Despite the continual efforts by academic libraries to adopt technology in providing services, the phenomena of students and researchers preferring to use other Internet service providers is prevalent (Griffths and Brophy 2005; Ross and Sennyey 2008). Consequently, if the users do not see the library as the center of their information environment, their loyalty towards library services is threatened by competing information service providers on the Internet. How can academic libraries deal with this? In a business enterprise, competitive strategy is largely based on price, however price has not been of concern to library customers because library services are commonly perceived to be free (St. Clair 1993). In realization of the importance of loyal customers in an increasingly competitive environment, organisations have begun to build long-term relationships with customers (Schneider and White 2004), known as relationship marketing. This concept is slowly gaining merit in library service research.

In the business and management fields, the issue of the changing scape for service delivery from face-to-face to electronic medium has been addressed by various researchers. Evidence of this is the development of the E-S-QUAL (Parasuraman, Zeithaml and Malhotra 2005), as an extension of the SERVQUAL tool, to measure service quality in the electronic environment. The scale includes measures of satisfaction and behavioral intentions to examine the effect of e-service quality on both these constructs. Research has shown that customers' behavioral intentions, including loyalty, are consequences of service quality and customer satisfaction (Zeithaml, Berry and Parasuraman 1996; Cronin, Brady and Hult 2000). Wang, Lo and Yang (2004) observed that the concept of customer value and its relationship with service quality and customer satisfaction is lacking in empirical research, though a large body of knowledge does exist on this concept. Furthermore, there has been a debate on the link between service quality and customer satisfaction and how these contributors are related to service value and intentions to use the service again (Dabholkar, Shephard and Thorpe 2000). Though vast leaps have been made in the business areas, e-service loyalty predictors in library and information science, have not been well studied in the electronic service environment. Since library and information centers are managed in a non-profit environment, it is unlikely that existing customer loyalty behavior models will be directly applicable to library management. Antecedents and consequences of web-based library service quality lack in empirical evidence. Further clarification and empirical research is needed. An examination of the relationships between service quality, service value, customer satisfaction and customer loyalty can lead to a better understanding of the phenomena and assist libraries in the development of customer retention strategies.

The present study aimed to contribute to the understanding of determinants that effect loyalty towards web-based library services. Specifically the objectives were:
   a) to present a conceptual model for customer loyalty from the perspective of the relationships between service quality, customer satisfaction and service value in an institution of higher learning;

b) To empirically validate the conceptual model using SEM technique and discuss its implication on library management.

The conceptual model for customer loyalty shall be based on the discussion of past literature on service quality and how it relates to customer loyalty.

LITERATURE REVIEW

Customer loyalty is the ultimate goal of any service organisation. Loyalty is translated to certain behavioral intentions of the customers, such as repeated use (Oliver 1997; Cronin et al. 2000), expressing a preference for it and recommending service to others (Zeithaml et al. 1996; Cronin et al., 2000). In profit organisations loyalty is important for increased revenues and is measured in terms of profit. However, in non-profit organisations, increased return rate and increase in number of users may be used to justify budget and accountability to the parent organisation. In an academic institution of higher learning, it is an indication of increased use of scholarly information by researchers and moneys spent is justified. Hernon and Altman (2010) suggest that serving loyal customers is important because it ensures repeat use and more use of the library and its services.

The relationship between service quality and customer loyalty has been vastly research in various service settings. The inseparability characteristic of service indicates that the quality of a service will be determined at the time the service is rendered, meaning that it will be determined by the consumers of the service and not the provider (Seay, Seaman and Cohen 1996). In the marketing field, Parasuraman et al., (1988) defined this subjectivity of service quality as perceived quality, meaning 'the consumer's judgement about a product's overall excellence or superiority'. Perceived service quality is derived from the individual service encounter between the customer and the service provider, during which the customer evaluates quality and develops a judgement (Bitner 1990). Previous research has shown that service quality directly effects customer loyalty (Cronin et al. 2000; Marthensen and Gronholdt 2003; Wolfinbarger and Gilly 2003; Parasuraman et al. 2005; Ho 2007). Others have reported that service quality has an indirect effect on loyalty, mainly via customer satisfaction as a mediating variable (Collier and Beinstock 2006; Cristobal, Flavian and Guinaliu 2007; Ladhari 2009). Table 1 shows the relationship between service quality, satisfaction, value and loyalty.

