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Achieving university libraries user loyalty through user satisfaction: the role of service quality

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ABSTRACT

This study examines the influence of library service quality dimensions (i.e. service affect, information access, library as place, and personal control) on user satisfaction, as well as user satisfaction on user loyalty. Data were drawn from 349 library users from a public university library in Ghana. The hypothesized relationships were analyzed using structural equation modeling. The study revealed that with the exception of library as place all the service quality dimensions had a positive significant relationship with library user satisfaction. The study further established a positive significant relationship between user satisfaction and user loyalty. The practical implication is that the attainment of library user loyalty is possible when the management of libraries improve the level of user satisfaction with services. This study is one of the few on assessing library service quality, customer satisfaction, and user loyalty in a developing country context.

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University library service quality; user satisfaction; user loyalty; LibQUAL; Ghana

Introduction

University (academic) libraries are an integral part of universities all over the world owing to their role in supporting the core mission of universities, which is teaching and research. Inarguably, university libraries help to promote academic and national development by providing information for users, who use them to conduct research. Kiran (2010), describes university libraries as the heart of the learning community, where knowledge is advanced through research. Libraries are important because they serve as information collectors and allow individuals to engage in various forms of knowledge and information sources (Alzahrani et al., 2019).

Despite the tremendous contribution libraries provide, it appears libraries in recent times are faced with challenges such as users resorting to other options such as mega book stores, e-learning platforms, multimedia products, online information providers, document delivery service providers, and other competitive sources of information

(Kassim, 2017). Kiran (2010) asserts that the emphasis placed on virtual information services on the internet creates an urgent need for university libraries to assess the quality of services and also strive to seek ways to improve user satisfaction. This view is also expressed by Adeniran (2011) that academic libraries must strive to satisfy their users to ensure they increase their user base and survive the global digital revolution affecting the way information is created and shared. For academic libraries, user retention is important to justify future public funding (Helgesen & Neset, 2011).

To ensure the satisfaction of university library services, it is crucial to measure the level of library service quality to determine what service issues to improve upon. The measure of service quality of libraries has been done using traditional service quality measure prominently the number of its collections, size of library holdings, and counts of its use (Nitecki, 1996). To find an alternative way to measure library service quality, the SERVQUAL model was deemed appropriate as it possesses the ability to monitor library quality (Nitecki, 1996; Nitecki & Herson, 2000). Studies on library service quality have been found to use the SERVQUAL model (e.g. Gathoni & Van der Walt, 2019; Kiran, 2010). Apart from the SERVQUAL model, the LibQUAL model has been used as a common measure of library service quality. The LibQUAL model was developed by the Association of Research Libraries (ARL) in collaboration with Texas A&M University (Thompson et al., 2000). The model seeks to develop a systematic measure of library service quality because it sufficiently measures the unique service features in the library settings (Thompson et al., 2002). The model consists of four dimensions namely, service affect, personal control in pursuing information, information access, and library as place.

Several studies have used the LibQUAL model to measure the service quality of libraries in many contexts (e.g. Dahan et al., 2016; Pedramnia et al., 2012). However, there exist relatively few studies in developing countries that have investigated this (e.g. Haruna et al., 2017). Consequently, there seems to be a paucity of research on measuring the level of service quality of libraries in developing countries. This study, therefore, seeks to test the dimensions of service quality of libraries using the LibQUAL model in a developing country (specifically Ghana). This is justified because, since the introduction of the LibQUAL model not much academic attention has been given to using it to measure library service quality in Ghana. This attempt to measure library service quality in Ghana contributes to the knowledge on marketization of higher education in developing country context (Maringe & Mourad, 2012).

There is also extensive concentration by researchers to measure the level of library service quality (e.g. Cook & Heath, 2001; Thompson et al., 2003). Ladhari and Morales (2008) explain that the focus of these researchers on measuring service quality of libraries is in line with the proposal by the Association of Research Libraries to develop a standardized measure of library quality – LibQUAL model. The focus has therefore been on using the model to measure the level of service quality. However, the relationship between service quality and other marketing outcomes such as customer satisfaction, and customer loyalty has also been widely proposed by researchers (Lee et al., 2019; Ali et al., 2016). This study extends the research stream on library service quality by including user satisfaction and loyalty. This approach will improve knowledge on whether the service quality of libraries affects user satisfaction, and also how user satisfaction affects user loyalty in the library context. It is suggested that user satisfaction depends

on the quality of service provided by libraries (Dahan et al., 2016; Pedramnia et al., 2012), leading to user loyalty (Helgesen & Nettet, 2011; Martensen & Grønholdt, 2003).

An attempt is being made to promote marketing orientation in library management. Academic libraries are considered as non-for-profit but are gradually developing a culture for marketing (Weinstein & McFarlane, 2017). Guilbault (2016) proposes that students must be regarded as customers in higher education. The recognition of higher education service users as customers has made customer satisfaction and loyalty important marketing outcomes (Helgesen, 2008; Paswan & Ganesh, 2009). In the same way, library users must be regarded as customers, who are seeking a better alternative to accessing information. Research is needed to prove that the efforts put in by library management to improve service quality has marketing implications in improving user satisfaction and user loyalty.

