



**Measuring Service Quality and Satisfaction
on User-focused Marketing
in Academic Libraries of Bangladesh**

**By
Muhammad Jaber Hossain**

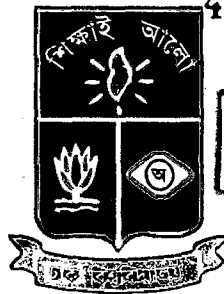
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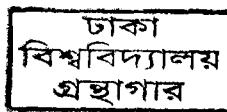
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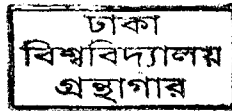
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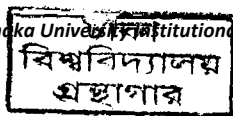
Certificate

This is to certify that the thesis entitled "Measuring Service Quality and Satisfaction on User-focused Marketing in Academic Libraries of Bangladesh" submitted by Muhammad Jaber Hossain for the degree of Doctor of Philosophy is a bonafide record of research done by him under my supervision. To the best of my knowledge this thesis contains no material which has been accepted for the award of any other degree, diploma or fellowship in any university, and not previously published by any other person or corporate body in any journal or publication except where due acknowledgement has been made.

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Professor M. Nasiruddin Munshi, PhD
Supervisor



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(Muhammad Jaber Hossain)

Abstract

Keywords

Service quality, User satisfaction, User-focused marketing, Academic library, Bangladesh.

Delivering consistently good service quality is an essential and difficult challenge for service organizations more particularly in 21st century's academic library market place. Developing an understanding of how users of academic libraries in Bangladesh perceived with their library service performance as a whole, and how their expectations influence on library service quality and satisfaction, to what extent the university libraries of Bangladesh meet their users' needs and expectations, why dissatisfaction may frequently happen, and finally to understand the measure of priority to improve service performance is the limelight of this research. At the outset, literature from the marketing fields was reviewed and integrated to develop insights regarding the key subject matter. With regard to prior methodological aspects several deficiencies were uncovered. To change over the operational deficiency of the prior methods for instance: regarding modified SERVQUAL instrument for library settings, use of difference score in service gap analysis, and in expectancy disconfirmation theory in detecting service quality and satisfaction ranking, this research provides significant implications and impacts on three major aspects: theoretical contribution, robustness of research methodology, and practical aspects of the research.

One of the key contributions of this research is the establishment of a new scale namely "Real service expectation" for conducting SQ-S assessment. In perspective of major findings, the results of EFA and Person's Correlation indicated that service quality of academic library and concerned user satisfaction is related to four dimensions i.e. caring, competence, resources and library as a place. Results of Linear Regression analysis demonstrated a closer relationship between service quality and satisfaction that forms the basis for developing an integrated framework for SQ-S assessment in this research. The descriptive output of the study reveals that private university libraries of Bangladesh are more capable of meeting their users' needs at a large scale than the

public university libraries. Users are also found as disappointed at a big scale. To explore the grounds of these consequence two general factors were identified. One is related to user's own part and this is, user's service expectation is too high; and other is related to library side, i.e. lack of employee's and management's response toward users' needs that is acknowledged as "3-party communication gap" in this research, for instance: interactive communication (user-employee) gap, in-house communication (employee-management) gap, and external communication (user-management) gap.

In perspective of scope and limitation, the findings of the research only reflect the opinions from the users of ten selected public and private university libraries in Bangladesh, rather than on collections and other things that a library possesses, and this is the major limitation of this research. By conducting this research, it was expected that the effect of the new adapted models may aid the authority of any academic libraries in the prediction of actual scenario of existing service performance they provided to users. Moreover, the results potentially provide helpful insights to librarians that goes them to think about, "take care of your users first followed by your employees, provide them (users and employees) quality service and made them satisfy", and this is up to you to lead them. However considering the paramount importance of continuous improvement of service quality and user satisfaction through effective management of library service, the study proposed an outline of user-focused library system at the last part of the project.

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List of acronyms

Acronyms	Elaborations
BRACUL	BRAC University Library
BTS	Bartlett's Test of Sphericity
CUL	Chittagong University Library
DE	Desired service Expectation
DUL	Dhaka University Library
EFA	Exploratory Factor Analysis
EWUL	East West University Library
FGD	Focus Group Discussion
IS	Information Service
ISLM	Information Science and Library Management
IUBL	Independent University Bangladesh Library
JAGUL	Jagannath University Library
JUL	Jahangirnagar University Library
KMO	Kaiser-Mayer-Olkin
LiC	Library and Information Center
ME	Minimum service Expectation
MSA	Measure of Service Adequacy
MSQ	Minimum Service Quality
MSS	Measure of Service Superiority
NSUL	North South University Library
P	Perception of service performance
PCA	Principal Component Analysis (a statistical test)
PSP	Perceived Service Performance
PUL	Premier University Library
RE	Real service Expectation
RUL	Rajshahi University Library
SPCM	Service Performance Control Matrix
SPI	Service Performance Index

Acronyms	Elaborations
SPSS	Statistical Package for Social Sciences
SQ-S	Service Quality and Satisfaction
SSQ	Superior Service Quality
Std	Standard deviation
ZOT	Zone of Tolerance

Chapter - 1

Introduction

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1.1 Introduction

Understanding academic libraries requires understanding of higher education issues and needs (Tiemensma, 2009). Due to an increasingly competitive and dynamic educational environment as well as numerous challenges, higher education is increasingly recognizing that it is a service industry and is placing greater emphasis on meeting the expectations and needs of students (Cheng & Tam, 1997); and thus are becoming more aware of the importance of student satisfaction (Johnson, 1998). Focusing on student satisfaction not only enables universities to re-engineer their organizations to adapt to student needs, but also allows them to develop a system for continuously monitoring how effectively they meet or exceed student needs (Johnson, 1998). Universities can best attract and retain quality students through identifying and meeting their needs and expectations. To this end, it is imperative for universities to identify and deliver what is important to students.

Schmidt (2007) declared, “library users continue to want basic services – competence, reliability, responsiveness, timeliness, honesty and a caring approach. They want assistance with information access. They want to read materials – both in print and online formats. They want everything to function effectively and they want help to ensure they use resources effectively – but they want to use self-service approaches as much as possible. They want training and motivation in resource discovery, ICT skills and equitable service delivery. They want answers to questions and solutions to problems. Users want information brought to them and they want services with minimal effort and timeliness. They want just-in-time service”. In other words, not only quality has become a momentous theme of discussion among higher education institutions and their libraries, but their users also want quality service (Turk, 2007). Thus ISO 9001 is extremely aware of the fact that the customer’s point-of-view is crucial in defining the quality. ISO 9001 further acknowledged, to reduce the quality gap, the opinions of the customers have not only to be collected but also understood, and the organizations must act consequently in order to meet the customers’ needs and to enhance their satisfaction. Today’s academic libraries are just one of many information providers.

Hence Turk (2007) declared, assessment activities in academic libraries are more imperative today than ever before.

It is notable that offering quality services and evaluating the rate of success in providing users with target services is not limited to the context of higher education and academic libraries. In this regard, Bawden, Petuchovaite & Vilar (2005) believed that "the evaluation of library services is a topic, and an activity, of importance in all countries with established library services". Without timely feedback of quality, library systems could deteriorate such that recovery or meeting users' satisfaction is difficult, if not impossible. Therefore, quality assessment efforts on the basis of end-users' viewpoint are treated as one of the major concerns and an integral part of library and information science practitioners. As a matter of fact, this rule is not an exception to academic libraries of Bangladesh.

1.2 Statement of the problem

Higher education is a dynamic, fast growing service industry. Every day it is becoming more and more exposed to the globalization processes. Thus, measuring the quality of service in higher education is increasingly important and students should be considered as customers in the field of higher education. Many researchers suggest that for market orientation and differentiation, higher educational institutions should understand their customers, assess their needs, modify their offerings to meet those needs, and thereby boost customer satisfaction by delivering superior quality services. The relevant earlier research findings exposed that measuring quality of library services and facilities is one of the most important factors that have a significant influence on students' overall satisfaction toward library services.

Students are regarded as the sole customer of the universities (Elliot & Healy, 2001; Guolla, 1999; Naude & Ivy, 1999; Nicholls et al., 1995; Conway et al., 1994; and Moore, 1989). This reality involves the customers in the production of the services. Accordingly Nadiri & Mayboudi (2010) remarked, the customers determine the identification of a need, the conceptualization of a product or service as the "marketing concept" implies. According to this idea, the survival of the educational institution depends solely on the

continuing satisfaction of its customers. University libraries should, therefore, try to retain their current users by adopting user centered services, rather than seek to get new ones, researcher stated. Viewing student as a customer, Gyure & Arnold (2001) argued that through relationship marketing tactics, students can be made to be satisfied.

Bangladesh is a developing country in the world. The universities of Bangladesh are mainly categorized into public and private universities. The public universities are autonomous and funded by the government, whereas, private universities are funded by non-government organizations and private bodies. At present, there are 34 Public (Government) and 57 Private (Non-government) universities (including three international universities) in Bangladesh (UGC, 2012), and all of them have their library services with more or less modern technological facilities. Among the total 10 premier universities, including five from public (i.e. DU, JU, RU, CU and JNU) and five from private universities (i.e. NSU, IUB, EWU, BRACU and PU) have been selected to complete this research. A general profile of these universities is appeared in the table placed in Appendix – D, (p. 246).

Practically observed that (based on current research) user-centered strategy is hardly followed at very small number of private university libraries only (e.g. IUB library followed by NSU, EWU, BRACU libraries) showing more or less importance in this country. Although a number of studies have been conducted to assign the academic library service performance, but the conceptualization and empirical validation of user centered approach has not yet been addressed in academic library services in Bangladesh. Obviously no initiative has also been taken for remedial actions against the shortfalls of existing service conditions. Nevertheless, based on experience, researcher believed that in fact the university libraries of this country are almost tended to be placed more overtly on “collections”, rather than on services to users; on “administrative procedures”, rather than on ease of use; and on “rules and regulations”, rather than on what users want. As a consequence, users are constantly deprived from quality and satisfactory services from their libraries (e.g. DU, RU, CU, JNU and PU



**Measuring Service Quality and Satisfaction
on User-focused Marketing
in Academic Libraries of Bangladesh**

By
Muhammad Jaber Hossain

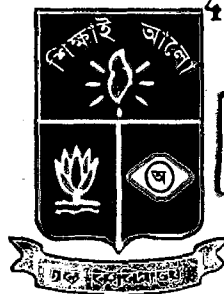
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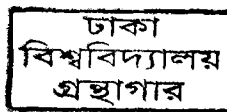
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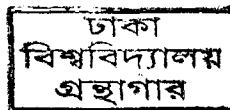
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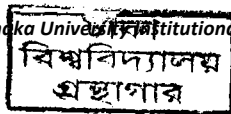
Certificate

This is to certify that the thesis entitled “Measuring Service Quality and Satisfaction on User-focused Marketing in Academic Libraries of Bangladesh” submitted by Muhammad Jaber Hossain for the degree of Doctor of Philosophy is a bonafide record of research done by him under my supervision. To the best of my knowledge this thesis contains no material which has been accepted for the award of any other degree, diploma or fellowship in any university, and not previously published by any other person or corporate body in any journal or publication except where due acknowledgement has been made.

465331



Professor M. Nasiruddin Munshi, PhD
Supervisor



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(Muhammad Jaber Hossain)

Abstract

Keywords

Service quality, User satisfaction, User-focused marketing, Academic library, Bangladesh.

Delivering consistently good service quality is an essential and difficult challenge for service organizations more particularly in 21st century's academic library market place. Developing an understanding of how users of academic libraries in Bangladesh perceived with their library service performance as a whole, and how their expectations influence on library service quality and satisfaction, to what extent the university libraries of Bangladesh meet their users' needs and expectations, why dissatisfaction may frequently happen, and finally to understand the measure of priority to improve service performance is the limelight of this research. At the outset, literature from the marketing fields was reviewed and integrated to develop insights regarding the key subject matter. With regard to prior methodological aspects several deficiencies were uncovered. To change over the operational deficiency of the prior methods for instance: regarding modified SERVQUAL instrument for library settings, use of difference score in service gap analysis, and in expectancy disconfirmation theory in detecting service quality and satisfaction ranking, this research provides significant implications and impacts on three major aspects: theoretical contribution, robustness of research methodology, and practical aspects of the research.

One of the key contributions of this research is the establishment of a new scale namely "Real service expectation" for conducting SQ-S assessment. In perspective of major findings, the results of EFA and Person's Correlation indicated that service quality of academic library and concerned user satisfaction is related to four dimensions i.e. caring, competence, resources and library as a place. Results of Linear Regression analysis demonstrated a closer relationship between service quality and satisfaction that forms the basis for developing an integrated framework for SQ-S assessment in this research. The descriptive output of the study reveals that private university libraries of Bangladesh are more capable of meeting their users' needs at a large scale than the

public university libraries. Users are also found as disappointed at a big scale. To explore the grounds of these consequence two general factors were identified. One is related to user's own part and this is, user's service expectation is too high; and other is related to library side, i.e. lack of employee's and management's response toward users' needs that is acknowledged as "3-party communication gap" in this research, for instance: interactive communication (user-employee) gap, in-house communication (employee-management) gap, and external communication (user-management) gap.

In perspective of scope and limitation, the findings of the research only reflect the opinions from the users of ten selected public and private university libraries in Bangladesh, rather than on collections and other things that a library possesses, and this is the major limitation of this research. By conducting this research, it was expected that the effect of the new adapted models may aid the authority of any academic libraries in the prediction of actual scenario of existing service performance they provided to users. Moreover, the results potentially provide helpful insights to librarians that goes them to think about, "take care of your users first followed by your employees, provide them (users and employees) quality service and made them satisfy", and this is up to you to lead them. However considering the paramount importance of continuous improvement of service quality and user satisfaction through effective management of library service, the study proposed an outline of user-focused library system at the last part of the project.

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List of acronyms

Acronyms	Elaborations
BRACUL	BRAC University Library
BTS	Bartlett's Test of Sphericity
CUL	Chittagong University Library
DE	Desired service Expectation
DUL	Dhaka University Library
EFA	Exploratory Factor Analysis
EWUL	East West University Library
FGD	Focus Group Discussion
IS	Information Service
ISLM	Information Science and Library Management
IUBL	Independent University Bangladesh Library
JAGUL	Jagannath University Library
JUL	Jahangirnagar University Library
KMO	Kaiser-Mayer-Olkin
LiC	Library and Information Center
ME	Minimum service Expectation
MSA	Measure of Service Adequacy
MSQ	Minimum Service Quality
MSS	Measure of Service Superiority
NSUL	North South University Library
P	Perception of service performance
PCA	Principal Component Analysis (a statistical test)
PSP	Perceived Service Performance
PUL	Premier University Library
RE	Real service Expectation
RUL	Rajshahi University Library
SPCM	Service Performance Control Matrix
SPI	Service Performance Index

Acronyms	Elaborations
SPSS	Statistical Package for Social Sciences
SQ-S	Service Quality and Satisfaction
SSQ	Superior Service Quality
Std	Standard deviation
ZOT	Zone of Tolerance

Chapter - 1

Introduction

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1.1 Introduction

Understanding academic libraries requires understanding of higher education issues and needs (Tiemensma, 2009). Due to an increasingly competitive and dynamic educational environment as well as numerous challenges, higher education is increasingly recognizing that it is a service industry and is placing greater emphasis on meeting the expectations and needs of students (Cheng & Tam, 1997); and thus are becoming more aware of the importance of student satisfaction (Johnson, 1998). Focusing on student satisfaction not only enables universities to re-engineer their organizations to adapt to student needs, but also allows them to develop a system for continuously monitoring how effectively they meet or exceed student needs (Johnson, 1998). Universities can best attract and retain quality students through identifying and meeting their needs and expectations. To this end, it is imperative for universities to identify and deliver what is important to students.