Furthermore, the relationship between service quality and customer satisfaction is closely entwined. The work of multiple researchers have posited that satisfaction is an antecedent to service quality, which then directly affects buyer's behavioral intentions (Oliver 1981; Bitner 1990; Bolton and Drew 1991; Mohr and Bitner 1995). Another set of researchers, on the other hand have found that service quality is an antecedent of satisfaction (Cronin and Talyor 1992; Parasuraman et al. 1988, 1994; Anderson and Sulliva 1993; Rust and Oliver 1994; Anderson, Fornell, and Lehmann 1994; Teas 1994; Caruanna 2002; Hernon 2002; Zeithaml, Bitner and, Gremler 2006; Wilkins, Merrilees and Herington 2007). Most of these findings have been based on empirical findings through quantitative methods. Dabholkar and Overby (2005) attempted to study this relationship through in-depth interviews with home sellers'. They reported that service quality evaluations precede customer satisfaction for normal service evaluations in real estate agent service, but opposite causal order may be found for extreme service evaluations.

Table 1: Studies on Relationship Between Service Quality, Satisfaction, Value and Loyalty

Authors	Service Context	Relationships studied	Data analysis	Findings
Cronin, Brady and Hult (2000)	Fast food, health care, sporting events	SQ, SV, CS, BI (loyalty)	CFA	SQ, SV, CS directly influence BI
Dabholkar, Shepherd and Thorpe (2000)	Photographic directory services	SQ, CS, BI	CFA	CS has a strong mediating effect of SQ on BI CS better predictor for BI
Marthensen and Gronholdt (2003)	Library	SQ, SV,CS, CL	CFA	SV has a direct effect on CS and loyalty. CS has a direct effect on CL
Wolfinbarger and Gilly (2003)	e-retailing	SQ, CS, CL	CFA	SQ(website design) has a direct effect on CS and loyalty
Dabholkar and Overby (2005)	Real estate agent	SQ, CS	Content analysis of interview data	SQ has direct effect on CS
Landrum and Prybutok (2004)	Library	SQ, CS, SV	Regression analysis	SQ has direct effect on SV SQ has direct effect on CS
Parasuraman et al. (2005)	e-purchase	SQ, SV, CL	CFA	SV has direct effect on loyalty SQ has a direct effect on SV and Loyalty.
Zhang and Prybutok (2005)	e-purchasing	SQ, CS, BI	CFA	SQ has direct effect on CS which then has a direct effect on BI. SQ also effects BI through CS
Birgelen, Ghijsen and Semeijn (2005)	e-catering	SQ, CS, CL	PLS	SQ has direct effect on CS. CS has direct effect on CL
Collier and Beinstock (2006)	E-retailing	SQ, CS, BI	CFA	CS has a mediating effect between SQ(outcome) and BI
Cristobal, Flavian and Guinaliu (2007)	e-retail	SQ, CS, CL	CFA	SQ has a direct and indirect effect on CS, CS has direct effect on loyalty, CS is a mediator.
Ho (2007)	e-travel	SQ, CS, CL	CFA	SQ has a direct effect on CS and loyalty
Ladhari (2009)	e-hospitality	SQ, CS, BI	CFA	SQ has a direct and indirect effect on BI CS is a mediator.

- CFA Confirmatory Factor Analysis
- SQ –service quality ; CS – customer satisfaction; SV – service value; CL – customer loyalty

This debate may be explained by reflecting upon Dabholkar's (1995, cited in Brady and Robertson 2001) claim that the relationship is situation specific. It depends on the context of the service encounter because the nature of the customers' cognitive orientation and emotions may determine the overall perception (service quality) and affective reaction (satisfaction) to the service encounter.

In the context of library service, Hernon and Whitman (2001) viewed service quality as dealing with users' expectations of the service and satisfaction as an emotional reaction to the cumulative experiences a customer has with the service provider. In an attempt to further differentiate the two concepts, Hernon and Nitecki (2001) stressed that service quality and satisfaction are not synonymous concepts. According to them, service quality judgement is cognitive, whereas satisfaction may focus on affective or emotional reactions to a specific transaction (Hernon, 2002) or a cumulative judgement based on collective encounters (overall satisfaction). Ladhari's (2009) study in the hotel industry operationalized the satisfaction construct as 'emotional satisfaction', measured by happiness, pleasantness and joy. He found that service quality had both a direct and indirect effect on customer's loyalty and emotional satisfaction to be a mediating variable between the two.

Another variable that has a bearing on customer loyalty is service value. Zeithaml (1988) suggested that 'perceived value is the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given'. Operationalization of this construct is closely related to the usefulness of the service. In retail literature, value is dependent on monetary costs (Parasuraman et al., 2005), basically what the customer has to 'sacrifice' when utilizing the service (Cronin et al. 2000). However, in information services, including academic library services, where there is no direct cost incurred, the indicators are more in relation to the 'usefulness' of the service in improving research (Landrum et al. 2007) or being in control (Parasuraman et al. 2005).