Based on the foregoing discussion, this paper first attempts to contribute to the literature by testing the LibQUAL model on users of academic libraries in Ghana. The second aspect of this study examines the direct effect of service quality of academic libraries on user satisfaction and whether user satisfaction affects user loyalty. This study comes close to a study by Helgesen and Nettet (2011), which validated the LibQUAL scale within the theoretical satisfaction-image-loyalty framework in a university library. This is to address the paucity of research on the link between library service quality, user satisfaction, and user loyalty in a developing country context using a reputable public university in Ghana. The implication of this research is to promote marketing orientation among the management of libraries of higher education institutions.

Literature review

Library service quality

Service quality is 'the overall evaluation of a specific service firm that results from comparing that firm's performance with the customer's general expectations of how firms in that industry should perform' (Parasuraman et al., 1988, p. 15). Service quality is the outcome of the comparison that customers make between their service expectations and their perceptions of the actual service delivered (Caruana, 2002). In line with the focus on customer expectations, this study defines library service quality as 'the overall excellence of library services that satisfy user's expectation' (Wang & Shieh, 2006, p. 195).

The measure of service quality in the marketing literature is attributed to the work of Parasuraman et al. (1985; 1988), which led to the development of five components: tangibles, reliability, responsiveness, assurance, and empathy. Grönroos (1984) also provides a different dimension to service quality by introducing two aspects of service quality namely: the technical outcome (what customer receives) and the functional aspect (process the service was delivered) of service quality. Grönroos (1984) asserts that since services require higher consumer involvement, the consumer will experience the service and will be able to evaluate service performance as against the expected. These studies attempt to provide a simple model to understand service quality. Seth et al. (2005) assert that service quality models aid managers to understand and enhance the quality of organizations' services. The understanding of what constitutes service quality is crucial in ensuring firms focus on quality improvement efforts (Ghobadian et al., 1994).

Given this, proponents of other service quality measurement models including HedPERF (Abdullah, 2006) and HOLSERV (Mei et al., 1999) advocate for the use of context-specific service quality measurement models.

In measuring library service quality, the SERVQUAL model developed by Parasuraman et al. (1985, 1988) has extensively been used to measure the service quality of libraries. Apart from the SERVQUAL, the LibQUAL model has gained much research attention. Notwithstanding the dominance of the SERVQUAL model and the LibQUAL model, other library service quality measures such as the LibWebSQ developed by Kiran and Diljit (2012) has been used to measure web-based service quality in the library setting (e.g. Haruna et al., 2017). Other forms of measurement of library service quality continue to emerge, for instance, the use of the decision-making trial and evaluation laboratory (DEMATEL) approach by Chen (2016), and the use of the Technology Acceptance Model (TAM) to determine the satisfaction and loyalty of library users by Xu and Du (2018).

As stated earlier, the LibQUAL model has become a common scale used by researchers to measure library service quality. The model was introduced by the Association of Research Libraries (ARL) in collaboration with Texas A&M University in 1999 in an attempt to develop a standardized measure of library services. The result of this project is an instrument named the LibQUAL model which measures library users' evaluations of service quality on four dimensions: Service affect, Library as Place, Personal Control, and Access to Information (Roszkowski et al., 2005).

The LibQUAL scale is justified in the sense that, in the digital era, collection counts are no longer viable as the sole metric for measuring library quality, and also quality must be measured from the perspective of the library user (Thompson et al., 2008). There has been a drastic increase in the use of the LibQUAL model in the measurement of library service quality (e.g. Selga-Cristobal, 2018; Dahan et al., 2016; Pedramnia et al., 2012). The web-based libQUAL (LibQUAL+™) was introduced to enable a large-scale protocol to enhance the administration of the library service quality survey across institutions (Cook et al., 2003). The LibQUAL+™ has been used to examine the link between service quality, satisfaction, and loyalty of university libraries (Helgesen & Nettet, 2011). The LibQUAL+™ according to Cook et al. (2003) consists of 25 items that measure library user perceptions of service quality using the following four dimensions:

- (1) *Service affect* – relates to the human side of libraries consisting of traits of empathy, personal competence, and accessibility.
- (2) *Library as place* – consisting of various issues from the users' perspective on the space of study and collaboration, a sanctuary for contemplation and reflection.
- (3) *Information access* – library users' assessment of the adequacy of library collections, and their ability to have access to needed information conveniently or regardless of the medium of the resource in question.
- (4) *Personal control* – the extent to which library users are able to navigate and have control of the information provided by the library on the internet.

Customer satisfaction

Customer satisfaction is defined as 'the consumer's fulfillment response, which is a judgement that a product or service feature provided, or is providing a pleasurable level of

consumption-related fulfillment, including levels of under- or over-fulfillment' (Oliver, 2010). Chu (2002) through the lens of the expectancy disconfirmation theory by Oliver (1980) explains that a measure of a customer's pre-purchase expectations and post-purchase evaluation can lead to a positive disconfirmation (when performance is better than expected), or a negative disconfirmation (when service performance is less than expected). In the library context, the level of fulfillment, that is whether users are under-fulfilled, or over-fulfilled is a key measure of satisfaction. Customer satisfaction, refers to in this study as user satisfaction is defined as 'the levels of service quality performance that meets users' expectation' (Wang & Shieh, 2006, p. 197). This study considers satisfaction to mean delivering services to consumers to a point where they feel fulfilled.