Schmidt (2007) declared, “library users continue to want basic services – competence, reliability, responsiveness, timeliness, honesty and a caring approach. They want assistance with information access. They want to read materials – both in print and online formats. They want everything to function effectively and they want help to ensure they use resources effectively – but they want to use self-service approaches as much as possible. They want training and motivation in resource discovery, ICT skills and equitable service delivery. They want answers to questions and solutions to problems. Users want information brought to them and they want services with minimal effort and timeliness. They want just-in-time service”. In other words, not only quality has become a momentous theme of discussion among higher education institutions and their libraries, but their users also want quality service (Turk, 2007). Thus ISO 9001 is extremely aware of the fact that the customer’s point-of-view is crucial in defining the quality. ISO 9001 further acknowledged, to reduce the quality gap, the opinions of the customers have not only to be collected but also understood, and the organizations must act consequently in order to meet the customers’ needs and to enhance their satisfaction. Today’s academic libraries are just one of many information providers.

Hence Turk (2007) declared, assessment activities in academic libraries are more imperative today than ever before.

It is notable that offering quality services and evaluating the rate of success in providing users with target services is not limited to the context of higher education and academic libraries. In this regard, Bawden, Petuchovaite & Vilar (2005) believed that "the evaluation of library services is a topic, and an activity, of importance in all countries with established library services". Without timely feedback of quality, library systems could deteriorate such that recovery or meeting users' satisfaction is difficult, if not impossible. Therefore, quality assessment efforts on the basis of end-users' viewpoint are treated as one of the major concerns and an integral part of library and information science practitioners. As a matter of fact, this rule is not an exception to academic libraries of Bangladesh.

1.2 Statement of the problem

Higher education is a dynamic, fast growing service industry. Every day it is becoming more and more exposed to the globalization processes. Thus, measuring the quality of service in higher education is increasingly important and students should be considered as customers in the field of higher education. Many researchers suggest that for market orientation and differentiation, higher educational institutions should understand their customers, assess their needs, modify their offerings to meet those needs, and thereby boost customer satisfaction by delivering superior quality services. The relevant earlier research findings exposed that measuring quality of library services and facilities is one of the most important factors that have a significant influence on students' overall satisfaction toward library services.

Students are regarded as the sole customer of the universities (Elliot & Healy, 2001; Guolla, 1999; Naude & Ivy, 1999; Nicholls et al., 1995; Conway et al., 1994; and Moore, 1989). This reality involves the customers in the production of the services. Accordingly Nadiri & Mayboudi (2010) remarked, the customers determine the identification of a need, the conceptualization of a product or service as the "marketing concept" implies. According to this idea, the survival of the educational institution depends solely on the

continuing satisfaction of its customers. University libraries should, therefore, try to retain their current users by adopting user centered services, rather than seek to get new ones, researcher stated. Viewing student as a customer, Gyure & Arnold (2001) argued that through relationship marketing tactics, students can be made to be satisfied.

Bangladesh is a developing country in the world. The universities of Bangladesh are mainly categorized into public and private universities. The public universities are autonomous and funded by the government, whereas, private universities are funded by non-government organizations and private bodies. At present, there are 34 Public (Government) and 57 Private (Non-government) universities (including three international universities) in Bangladesh (UGC, 2012), and all of them have their library services with more or less modern technological facilities. Among the total 10 premier universities, including five from public (i.e. DU, JU, RU, CU and JNU) and five from private universities (i.e. NSU, IUB, EWU, BRACU and PU) have been selected to complete this research. A general profile of these universities is appeared in the table placed in Appendix – D, (p. 246).

Practically observed that (based on current research) user-centered strategy is hardly followed at very small number of private university libraries only (e.g. IUB library followed by NSU, EWU, BRACU libraries) showing more or less importance in this country. Although a number of studies have been conducted to assign the academic library service performance, but the conceptualization and empirical validation of user centered approach has not yet been addressed in academic library services in Bangladesh. Obviously no initiative has also been taken for remedial actions against the shortfalls of existing service conditions. Nevertheless, based on experience, researcher believed that in fact the university libraries of this country are almost tended to be placed more overtly on “collections”, rather than on services to users; on “administrative procedures”, rather than on ease of use; and on “rules and regulations”, rather than on what users want. As a consequence, users are constantly deprived from quality and satisfactory services from their libraries (e.g. DU, RU, CU, JNU and PU

libraries) that resultant a common disappointment to respective users, researcher uncovered.

The earlier relevant researches explored that the effectiveness of libraries has often been measured by the volume of library materials available to clients, the amount of use of services and resources, and the apparent or quantified satisfaction of clients Wells (1995). In a study Nitecki (1996) noted that "a measure of library quality based on solely collections has become obsolete. Very little research has taken into account the objectives of the clients" she said. Given that circumstances Simmonds & Andaleeb (2001) accordingly argued, there should be some deliberation about the necessity to better understand and define the needs and expectations of library users to provide the appropriate kind and levels of service to provide satisfaction and service quality.

Academic library users have varying needs and expectations that impose the library staff to know these needs and expectations and strive to meet them. By the way, Millson-Martula & Menon (1995) maintained that one of the elements of quality service is when users' personal needs and expectations are incorporated into the development of program and services to libraries. Kotze & Plessis (2003) also asserted that there is a need to develop systems where a continuous process that requires an in-depth understanding of students' (users') expectations, needs experiences and factors that influence them. University librarians of Bangladesh are accordingly advised to become more user centered and adopt a user oriented philosophy in their library settings so as to remain relevant to their users through identifying their expectations, needs and thereby satisfying them.

A comprehensive search reveals that, a small number of recent studies were conducted by Shoeb (2011), and Ahmed & Shoeb (2009) regarding service quality measurement in academic libraries of Bangladesh, but in a limited scope. Researcher also claimed that no initiative has taken still now on measuring service quality and satisfaction in user-centered perspective in academic libraries of this country. Imbalanced resources and service constraints, inefficient personnel, insufficient apparatus and technological instruments, limited facilities for users, uncontrolled management style, unstructured administration, particularly absent of user studies and most particularly carelessness of

service employees and management toward users' needs force the user community to comment (in personal interview) "it will be no wrong if these academic libraries are treated as a dumping zone, a rehabilitation center," and so forth. At the present situation, "user is pioneer" is confronted within verbal expression only. As a result, users of academic libraries (particularly the public university libraries) in this country are constantly deprived from having actual services that causes declining of quality of libraries' products and services day by day.

Taking this circumstance into account, it seems to the researcher at least, that academic libraries in this country should have quite some way to go to catch up with what their users want. Initiative should, therefore, be taken immediately to re-introduce and sustain the user centered marketing approach in academic library platform of Bangladesh to make them dynamic and satisfactory to their users. Present research is the first effort in this country perspective, which central motive is to assess service quality and satisfaction in user-centered perspective of some selected university libraries in Bangladesh, and finally offer a conceptually tested model of "User-focused Library System" best suited for academic library environment in this country.

1.3 Objectives of the research

"How many resources and services the library holds, how much qualified the employees are, how much facilities the library provides, how attractive the environment is, and so forth are not the key responsibility of the library authority; rather, to administer how these resources and services meet their users' needs and expectations, should be the accountability of the library authority" is the limelight of the current research. Taking this into account the specific objectives of the research were developed as:

- i. To develop a new scale for measuring service quality and satisfaction (SQ-S) through identifying key dimensions of SQ-S and exploring the relationship between service quality and user satisfaction;
- ii. To design an integrated framework for measuring service quality and satisfaction in academic library services;

- iii. To assess the existing scenario of perceived service performance (PSP) of academic libraries in Bangladesh;
- iv. To measure service quality of academic libraries comparing with users' expectations and perceptions of services delivered;
- v. To identify the levels of service quality and user satisfaction, find out the causes of dissatisfaction, and to establish the measures of priority to improve existing service performance; and
- vi. To recommend a conceptual model of user focused library system (UFLS), and demonstrate how the system influences on improving service quality and user satisfaction, hence the library achieved at the goal.

1.4 Scope and limitations

The current research was subject to sampling frame error (Zikmund, 2003), as the research measured only graduate and undergraduate students of 10 selected public and private universities in Bangladesh, and left out all other users like faculty members, researchers, employees or corporate users of any other universities. Although faculty members were at first included for gathering primary data, but owing to insufficient responses they were discarded from the analysis. Another limitation relating to sample size is that 900 questionnaires based on a modified version of the SERVQUAL instrument were distributed to the students of these sampled universities. A simple stratified sampling method was followed for this purpose. As such the findings of the research only reflects the opinions of the respondents from these selected universities, which limits the generalization of the findings across university libraries of the country.

Also the study emphasizes on perceived service provision rather than on collections and other things that a library possesses. The managerial implication is that measuring students' perceptions of service quality enables a university to prioritize important factors identified as significant by the students for effective allocation of resources, services and other relevant conveniences. Comparing perceived service quality and perceived service performance across the sampled university libraries is critical for benchmarking and collaborative accreditations, which is also a major limitation of the current research. The research finally proposed an outline of user-focused library

system, but did not pay much attention how to implement this model in academic library settings in this country.

1.5 Models and theories used in the research

1.5.1 Gaps model of service quality

The gaps model of service quality is an effective tool to define and identify the service performance, and used in broader spectrum of service sectors now a days such as: education, library or information service center, banking, health, tourism, and so forth. It was first developed by a group of authors Parasuraman, Zeithaml and Berry, at Texas A&M and North Carolina Universities in 1985. Based on exploratory studies of service in four different service businesses, the authors proposed a conceptual model of service quality indicating that consumer's perception toward a service quality depends on the four gaps existing in organization – consumer environments.

They further developed in-depth measurement scales for service quality in a later year (Parasuraman, Zeithaml & Berry, 1988). Perceived service quality can be defined as (according to this model) the difference between consumer's expectation and perceptions which eventually depends on the size and the direction of the four gaps (see Figure 3.1 in Chapter-3, p. 61) concerning the delivery of service quality on the company's side. The magnitude and the direction of each gap will ultimately affect the service quality.

1.5.2 SERVQUAL

SERVQUAL, a concise multiple-item scale was developed (based on service quality gaps model) with good reliability and validity that retailers can use to better understand the service expectations and perceptions of consumers and, as a result, improve service. The instrument has been designed to be applicable across a broad spectrum of services. The most widely-used instrument for measuring service quality, SERVQUAL has been developed by Parasuraman, Zeithaml & Berry (1985), which revolves around the idea that measurement of service quality is possible only through the eyes of the customer. The researchers of the model define expectations of service as what a customer believes excellent service companies in a particular service industry should offer and perceptions

of service as the evaluation of the service offered by a particular firm in that industry. The set of criteria to cover the whole service experience from the customers' point of view include: access, communication, competence, credibility, courtesy, reliability, responsiveness, security, tangibles, and understanding the customer.

Later, by conducting qualitative research and factor analysis of the difference between expectations and perceptions of customers, Parasuraman et al. (1991) developed their framework and conceptualized service quality to be a five-dimensional construct in 22-item Likert scale survey. These five factors are described as: reliability, responsiveness, assurance, empathy, and tangibles. These were further customized by Andaleeb & Simmonds (1998) for a relevant research in the field of academic library services, which were accordingly followed by the researcher for the convenient of the present study. These factors are: resources, competence, responsiveness, demeanor, and tangibles.

1.5.3 Expectancy disconfirmation theory

The most popular and widely used model for studying customer satisfaction and dissatisfaction (CS/D), disconfirmation of expectations, is derived from the field of marketing. It is generally defined as the discrepancy between the actual products or services received and what is expected (or desired/needed). Basically, the disconfirmation of expectation paradigm conceptualizes CS/D as the following process: disconfirmation is the customer's evaluation of a product's performance relative to his or her expectations. When performance is greater than expectation, resulting in positive disconfirmation, customers are satisfied; when performance falls short of expectations, resulting in negative disconfirmation, customers are dissatisfied; and confirmation occurs when performance and expectations correspond (see Figure 3.3 in Chapter-3, p. 70), resulting in moderate satisfaction or indifference (Spreng & Olshavsky, 1993; Patterson, 1993; Churchill & Surprenant, 1982 and Oliver, 1980).

Although the disconfirmation of expectation paradigm is still the most widely used model for studying CS/D, it has been criticized for its limitations. Marketers have found that expectation may not always be the best pre-purchase standard to predict the influences on the customer's evaluation of the purchases. Alternatives have been researched and findings have been reported. For example, desire as a pre-purchase

standard was reported to be a more powerful predictor than expectation in certain purchasing situations (Spreng & Olshavsky, 1993). In studying library user satisfaction, information needs may be a better pre-purchase standard to apply in disconfirmation model (Shi, Holahan & Jurkat, 2004).

1.6 Operational definitions

1.6.1 Expectation

Expectation of service as what a customer believes excellent service companies in a particular service industry should offer (Parasuraman et al., 1985). In the satisfaction literature the expectations are viewed as predictions made by consumers (users) about what is likely to happen during an impending transaction or exchange. For instance, according to Oliver (1981) "it is generally agreed that expectations are consumer-defined probabilities of the occurrence of positive and negative events if the consumer engages in some behavior". In contrast, in the service quality literature, expectations are viewed as desires or wants of consumers, i.e. what they feel a service provider should offer rather than would offer. Zeithaml et al. (1993) classify expectations into desired and adequate.

1.6.1.1 Desired service expectation

The desired service expectation is defined as the level of service that customers hope to receive. This is a mixture of what customers believe the level of performance can be and should be (Zeithaml et al. 1993). They claimed that this corresponds to customers' evaluation of service quality. This was acknowledged as "demand-based expectation" by the researcher in this research.

1.6.1.2 Adequate or minimum service expectation

The adequate service expectation is defined as the lowest level of performance that consumers will accept (Zeithaml et al. 1993). Authors noted that this level of expectation is comparable to minimum tolerable expectation. This is termed "predictive expectation" and is associated with customer satisfaction. The researcher recognized this as "need-based expectation" in this research.

1.6.1.3 Real service expectation

The real expectation (RE) is the result of $\{m (DE+ME)/2\}$, i.e. the average result of users' desired and minimum service expectations, which was used as comparison standard for determining superior or expectation-based service quality.