The drive for research in investigating the relationship between these constructs has been to develop an improved understanding of not only how they relate to each other but how they influence behavior subsequently (Cronin, et al. 2000) in terms of loyalty towards the service. Table 1 lists some of the research that has empirically tested the relationships between these construct.

Cronin, et al. (2000) claim to be the first to simultaneously compare the relative influence of the three constructs; satisfaction, value and quality, on the service encounter outcomes or behavioral intentions. They operationalized behavioral intentions as consumers' intention to use the service again, recommend it to others and repeat use. If one examines Zeithaml et al.'s (1996) dimensions for behavioral intentions, then these three items are characteristics of the loyalty dimension. Their findings supported the proposed model that all three construct have a direct effect on customer behavioral intentions (saying positive things, recommending to others, remain loyal). However, it must be noted that their measure of service quality was based on 10 items of which eight were on employee characteristics and ability to provide reliable, dependable and consistent service. Figure 1, graphically illustrates the relationship between the service quality, customer satisfaction, service value and loyalty as depicted by Cronin et al. (2000)
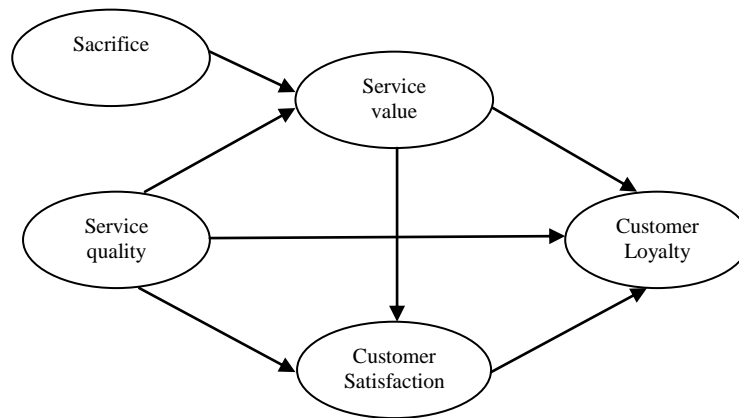
Figure 1: Cronin, Brady and Hult's (2000) Model

Dabholkar, et al. (2000) found that the literature reports contradicting finding relating to the causal relationship between service quality, satisfaction and loyalty. Their longitudinal study of customers from a national photographic company services, revealed that customer satisfaction strongly mediates the effect of service quality on behavioral intentions (use in future and recommend to others). In the context of library service, Marthensen and Gronholdt (2003) examined the effects of six dimensions of users' perceived quality on user value, satisfaction and loyalty. They found value to have a direct positive effect on satisfaction and loyalty. User satisfaction too had a direct positive effect on loyalty. Whereas, the indirect effect of value on loyalty via satisfaction was smaller than its direct effect.

This study relies on Bagozzi's (1992) theoretical justification that initial service evaluation leads to emotional reaction that in turn drives behavior, meaning that service quality and value appraisals precede satisfaction, as shown by Cronin, et al. (2000). Not many studies in library and information science have examined these relationships. There is a need to add to the understanding of the interrelationships between these construct, especially since the literature has still not reached a consensus on the nature of these issues.

RESEARCH MODEL

There is substantive body of evidence about the direct and significant effects of perceived service quality on customer satisfaction in various industries including e-commerce, e-travel, e-retailing, catering, among others. Many have found empirical support for service quality to have a positive effect on customer satisfaction (Cronin et al. 2000; Marthensen and Gronholdt 2003; Dabholkar and Overby 2004; Prybutok and Landrum 2004; Parasuraman et al. 2005; Zhang and Prybutok 2005; Birgelen et al. 2005; Collier and Beinstock 2006; Lin and Hsieh 2006; Landrum et al. 2007; Ho 2007; Heinrichs et al. 2007; Ladhari 2009). Similarly it is expected that web-based library service quality will positively affect customer satisfaction:

Hypothesis 1a: Web-based library service quality is positively related to customer satisfaction

Perceived service quality, as defined by Zeithaml (1988) is actually the assessment of the overall excellence of the service. An excellent service is expected to be a service that is

useful to the customer in fulfilling the customers' needs. Studies have shown that there is a direct impact of service quality on service value (Cronin et al. 2000; Marthensen and Gronholdt 2003; Landrum and Prybutok 2004; Parasuraman et al. 2005; Landrum et al. 2007; Lin and Hsieh 2006). Thus, it is postulated that service quality positively affects service value.

Hypothesis 1b: Web-based library service quality is positively related to service value

The relationship between service quality and customer outcomes such as loyalty, are important to retain customers for increased profit impact. There is a strong need to study the relationship between service quality and loyalty because studies have shown that there is a positive impact of service quality on customer loyalty (Cronin and Talyor 1992; Wolfinbarger and Gilly 2003; Parasuraman et al. 2005; Zhang and Prybutok 2005; Collier and Beinstock 2006; Ho 2007). This study examines if there is a direct relationship between service quality and customer loyalty.