Customer satisfaction and service quality are closely related as they all involve evaluation of expectation of quality and actual quality but are not interchangeable (Cronin & Taylor, 1992; Jiang & Zhang, 2016; Yi & Natarajan, 2018). The Theory proposes that customer satisfaction is an antecedent of perceived service quality (Cronin & Taylor, 1992). Managing perceived service quality requires that firms must match the expected service and perceived service in an attempt to achieve customer satisfaction (Seth et al., 2005). To ensure repurchase behavior (loyalty) through service quality, studies have proposed that customer satisfaction plays a mediating role (Caruana, 2002; Taylor & Baker, 1994). Caruana (2002) explains that the process starts with ensuring there is service quality, which leads to customer satisfaction and further affecting customer loyalty. In the library context, the theory has an implication on library management. The library services reuse behavior is regarded as an effect of their satisfaction with the service provided. It is proposed that satisfaction is an outcome of perceived service quality of library services. It is therefore expected that service quality will lead to user satisfaction, which tends to affect user loyalty of libraries.

Customer loyalty

The main thrust of the marketing activities of a firm is to enhance customer loyalty towards its products (Dick & Basu, 1994). Customer loyalty is the primary attitude that leads to a relationship with a brand, which is mainly expressed in behavior such as past purchases (Uncles et al., 2003). Customer loyalty is very important to service organizations as they dedicate their efforts to building and strengthening the relationship with customers (Selga-Cristobal, 2018) and regarded as an important marketing outcome in higher education (Dollinger et al., 2018; Mazzarol et al., 2001). Customer loyalty in this study stands for library user loyalty. The loyalty to library service is described as a long-term relationship, which leads to future use and user recommendation (Martensen & Grønholdt, 2003). The fulfillment of the core service expectations above a minimum level may only determine the level of user satisfaction, but not a long-term relationship.

Kiran and Diljit (2011) state that the loyalty of libraries is explained by the likelihood that users will revisit and will recommend others to use the services. Also, Haruna et al. (2017) assert that library user loyalty is important because the ultimate goal of libraries is to maintain library user loyalty, gain word-of-mouth, and referrals, leading to increased patronage. In the library context, continuance purchase is better referred to as revisit, and willingness to promote the company brand is the recommendation of the library to others (Tan et al., 2017). The description of library user loyalty as using the library-related services aside from

borrowing books; encouraging friends and colleagues to patronage the service of the library; making positive comments about the library; and recommending the library to others who seek advice (Selga-Cristobal, 2018) is a suitable way to describe the goal of non-for-profit libraries and libraries in higher education institutions.

Hypotheses development and research model

A meta-analysis of research in higher education found service quality as an important determinant of student satisfaction (Santini et al., 2017). Service quality dimensions of the LibQUAL model have been measured against user satisfaction. The specialized level of knowledge by librarians is found to be an important issue for users (Pedramnia et al., 2012). Helgesen and Nettet (2011) and Choshaly and Mirabolghasemi (2019) found that service affect has a significant relationship with library user satisfaction. In addition, Martensen and Grønholdt (2003) found that the human side of library service delivery affects user satisfaction. This leads to the hypothesis that:

H1: Service affect predicts library user satisfaction

A study by Pedramnia et al. (2012), indicates that library as place measurement items such as proper lighting, proper ventilation, making the room a quiet study environment and single seats for study are important for users. The study of Kassim (2017) found the library environment (infrastructure, place, and space) as the dimension users were most satisfied with. Pedramnia et al. (2012), Helgesen and Nettet (2011), and Choshaly and Mirabolghasemi (2019) found there is a positive significant relationship between library as place and user satisfaction. The library environment was found to be related to user satisfaction (Martensen & Grønholdt, 2003). The following hypothesis is proposed:

H2: Library as place predicts library user satisfaction

The availability of a collection of printed publications was found to affect user satisfaction (Martensen & Grønholdt, 2003). After library environment, the study of Kassim (2017) found collection/information as the most important service library users are satisfied with. Electronic resource was found to affect user satisfaction (Martensen & Grønholdt, 2003). A study by Choshaly and Mirabolghasemi (2019) found informational control to have a significant impact on satisfaction. However, the study of Helgesen and Nettet (2011) found that informational control did not influence user satisfaction. The relationships identified in literature leads to the following hypotheses:

H3: Information access predicts library user satisfaction

H4: Personal control predicts library user satisfaction

Research has conceptualized the effect of customer satisfaction on behavioral intentions (Cronin et al., 2000; Hapsari et al., 2017). In the higher education context, Pedro et al. (2018), and Clark et al. (2017) assert that satisfaction is important in building relationships among partners (e.g. students and university). Previous studies have found that user satisfaction of library services has a significant positive relationship with user loyalty (Selga-Cristobal, 2018; Haruna et al., 2017; Kiran & Diljit, 2011; Tan et al., 2017). However, a study by Helgesen and Nettet (2011) found that user satisfaction has no significant relationship

with library loyalty. Meanwhile, the satisfaction-loyalty theoretical framework suggests that there is a positive relationship between customer satisfaction and customer loyalty in many instances. It is, therefore, hypothesized that:

H5: Library user satisfaction predicts user loyalty

Research model

The proposed research model in [Figure 1](#) explains the theoretical relationship that library service quality affects user satisfaction. Also, user satisfaction is proposed to influence user loyalty.