1.6.2 Perception

The term perception pertains to the consumers' (users') beliefs concerning the received or experienced service (Brown & Swartz, 1989 and Parasuraman et al., 1988). It is defined as "the process by which an individual (user) receives, selects, and interprets stimuli to form a meaningful and coherent picture of the world (library service)" (Schiffman et al., 2001). Perceptions of service are considered as the evaluation of the services offered by a particular firm (Parasuraman et al., 1985). In customer satisfaction and service quality literature, perceptions are defined as the consumer's judgment of the service organization's (library's) performance.

1.6.3 Zone of Tolerance (ZOT)

Berry & Parasuraman (1991) found that customers' service expectations exist at two levels, the desired level and the adequate level. The desired service level describes the service that the customer hopes to receive. This level constitutes a mix of what the customer believes "can be" and "should be" provided by the service provider. The adequate level denotes the level customers find acceptable. This level reflects customers' evaluation of what the service "will be", or in other words customers' prediction of the level of service. The difference between these two levels is termed the (ZOT) 'Zone of Tolerance', which is a range of service performance that the customer will tolerate and finds satisfactory.

1.6.4 Perceived performance

Perceived performance refers to the customer's perception of the quality of the product or service after it is consumed. This does not involve any comparison process. Rather, it is a subjective assessment made by an individual of a product or service based on his or her perception of what is given and what is received.

1.6.5 Service quality

“Quality is in the eyes of the beholder. If customers say there is quality service, then there is. If they do not, then there is not. It does not matter what an organization believes about its level of service” (Hernon & Altman, 1996). The standard ISO 11620 defines quality of libraries as “totality of features and characteristics of a product or service that bear on the library's ability to satisfy stated or implied needs” (ISO 11620, 1998). “Quality” with the latter connotation is often preceded with the term “service” (hence “service quality”) to refer to the perceived gap between a library’s actual services and users’ expectations. In the service industry, definitions of service quality tend to focus on meeting customer’s needs and requirements and how well the services delivered meet their expectations (Lewis & Booms, 1983). Moreover, the construct of quality as conceptualized in the services literature is based on the perceived quality.

1.6.6 Perceived quality

Perceived quality is defined as the consumer’s judgment about an entity’s overall experience or superiority (Zeithaml, 1987; and Zammuto et al., 1996), and results from the comparison of customer service expectations with their perceptions of actual performance (Zeithaml et al., 1990). Perceived quality is also seen as a form of attitude, related to, but not the same as satisfaction, and resulting from a comparison of expectations with perceptions of performance (Rowley, 1996).

1.6.7 Library service quality

Library services quality is a combination of the quality of information provided by the library (e.g., comprehensiveness, appropriateness, and format) and the services offered by the library (e.g., physical facilities, helpfulness, and attitude of library staff) (Shi & Levy, 2005). Meeting internally set standards does not imply that the library is performing well in the eyes of the customers (Hebert, 1994). This finding calls for measures that focus on the customers. Performance measures which include input and output measures have been used to assess the quality of library services and activities (Hernon & Altman, 1996). Such evaluation has enabled libraries to obtain objective data of their activities that helped them to justify their worth to funding agencies.

1.6.8 Satisfaction

Satisfaction is defined as a state felt by a person who has experience performance or an outcome that fulfill his or her expectation (Kotler & Clarke, 1987). Oliver (1981) defined "satisfaction is the emotional reaction following a disconfirmation experience which acts on the base attitude level and is consumption-specific". It is a function of relative level of expectations and perceived performance. Customer (user) satisfaction represents the degree to which a library has met the user's needs and expectations (Cooper & Dempsey, 1998). In a quality management context, customer satisfaction is defined as a result of comparison between what one customer expects about services provided by a service provider and what one customer receives actual services by a service provider (Caruana et al., 2000; and Parasuraman et al., 1988).

1.6.9 Customer/user-focused marketing

Customer focused marketing in its simplest form means knowing and understanding the customers' expectations of a service or product, and the subsequent perceptions of their experience of that service or product. When designing and delivering the product, the organization uses this information to deliver what their customers expect. Users are recognized as library customers. They expect values, recognition, attention, and appreciation for their individual needs and desire for self-expression. User-focused marketing is the understanding of what the users' needs and wants and identifying how librarians can best meet these needs.

The customer-oriented (user-focused) marketing approach in libraries and information services aimed at coordinating and planning the total effort of the organization towards customers (Gupta & Jambhekar, 2002²). The main purpose of such approach, they said, is to ensure that the efforts of different functions of the library, such as acquisition, organization, analysis, dissemination, and utilization are directed towards customers' requirements; and those activities which have most closely to do with customers, such as users services, references, stacking work, etc., are working closely together with the facilities and resources of the library. The user focused library system presented in the study has led to ensure the quality across the library functions, and thus strengthen users' satisfaction and loyalty.

1.7 Thesis outlines

This research is divided into ten chapters. Following the introductory chapter, the methodology of the research was presented in chapter-2; then chapter-3 presents a literature review of the relevant subject matter. A conceptual model to be developed regarding an integrated framework of SQ-S assessment was planned in chapter-4. Service quality and satisfaction were measured based on this model. The analysis and findings of the research were then presented in chapter-5 followed by discussion in chapter-6. The most notable role of this research is the development of a conceptual model of User-focused Library System (UFLS) suitably fit for academic libraries in Bangladesh, which was placed in chapter-7. The conclusion was presented in chapter-8. Then the references part was placed. It is noted that the citations and references used in the research were organized followed by **Harvard** style. And the thesis was finished with a number of appendices, which were presented after reference section.

Chapter - 2

Methodology

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2.1 Chapter overview

The research was conducted on ten selected leading public and private universities located across the country. Both the qualitative and quantitative approaches were used. Despite numerous criticisms, SERVQUAL instrument (with multiple item-scales) was applied to form the questionnaire because of its greater acceptance at similar fields, and it might be considered as diagnostically rich Parasuraman et al. (1994). Basically, data were collected using five service quality dimensions (i.e. resources, competence, responsiveness, demeanor, and tangibles) proposed by Andaleeb & Simmonds (1998). The entire service culture was squeezed into 28 questions that formed the basis of questionnaire. Other types of questionnaires were also used. An initial pilot survey was conducted to clarify the overall structure of the questionnaire to be accepted and used, and finally it was checked on validity (using Exploratory Factor Analysis) established by Hair et al. (1998), and reliability (using Cronbach Alpha) by Nunally & Bernstein (1994). To measure service quality and satisfaction, the researcher established and used a conceptual integrated framework in this research.

2.2 Research framework and design

The research design incorporated both the qualitative and quantitative approaches. In the first phase, the theoretical literatures from various sources were explored to assess the type of research conducted on academic library service quality and user satisfaction as well as related issues. Direct qualitative assessment was also encountered through in-depth interviews or scholarly discussions with the faculty members and expert professionals, and focus-group discussions with students. Consequently, the quantitative phase was performed by questionnaire survey directly from the students of sampled universities through modified SERVQUAL instruments, and faculty members of those universities using separate quantitative assessment. Finally, the obtained data were analyzed by using SPSS (Statistical Package for Social Science), version-11.5. Different experimented models including "SERVQUAL" of Parasuraman et al. (1991, 1988, & 1985) for questionnaire development, "Gaps model of service quality" of Parasuraman et al. (1994, 1988, & 1985) for calculating difference scores, and to identify the level of user satisfaction and service quality "Expectancy disconfirmation theory" of

Oliver (1980) revised by Patterson (1993) was applied on analyzed data in order to produce required output.

2.3 Instrumentation

Two types of questionnaires (shown in Appendix - A and B) were designed to perform the current research. Questionnaire-1 was designed for general users (i.e. students), and Questionnaire-2 for faculty members. Assessment of service quality and user satisfaction was conducted based on Questionnaire-1, and other type (Questionnaire-2) was used for assessing user-centered approach in academic libraries of Bangladesh. Another type of questionnaire (shown in Appendix - C) was also designed to determine the key factors of building User-focused Library System (UFLS) model.

2.3.1 Questionnaire – I

One of the top most instruments for measuring service quality on user's point of view "SERVQUAL" questionnaire was originally developed by the marketing researchers Parasuraman, Zeithamal & Berry (1985) to assess service quality in general, and has been demonstrated to be applicable in the information systems arena firstly by Pitt, Watson & Kavan (1995). Later on Hernon & Altman (1996) used this SERVQUAL model in a landmark monograph ("Service quality in Academic libraries") to develop a robust instrument for measuring service quality and satisfaction in academic libraries, which has become increasingly popular with information system researchers and is widely used today. Also Kettinger & Lee (1997) developed an integrative model of customer service, where the researchers initiated to measure perceived service quality and satisfaction through sharing the same antecedents. The researchers also developed IS-SERVQUAL "short form" instrument that has been transformed into the SERVQUAL+ format (Kettinger & Lee, 1997), so that service quality and user satisfaction can be measured at the same time using a single instrument. Still, some researchers question the appropriateness of using SERVQUAL instruments in library and information service settings.

Whatever the comments on SERVQUAL instruments from different researchers regarding service quality and user satisfaction measurement, the method can be

customized according to the nature of service organization on the basis of Parasuraman et al.'s (1988) proclamation "The SERVQUAL instrument has been designed to be applicable across a broad spectrum of services. As such, provides a basic skeleton, when necessary, can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization." Supporting this point, Carman (1990) has suggested that in specific service situations it may be necessary to delete or modify some of the SERVQUAL dimensions, or even introduce new ones. Based upon this suggestion, different researchers (for example: Shueb, 2011; Ahmed & shueb, 2009; Yu et al., 2008; Satoh et al., 2005; Landrum & Prybutok, 2004; Cook & Heath, 2001; Cook & Thompson, 2000; Andaleeb & Simmonds, 1998; Kettinger & Lee, 1997; Nitecki, 1996; and Pitt, Watson & Kavan, 1995) adapted the original SERVQUAL dimensions and applied in academic library service research purposes in different periods.

Among various dimensionalities redesigned and experimented by a number of researchers, the five SERVQUAL dimensions "resources, competence, responsiveness, demeanor, and tangibles" proposed by Andaleeb & Simmonds (1998) is the most appropriate to fit for measuring SQ-S of user-centered academic library services, researcher proclaimed. In perspective of library settings, he claimed that the original five SERVQUAL dimensions (e.g., reliability, assurance, tangibility, empathy, and responsiveness) of Parasuraman et al. (1985) and its revision by several researchers mentioned above do not serve library users' goals absolutely. The lacking of very important dimension "resources" made these original dimensionalities inappropriate for library settings, whereas it was significantly included in Andaleeb & Simmonds's (1998) study. "Resources" is such a vital factor, without which the establishment of library is absolutely impossible, researcher asserted. Furthermore, he emphasized, service quality defined by users and their satisfaction with the library services entirely depends on library resources.

The five service quality dimensions with 28 questionnaire items of this study were adapted from the modified SERVQUAL developed by Andaleeb & Simmonds (1998) with necessary modifications to suit user-centered academic library service settings. Nonetheless, the original SERVQUAL instruments of Parasuraman et al. (1985),

SERVPERF model of Cronin & Taylor (1992), SERVQUAL+ format of Kettinger & Lee (1997), and the LibQualTM+ of Nitecki & Hernon (2000), and Cook & Thompson (2000 & 2001) were used also to form the basis of designing questionnaire for the current research. Accordingly the personal experience and other questionnaires of previous related studies were followed as well for instrumentation. The resulting instrument has a total of 28 items and five underlying dimensions (please see in Table 2.1) that form the section “B” in the questionnaire. However, the questionnaire-1 relating to “measuring service quality and user satisfaction” is seen in Appendix – A, (p. 240).

Table 2.1: Modified SERVQUAL dimensions

Dimensions	Statements	No of items
Resources	All the reading materials with their easy accessibility technological equipment and facilities, availability of updated services and library employees, etc.;	08
Competence	Knowledge and ability of library employees to answer all questions and making prompt solution to users' problems dependably and accurately;	05
Responsiveness	Sincerity and willingness of library staff to assist users and provide them prompt service;	05
Demeanor	Behavior and courtesy of employees with reliable personalities, and their friendliness to library users;	04
Tangibles	The physical facilities including internal environments, right place of materials, and others;	06
5 Dimensions		28 Items

The questionnaire is consisted of three sections. Questions about the respondents themselves were included in the first section. This section includes types and names of the university, concerned faculties, gender and user status, nature and purpose of library visit, and most importantly user's expectation sources for services delivered by the library. The second section was designed to measure the respondent's expectations (desired service expectation “DE” and minimum service expectation “ME”) and perceptions (P) of service performance. These questionnaire items were arranged at random following Parasuraman et al.'s (1994) three-column format, where the columns for each user's desired expectation, minimum expectation, and perception of service delivered are placed horizontally. Some researchers have used the seven-point Likert scales while others used the five-point format. For each item in the five service dimensions, respondents were asked to indicate their degree of expectations (desired and minimum level) and perceptions on a 7-point Likert-type scale ranging from “1”

Lowest to "7" Highest. Proper instruction was provided for the convenience of the respondents to easy respond.

In addition to this measure, user's overall observations were also obtained for each item of five independent variables (for example: "How adequately does the library meet your information needs?" "How effective are the library services and physical facilities?" "How efficient are the library personnel?" "How would you rate the quality of library services as a whole?" and, "How would you rate your satisfaction with the library services?") using Likert's five-point scale (ranging from 1 "lowest" and 5 "highest"), which is shown in the third section of the questionnaire. Respondents were instructed to use [5] for "excellent", [4] "very good", [3] "fair", [2] "poor", and [1] for "very poor" to assess these items.

2.3.1.1 Conducting pilot survey

At initial stage, a pilot survey involving 250 respondents (approximately) from four sampled universities (included University of Dhaka, Rajshahi University, The North South University, and BRAC University) of Bangladesh was conducted to pretest the instrument. The initial survey instrument was consisted 5 sections with 37 questions. Section-B was formed with 26 questions based on modified SERVQUAL instruments. The purpose was to add a distinct dimension to the context in which judgment of the library service quality was formed, and to verify relevance of the measurement indicators to their corresponding constructs, appropriateness and relevance of the items in the survey as well as the level of difficulty of the language for the respondents to answer the questions, appropriateness of the questionnaire wording, the clarity of the instructions to fill in the survey, and most importantly to examine the nature of service expectations from the respondents. Seven graduate students were taken part in the initial survey voluntarily. Based on their experience regarding direct questionnaire survey some ambiguities in the questions were identified. However, upon completing the pilot survey necessary modifications were made to the questionnaire in order to simplify and make the questions easy to understand, and accordingly improve its validity and reliability. Some important items were inserted and some were deleted from the questionnaire, and thus the final questionnaire was designed as discussed above.