Hypothesis 1c: Web-based library service quality is positively related to customer loyalty

A few studies have indicated a positive relationship between satisfaction and intention to re-visit. Dabholkar et al. (2000) found that customer satisfaction strongly mediates the effect of service quality on behavioral intentions (loyalty). A satisfied customer is more likely to stay with the organisation. However, they recommended that more research is needed to investigate the possible mediating role of customer satisfaction in the relationship between service quality and behavioral intentions. The following two hypotheses will address this issue:

Hypothesis 2a: Customer satisfaction is positively related to customer loyalty

*Hypotheses 2b: Customer satisfaction has a mediating effect on the relationship between
                service quality and customer loyalty*

Based on previous research, service value is suggested as a measure of the customer's overall assessment of utility (Zeithaml 1988). When utility for a researcher is analogous to the ability to increase his research productivity by having his information needs adequately met, then it can be hypothesized that service value influences satisfaction. Thus it is proposed:

Hypothesis 3a: Service value is positively related to customer satisfaction

Furthermore, it has also been shown that positive perception of service value, encourages customers not only to repeatedly use the service but also recommend it to others (Cronin et al. 2000; Marthensen and Gronholdt 2003). This is expressed in the following hypothesis:

Hypothesis 3b: Service value is positively related to customer loyalty

*Hypothesis 3c: Service value has a mediating effect on the relationship between service
                quality and customer loyalty.*

The hypotheses are summarized in the conceptual framework shown in Figure 2. The study examines the direct and indirect relationships between the constructs, as depicted in the model.
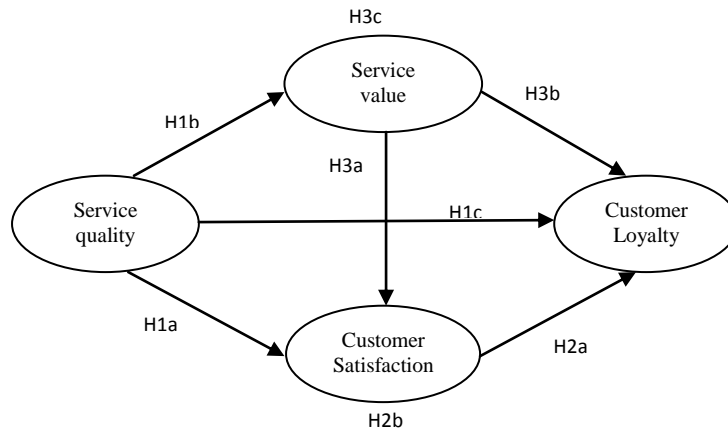
Figure 2: Conceptual Model for Customer Loyalty

EMPIRICAL STUDY

Instrumentation and Data Collection

The research structure follows the conceptual model proposed from the literature review. A set of questions were designed based on reference to previous studies. Service quality was measured using a 26 item scale developed by Kiran (2011), whereas service value, customer satisfaction and customer loyalty were measured by a 3 item scale each. Operationalization of these variables is described in Table 2. All variables are measured according to a seven-point Likert-type scale, (1 – strongly disagree to 7 – strongly agree).

The target population consisted of postgraduate students and teaching staff at four research intensive universities in Malaysia. The sample for this study was selected on the basis of convenience sampling as it was difficult to obtain the contact of all postgraduates. Data was collected by assistants over two months, April 2009-May 2009. A total of 2000 questionnaires were distributed and the return rate was 22% (441), of which 231 cases were used for analysis after data cleaning and eliminating non web-based library service users. Structural equation modeling (SEM) is very sensitive to outliers and missing data, thus careful screening of the raw data is an essential step.

RESULTS

Respondents' Profile

Of the 231 respondents, Universiti Putra Malaysia had the highest representation (n = 78, 34.1%), followed by Universiti Kebangsaan Malaysia (n = 72, 31.4 %), Universiti Science Malaysia (n = 41, 17.9%) and University of Malaya (n = 38, 16.6%). In terms of sample characteristics, 59.5% of the respondents were male and 40.5% female. 67.6% of the respondents were below the age of 40. A majority of the respondents were postgraduate students (61.2%), of which 89(64%) were Masters students and the remaining 50(36%) were PhD students.