Method

Research context

The context of this study is a public university library in Ghana. The university is a leading university offering various undergraduate and postgraduate programmes. The library serves as the central library management of the university providing services to students (graduate and undergraduate), academic staff, and administrators. The university library is open to all students, employees, and visitors. However, the study survey was among current students, researchers, and administrators of the university.

A descriptive research approach was used. A convenience sampling enabled researchers to select respondents who have used the library and therefore are familiar with the

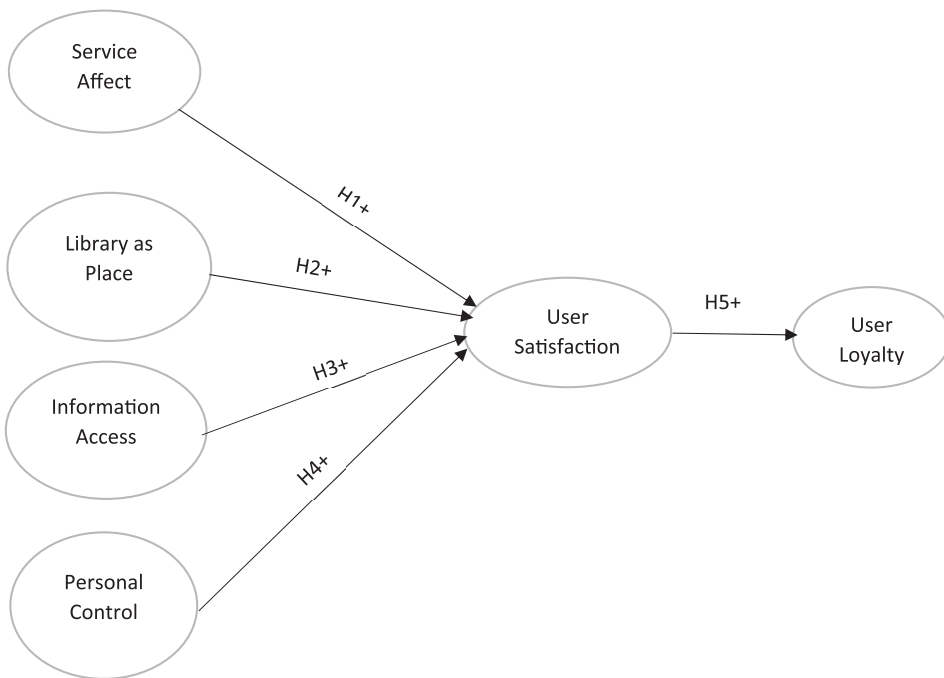


Figure 1. Research model.

services provided. Conveniently available library users were used since it was difficult to obtain data on library users. Also, there was no data to help identify the library users making it difficult to know whether the individual has used the library before or not. To overcome the challenges of using this approach, the researchers only used participants who visit the library. We also ensured that participants were members of the university. To resolve this, researchers have used convenience sampling to select respondents at library premises to ensure they are users of the library (Bakti & Sumaedi, 2013); Dahan et al., 2016; Choshaly & Mirabolghasemi, 2019). The library users who volunteered to be part of the study were included in the survey.

A total of 400 questionnaires were distributed to library users from August 5, 2019, to August 15, 2019, at the main library of the university. The survey questionnaires were on paper, and researchers ensured participants returned them before leaving the library. Out of the 400 questionnaires administered, 349 completed questionnaire forms were returned and found usable. This represents a high response rate of 87.25 percent. This sample size considering the maximum number of inner model paths directed at a particular construct in the model makes it sufficient (Hair et al., 2014).

Variable and measure

The survey instrument was developed using 25 questions adopted from the LibQUAL+™ scale (Cook et al., 2003; Thompson et al., 2002). A five-point Likert scale including four dimensions of library service quality: service affect ('willingness to help users'), library as place ('a haven for quiet and solitude'), information access ('comprehensive print collection' and convenient business hours), and personal control (website enabling me to locate information on my own) were used to measure library service quality. The reliability of the items of the LibQUAL+™ scales was performed by Thompson et al. (2002). The reliability scores are service affect (.948), library as place (.929), information access (.766), and personal control (.878). 3 items measuring user satisfaction were adapted from the study of Martensen and Grønholdt (2003). The measure of library user loyalty was done using 2 items from the study of Martensen and Grønholdt (2003) and used by Bakti and Sumaedi (2013) with a reliability of 0.72. The wording of the scale items was edited keeping the meaning intact to ensure clarity.