2.3.2 Questionnaire – II

As the faculty members are naturally very busy with their academic functions, they do not have much time to think and response a large number of queries. The researcher therefore, designed the second type of questionnaire for assessing the user-centered approach in academic libraries of Bangladesh. Faculty members were selected for administering this questionnaire. The questionnaire was segmented into three parts. General information of the respondents was captured in the first part, and the variables about the assessment of user-centered library service were included in the second part of the questionnaire. Likert's five-point scale was adopted for this purpose. Respondents were asked to evaluate the current position of user-centered approach by using a single numerical digit (ranging from 1 indicates "lowest" to 5 "highest"), where 5 indicates "excellent", 4 "very good", 3 "fair", 2 "poor", and 1 "very poor" condition of the related service items. Also the respondents were requested to put their suggestions about how to build up a user-centered library system, which was placed in the third section of the questionnaire.

2.3.3 Questionnaire – III

Because the literature on concerning the subject of user-focused library system is not yet rich enough to provide a sound conceptual foundation for developing a user-focused library system (UFLS), an exploratory quantitative investigation was conducted using a structured questionnaire to determine the key factors of building UFLS model as a substantial part of this research. The questionnaire was administered on 29 constituencies including subject specialists, relevant professionals, experts of different similar organizations, and researchers of other disciplines who have scholarly contribution on the relevant field of study, and graduate students of related disciplines. The questionnaire was sectioned into two parts. Respondents' general information forms the first part of the questionnaire, and the second part was formed with fifteen (15) questions to determine the essential factors so as to buildup user-focused library system. Respondents were asked to evaluate their assessment on Likert 7-point scale, where "1 indicates- strongly disagree", "2 indicates- disagree", "3 indicates- partially disagree", "4 indicates- neutral", "5 indicates- partially agree", "6 indicates- agree", and

"7 indicates- strongly agree. They were requested also to put their opinions, if other factors deemed necessary, which were skipped off in the questionnaire.

2.4 Sampling and questionnaire distribution

The samples were drawn from 10 public and private university libraries from Dhaka, Rajshahi and Chittagong divisions. Among the total, five general public universities, i.e. from Dhaka division the Dhaka University, Jagannath University and Jahangirnagar University; from Chittagong division the Chittagong University; and from Rajshahi division the Rajshahi University were taken as samples. Also the five prominent private universities including, North South University (NSU), BRAC University, the Independent University of Bangladesh (IUB), East West University, and Premier University were taken respectively as samples. The public universities were selected based on their size (number of students), and the private universities were chosen according to their legal existence approved by UGC, Bangladesh. The users were defined as faculty members (teachers) and students (i.e. graduate and undergraduate level) of the selected universities. A minimum teaching experience (of two years at least) at the sampled universities were required for the faculty members to be respondent of the questionnaire-II. Accordingly from graduate students (i.e. Masters/MS) and from undergraduate level those who are enrolled in 3rd and 4th year only, were selected as respondents for the questionnaire-I.

In the first part of the research a convenient stratified sampling method was formed to distribute the questionnaires to the students and faculties of the sampled universities. Primarily 900 questionnaires were distributed among the students and approximately 150 questionnaires for faculty members. Of the 900 questionnaires, 650 (i.e. 72.22%) were distributed among the public university students, and the rest 27.78% questionnaires were to the private university students. From questionnaire-I, 200 (22.22%) questionnaires were distributed to the students of Dhaka University, 150 (16.67%) to Jagannath University, 100 (11.11%) to Jahangirnagar University, 100 (11.11%) to Rajshahi University, and 100 (11.11%) to the students of Chittagong University. The other 250 questionnaires were equally distributed to the students of five sampled private universities. The other type of questionnaire (approximately 150

questionnaires from questionnaire-II) was randomly distributed to the faculties of those universities. The survey questionnaires were delivered by 20 selected students given with proper instructions, who were taking part in the survey voluntarily.

2.5 Data collection

Data collection is a fundamental step in research. On this premise, Saunders, Lewis & Thornill (2000) explained that when gathering data and information to meet the objectives for the research questions and hypotheses there are two options to face, primary and secondary data.

2.5.1 Secondary data collection

Both the qualitative and quantitative approaches were used for conducting the research. At first secondary data (consists of existent information from different sources like: journals, thesis, research papers, proceedings, relevant text books, and web sites, and so forth) were consulted to find out what had been written on library service quality and user satisfaction. Including many other benefits of using secondary data, the most significant benefit is saving time and money since the researcher employed existing information. Another major advantage of collecting secondary data according to Ghauri et al. (1995) is that it gives general ideas on how to conduct the research and the best method to be used. However considering the research point of view the secondary sources have enabled the researcher to observe different views, some arguing for and against the materials in order for researcher to be unbiased in the analysis during the course of this research.

2.5.2 Primary data collection

The research activities as a whole fundamentally depend on primary data, which was drawn at four stages in this research. At the first and foremost stage, questionnaire method was applied to collect data from two groups of respondents (i.e. faculty members and students) from selected sampled universities, which was distributed at the end of August 2010 to end of June 2011. A total of 683, yielding a return rate of 75.88% surveyed questionnaires (among the 900) were completed and returned from students (using questionnaire-I). Collected data were then verified for necessary

treatment, i.e. error checking and corrections, and rejection if necessary. The questionnaire-II was also applied for gathering primary data from faculty members of sampled universities. A very small number of responses were collected that is duly insufficient for the research work, researcher think. That's why data collected through the questionnaire-II were discarded from the study. The secondary data was also collected from former related studies and literatures.

In the second part of primary investigation, in-depth interviews with a number of students (approximately 400) who were randomly selected to response their opinions about existing service shortfalls they perceived from their university libraries. Causes of service defects were also encountered. And at the third stage, a snowball sample consisted of 30 students was assigned for FGD (focus group discussion) to verify the perceived results derived from data analysis and direct opinions of interviewees, and also sharing necessary ideas to overcome and thus improving the current situation. However, three groups were formed for FGD consisted of graduate and under-graduate students, who hold a good experience on library use. In order to sharing necessary ideas and experiences for corrective actions against the service shortfalls, direct personal counseling with a number of (approximately 10) experienced teachers from different departments of Dhaka and Rajshahi universities particularly who hold distinctive position of the university administration, and 10 experts from different libraries of Bangladesh were conducted, which was at the forth stage of data investigation.

For personal counseling, researcher personally contact with selected faculty members and expert professionals in different times physically and some times by phone. A simple open-ended questionnaire was developed for better support during the discussion. Questions were asked on the problems faced by the users while receiving services from their university libraries, thus sharing their ideas and experience for better solution to the problems. Unlike personal counseling, the researcher also conducted three FGDs. Respondents were informed 10/15 days before about the discussion along with necessary indications and guidelines. They were requested to spontaneous response on existing service situation, drawbacks they encountered, and also express

their opinions and ideas for better solution to the problems, thus enhancing the service performance and their satisfaction.

Direct practical and experimental report was also encountered in order to uncover the operational problems that cause user dissatisfaction. About sixty (60) students from the department of Information Science and Library Management of Dhaka University were taken part in this experiment for 30 days at Dhaka University Library as the partial fulfillment of their academic works.

2.6 Data treatment

After getting the responses, each questionnaire was marked with a unique number. Before keying into SPSS (version 11.5) file, the surveyed data were primarily verified to ensure the validity of responses. However, following procedures of data treatment were set to validate the questionnaires.

2.6.1 Error checking and corrections

Several common mistakes may be found over the surveyed data that has to be checked and corrected. Different processes were therefore adopted for checking errors and correcting over surveyed data.

2.6.1.1 Checking the gap differences

[a] DEs (Desired service) – MEs (Minimum service): DEs score must be higher than MEs score. If the value in DEs is found smaller than MEs value, then record has to be checked and modified if necessary;

[b] DEs (Desired service) – MEs (Minimum service): The result of (DE-ME) is called "Zone of Tolerance." If the zone of tolerance is negatively signed, then counterchange DE and ME. (E.g. if the score of DE is <ME, then counterchange this as DE >ME score);

[c] Ps (Perceived service) – MEs (Minimum service): If values of Ps 1-28 and MEs 1-28 are found all the same, then record has to be checked and modified if necessary;

[d] DEs (Desired service) – MEs (Minimum service) – Ps: If any item from 1-28 in DE, ME, and P is found blank, i.e. no value is marked, then record should be checked and can be modified by observing the value of nearer service attributes.

2.6.1.2 Checking the errors

After manual checking, the raw data were keyed into SPSS (version 11.5) file, then further check over the input data in the following ways to ensure the input accuracy, i.e.

- a. Checking the input data by comparing with the original copies of questionnaires;
- b. Correcting the wrong records if and when required.

2.6.2 Data rejection

There may be some common errors found in the questionnaires that will hinder to produce actual research output. Data that will embrace with any kind of mistakes (presented below) has to be rejected. Such types of errors are marked as follows:

- a. If all the values in DE1-28, ME1-28, and P1-28 are same, then whole data has to be rejected;

For example: DE1 – 28 : 77777777777777777777777777777777
 ME1 – 28 : 77777777777777777777777777777777
 P1 – 28 : 77777777777777777777777777777777

- b. if all the values in DE1-28 and ME1-28 are same, then whole data has to be rejected;

For example: DE1 – 28 : 77777777777777777777777777777777
 ME1 – 28 : 77777777777777777777777777777777
 P1 – 28 : 657654345635243166533666653

- c. If all the values in each section (DE1-28, ME1-28, and P1-28) are same, then whole data has to be rejected;

For example: DE1 – 28 : 77777777777777777777777777777777
 ME1 – 28 : 44444444444444444444444444444444
 P1 – 28 : 33333333333333333333333333333333

- d. If the section DE1-28 and ME1-28 are found with different values, but section P1-28 is not marked with any value, then whole data has to be rejected;

For example: DE1 – 28 : 776567666777556765667776767
 ME1 – 28 : 455455444545433433444433444
 P1 – 28 : found blank.....

- e. Any incomplete item (from 1-28), found in DE/ME/P, that item has to be rejected;

2.7 Data analysis

The data collected through the questionnaires were analyzed using the Statistical Package for Social Sciences (SPSS), version 11.5 in accordance with quantitative and

qualitative data analysis procedures. Two types of analyses were used in this research. The reliability and validity of surveyed data, and other relevant testing were established using statistical analysis; and the measurement of service quality and satisfaction (SQ-S) and associated service performance were accomplished by using performance analysis methods.

2.7.1 Statistical analysis

The validity and reliability of (modified SERVQUAL) measurement scales were tested based on Exploratory Factor Analysis (EFA) established by Hair et al. (1998), and Nunally & Bernstein (1994). The appropriateness of Factor Analysis according to Field (2005) was based on several factors. With reference to Field's assertion data screening was carried out in three stages, such as: to signify the internal consistency between variables Item-Total Correlation based on Cronbach Alpha was used; determining multi-collinearity problem and to ensure the usefulness of dataset (to be used) Correlation matrix was applied; and finally for measuring sampling adequacy the KMO test, and evaluating the significance of correlation matrix BTS test as recommended by Hair, et al. (1998) were employed. Descriptive statistics were also used where necessitates.

2.7.1.1 Data screening

Item-Total Correlation (1st stage): The first thing to conduct a factor analysis is to look at the inter-correlation (internal consistency) between variables (Field, 2005). Cronbach's Alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. For doing so, the Item-Total Correlation (of Cronbach's Alpha method) with accepting value 0.70 (i.e. $P = 0.70$) was used to examine the internal consistency of modified SERVQAUL items in this research, so that it can be considered whether any particular item/items should be deleted from the scales. However, the Alpha values greater than 0.70 (i.e. $P > 0.70$) suggest a good consistency of the questionnaire items, and thus less than 0.70 (i.e. $P < 0.70$) recommend that the variable/variables should be deleted from the scales (Nunally & Bernstein, 1994).

Correlation Matrix (2nd stage): In order to ensure the usefulness of surveyed data along with whether the data are affected or not by serious collinearity problem, Correlation

matrix (*R*-matrix) based on Hair et al.'s (1998) recommendation was applied. The Coefficient option produces the *R*-matrix, with the determinant should be greater than 0.00001 (i.e. $R > 0.00001$) and less than 0.90 (i.e. $R < 0.90$). If the value of Correlation matrix of any variable is found $R < 0.00001$ or $R > 0.90$ indicates that the data are affected by serious multicollinearity problem, and suggests the problematic variable/variables should be eliminated from the questionnaire in order to ensure the usefulness of data.

KMO and BTS (3rd stage): To measure the appropriateness of sample size for factor analysis the Kaiser-Mayer-Olkin Test (KMO) was used with the accepting values of greater than 0.5 (i.e. $P > 0.5$) as recommended by Hair et al. (1998). To assess the overall significance of the Correlation Matrix the Bartlett's test of sphericity (BTS) with accepting values of less than 0.001 (i.e. $P < 0.001$) was also applied. Both the tests (KMO and BTS) are considered as an essential part of exploratory factor analyses.

2.7.1.2 Validity and reliability analysis of the scales

The Exploratory Factor Analysis (EFA) used for validity and reliability testing of the scales includes Principle Component Factor analysis with oblique rotation using direct oblmin to determine the possible dimensions of the constructs. The EFA also includes the Kaiser-Mayer-Olkin Test (KMO) with the accepting values of greater than 0.5 (i.e. $P > 0.5$); the Bartlett's test of sphericity (BTS) with accepting values of less than 0.001 (i.e. $P < 0.001$); the Eigenvalue with accepting values greater than 1.0 (i.e. $P > 1.0$); the Factor loading with accepting values greater than 0.40 (i.e. $P > 0.40$). And finally the Cronbach's Alpha was used to examine the coefficient of reliability of modified SERVQUAL items. The general standard of alpha value according to Nunally & Bernstein's (1994) is 0.70. If the Alpha values are found higher than the general standard of 0.70 (i.e. $P > 0.70$) suggesting a good reliability of the overall questionnaire items.

[Validity]: *The degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure;*

[Reliability]: *The degree of consistency with which it measures whatever it is measuring, and is essential to instruments utilized in a study. (Ary et al., 2002, p.249);*

2.7.1.3 Other statistical analysis

The other statistical analysis used as necessitate for the study includes Pearson Correlation, Linear Regression analysis, Cronbach's Alpha, Pearson Chi-square test,

Kendall's W test, Mann Whitney (M-W) test, Kruskal Wallis (K-W) test, and Wilcoxon Signed Ranks test as explicated in Table 2.2 along with the significance level of each test.