Table 2: Variables and Operational Definitions

Variables	Operational definition	Items/Literature
Service quality	Service quality is classified as environment quality, delivery quality and outcome quality.	Environment generally includes aspects of the availability of the web-site and equipment to access the services (8 items). Delivery quality includes customer relationship, personalization and customer support (10 items). While outcome quality includes reliability, functional and emotional benefits (8 items) Kiran (2011)
Service value	Zeithaml (1988) suggested that 'perceived value is the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given'.	i. Web-based library services gives me a feeling of being in control (Parasuraman et al 2005) ii. Web-based library services improve my ability to do research (Landrum, Prybutok and Zhang 2007) iii. Web-based library services enable me to be more productive (Landrum, Prybutok and Zhang 2007)
Customer satisfaction	Oliver (1997): 'Satisfaction is the consumer's fulfillment response. It is judgement that a product or service feature, or the product or service itself, provides a pleasurable level of consumption-related fulfillment,'	i. Using the web-based library services has been a good experience (Dabholkar et al. 2000) ii. Web-based library services adequately meet my information needs (Martensen and Gronholdt 2003) iii. Web-based library services are efficient (Landrum, Prybutok, and Zhang 2007)
Customer Loyalty	Loyalty is translated to certain behavioral intention of the customers, such as repeated use (Oliver 1997; Cronin et al. 2000), expressing a preference for it and recommending service to others (Zeithaml et al. 1996; Cronin et al. 2000).	i. I will be using more of the web-based library services in the future (Martensen and Gronholdt 2003) ii. I would recommend the web-based library services to others (Martensen and Gronholdt 2003) iii. I will say positive things about the web-based library services to others.(Parasuraman et al. 2005)

Reliability Analysis

The internal consistency of items in each construct was measured using the Cronbach's alpha realiability test. Nunally (1978) suggest that a Cronbach's alpha value of >.7 indicates a considerably high reliability. The Cronbach's alpha α, value for each construct is between .87 and .965, indicating high reliability. Table 3 presents the value of the α.

Table 3: Reliability of each measured construct

Construct	Number of items	Cronbach α Value
Service quality	26	.965
Customer Satisfaction	3	.887
Service Value	3	.870
Customer Loyalty	3	.912

Assessment of the Structural Model

The structural model (Figure 2) has six structural paths among web-based library service quality, customer satisfaction, service value and customer loyalty. Since no library and information science study has investigated all four construct in a single study, several competing models are proposed to compare the fit indices to determine which model best fits the data and to examine the mediating effect of Service value and Customer satisfaction.

All five constructs were tested simultaneously in one confirmatory model through structural equation modeling (SEM) using Analysis of Moment Structures, AMOS 17.0. All items were evaluated based on item's error variance, modification indexes and residual covariances (Anderson and Gerbing 1988; Fornell and Larcker 1981). There are three model evaluated in this step. The first is the (a) Research model, as depicted in Figure 2. Two competing models (Figure 3) were assessed to test the mediation effect: (b) Satisfactory model – customer satisfaction fully mediates the relationship between service quality, service value and customer loyalty, and (c) Value model - service value fully mediates the relationship between service quality, service value and customer loyalty.

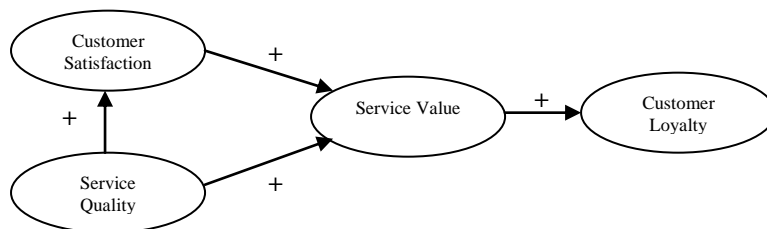(b) Satisfactory Model
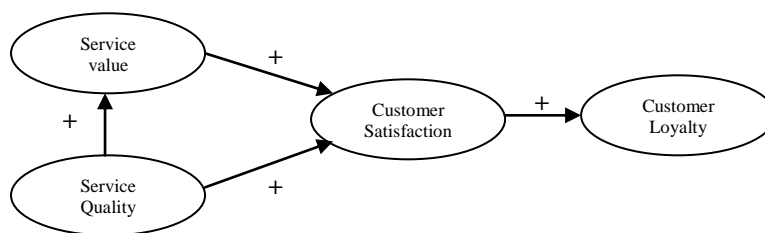
(c)Value Model

Figure 3: Competing Models

The research model is derived from the literature review (Figure 2). It consists of the measurement model for perceived service quality of web-based library services (a 26 indicator with 3 second-order dimension model) and a structural model with three exogenous variables (perceived service-quality, customer satisfaction and service quality) and endogenous variables (customer satisfaction, service value and customer loyalty). Using AMOS with CFA, the overall model fit was achieved with a Chi-square/df ratio of 2.038 (< 3); TLI =.919; CFI = .924 and RMSEA =0.67 (<.08). The values of TLI and CGI indicated an acceptable model fit (Chou and Bentler 1995), whereas the χ^2/df ratio indicates a good model fit as well as RMSEA smaller than .08 (Kline 2005). The structural model is well supported. Table 4 depicts the standardized estimates of the model.