Reliability analysis was conducted to determine which items must be retained in measuring a latent variable. In PLS approach, the outer loadings of an indicator must be 0.7 or higher (Wong, 2016). Six indicators (SA1, SA9, LP3, PC2, IA3, IA5) from the 25 item LibQUAL+™ scale that did not meet this threshold were deleted. Therefore, 19 items on the LibQUAL+™ were retained for the structural model. The items were measured on a five-point Likert Scale where 1 means strongly disagree and 5 means strongly agree. The responses provided using the Likert scale are averaged.

The analytical approach

To test the hypotheses proposed, this study used the partial least squares structural equation (PLS-SEM) approach using SmartPLS 3. SEM enables marketers to visually examine the relationship that is present among variables to aid in prioritizing the marketing efforts to improve customer service (Wong, 2013). The steps used in the analysis of the

data follows the basic elements in reporting a reflective measurement model including an explanation of the target endogenous variable variance, inner model path coefficients and significance, outer model loadings and significance, reliability and validity, and checking structural path significance in bootstrapping (Wong, 2013).

Results

The respondent profile

The study was conducted in a university library using 349 respondents. The study involved 158 males and 191 female respondents. Three main users of the university library were included in the sample. There were 237 students, 58 academic staff, and 54 administrative staff. The study, therefore, includes different users of the university library. On the frequency of use of the library, 163 respondents indicated they use the library once a week, 93 respondents use the service several times a week, 71 respondents use the service less than once a week, and 23 respondents use the library daily. This shows the respondents used in this study are regular users of the university library (see Table 1).

Descriptive analysis

The items measuring Service Affect indicate that study participants consider the library staff: are willing to help users, are constantly courteous, and give users individual attention, deal with users in a caring fashion, and have the knowledge to answer questions. However, the level of these service quality perceptions are not very high. The ability of the library staff to instill confidence and handle service problems were seen to be low. Also, library as place items indicates that the study participants consider the library as having, a space that facilitates a quiet study. The responses show there is a moderate agreement on the accessibility of library electronic resources at home or in the office. Also, most respondents did not strongly agree that the library website enables them to locate information on their own. There seems to be a low agreement to the question on whether there exist modern equipment to allow users to access the information they need (see Table 2).

Apart from respondents indicating there is a limited use of modern equipment that helps users to access information, there is the perception that the library, provides

Table 1. Profile of respondents.

Demographic	Frequency (n=349)	Percentage (%)
Gender		
Male	158	45.3
Female	191	54.7
User		
Student	237	67.9
Academic Staff	58	16.6
Administrative Staff	54	15.5
Rate of Library Use		
Less than once a week	71	20.3
Several times a week	93	26.6
Once a week	163	46.4
Daily	23	6.6

Table 2. Descriptive statistics.

	Items	Mean	SD
Service Affect			
SA1	The library is willing to help users	3.943	0.852
SA2	The library gives users individual attention	3.659	1.034
SA3	The library employees deal with users in a caring fashion	3.510	0.958
SA4	The library employees are consistently courteous	3.639	0.891
SA5	The library employees have knowledge to answer questions	3.587	0.917
SA6	The library employees understand need of users	3.728	0.892
SA7	The library employees are ready to respond to users' questions	3.819	0.840
SA8	The library employees instill confidence in users	3.407	0.974
SA9	I can depend on library to handle service problems	3.330	0.970
Library as Place			
LP1	The library is a haven for quiet and solitude	4.063	0.732
LP2	The library is a meditative place	3.900	0.847
LP3	The library is contemplative environment	3.464	0.924
LP4	The library has a space that facilitates a quiet study	4.089	0.878
LP5	The library is a place for reflection and creativity	3.696	0.925
Personal Control			
PC1	The library website enables me locate information on my own	3.487	1.082
PC2	The library electronic resources are accessible at home or in the office	2.797	1.246
PC3	The library has accessible tools to help me find information on my own	3.645	0.953
PC4	The library has modern equipment that helps me to access information I need	3.272	1.068
PC5	I am able to easily access information from the library for use	3.676	0.831
PC6	I can conveniently access library collections of information	3.708	0.777
Information Access			
IA1	The library as a comprehensive collection of information	3.794	0.775
IA2	The library has information on many topical issues	3.788	0.865
IA3	The library address interdisciplinary needs	3.722	0.831
IA4	The library provides timely document delivery	3.415	0.933
IA5	The library opens at convenient hours	3.716	0.996
Satisfaction			
SAT1	Considering all my experience with the library, I am very satisfied with the services	3.622	0.864
SAT2	The library fulfills my expectations	3.487	0.912
SAT3	I consider the library to be close to an ideal library	3.539	0.923
Loyalty			
LOY1	I will use more of the library services in future	3.880	0.873
LOY2	I would recommend the library to other users	3.997	0.908

comprehensive collection of information, has information on many topics, addresses interdisciplinary needs, and opens at convenient hours. However, respondents do not think the library provides documents in a timely manner. Generally, respondents are satisfied with the services of the library. The items measuring user loyalty indicate there is a high level of loyalty among respondents.