Table 2.2: Other statistical analysis

Name of analysis	Accepted value	Use and application
Pearson Correlation	$r = P < 0.01^*$	♦ to signify the relationship between service quality constructs (service dimensions) and overall service quality and satisfaction;
Linear Regression analysis	$B = P < 0.001^*$	♦ to identify the relationship between service quality and satisfaction;
Cronbach's Alpha	$\alpha = P > 0.70$	♦ to examine the overall reliability analysis of the constructs;
Pearson Chi-square test	$\chi = P < 0.01^*$ $\chi = P < 0.05^{**}$	♦ to examine the influence of demographic data (i.e. gender, user status, different faculties, and types of universities) on expectation sources as subsequent part of hypotheses testing; ♦ to examine the influence of expectation sources on user's opinion of overall service quality and satisfaction;
Kendall's W test	$P < 0.001^*$ $P < 0.05^{**}$	♦ to measure the degree of conformity regarding desired service ratings between public and private university respondents;
Mann Whitney (M-W) test	$P < 0.01^*$ $P < 0.05^{**}$	♦ to test the significant difference between two groups;
Kruskal Wallis (K-W) test	$P < 0.01^*$ $P < 0.05^{**}$	♦ to test the significant different between three or more groups;
Wilcoxon Signed Ranks Test	$P < 0.01^*$ $P < 0.05^{**}$	♦ to compare the gap difference between Perceived and Minimum service expectation; ♦ to compare the gap difference between Perceived and Real service expectation; ♦ to compare the gap difference between Real service expectation and Minimum service expectation;
[Note]: * at 1% level of significant; ** at 5% level of significant		

2.7.2 Performance analysis

The current service performance as perceived by users was determined first from users' perception scores directly. The (ZOT) Zone of Tolerance (used by Parasuraman et al., 1994) was used to find out the range between perceived and expected service level, and to examine the extent to which the service items are meeting users' needs and expectations. To explore the service quality, the gap differences between expected and perceived service performance was calculated by using difference scores (Parasuraman et al., 1994). The levels of service quality and user's satisfaction were also identified by

using expectancy disconfirmation theory of Oliver (1980) revised by Patterson (1993). In all cases significant modifications were made by the researcher himself.

2.8 Measures

The questionnaire includes perceptual measures that were rated on 7-point Likert scale items. This design is consistent with prior studies on service quality. Each scale item was anchored at the numeral “1” with the verbal statement “lowest” and at the numeral “7” with the verbal statement “highest”. Multiple-item scales were used (based on “alternative scales for measuring service quality” of Parasuraman et al., 1994²) to ensure the diagnostic value of each service item, and to measure each construct so that their measurement properties (i.e. reliability and validity) could be evaluated.

The researcher proposed a conceptual integrated framework (see Figure 4.4, in Chapter-4, p.86) from the field of marketing to the study of measuring quality and satisfaction of academic library services. In determining service quality and satisfaction, the measurements used in this research were based on two different methods: perception based measure, which was calculated from users’ perception scores directly; and disconfirmation based measure, which was calculated in comparison with users’ expectations and perceptions. The arithmetic average ratio scores of expectations and perceptions were used to calculate the whole measures. The difference scores were also used to determine the gap difference between users’ expected and perceived services. Two types of assessments were explored: assessment based on users’ needs, and assessment based on users’ expectations. However, the calculation procedures of the whole research are explained in the following sections i.e. 2.8.1 - 2.8.3.

2.8.1 Measure of perceived service performance

Table 2.3: Computation of perceived service performance

Performance characteristic	Range of scores	Result	Remark
Positive service performance	>=6.00	Highly positive	Excellent
	>=5.00 & <6.00	Positive	Standard
	>=4.00 & <5.00	Somewhat positive	Fairly standard but seeking improvement
Negative service performance	>=3.00 & <4.00	Negative	Problematic and risky
	<3.00	Highly Negative	Alarming

The perceived service performance was determined from users' perception scores directly. In order to discriminate the result of service performance the perception scores were clustered into five groups based on specified range of perception (P) scores as explained in Table 2.3. Positive and negative service performance was calculated on the basis that range.

2.8.2 Measure of service quality

The discrepancy method (i.e. difference score) was calculated to determine two types of service quality such as: MSQ (minimum service quality) that reflects users' basic needs, and SSQ (superior service quality) that reveals users' expectations. These are acknowledged as "need-based service quality" for MSQ and "expectation-based service quality" for SSQ in this research. Two types of quality gaps were determined also, such as: "need-based service quality gap" against MSQ and "expectation-based service quality gap" against SSQ. However, the MSQ and SSQ with their adjacent gaps were calculated by using the following methods (see Table 2.4):

Table 2.4: Calculation of service quality (SQ) gap

Discrepancy method		RESULTS OF COMPARISONS	MSQ gap [Need-based SQ gap]		SSQ gap [Expectation-based SQ gap]	
Quality types	Methods		Positive	Negative	Positive	Negative
MSQ (Need-based quality)	(P – ME)		P > ME P = ME	P < ME	X	X
SSQ (Expectation-based quality)	(P – RE)		X	X	P > RE P = RE	P < RE

2.8.3 Assessing the levels of service quality and satisfaction

Table 2.5: Determine the levels of service quality and satisfaction

Comparison method		Types of zones	Levels of service quality	Levels of user satisfaction
P >= DE	i.e. (P>=DE)	Surprising zone	Surprising service	Surprised
P > ZOT	i.e. {(P>RE) & (P<DE)}	Superior zone	Excellent service	Delightful
P = ZOT	i.e. {(P<=RE) & (P>=ME)}	Standard zone	Standard service	Satisfaction
P < ZOT	i.e. (P<ME)	Defective zone	Poor service	Dissatisfaction

The levels of service quality and user satisfaction were determined using disconfirmation of user's expectancy theory with some modifications over Oliver's

(1980), and Patterson’s (1993) model. The zone of tolerance (ZOT) was used as disconfirmation standard to determine the levels. Particularly mentioning that the ZOT was determined as the range between RE and ME scores in this study, where RE is the result of $\{m (DE+ME)/2\}$. According to the level of disconfirmation the ZOT was clarified into four stages, and results were analyzed and discussed based on this 4-level ZOT. Nevertheless, the result of disconfirmation was calculated by the way shown in Table 2.5. The disconfirmation mechanism was correspondingly used as the determining standard of meeting and un-meeting users’ needs and expectations followed by the comparison techniques as explained in Table 2.6.

Table 2.6: Identification of meeting users’ needs and expectations

Comparison method	User’s need	User’s expectation
P < ME	Need doesn’t meet	x
P = ME	Need meets	x
P > ME	Need exceeds	x
P < RE	X	Expectation doesn’t meet
P = RE	X	Expectation meets
P > RE	X	Expectation exceeds

2.9 Verification of research results

Finally, the results of the research based on performance analyses were verified and standardized by taking observation and short-term experimentation over practical service situation, in-depth personal interview with the library users, and making opinion pool consisting of library stakeholders.

2.10 Summary

In perspective of getting a brief outline over the current research procedures it can be summarized in the way that the whole tasks of the project was carried out in a series of stages as explained below:

Stages	Methods/tools/techniques used
☑ Questionnaire development	Modified SERVQUAL instruments;
☑ Data collections	Questionnaire survey, personal interview, focus-group discussion, short-term experiment;
☑ Data treatment	Error checking and rejection manually;

❏ Data entry	Using SPSS, version 11.5;
❏ Frequency distribution	Distribution of demographic data;
❏ Cross tabulation	Examine the influence of demographic characteristics with one another;
❏ Examine user's opinions	Examine the nature of users' desired and perception ratings;
❏ Scale development	Using Exploratory Factor Analysis (EFA), Cronbachs' Alpha;
❏ Examine relationship between service quality and satisfaction	Using Pearson correlation between service quality dimensions, and Linear Regression analysis between user's overall opinions of service quality and satisfaction;
❏ Development of SQ-S assessment model	Integration between service quality dimensions, difference score method and disconfirmation of expectation's theory;
❏ Examine current perceived service scenario	Using users' opinions of perceived service performance (i.e. perception scores);
❏ Examine user's preference for service items	Using users' opinions of minimum service expectation (i.e. minimum service expectation scores);
❏ Calculating the "Real service expectation" (RE)	The average score of desired service expectation and minimum service expectation, i.e. $(DE + ME)/2$;
❏ Assessment of minimum service service quality (MSQ)	Discrepancy between user's perceived service performance and minimum service expectation, i.e. $(P - ME)$;
❏ Assessment of superior service service quality (SSQ)	Discrepancy between user's perceived service performance and real service expectation, i.e. $(P - RE)$;
❏ Calculating the "Zone of Tolerance" (ZOT)	The range between real service expectation and minimum service Expectation, i.e. (range between RE & ME);
❏ Determine service quality and satisfaction level	Using 4-level ZOT analysis;
❏ Determine causes of dissatisfaction	Based on exploratory findings;
❏ Gradual improvement of service Performance	SPCM (service performance control matrix) method;

Chapter - 3

Review of literature

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"The key to delivering high quality service is to continually monitor customer perceptions of service quality, identify causes of service quality shortfalls, and take appropriate actions to improve the quality of service (close the gaps)"

Zeithaml, Parasuraman & Berry (1990)

"Quality is in the eyes of the beholder... If customers say there is quality service, then there is. If they do not, then there is not. It does not matter what an organization believes about its level of service"

Hernon & Altman (1996)

"Quality lies in the eye of the beholder"

Lovelock, Christopher & Wirtz, Jochen (2007)

3.1 Introduction

The academic library has been described as the “heart” of the learning community, providing a place for students and faculties to do their studies, research and advance their knowledge. The librarians and library staffs provide numerous services to these users, addressing their diverse needs, characteristics, and interests. Competitive pressures from different information providers, widely available information resources, rising costs of books, serials and electronic resources, and emerging new technologies and services providing information to potential library users raise questions about the role of academic libraries in present time that mandate the academic libraries become more user-focused (Simmonds & Andaleeb, 2001). Gupta & Jain (1996) also pointed out, only that library system triumphs, which has more user-focus approach and rely on direct marketing and/or relationship marketing. Hence the better understanding of user’s specific needs and to provide the appropriate type and level of service that meet those needs, academic libraries must focus on improving the quality of the services they offer and thereby satisfying their users (Cullen, 2001; and Simmonds & Andaleeb, 2001). Learning from the service strategies of the commercial organizations, Gupta & Jain (1996) therefore stated, many LICs are now concentrating and developing customer orientation. Hence, the goals of customer-focus approach as Gupta & Jambhekar (2002) stated, are attraction, satisfaction and retention of customers. By providing quality services and satisfaction to users, academic and research librarians can distinguish their services through friendly, helpful and knowledgeable advice and the best technological resources available.

3.2 Customer orientation in library services

The purpose of library and information center is defined by the needs of users, and the success of that service is determined by satisfaction or delight of users (Gupta, 1996). The whole business of the library is oriented towards bringing the information sources and the customers (users) together. Here the message is that the customer (user) is everyone’s responsibility (Gupta & Jambhekar, 2002). As such there is no longer an easy acceptance of the “customer-focus” existence of a library and information delivery, simply because it is there. If we look for such focus in Ranganathan’s philosophy, his

approach to users heralded a new era of “user-focus” services in the library world, and gave a hope and opportunity to all users for easy and expeditious access to pin-pointed information; and it is incumbent upon the library staff and information sources through their collaborative efforts to ensure such a system to meet user’s need exceedingly so that users are delighted (Gupta, 1999).

The heart of the marketing philosophy is the emphasis on voluntary exchanges of values in support of organizational objectives (Kotler & Andreasen, 1991). Exchanges of value are defined as acts to obtain something that is desired from someone by offering something in return (Kotler & Armstrong, 1989), a relationship of mutual benefit (Weingand, 1987). Keeping such premise, Kotler’s (1991) assertion regarding customer orientation toward organization “a customer orientation toward marketing holds that, success will come to that organization that best determines the perceptions, needs, and wants of target markets and satisfies them through the design, communication, pricing, and delivery of appropriate and competitively viable offerings” has been taken by Johnson (1995). He assumed that using the marketing approach, librarians analyze, adjust, plan, perceived costs and benefits in order to construct and manage beneficial exchange relationships with customers, potential customers, and other target audiences. The process of working to achieve beneficial exchange relationships differs from organization to organization based on differences in organizational objectives, he said. He also asserted librarians who adopt this orientation create their services from the ground up based on the perceptions, needs, and wants of the customer. Because the objective is satisfying the customer, there is no presumption of what would be best. The givens the librarian must work with are givens from the customer’s point of view, for instance: how much time is it appropriate to give up getting the service, what times of day the service should be available, and so on. The librarian’s challenge in the customer-driven orientation is to shape the organization as much as possible to meet the needs and wants of the customer.

One of the most coherent pressures on management in all types of organizations is to focus on customer-needs to be customer-led, to be market oriented, and to take care of customers, and so on. Accordingly Nahl, Diane (1996) stated, library and information

service professionals are quite aware of the need of their focus toward the user. Such orientation has been expressed (recognized by Gupta & Jambhekar, 2002) in the library and information science literature widely, in the name of user-centered, user-friendly, user-based, user-oriented, user-responsive, client-centered, human-centered, people-centered approaches/services, etc. Thus the goals of the customer-focus approach, as Gupta & Jambhekar (2002) stated, are attraction, satisfaction and retention of customers/users.

3.2.1 Customer/user-focused marketing

Customer-focus considers the quality or the total customer experience. This includes not only the points of contact with customers but also the very nature of products and services on offer, the policies and procedures followed in conducting the business, the adornment within the business premises, and an endless accumulation of other elements that all have bearing on what customer will ultimately experience when he does business with organization. In customer-focused marketing it is the customer that drives the entire working force behind the product. Customer-focused marketing managers, therefore, must know exactly who their customers are and what segments of the market that they fit into. They also need to know the demographics of their customers and information like, how much information do their customers need before making a purchase? A customer-focused marketing plan also strives to increase the value their customers have concerning the purchasing that they do. Customer-focused marketing managers are responsible both for satisfactory levels of profitability and for improving relationships and understanding of customers and their needs. The usefulness of each customer must be maximized. This means, both developing a product specifically for them and creating relationships that will result in loyalty and repeated business. Hence, the goals of customer-focus approach as Gupta & Jambhekar (2002) stated, are attraction, satisfaction and retention of customers.

3.2.2 User-focused marketing in library services

User expects values, recognition, attention, and appreciation for their individual needs and desire for self-expression. Gupta & Jain (1996) pointed out that, in such environment, only that library system triumphs, which has more user-focus approach

and rely on direct marketing and/or relationship marketing. Learning from the service strategies of the commercial organizations, they also stated, many LICs are now concentrating and developing customer orientation. Their focus is on distinctive competencies, value delivery, customer defined quality, relationship management, continuous improvement and a customer-focused organizational culture.

Today, LIS professionals discuss quality, marketing, and customer service in order to achieve customer-focus in libraries in their professional meetings, conferences and seminars. Various journals have brought out special issues on application of such customer-related concepts in libraries. Many textbooks and large amount of literatures were also published. Even various authors' view of customer-focus in libraries variously, e.g. "focus on library customers: revelation, revolution or redundancy" (Johnson, 1995); "customer-focus is the starting point for the quality" (Brophy, 1996); "providing customer-oriented services in academic libraries" (Pinder, 1996); "customer-focus is an imperative for quality in library and information centers" (Gupta, 2000), and so forth.