Table 4: Standardized Estimates of the Structural Model

Structural Paths	Unstd. Estimate	S.E.	C.R.	P	Std. Estimate
Service Quality --- Satisfaction	.655	.126	5.187	***	.540
Service Quality --- Value	.955	.132	7.209	***	.821
Service Quality --- Loyalty	-.118	.132	-.892	.372	-.106
Value --- Satisfaction	.443	.095	4.682	***	.421
Value --- Loyalty	.194	.100	1.949	0.051	.204
Satisfaction --- Loyalty	.763	.145	5.268	***	.835

Hair et al. (1998) suggest using standardized regression weights to compare relative effect of each exogenous latent variable on the endogenous variable. Two standardized regression weights were not as expected. Regression weight of service quality to customer loyalty was not significant (-.106, p>.05). This indicates that service quality has no significant direct effect on customer loyalty. Regression weight of service value to customer loyalty also was not significant (p>.05), indicating that service value has no direct effect on customer loyalty.

Two other models were tested as competing models for the structural model based on procedures outlined by Anderson and Gerbing (1988). Chi-square difference test with confirmatory factor analyses (CFA) was used. χ^2 values of each model, and other parameter estimates are reported in Table 5. The Satisfaction model assumes customer satisfaction to fully mediate the relationship between service quality and customer loyalty as proposed by Ziethaml, et al. (2006), whereas in the the Value model, service value is assumed to fully mediate this relationship.

Table 5: Model Comparison

Models	χ^2	df	$\Delta\chi^2$	χ^2/df	CFI	TLI	RMSEA	AIC
Research	1104.820	542		2.038	.924	.916	0.67	1280.820
Satisfaction	1108.885	544	*4.065 (not sig.)	2.038	.923	.916	0.67	1280.885
Value	1146.456	544	41.636	2.107	.918	.911	0.69	1318.456

Note p<.01
The critical value for $\Delta\chi^2$ with df =2 are 5.99 at the 0.05 level and 9.21 at the 0.01 level

In order to compare the model fit of different structural models, the difference in chi-square values between the model and the two competing models are examined.

i)   Value Model

The critical values of $\Delta\chi^2$ with df = 2 between the model and the value model is 41.77 at .01 level. For more support the Akaike Information Criterion (AIC) was also assessed. It is suggested that the model with the lowest AIC value is a better measure of the goodness of fit (Fassnacht and Koese 2006). This indicated the Research model (AIC = 1280.820) is a better model than the Value model (AIC 1318.456).

ii)   Satisfaction Model

However, the $\Delta\chi^2$ between the Research model and satisfaction model is not significantly different at p<.05. Even the AIC value is almost similar with a difference of only .157. This results are expected as two of the direct effects paths in the Research model were not significant: service quality to customer loyalty (-.12) and service value to customer loyalty (0.21), thus making it similar to the satisfaction model, where customer satisfaction fully mediates the relationship between service quality, service value and customer loyalty.

DISCUSSION ON HYPOTHESIS TESTING

Discussion and testing of the research hypotheses will be restricted to the Research model as it has the lowest AIC value. A simplified version of the model is depicted in Figure 4. It exhibits the relationships between the constructs. The paths between service quality, service value, customer satisfaction and loyalty, revealed that perceived service quality has a positive effect on customer satisfaction (β= 0.54, p<.01) and service value (β= 0.82, p<.01). However, the relationship between perceived service quality and customer loyalty was negative and not statistically significant (β= -0.11, n.s.). The analysis of the direct, indirect and total effects in Table 6 explicitly explains the influence of the exogenous variable on the endogenous variable. Although service quality does not have a significant direct effect on customer loyalty, it has an indirect positive effect on customer loyalty (.91). Customer Value too does not have a significant direct effect on Customer Loyalty, but is has an indirect positive effect on customer loyalty via customer satisfaction (.35). The total effect of service quality on customer loyalty is .80. The results indicated that customer satisfaction and mediated the relationship between service quality and customer loyalty.
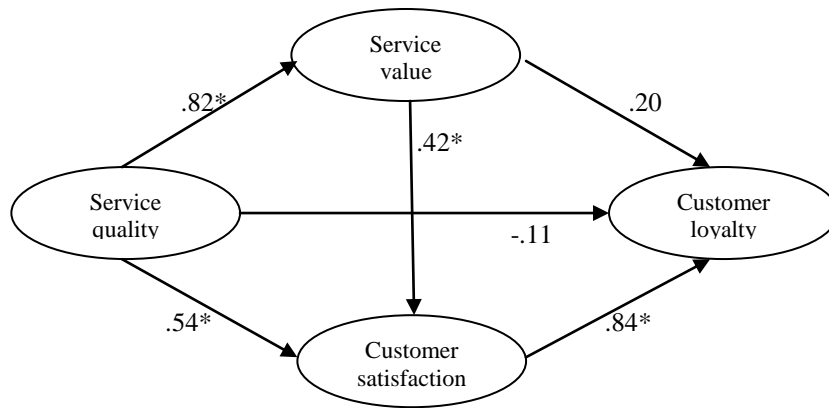
Note: n=221, χ^2/df = 1.958, p<.01; CFI =.930; TLI =.923; RMSEA =0.65, *significant at p<.01