Measurement model

Table 3 presents the results of the reliability and validity analysis. Traditionally, the Cronbach's Alpha is used to measure the internal consistency reliability, however, in PLS-SEM, Composite Reliability is used (Hair et al., 2012). This is because Cronbach's Alpha produces lower values, and it is the least precise measure of reliability (Hair et al., 2019). It is recommended that a Composite Reliability greater than or equal to 0.7 is preferred (Bagozzi & Yi, 1988). From the results, all Composite Reliability values are higher than 0.7, meaning high levels of consistency reliability is demonstrated among latent variables. The indicator reliability for all the indicators is much higher than the minimum acceptable level of 0.4 (Hulland, 1999). Six of the indicators (SA1,

Table 3. Reliability and validity.

	Factor Loadings	Indicator Reliability	Composite Reliability	Average Variance Extracted (AVE)	R Square
Service Affect					
SA2	0.720	0.518			
SA3	0.713	0.508			
SA4	0.761	0.579			
SA5	0.745	0.555	0.894	0.547	
SA6	0.767	0.588			
SA7	0.762	0.581			
SA8	0.708	0.501			
Library As Place					
LP1	0.732	0.536			
LP2	0.742	0.551			
LP4	0.800	0.640	0.838	0.565	
LP5	0.730	0.533			
Personal Contact					
PC1	0.745	0.555			
PC3	0.809	0.654			
PC4	0.781	0.610	0.889	0.616	
PC5	0.808	0.653			
PC6	0.778	0.605			
Information Access					
IA1	0.815	0.664			
IA2	0.836	0.699	0.843	0.643	
IA4	0.752	0.566			
Satisfaction					
SAT1	0.865	0.748			
SAT2	0.868	0.753	0.884	0.719	0.589
SAT3	0.808	0.653			
Loyalty					
LOY1	0.909	0.826	0.921	0.854	0.457
LOY2	0.939	0.882			

SA9, LP3; PC2, IA3, IA5) were deleted and therefore were not included in the measurement of the model.

The convergent validity of latent variables was also checked. Bagozzi and Yi (1988) propose that Average Variance Extracted (AVE) should be 0.5 or higher. From the results, all the AVE values are greater than the acceptable level, meaning a convergent validity is confirmed. This depicts that the variables used in the study had more than 50% of their variance explained by their corresponding indicator. Using the Fornell-Larcker test (see Table 4), discriminant validity was established since all the AVEs of latent variables were greater than their correlations with other variables (Wong, 2013).

Table 4. Fornell-Larcker criterion.

	Information Access	Library as place	Loyalty	Personal Control	Satisfaction	Service Affect
Info Access	0.802					
Library as Place	0.435	0.751				
Loyalty	0.547	0.443	0.924			
Personal control	0.656	0.400	0.577	0.785		
Satisfaction	0.621	0.416	0.676	0.651	0.848	
Service affect	0.465	0.405	0.560	0.506	0.638	0.740

Assessment of the structural model

To test the significant level of the various hypotheses proposed, the t-statistics using bootstrapping was used (Wong, 2013). The path coefficients of the inner model were considered to detect a significant level. The study hypothesized that the four (4) dimensions of the LibQUAL model, which are service affect, library as place, information access, and personal control are statistically significant (H1 to H4) with user satisfaction. The study also hypothesized that user satisfaction of library services has a statistically significant relationship with library user loyalty (H5). The coefficient of determination, R^2 , is 0.589 for the user satisfaction endogenous latent variable. This means that the dimensions of the library service quality (service affect, library as place, information access, and personal control) moderately explains 58.9% of the variance in user satisfaction. R^2 of 0.457 for user loyalty endogenous latent variable means that satisfaction of library services explains 45.7% of the variance in loyalty. With a significant level of 5%, and t-statistics larger than 1.96, the study found that library as place and satisfaction linkage ($t = 1.046$) is not significant. This means that *H2* was not supported. Apart from this, all the t-statistics for service affect → user satisfaction (7.021), information access → user satisfaction (4.434), personal control → user satisfaction (5.235), and user satisfaction → user loyalty (21.209) are greater than 1.96, meaning these hypotheses (*H1*, *H3*, *H4*, and *H5*) are supported. The model results indicate that service affect has the strongest effect on user satisfaction (0.357), followed by personal control (0.292), and information access (0.242). A path coefficient of 0.050 is an indication that the relationship between library as place and user satisfaction is not statistically significant (Figure 2 and Table 5).

Discussions

This study examines the effect of library service quality on user satisfaction, and a direct link between user satisfaction and user loyalty using the theoretical perspective of service quality – satisfaction- loyalty link. The survey results provide some evidence of how library users perceive the service quality delivered. From the study findings, there are perceptions of high service quality of the services provided by the university library. The highest agreement to the service quality question on information access is 'library provision of comprehensive collection of information'. On library as place, library users perceive that the library provides space to facilitate a quiet place for study. The library users also see staff as ready to respond to user questions. The study also found that users perceive the library to provide convenient access to library collection of information. The users of the library indicated they are satisfied with the service experience. They also expressed willingness to recommend the library services to others. The library users seem not to perceive there is a better service in terms of timely delivery of documents.