Gupta & Jambhekar (2002)² conducted a study, where the authors revealed that, the customer-oriented marketing approach in libraries and information services aimed at coordinating and planning the total effort of the organization towards customers. The main purpose of such approach, they said, is to ensure that the efforts of different functions of the library, such as acquisition, organization, analysis, dissemination, and utilization are directed towards customers' requirements and those activities which have most closely to do with customers, such as users services, references, stacking work, etc., are working closely together with the facilities and resources of the library. Perng, Wang & Chiou (2009) asserted, readers will always be the critical focus of a library and is eager to build relationship with them related to interactive and customer-oriented service such as circulation desk, website, reference inquiry and personalized service. Hence, the development of library operation and service aiming at the goals of customer-focus is very important to library managers, they said. The researchers (Perng, Wang & Chiou, 2009) also cited, numerous studies have demonstrated that the importance of library service is users-oriented and the needs of meeting their demand and expectation (Huang, 2007; Shi, Holahan & Jurkat, 2004; Cullen, 2001; Flanagan &

Horowitz, 2000; Macewan, 1999; Nitecki, 1996; Millson-Martula & Menon, 1995; and Ojala, 1986).

There are evidences, which prove that the customer-focused approach has an important place in LIS marketing. Considering for instance “the notion of focusing on the customer and identifying and meeting community needs is only now emerging in library management circles” (Weingand, 1995); “integration of users into management creates customer-centered library” (Nahl, 1996); “customer-focus is at the core of the marketing concept” (Rowley, 1997); “marketing focuses on customers, LICs strive to meet their needs” (Gupta, 1998); “library services should be customer-focused, this approach will help librarians to retain the attributes of librarianship as a service-oriented profession in the new millennium” (Gupta, 2000); “putting the user first”, “give them what they want”, “customer-centered approach”, etc. are now seen as a route to gain competitive advantage by library and information professionals, because market-led services are striving to meet users needs.

The issue of improving customer-focus concerns the relationship between the service organization and its customers. This involves consideration of the relationship marketing approach, which brings quality, customer service and marketing together (Christopher, et al., 1991). From the observation of Gupta & Jambhekar (2002², 2002) it has been cited that, marketing is an organization wide philosophy and quality is the heart of it; marketing brings customers and quality satisfy them; marketing makes promises and quality fulfills them; marketing attracts the people to do business with the organization, quality retains them. Therefore, it is possible to conclude that one fundamental factor for the quality management of information services is the focus on users, which is also one of the fundamental principles of marketing. Naumann & Shannon (1992) thus proclaimed “marketing as an approach must become customer-driven.”

At the end, it can be established that the customer-orientated service is a market driven service, and fully market driven services operate within the context of a complete marketing strategy. Drucker, Peter (1979) the single most influential writer on management, has defined marketing in the following way:

True marketing starts out with customers, their demographics, related needs and values. It does not ask, "What do we want to sell?" It asks, "What does the customer want to buy?" It does not say, "This is what our product or service does". It says, "These are the satisfactions the customer looks for".

Concerning the user-focused marketing in academic library services, the key extracts based on Drucker's (1979) definition of marketing and the above literary supports it can be very well judged that the issue of customer-focus has greater influence in marketing of library and information services in the time of fast changes to serve the users in an improved and satisfactory way, and this is the lime light of the present research.

3.3 Service Quality and Satisfaction

The main aim of library is to provide information service to the users. Many library surveys ask about user satisfaction, sometimes in a general context and sometimes in relation to specific services. Usually, the questions about satisfaction allow for scaled responses. Too often, satisfaction surveys are really intended as library report cards. The terms "satisfaction" and "service quality" are frequently used interchangeably; this mistake has led to more confusion. According to Elliot (1995), satisfaction is "the emotional reaction to a specific transaction of service encounter". On the other hand Service quality has been described as "a global judgment, or attitude, relating to the superiority of a service".

3.3.1 Service quality

If we regard quality judgment as a process of knowing the quality of a product or service, then we have a very elusive object to know – quality is often conceived as something that can be recognized but not delineated. Yu, et al. (2008) mentioned, in the manufacturing and service sector there are five different approaches to defining quality. The first approach, the transcendent view, sees quality as the innate excellence of a product or service, which albeit not precisely definable, can be nevertheless recognized by people with related experience; the second approach, the product-based view sees quality as a precise and measurable variable, exemplified by the large number of knots per square inch on a quality rug; the third approach, manufacturing-based view defines

quality as “conformance to requirements”, where requirements usually take the form of clearly defined industrial specifications; the fourth approach, the value-based view, defines quality in terms of costs and prices, which in practice, is usually judged according to a subjective ascertainment of excellence and worth; and the fifth, the user-based view, defines quality in terms of customers’ experience, and regards a product or service that best satisfy the customers’ preferences as the one with the highest quality .

The term quality, according to various glossaries, means one of the following: fitness for purpose, fitness for use, conformity to requirements and absence of defects¹. The standard ISO 11620 defines quality of libraries as “totality of features and characteristics of a product or service that bear on the library’s ability to satisfy stated or implied needs” (ISO 11620, 1998). In the library world, the concept of quality has remained as elusive as it has in management literature; and approaches to defining the concept have been just as diversified (Rowley, 2005; Nitecki, 2001; and Pritchard, 1996). Orr (1973) is perhaps the most frequently quoted scholar in library and information science for his elaboration on the concepts of “goodness” and “quality” of a library service. Orr (1973) observed, the goodness of a library service has having two aspects reflected respectively in the questions of “how good is the service?” and “how much good does it do?”

Orr (1973), for example, defined a quality library as one with high capability to meet the user’s needs it intends to serve, which answers directly the first dimension of the goodness question. This view was shared by Buckland (1982) and to a certain degree by Line (1990), who proved that quality should be understood as “fitness to users’ preferences” in accordance with the term’s connotation in strategic management literature. Now it can be argued that there exists a notable difference between Orr’s “capability” and Borphy’s “fitness”: while the former appears to connote an internal (innate) attribute of a library service, the latter represents an external (ascribed) judgment about it. During the decades after Orr’s publication, “quality” with the former connotation is often preceded with the term “library” (hence “library quality”) to refer to a library’s level of capability to meet its users’ needs (Line, 1990). Line, (1990) also stated, the library that is able to meet a very high percentage of needs is a very capable library, and therefore one of high quality. “Quality” with the latter connotation is often

preceded with the term “service” (hence “service quality”) to refer to the perceived gap between a library’s actual services and users’ expectations.

In the service industry, definition of service quality tends to focus on meeting customer’s needs and requirements, and how well the services delivered meet their expectations (Lewis & Booms, 1983). Hernon, et al. (1999) for instance contend that, service quality differs from traditional measures of library quality in that it focuses on how closely customer expectations match customer perceptions of the service delivery. Similarly Quinn (1997) noted that, service quality essentially emphasizes the reduction of gaps between a customer’s expectation and the customer’s perception of the quality of service provided. From these and other related discussions, it seems possible to establish a conceptual differentiation as follows: while library quality represents the answer to the question “how good is a library”; service quality represents the answer to the question “how good is a library’s service delivery”. However, as the emphasis of library assessment shifts increasingly from the “traditional measures of library quality” to “service quality” (Hernon et al., 1999), librarians’ understanding of the quality issues in libraries, as well as their practices to achieve high quality, seem to be increasingly molded by the subjectively defined quality construct (e.g. “fitness to users’ preferences”) vis-à-vis the objectively defined one (e.g. “the capability of the library to meet the user’s needs”).

There are many researchers who have defined service quality in different ways. For instance, Bitner, Booms & Mohr (1994) define service quality as “the consumer’s overall impression of the relative inferiority/superiority of the organization and its services”. While other researchers’ (Cronin & Taylor, 1994; and Taylor & Cronin, 1994) view, service quality as a form of attitude representing a long-run overall evaluation. Parasuraman, Zeithaml & Berry (1985) defined service quality as “a function of the differences between expectation and performance along the quality dimensions”. Corresponding to this definition Roest & Pieters’ (1997) stated that, service quality is a relativistic and cognitive discrepancy between experience-based norms and performances concerning service benefits.

3.3.1.1 Perceived quality

Many researchers (Shank, Walker & Hayes, 1995) suggested that higher education possesses the characteristics of a service industry. Also, Solomon (1985) argued that higher education can be termed as a pure service, because of the degree of person-to-person interaction. Since services are intangible, inseparable, heterogeneous and perishable (Parasuraman, 1986), measuring service quality cannot be achieved objectively (Patterson & Johnson, 1993). Moreover, the construct of quality as conceptualized in the services literature is based on the perceived quality, which is based on (according to Zeithaml, 1987) consumer's judgment about an entity's overall excellence or superiority, and results from the comparison of customer service expectations with their perceptions of actual performance (Zeithaml et al., 1990).

Perceived quality is defined as the consumer's judgment about an entity's overall experience or superiority (Zeithaml, 1987; and Zammuto et al., 1996). Zeithaml, Parasuraman & Berry (1990) conducted 12 focus groups nationwide in search of a definition of service quality. They concluded that "service quality, as perceived by customers, can be defined as the extent of discrepancy between customers' expectations or desires and their perceptions". This supports the notion that the key to ensuring good quality service is meeting or exceeding what customers expect from the service. Therefore, a thorough understanding of customer expectations is the critical foundation on which perceived high quality service must rest. Similarly, Parasuraman, Zeithaml & Berry (1990) also stated that, consumer perceptions of service quality result from comparing expectations prior to receiving the service, and their actual experience of the service.

Perceived quality is seen also as a form of attitude, related to, but not the same as satisfaction, and resulting from a comparison of expectations with perceptions of performance (Rowley, 1996). Therefore, perceived service quality could be the product of the evaluations of a number of service encounters and in this case, of a student, these could range from encounters with office staff, to encounters with tutors, lecturers, the head of departments, etc (Abu Hasan & Ilias, 2008). As a result, if an organization regularly provides service at a level that exceeds customer expectations,

the service will be evaluated as high quality. In contrast, if an organization fails to meet customer expectations, the service will be judge as poor quality (Zammuto et al., 1996).

3.3.1.2 Service quality in academic libraries

Performance measures which include input and output measures have been used to assess the quality of library services and activities (Hernon & Altman, 1996). Such evaluation has enabled libraries to obtain objective data of their activities that helped them to justify their worth to funding agencies. However, meeting internally set standards does not imply that the library is performing well in the eyes of the customers (Hebert, 1994). This finding calls for measures that focus on the customers.

Library services quality is a combination of the quality of information provided by the library (e.g., comprehensiveness, appropriateness, and format), and the services offered by the library (e.g., physical facilities, helpfulness, and attitude of library staff) (Shi & Levy, 2005). The harness and implement the concept of service quality within the context of academic libraries, several authors have turned to the marketing literature (Andaleeb & Simmonds, 1998). Whitehall (1992) reviewed the literature on quality management in libraries and noted that several measures (such as timeliness of service and ease of use of service) were used by libraries to “listen” to the customers. Millson-Martula & Menon (1995) asserted that one element of high-quality service is “the incorporation of users’ personal needs and expectations into the development of programs and service”. According to them, the continuous success of a service organization such as an academic library depends on the organization’s ability to adjust its products and services to correspond to user needs. Similarly, Hernon & Calvert (1996) suggested, only customers/users justify the existence of a library. Nitecki (1996) also claimed that “the assessment of how well a library succeeds depends on the user as a judge of quality”.

Pritchard (1996) addressed the issues of quality management in academic libraries and emphasized the importance of monitoring and meeting the needs of customers. Quinn (1997) however, cautioned against the outright application of service quality models from the business world in academic libraries, as “the goals and methods of academe,

and the relation of staff to customers, are more complex than the business and manufacturing settings from which service quality concepts is developed". He argued for the need to adapt these models as academic libraries employed a didactic model of service where academic librarians served customers to enhance their intellectual and personal development, and not so much to reduce the gap between a user's immediate expectations and perceptions. He further pointed out that "the straightforward provision of information that the user wants in special libraries appears to be much closer to the ethos of the service quality model". As these views gain greater acceptance among academic librarians, librarians must orient themselves and their programs to become better customer advocates and address their problem-solving needs.

To summarize, the library literature shows that quality assessment effort in libraries is moving from performance measures that focus on traditional input and output measures, to measures that focus on feedback from customers. In addition, libraries are adapting methods and techniques from the business world, and applying them to libraries.

3.3.2 Satisfaction

Kotler & Clarke (1987) defined, satisfaction as a state felt by a person who has experience performance or an outcome that fulfill his or her expectation. It is a function of relative level of expectations and perceives performance. In a quality management context, customer satisfaction is defined as a result of comparison between what one customer expects about services provided by a service provider and what one customer receives actual services by a service provider (Caruana et al., 2000; and Parasuraman et al., 1988). Getty & Thompson (1994) defined satisfaction as a "summary psychological state experienced by the consumer when confirmed or disconfirmed expectations exist with respect to a specific service transaction or experience". Many researchers (Oliver, 1981; Brady & Robertson, 2001; and Lovelock, Patterson & Walker, 2001) conceptualized customer satisfaction as an individual's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his/her expectations.

Customer/user satisfaction represents the degree to which a library has met the user's needs and expectations (Cooper & Dempsey, 1998). It is a function of relative level of expectations and perceives performance. The expectation may go as far as before the students even enter the higher education, suggesting that it is important to the researchers to determine first what the students expect before entering the university (Palacio, Meneses & Perez, 2002). In the contrary, Carey, Cambiano & De Vore (2002) believed that satisfaction actually covers issues of students' perceptions and experiences during the college years.

There are two general conceptualizations of satisfaction, namely, (1) transaction-specific satisfaction and (2) cumulative satisfaction (Yi & La, 2004; Jones & Suh, 2000; and Boulding, et al., 1993). "Transaction-specific" satisfaction is a customer's evaluation of his or her experience and reactions to a particular service encounter (Boshoff & Gray, 2004; and Cronin & Taylor, 1992); and "cumulative satisfaction" refers to the customer's overall evaluation of the consumption experience to date.

3.3.3 Relationship between service quality and satisfaction

Service quality and customer satisfaction are inarguable the two core concepts that are the crux of the marketing theory and practice (Spreng & Mackoy, 1996). In today's world of intense competition, the key to sustainable competitive advantage lies in delivering high quality services that will in turn result in satisfied customers (Shemwell et al., 1998). Therefore, there is not even an iota of doubt concerning the importance of service quality as the ultimate goal of service providers throughout the world (Sureshchandar et al., 2002).

Studies in services marketing have shown that service quality and satisfaction are closely related constructs (Babakus et al., 2004; Cronin & Taylor, 1994; and Oliver, 1993). In modeling satisfaction, two general conceptualizations of satisfaction exist in the literature: transaction-specific satisfaction and cumulative satisfaction (Johnson et al., 1995; and Boulding et al., 1993). In transaction-specific, satisfaction with a product or service is measured at a certain point in time (Oh & Parks, 1997; and Cronin & Taylor, 1994). Overall satisfaction is defined as customers' cumulative satisfaction with all

previous exchanges including the most recent one (Maxham & Netemeyer, 2002) or satisfaction that accumulates across a series of transaction or service encounters (Oliver, 1997). Overall satisfaction, theoretically founded by Johnson & Fornell (1991) developed into cumulative satisfaction as a distinction from transaction specific research (Johnson et al., 1995). In general, researchers in services marketing literature agreed that perceived service quality and satisfaction are highly interrelated (Bitner & Hubbert, 1994). In an era of global competition, many organizations have now shifted the paradigm of service quality to customer's perspective (Parasuraman et al., 1985). Rely on this paradigm Gronroos (1984) and Parasuraman et al. (1988, 1985) stated, a customer will judge the quality of service it meets his/her expectations.