Figure 4: A Path Diagram for the Structural Model

Table 6: Standardized Direct, Indirect and Total Effects of Antecedents of Customer Loyalty

	Service Quality	Service Value	Customer Satisfaction
Direct Effect			
Service Value	.82*		
Customer satisfaction	.54*	.42*	
Customer Loyalty	-.11	.20	.84*
Indirect Effect			
Customer satisfaction	.35*		
Customer Loyalty	.91*	.35*	
Total effect			
Service Value	.82*		
Customer satisfaction	.89*	.42*	
Customer Loyalty	.80*	.55*	.84*

*p≤ .01
*Total effects = Direct effects +Indirect effects

These findings support hypotheses 1a and 1b, but not 1c. Furthermore, Customer satisfaction has a direct positive effect on customer loyalty (β= 0.84, p<.01), supporting hypothesis 2A. Service value has a direct positive effect on customer satisfaction (β= 0.42, p< .01), supporting hypothesis 3a. While the direct relationship between service value and customer loyalty was not significant (β = 0.21, n.s.), thus hypothesis 3b was not supported (Table 7).

The results indicate that perceived service quality is indirectly linked to customer loyalty. The direct path was weak and not significant. Conversely, all indirect paths except one, are statistically significant and the strength of each is considerable large. The total indirect effect is .91. This indicates that the service value construct increases the predictive power of the perceived service quality on customer loyalty mediated by customer satisfaction.

Table 7: Hypothesis Testing

Hypothesis	Results
Hypothesis 1a : Web-based library service quality is positively related to customer satisfaction	Supported
Hypothesis 1b: Web-based library service quality is positively related to service value	Supported
Hypothesis 1c: Web-based library service quality is positively related to customer loyalty	Not Supported
Hypothesis 2a : Customer satisfaction is positively related to customer loyalty	Supported
Hypothesis 2b : Customer satisfaction has a mediating effect on the relationship between service quality and customer loyalty	Supported
Hypothesis 3a : Customer value is positively related to customer satisfaction	Supported
Hypothesis 3b Customer value is positively related to customer loyalty	Not Supported
Hypothesis 3c : Service value has a mediating effect on the relationship between service quality and customer loyalty	Supported

Causal Effects of Perceived Service Quality (Hypotheses 1a, 1b and 1c)

Perceived service quality has positive causal effect on customer satisfaction (Hypotheses 1a) and service value (Hypotheses 1b)**.** Thus, both hypotheses 1a and 1b are supported (Table 7). When compared, the impact of service quality on service value is greater than its direct effect on customer satisfaction. This finding supports Landrum et al. (2007), Zhang and Prybutok (2005) and Parasuraman et al. (2005). On the other hand, perceived service quality has no significant direct effect on customer loyalty. This finding is not common in the service quality literature as it is found by many studies that good quality service will make customers return to the service. However, several researchers (Zeithaml et al. 2006; Cronin, Brady and Hult, 2000; Marthensen and Gronholdt 2003) had postulated that service quality did not directly affect loyalty, rather customer satisfaction was a mediator between the two construct.

Causal Effects of Customer Satisfaction (Hypotheses 2a and 2b)

Customer satisfaction has a positive direct effect on customer loyalty (Hypotheses 2a). It is also evident that customer satisfaction fully mediates the relationship between service quality and loyalty (Hypotheses 2b) (Table 7). Results of this study supports that Service quality is an antecedent to customer satisfaction (Cronin and Taylor 1992; Parasuraman et al. 1994; Rust and Oliver 1994, Hernon 2002, Zeithaml et al. 2006 and Wilkins 2007). Dabholkar (1995) had claimed that the relationship is situation specific. In this study customer satisfaction focuses on the overall affective judgment based on collective experiences with web-based library services. Users who feel that the service is efficient and adequately meets the information needs will influence them to use the service more in future and even recommend it to others.