There is empirical evidence to suggest that there is no statistical direct relationship between service quality and user loyalty in the library context (e.g. Bakti & Sumaedi, 2013). However, the literature suggests that there is a direct relationship between the perception of service quality and user satisfaction of library services (Bakti & Sumaedi, 2013; Kiran & Diljit, 2011). Given this, the study sought to examine the effect of library service quality on loyalty via satisfaction. The LibQUAL model has been used to examine the

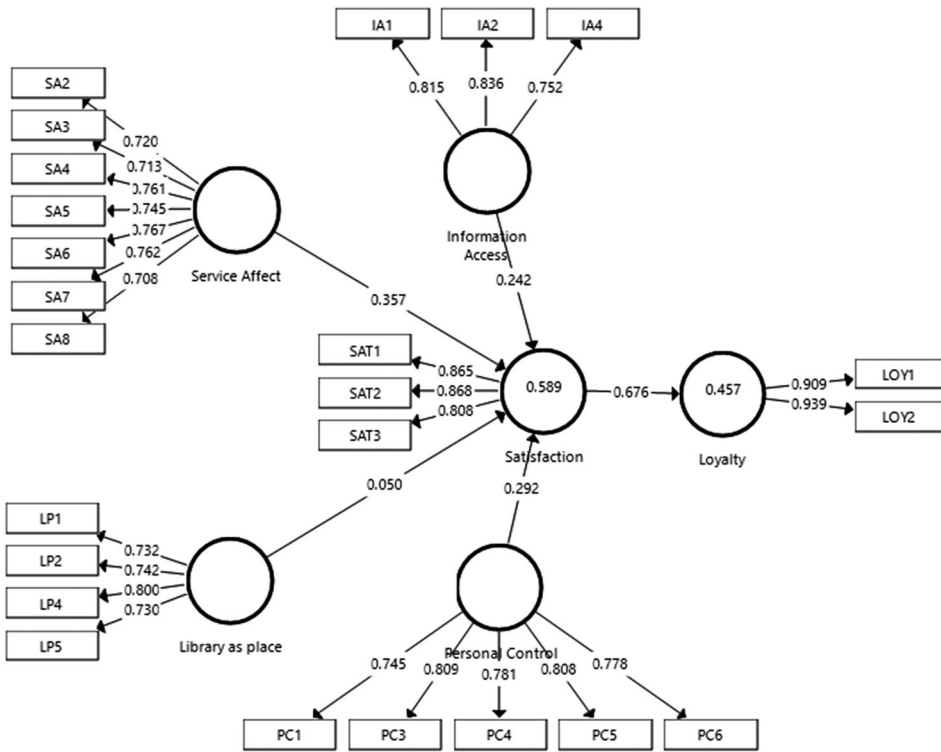


Figure 2. Structural model and path coefficient.

Table 5. T-Statistics of path coefficients.

Relationship	Path Coefficient	T Values	P Values	Decision
Service affect → Satisfaction (H1)	0.357	7.021	0.000	Supported
Library as Place → Satisfaction (H2)	0.050	1.046	0.296	Not supported
Information Access → Satisfaction (H3)	0.242	4.434	0.000	Supported
Personal Control → Satisfaction (H4)	0.292	5.235	0.000	Supported
Satisfaction → Loyalty (H5)	0.676	21.209	0.000	Supported

level of service quality and also the effect of service quality on user satisfaction (Choshaly & Mirabolghasemi, 2019).

The finding suggests service affect has a significant and positive relationship with user satisfaction. This variable has the strongest effect on user satisfaction. This means that the ‘people’ factor in service delivery is an important aspect of service delivery in the library setting. The ability of the library staff to deliver service to the expectations of library users affects the level of satisfaction. This finding is parallel with other studies that regard service affect as an important determinant of library user satisfaction (e.g. Choshaly & Mirabolghasemi, 2019; Helgesen & Nettet, 2011). From the LibQUAL scale, the service affect issues include staff giving individual attention, being continuously courteous, having adequate knowledge about services, understanding of users, and being ready to respond to questions (Thompson et al., 2002). To ensure there is an improvement in

service quality, various activities must be performed by the library staff. The employees are considered as an integral part of the library service, which is a typical phenomenon about services.

The study reveals that library as place does not affect library user satisfaction. This result can be explained using the assertion by Kiran (2010) that issues of tangibles in library studies have usually received low importance by users. This result is not in line with that of Choshaly and Mirabolghasemi (2019), who found that library as place is a predictor of user satisfaction. Also, Kassim (2017) finds that library users are satisfied with library that has a clean environment, appropriate lighting, secure and safe, a place to concentrate, and a convenient location. Despite the results of this study, there is a need to have good facilities and equipment in place to support learning and research. The library as place also emphasizes the need to have a conducive learning environment on campus. Library management having a good library environment that is quiet and solitude, meditative place, a space that facilitates a quiet study, and a place that offers a place for reflection and creativity is still an expectation by users. Kiran (2010) asserts that much attention should still be given to issues of tangibles as users still expect them to be provided since library users still visit to use photocopy machines, printers, and computers.