The concept of service quality (Nitecki, 1996) is somewhat elusive and resists easy definition, but essentially it emphasizes customer satisfaction as its primary objective. Oliver (1981) defined "satisfaction is the emotional reaction following a disconfirmation experience which acts on the base attitude level and is consumption-specific"; perceived quality, on the other hand, is defined and contrasted to satisfaction by Parasuraman, Zeithaml & Berry (1988) as "a global judgment or attitude, relating to the superiority of the service, whereas satisfaction is related to a specific transaction". Parasuraman, Zeithaml & Berry (1985) said "quality service means resources and services that satisfy the user's expectations". Service quality model is focused on meeting these expectations and retaining users.

Parasuraman, Zeithaml & Berry (1985) also suggested that, it may be the perception of service quality that leads to customer satisfaction. This means that the customer perceives the service to be high quality, then the customer will be satisfied with it. Conversely, some others believe that if the customer is satisfied with the service, they perceive it to be high quality. Bitner (1990), and Bolton & Drew (1991) agreed with this view and said, satisfaction is an antecedent of service quality. Service quality is commonly noted as a critical prerequisite for establishing and sustaining satisfying relationship with valued customers (Abu Hasan & Ilias, 2008). In this way Cronin & Taylor (1992) said that, the association between service quality and customer satisfaction has emerged as a topic of significant and strategic concern; and Spreng &

Mckoy (1996) stated, perceived service quality is an antecedent to satisfaction in general. Thus a proper understanding of the antecedents and determinants of customer satisfaction can be seen as to have an extraordinarily high monetary value for service organization in a competitive environment (Lassar, Manolis & Winsor, 2000). Bigne, Moliner & Sanchez (2003) also found that, the overall service quality have a significant relationship with satisfaction (Abu Hasan & Ilias, 2008).

In service quality in academic libraries Hernon & Altman (1996) explored the question of user satisfaction and the part this plays in user perceptions of service quality. The researchers said, the relationship between service quality and customer satisfaction is a complex one. Service quality is variously defined as a component of customer satisfaction and vice versa. Hernon & Altman (1996), for example, cited a definition of satisfaction derived from a number of marketing experts which Elliott (1995) gives as "the emotional reaction to a specific transaction or service encounter", but they go onto indicate that "satisfaction may or may not be directly related to the performance of the library on a specific occasion". As they explain "a customer can receive an answer to a query but be unsatisfied because of an upsetting or angry encounter. Conversely, although the query might remain unanswered, another customer might feel satisfied, because the encounter was pleasant, and the helper interested and polite" (Hernon & Altman, 1998). However, as Hernon and Altman noted, Elliott also observed that the service quality is probably "an antecedent of customer satisfaction", and the "higher levels of service quality result in increased customer satisfaction" (cited in Cullen, 2001).

Several studies showed that service quality may indirectly and directly affect customer satisfaction. In terms of direct relationship perspective, Bitner (1990) examined that the service quality had been an important antecedent of customer satisfaction. In addition Caruana et al. (2000) conducted a research on 80 personal interviews with customers of the audit firm and found that service quality positively correlated with perceived value (Ismail & Alli, 2009). Another study conducted by Eggert & Ulaga (2002) about customer satisfaction based on 301 employees in US organizations, in which the researchers found that, properly implementing service quality features have increased individuals' perceive value about the quality features. As a result, it might lead to an increased

customer satisfaction. Consequently Walker et al. (2006), Foster (2004), and Parasuraman et al. (1988) proclaimed, if services provided by an organization meet a customer's needs, this may lead to higher customer satisfaction. Through conceptual improvement and empirical findings most researchers have agreed that quality judgments cause satisfaction, i.e. service quality is the antecedent of satisfaction (Cronin & Taylor, 1992; and Bitner, 1990).

A review of the emerging literature suggests that there appears to be relative consensus among marketing researchers that service quality and customer satisfaction are separate constructs which is unique and share a close relationship (Oliver, 1993; and Cronin & Taylor, 1992). Most researchers in the services field have maintained that these constructs are distinct (Spreng & Mackoy, 1996; Boulding et al., 1993; Bitner, 1990; and Carman, 1990). Iacobucci et al. (1995) concluded that the key difference between service quality and customer satisfaction is that quality relates to managerial delivery of the service while satisfaction reflects customers' experiences with that service. They argued that quality improvements that are not based on customer needs will not lead to improved customer satisfaction.

However, based on the numerous literary details on the subject, researcher proclaimed that, the exact nature of the relationship between service quality and customer satisfaction has not yet been entirely uncovered and clarified. Consequently with present study context regarding the subject he concluded that service quality and satisfaction are two distinct constructs, closely related to each other.

3.3.4 Why measuring service quality and satisfaction?

The competitive pressures faced by many service industries today are compelling them to seek competitive advantage, efficiency, and profitable ways to differentiate themselves from others (Mei et al., 1999). It is recognized that high quality service is essential for the success of organizations (Rust & Oliver, 1994; Mangold & Babakus, 1990; and Parasuraman et al., 1988) as service quality has been observed as the major driving force for business sustainability (Carlzon, 1987). Higher education is a dynamic fast growing service industry and every day it is more and more exposed to the

globalization processes (O'Neil & Palmer, 2004; and Damme, 2001) together with the increase in number of higher education institutions all over the world, as Naude & Ivy (1999) mentioned, both new and traditionally old universities are finding themselves in an unfamiliar environment, which requires competing for students. Service quality, emphasizing student satisfaction, is a newly emerging field of concern, they remarked.

Berry et al. (1988) stated, service quality has become a major differentiator and the most powerful competitive weapon that many leading service organizations possess. This is also true for higher education institutions. Service business success has been associated with the ability to deliver superior service (Gale, 1990; and Rudie & Wansley, 1984). Delivering superior service by maintaining high quality is a prerequisite for success (Parasuraman et al., 1988). Checking and measuring service quality in service sectors has become so vital. Simmonds & Andaleeb (2001) accordingly cited, providing quality services in academic libraries is now a major issue among academic librarians; they see the library more in terms of the provision of and access to service quality than as just a physical place. Technology and automation have also changed the way people perceive libraries. As a result, the role of libraries and librarians is also changing. Librarians have been re-evaluating their role as reflected in many discussions and papers. They emphasize the provision of good library service as more important to the user than the mere physical library building. This perspective is evident in several studies conducted by Coleman et al. (1997), Hernon & Calvert (1996), Edwards & Browne (1995), and White & Abels (1995). Thus, academic librarians should continuously measure the quality of library services they are providing to their users. Accordingly Nadiri & Mayboudi (2010) proclaimed, measuring the quality of service in higher education is increasingly important and students should be considered as customers in the field of higher education.

Keegan & Davidson (2004) suggested that for market orientation and differentiation, higher educational institutions should understand their customers, assess their needs, modify their offerings to meet those needs, and thereby boost customer satisfaction by delivering superior quality services. Price et al. (2003) reported on the impact of facilities on student choice of university. Price et al. (2003) surveyed a number of

universities in the United Kingdom over two years in order to determine students' reasons for selecting a particular university. The average results for the two years were fairly similar. Among the top eight reasons, one of the main reasons was quality of library facilities.

Bawden, Petuchovaite & Vilar (2005) believe that "the evaluation of library services is a topic, and an activity, of importance in all countries with established library services". Without timely feedback of quality, library systems could deteriorate such that recovery or meeting users' satisfaction is difficult, if not impossible. Altman & Hernon (1998) stated "quality service is a competitive necessity for business and service organizations". The authors also said, "assessing service quality is the first step in retaining customers (users) in today's competitive environment". Therefore, quality assessment efforts on the basis of end-users' viewpoint are treated as one of the major concerns and an integral part of Library and Information Science practitioners. As a matter of fact, this rule is not an exception to academic libraries of Bangladesh.

3.3.5 Quality matrix in academic library services

The quality of academic libraries is connected with services, products as well as staffs, facilities, space (Pindlowa, 2002). Mowat (1996) states, "High quality staff can transform even the poorest library into an operation offering excellent service". Because libraries are service organizations, and quality in the context of a library is often treated as the quality of service. Hernon & Nitecki (1999) point out that service quality includes three areas: resources (information content), organization (service environment and resource delivery) and service delivered by staff. Oldfield & Baron (2000) mentioned, generally students have three main criteria that need to be satisfied with services. These has been labeled as "requisite encounters", which essentially enable students to fulfill their study obligations; "acceptable encounters", which students acknowledge as being desirable but not essential during their course of study and; "functional encounter", an encounter of a practical or utilitarian nature. Hence, the proclamation of Czepiel (1990) may be triggered that, "the business success now and in the future depends on the performance of the service provider's interactions with the customer", which is not an exception to academic library services, the researcher thinks.

According to Lassar, Manolis & Winsor (2000), two most prevalent and widely accepted perspectives on service quality include the SERVQUAL model and the Technical/Functional quality framework. Gronroos (1984) held that service quality is made up of three dimensions "the technical quality of the outcome", "the functional quality of the encounter" and "the company corporate image". He argued that in examining the determinants of quality, it is necessary to differentiate between quality associated with the process of service delivery and quality associated with the outcome of service, judged by the consumer after the service is performed.

Parasuraman, Zeithaml & Berry (1985) however listed ten determinants of service quality that can be generalized to any type of service. The ten dimensions include tangibility, reliability, responsiveness, competence, access, courtesy, communication, credibility, security and understanding. In addition, these ten dimensions were then regrouped in the well-known five dimensions in the SERVQUAL model popularly known as RATER model (Parasuraman et al., 1990) which includes reliability, assurance, tangibility, empathy and responsiveness. An earlier research done by Mahiah et al. (2006) also confirmed Parasuraman, Zeithaml & Berry's (1985) findings. They as well suggested that increasing of sophistication of reliability, empathy, tangibility, responsiveness and assurance can increase customer satisfaction towards services rendered by Human Resource department.

Nadiri (2007) also found out that service quality of library facilities is one of the most important factors that have a significant influence on students' overall satisfaction from their universities. Thus, managers of higher education institutions need a standardized measure of library service quality in order to understand users' perceptions and improve library service quality that leads to better meet users' information needs. They need to employ techniques of measuring quality of their services just like their counterparts in the business sector. They also need to familiar themselves with existing instruments that have been designed to measure service quality. SERVQUAL scale is the most well known instrument (applied in wider context) for measuring service quality developed by Parasuraman, Zeithaml & Berry (1985).

Although, some researchers claimed that SERVQUAL model had the weak points both theoretically and operationally. Because the researchers said, five dimensions of SERVQUAL model may not cover all services aspects of the organization and are not universals. Several studies also questioned the applicability of SERVQUAL dimensionalities to library services. For example, Edwards & Browne (1995) suggested that SERVQUAL's five dimensions may not hold for information services in a university library. They noted that dimensions should also address "technological features of service".

In another study, Nitecki (1996) examined the applicability of SERVQUAL dimensions to a university library service through exploratory factor analysis. In examining three aspects of library service (i.e. interlibrary loan, reference, and reserve services), she found only three dimensions. The only dimension which showed SERVQUAL's original dimensionality was tangibles, and the items of reliability and responsiveness were found combined with items of assurance and empathy. The researcher thus questioned the validity of establishing dimensions in the assessment of university library service quality. Hernon & Calvert (1996) thus concluded that "it is not possible to develop a generic instrument applicable to all libraries in all circumstances". Cook & Thompson (2000) also found three dimensions to apply to library services, namely tangibles, reliability or service efficiency, and affect of service (responsiveness, assurance and empathy). They called for more research on the dimensions applicable to library services.

Nitecki & Hernon (2000) noted that there might be other dimensions for library services, such as users' preference for self-sufficiency or self-reliance. Later, Cook & Heath (2001) mentioned that library service quality may include six dimensions, such as: affect of service (empathy, responsiveness, and assurance), ease of access (formats, timely access to resources, and physical location), self-reliance, reliability, comprehensive collections, and library as place (utilitarian space and symbol of the intellect). Moreover, SERVQUAL instruments were used in different library settings by many researchers (See for example: Shoeb, 2011; Kiran, 2010; Ahmed & Shoeb, 2009; Yu et al., 2008; Nitecki, 2007, 1996; Martin, 2003; Simmonds & Andaleeb, 2001; Cook & Thompson, 2000; Andaleeb & Simmonds, 1998; Coleman et al., 1997; and Hernon & Altman, 1996). Some

others suggested that SERVQUAL instruments can be equally applied in library settings with necessary modifications. In specific service situations, Carman (1990, p.157) accordingly suggested that, it may be necessary to delete or modify some of the SERVQUAL dimensions or even introduce new ones. SERVQUAL developers (Parasuraman et al., 1988, p.31) also claimed that "it provides a basic skeleton [. . .] which can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization". Nevertheless, the widely applied SERVQUAL scale can serve as a basis for development of new scales appropriate for different industries taking into account their unique operational characteristics.

Consequently Andaleeb & Simmonds (1998) conducted a research on SERVQUAL perspective, and introduced an alternate framework with its attendant measures, that attempts to explain overall library user satisfaction. Although the authors believed that overall satisfaction can be influenced by several of the SERVQUAL dimensions, other factors also deemed pertinent that they included in their framework. Thus they suggested, academic librarians must focus on two major elements (based on the standardized betas) i.e. resources and demeanor if providing customer satisfaction is to be underscored in their strategic vision. These factors were deduced from in-depth interviews with library users.