Causal Effects of Service Value (Hypotheses 3a, 3b and 3c)

Service value has a significant positive effect on customer satisfaction (0.42) (Hypotheses 3a). However, service value does not directly affect customer loyalty, (Hypothesis 3b, is not accepted) (Table 7). As for the mediating effect, results show that service value only partially mediates the relationship between perceived service quality and customer loyalty, through customer satisfaction. The indirect path of service value via customer satisfaction on loyalty is 0.35 (Hypothesis 3c). Satisfaction has a higher direct impact on loyalty (0.84). Service value was operationalzed as the services' ability to improve research capabilities and research productivity of the user. When good quality service impacts perception of value, then the user is satisfied and will remain loyal to the library service.

CONCLUSIONS AND FUTURE WORK

The results of this study have mixed support for the basic theoretical propositions in customer loyalty evaluation. Contrary to previous studies, this study shows there is no direct significant effect of web-based library service quality on customer loyalty. The results of the hypotheses testing indicate that both web-based library service quality and service value lead to customer satisfaction; and customer satisfaction then leads to customer loyalty. This result clearly supports that service quality and satisfaction are distinct constructs and that service quality is an antecedent to satisfaction. Another interesting finding is that service value is largely affected by perceptions of quality and is an important determinant of customer satisfaction. Definition of value has always hinged on the trade-off between quality and sacrifice, where sacrifice is usually measure of cost. However, results of this study indicate otherwise. This could be strongly influenced by the fact that library services do not involve any cost incurred by the customer, thus reducing any sacrifice made, except for maybe time and effort. Since value in this study is conceptualized as impact on research and productivity, the value of the service is largely dependent on quality of the service. In theory this finding adds evidence that service quality is an important decision-making criterion for service consumers (Cronin et al. 2000). Contrary to Cronin et al., findings, this study found that service quality only indirectly influences customer loyalty, with service value and customer satisfaction as mediating variables.

One of the main issues here was to determine the antecedents of customer loyalty. The indirect paths between service quality and customer loyalty in this study adds evidence to findings of other studies across industries. It also indicates that studies that examine only the direct relationship between service quality and loyalty are likely to reach incomplete conclusions. This is because customers' decision for repeated use and recommending the service to others is influenced by the value and satisfaction attributes too. Thus, customer's decision making in returning to a service is not a simple process but is significantly affected by service quality, service value and customer satisfaction. A modified empirically validated model is presented in Figure 5.
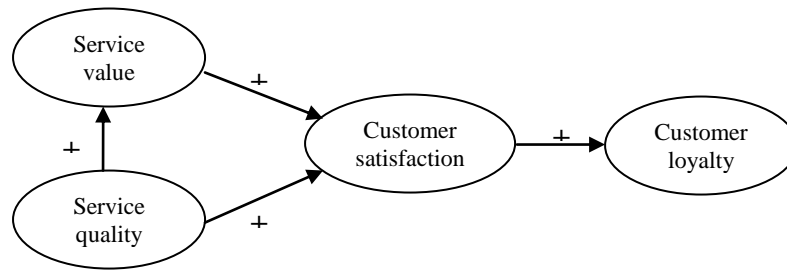
Figure 5: Modified Web-Based Service Quality Model

This study is one of the first to empirically examine the impact of service quality on other constructs such as customer satisfaction, service value and customer loyalty in a single study in an academic library setting. The holistic model for service quality portraying the relationships among the dimensions and other related constructs provides a systematic framework for conceptual and empirical discernment of service quality and its critical dimensions. This study has shown that service quality and customer satisfaction are different construct (Dabholkar and Overby 2005). It supports that satisfaction is a global assessment that follows evaluation of service quality (Lee et al. 2000). The other important finding was that loyalty was influenced by service value and customer satisfaction, but not directly by service quality. This advances our understanding of the role of the role of service quality, value, satisfaction on loyalty. It is concluded that any investigation of customer behavioral intention, including loyalty should take into account the effects of service value and satisfaction as antecedents to decision making (Cronin et al. 2000).

Loyalty of library users is an important issue in academic libraries. Academicians have expressed concern over the dependency of students on Google rather than trusted resources from the library's collection. It is suggested that more studies on service quality and customer loyalty should be undertaken to firmly establish if there is indeed a consistent relationship between service quality and customer loyalty that is mediated by service value and satisfaction. Also, future studies may examining moderating factors that may have an effect on the relationship between service quality and customer loyalty.

Despite these findings, there are some limitations of this study. Firstly, because of practical constraints, a convenience sampling method was used. Two of the universities in this study had higher representation, thus caution must be taken in generalizing the results to a larger population. The negative and non-significant relationship between service quality and loyalty needs to be examined further to understand library users' preferences for information resources. Replication of this study with a different set of subjects, and a randomly selected sample is necessary to confirm these results.

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