The study finds that information access has a significant relationship with library user satisfaction. This finding is supported by the study of Kassim (2017) that the availability of information in the library affects the satisfaction of library users. This result is also supported by the study of Martensen and Grønholdt (2003), that collection of publication and electronic resources have a significant effect on user satisfaction. From the model, this variable had the third strongest effect on user satisfaction.

The study result also supports the hypothesis that personal control affects library user satisfaction. This result does not support that of Helgesen and Nettet (2011) which found that information control is not statistically related to user satisfaction. However, Choshaly and Mirabolghasemi (2019) found that information control affects user satisfaction. Libraries must give the opportunity to users to manage their information search. Libraries that enable the user to locate information on their own and have accessible tools to help them find information on their own will ensure the users gain the needed satisfaction. The information control in the view of Helgesen and Nettet (2011) enables a cost-effective way to access information. A gradual shift to include digital content such as electronic resources is very crucial in enhancing the level of service quality (Choshaly & Mirabolghasemi, 2019).

The result supports *H5* that user satisfaction of the library affects user loyalty. This result is supported by studies of Selga-Cristobal (2018), Helgesen and Nettet (2011), Martensen and Grønholdt (2003). The study of Bakti and Sumaedi (2013) found that service quality affects user loyalty via user satisfaction. User satisfaction is therefore regarded as having a direct effect on user loyalty. This is important to library management in higher education institutions given that improving the level of user satisfaction is an impetus to enhance the level of user loyalty.

Theoretical and managerial implications

The findings reveal that the service quality dimensions of service affect, information access, and personal control were found to have a significant relationship with user

satisfaction. Library as a place was found not to have a significant relationship with user satisfaction. The study also found user satisfaction has a significant relationship with user loyalty. The findings suggest that improving the service quality of libraries leads to the attainment of user satisfaction. The behavior of library staff, information access, and personal control are areas managers of libraries must focus on as these variables affect user satisfaction. Library as place is not a predictor of user satisfaction, which may be due to the perception that users may not have much concern about the library environment but other aspects of the service delivery. These findings demonstrate the theoretical direct link between service quality and customer satisfaction (e.g. Brady & Robertson, 2001; Caruana, 2002). The improvements in the various aspects of library service quality affect the level of satisfaction of users. The study also shows that there is a link between user satisfaction and user loyalty in the library service context.

The study emphasizes the need to continuously measure the level of library service quality. A good way to do that is to adopt the LibQUAL model. This will enable library management to measure different aspects of service delivery ranging from library staff (service affect) the library environment (library as place), information access, and personal control. The management of libraries must consider many service quality issues to measure the level of service delivery from the perspective of the users. The regular examination of library quality will help detect service challenges using the rating by users. This would help in developing action plans that seek to improve service quality, leading to user satisfaction. The role played by library personnel is an important issue to consider. Users need assistance from library employees, therefore the ability of staff to help users to access services must be improved. The opportunity offered to users to have control over information using electronic means is also a current issue of concern. University libraries must move to upgrade digital access to information. Libraries must also have available to users, a collection of information on many topics and disciplines. Users must find the library useful in providing them access to information for their research. To achieve user loyalty for their library service, attempts must be made to achieve user satisfaction through high service quality.

Conclusions, limitations, and future research

Empirical studies on library service quality have been concentrated in developed countries. The attempt to develop a measurement scale (LibQUAL) for library service quality had been promoted and replicated in the developed world. There is a need to use this scale to examine service quality in other contexts. Apart from the little use of the scale, not much attention has been given to how library service quality dimensions of the LibQUAL model affect user satisfaction. There is also a lack of adequate research on the relationship between user satisfaction and user loyalty of library services.

Specifically, this study uses the LibQUAL model to measure the service quality of library services of a public university in Ghana. It also examines the relationship between the dimensions on the LibQUAL scale and user satisfaction. Also, the study takes a look at the relationship between library user satisfaction and loyalty. The understanding of the satisfaction-loyalty nexus introduces a strategic phase in library management in higher education institutions towards the use of effective marketing practices to enhance user satisfaction and user loyalty. Also, the paper acknowledges that service quality variables

have the potentials to increase user satisfaction confirming the theory showing the link between service quality, user satisfaction, and user loyalty in the context of university libraries. The findings of this study is to help university libraries on how to use service quality practices to revitalize the patronage of services in the wake of increasing competition. The satisfaction of library services could be a way to contribute to the overall university service experience. A determination that service quality affects user satisfaction reechoes the need for the adoption of customer value creation through library services in higher education institutions.

There is a need to provide some highlights on the study limitations. The first issue is the use of survey data from convenience sampling due to difficulty in obtaining data on library users in the university. Future research must seek to address the sampling issues and increase the sample size to ensure the representativeness of all library users in a university. Future studies could include library users from other university libraries. Also, the LibQUAL model is a good measure of library service quality and could be used by library managers to examine the level of service quality. Other variables such as university image, library brand image, trust, and perceived value could be included in the study of service quality-satisfaction-loyalty relationship in the library context. These research directions will help improve the understanding on factors leading to library user loyalty.

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No potential conflict of interest was reported by the author(s).

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