According to authors' observations, the academic library is primarily acknowledged with available resources; users are also acknowledged with their library through resources that meet their expectations. The researchers accordingly observed that, the availability of library resources can have significant influence on user satisfaction. They claimed that resources strategy is important, because academic library users frequent their libraries to find solutions to their academic problems and needs. They also asserted, in today's dynamic environment of information availability, resources does not mean only the size of library's collections, rather includes a variety of other resources that, to the users, make access to information the key to judging resource adequacy. Thus the authors proposed that:

Proposition-1: "The higher the perceived quality of the library's resources, the greater the level of user satisfaction";

Researchers accordingly observed that, users of academic library as in other libraries expect the staff to be knowledgeable having ability to answer all questions appropriately, and to be able to assist them in locating needed materials and information quickly and efficiently. They also observed users generally will form an impression of the level of staff competence as they experience various services during their library encounter. The researchers thus believed that receiving competing service is important to library users, and proposed:

Proposition-2: "The greater the perceived competence of the library staff, the greater the level of user satisfaction";

Researchers also observed, users expect that the library staff will attend to their needs quickly. Authors' measures of responsiveness are also some what different from those in the original SERVQUAL scale and focus on promptness. It (Promptness) is, therefore, can be critical to users' perceptions of responsiveness, they claimed. Authors therefore proposed that:

Proposition-3: "The greater the responsiveness of the library staff, the greater level of satisfaction among academic library users";

Consequently, the researchers observed in a closer look, users of academic libraries are seeking staffs, who are friendly and approachable, but not unnecessarily intrusive. Thus they suggested that, the library users especially students accord significant importance to the demeanor of the library staff. They accordingly proposed:

Proposition-4: "The more positive the demeanor of the library staff, the greater the level of library satisfaction";

In researchers' (Andaleeb & Simmonds, 1998) investigations, physical or "tangible" evidence has been shown to be a component of service quality in academic library. Hence, they suggested that physical condition of the library and the facilities within it that meet the eye must be managed so that negative impressions are not conveyed. The authors therefore proposed that:

Proposition-5: "The better the perceived overall physical appearance of the library facilities, the greater the level of user satisfaction";

The modified SERVQUAL instrument for library setting provides an outcome measure for librarian to spotlight service quality. After a comprehensive review of related literatures and theoretical analysis of service quality dimensions suggested and experimented by many researchers, the researcher of the study observed that, the five built-in dimensions exist in the five propositions introduced by Andaleeb & Simmonds (1998) are the most appropriate instrument for measuring academic library service quality and user satisfaction. Among the modified versions, the researcher also purposely claimed that, SERVQUAL instrument for academic libraries adapted by Andaleeb & Simmonds (1998) adequately covers the entire services of academic libraries due to inclusion of additional "resources" dimension with existing SERVQUAL dimensionalities and merging the former two dimensions "assurance and empathy" into a separate one "demeanor". The researcher, therefore, enthusiastically consider these dimensions for the convenient of designing survey instruments for this study. However, the modified SERVQUAL dimensions (based on five propositions) as recognized by the researcher are: resources, competence, responsiveness, demeanor and tangibles (see Table 3.1).

Table 3.1: The modified SERVQUAL dimensions

Dimension	Statement
Resources	All the reading materials including technological equipment and facilities, availability of updated services and library employees;
Competence	Knowledge and ability of library employees to answer all questions dependably and accurately;
Responsiveness	Willingness to assist library users and provide prompt service;
Demeanor	Behavior and courtesy of employees, and their friendliness to library users;
Tangibles	The physical facilities including internal environments, right place of materials, and others;
5 Dimensions	

3.3.6 SERVQUAL in service quality measurement

Parasuraman et al. (1985) developed the SERVQUAL model for measuring service quality (based on gaps model) in service oriented organizations. The original 10 dimensions of SERVQUAL was further revised by those researchers and recognized into five dimensions such as: reliability, responsiveness, assurance, empathy and tangibles; and was operationalized in the form of two 22-items sections to measure customer expectations and perceptions. The literatures relating to measuring service quality also have tended

to focus on the former approach and in particular the use of SERVQUAL instruments that has been used in various settings with minor modifications. This measurement instrument as stated by Chiu (2002), Sureshchandra et al. (2001), and Parasuraman et al. (1994, 1988) is the most widely utilized tool for measuring service quality. Its application continues to increase in different service settings, such as banks (Jabnoun & Al-Tamimi, 2003), hospitality (Saleh & Ryan, 1992), health (Arasli et al., 2008), education (Tan & Kek, 2004), travel and tourism (Fick & Ritchie, 1991), and has been demonstrated to be applicable in the information systems arena by Pitt, Watson & Kavan (1995), and most importantly in library setting by Shoeb (2011), Kiran (2010), Ahmed & Shoeb (2009), Yu & Gu (2008), Nitecki (2007, 1996), Martin (2003), Simmonds & Andaleeb (2001), Cook & Thompson (2000), Andaleeb & Simmonds (1998), and Hernon & Altman (1996) with some modifications as required.

Beyond the broader spectrum of SERVQUAL's utility for measuring service quality, it has been subjected to a number of criticisms by a number of researchers. For instance with regard to SERVQUAL dimensions a number of authors concurred that, service dimensions are service industry specific, the number of dimensions and their stability across various service industries are likely to vary (e.g. see Van Dyke, Kapelman, & Prybutok, 1997; Taylor et al., 1993; Babakus & Boiler, 1992; Carman, 1990; and Crompton & MacKay, 1989). One of the main criticisms is that, most research studies do not support the five-factor structure of SERVQUAL put forward by Parasuraman et al. (1991 & 1988). It is generally agreed that service quality is a multi-dimensional or multi-attribute construct (Llosa et al., 1998; Cronin et al., 1994 & 1992; and Babakus & Boller, 1992). These authors contended that there is a need to amend the dimensions to suit specific services especially as services are becoming more diffuse. Babakus & Boller (1992) maintained that the dimensionality of service quality may depend on the type of services under scrutiny. While Cronin & Taylor (1992) and Brown et al. (1993) suggested that, the unidimensionality of SERVQUAL, the number of dimensions found in other replications vary from three to five (Llosa et al., 1998) or ten (Carman, 1990).

Despite these criticisms Parasuraman et al. (1994 & 1991) contended that, the SERVQUAL scale using the expectation/performance gaps method is a much richer

approach to measuring service quality than any other methods. They (Parasuraman et al., 1988) also noted that, even if it may be necessary to reword or modify some of the items, yet the SERVQUAL scale is applicable in a wide range of business services. In such premises Asubonteng (1996) as well claimed that, SERVQUAL is popular with managers because it combines ease of application and flexibility. Kitchroen (2004) accordingly contended that, SERVQUAL instrument is suitable for measurement of service quality because it measures key aspects of service quality.

Service quality is based on a comparison between what the customer feels should be offered and what is provided (Parasuraman, Zeithaml & Berry, 1985). Other researchers, such as Kettinger (1994) and Whitten (2003) also supported this notion that service quality is the discrepancy between customers' perceptions and expectations. Parasuraman, Zeithaml & Berry (1985) suggested that service quality be measured as the difference between the sum of customer's expectations and perceptions of actual performance levels for a set of service attributes, which is previously known as SERVQUAL instrument. They identified exceeding customer expectations as a way to maximize quality. The higher the performance-minus-expectation score is, the higher the level of perceived service quality. With its widespread applications as mentioned by Whitten (2003), studies emerged questioning the conceptual and empirical integrity of the SERVQUAL instrument. One of the questions is conceptual integrity of SERVQUAL's expectation measure, stating that it suffered from different interpretations. The other question is the use of "gap" measures. Some researchers also questioned the appropriateness of using SERVQUAL in an IS or IT context, and others disagreed about whether the service quality should be the difference between expected and perceived service. In this premises Miller, Jones & Winick (2007)'s study in examination of user expectations on IS environment revealed that, users' expectations are both consistent and relatively high. That is also problematic enough in diagnosing the actual gap between users' expectations and perceptions of services they received, and thus producing incorrect results.

Since Parasuraman, Zeithaml & Berry (1988) have made numerous changes to SERVQUAL, some in response to problems identified by other researchers. For instance,

they (Parasuraman, Zeithaml & Berry, 1994)² reported on three different SERVQUAL formats; they recommended that researchers use a format that separated customer expectation scores into tolerance zones.

3.3.6.1 Zone of Tolerance (ZOT) in service quality gap

Berry & Parasuraman (1991) found that, customers' service expectations exist at two levels, i.e. the desired level and the adequate level. The desired service level describes the service that the customer hopes to receive. This level constitutes a mix of what the customer believes "can be" and "should be" provided by the service provider. The adequate level denotes the level customers find acceptable. This level reflects customers' evaluation of what the service "will be", or in other words customers' prediction of the level of service. The difference between these two levels is termed the (ZOT) zone of tolerance, which is a range of service performance that the customer will tolerate and finds satisfactory. A level below the zone of tolerance will lead to customer frustration, decrease customer loyalty, and, hence, dissatisfaction. A level above the tolerance zone will lead to delighted customers, strengthen loyalty, and, hence, satisfied customers.

Zeithaml et al. (1993) categorized expectations into desired and adequate. They defined desired service expectation as the level of service that customers hope to receive. This is a mixture of what customers believe the level of performance can be and should be. They claimed that this corresponds to customers' evaluation of service quality. The adequate service expectation is defined as the lowest level of performance that consumers will accept. The authors noted also, this level of expectation is comparable to minimum tolerable expectation. This is termed as "predictive expectation", and is associated with customer satisfaction. The area between desired service and adequate service is referred to as the zone of tolerance, and represents the range of service performance that customers will tolerate. Zeithaml et al. (1993, p. 18) also reported that "as conceptualized in the customer satisfaction/dissatisfaction literature, assessments of customer satisfaction results from a comparison of predicted service with perceived service. Predictive service, however, is not the comparison standard that customers use in service quality assessments. Instead, service quality assessments are a function of two

other comparisons. Consistent with the services marketing literature, service quality assessments, called gap 5 in the gaps model of service quality (Parasuraman et al., 1985), involve comparisons with desired and adequate, rather than predicted service.”

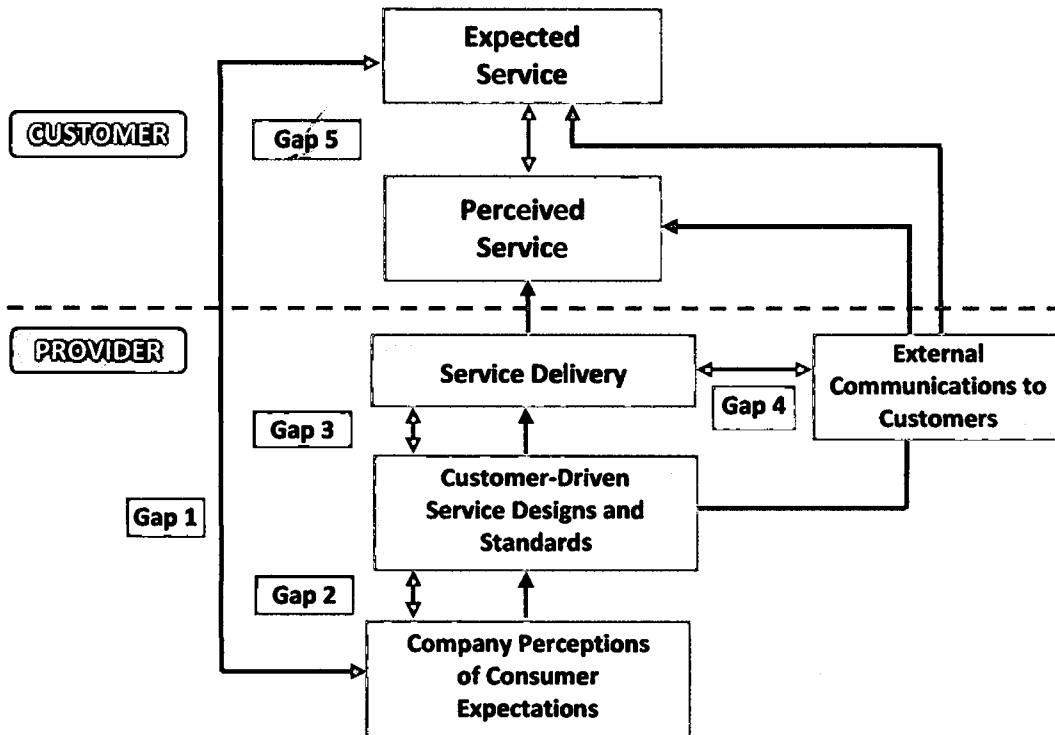
The inherent nature of services renders it difficult to ensure consistent service delivery across employees in the same organization, and even by the same service employee from day to day. The extent to which customers are willing to accept this variation is the zone of tolerance (Lovelock & Wirtz, 2007). Therefore, service performance that is above the minimum tolerable level will ensure satisfaction. More importantly, consumers will tolerate services that are equivalent to their minimum tolerable expectation. According to Zeithaml et al. (1993), consumers will tolerate service performance if it is equal to the adequate service level. A zone of tolerance thus occurs when the service performance is between the desired expectation and the adequate expectation. Further, the bottom line for satisfaction occurs when the perceived service performance is equal to the adequate service expectation. Nadiri & Mayboudi (2010) asserted that, assessment of desired and adequate expectations might be valuable in determining and monitoring service performance and student satisfaction from library services. This information can be used as an internal benchmark to enhance the existing level of service quality.

3.3.6.2 Application of SERVQUAL in academic libraries

Although SERVQUAL was developed within the marketing sector, it also is used in a variety of organizational settings, including libraries and information centers as stated by Nitecki (1996), and Kettinger & Lee (1994). Pitt, Watson & Cavan (1995) were the first researchers, who administered the SERVQUAL model for measuring information system service quality based on content validity, reliability, convergent validity, nomological and discriminant validity and drew attention to the low reliability of the tangible construct, as well as advised that it be used with caution. They concluded that overall SERVQUAL is a suitable measure of information systems service quality. According to them, since SERVQUAL is a general measure of service quality, it is well suited to benchmarking, which established goal-based on best practice. Therefore, it can be used

by managers of information systems service department to benchmark their service performance.

Figure 3.1: The Gaps Model of Service Quality



In a landmark monograph entitled “service quality in academic libraries” Hernon & Altman (1996) used the SERVQUAL model to develop a robust instrument for measuring service quality and satisfaction in academic libraries. The SERVQUAL model used by Hernon & Altman and other researchers in examining service quality in the field of library and information services is derived from the work of Parasuraman, Zeithaml & Berry (1988). In the SERVQUAL model, quality is defined as “perceived quality” rather than “objective quality”, that is, it is dependent on the customer’s perception of what they can expect from a service and what they believe they have received, rather than any “objective” standards as determined by a professional group or in conventional performance measurement. The model is best known for its definition of gaps between customer expectations and perceptions, and popularly known as “the gaps model of service quality” as shown in Figure 3.1.

SERVQUAL instrument was first introduced to the information system (IS) context by Kettinger & Lee (1994). They slightly modified the SERVQUAL instrument of

Parasuraman, Zeithaml & Berry (1991) from the marketing setting by making minor wording changes to clarify them in the IS context. Pitt, Watson & Kavan (1995) deemed it necessary to assess the validity of the SERVQUAL instrument in an IS setting prior to using the instrument. They tested the appositeness of the SERVQUAL instruments in three international organizations (namely: a British accounting information management consulting firm, a South African financial institution, and a US information service business) and found an optimistic result that, SERVQUAL is an appropriate instrument for researchers seeking a measure of information system service quality.

Two later research projects have tested the validity of the standard instrument used in the SERVQUAL model. Nitecki's (1996) doctoral research tested the SERVQUAL instrument on three aspects of library service, i.e. interlibrary loan, reference and close reserve and concluded that the instrument was useful in determining how well services match user expectations. Accordingly, Hernon & Calvert (1996) tested the validity of the SERVQUAL instrument for evaluating academic libraries among library students and librarians, and came up with an instrument based on SERVQUAL but one that would offer libraries more choice about the customer expectations they might want to focus on and the priorities they might want to set in service delivery. Hernon & Altman (1996) observed that, although it covers much of the material of service quality in academic libraries, but assessing service quality introduces a range of method for surveying users, including the SERVQUAL instrument used by Nitecki.

Researchers have continued to use SERVQUAL instruments. In 1997, Van Dyke, Kappelman & Prybutok employed SERVQUAL in an IS context; while Banwet & Datta (2002) measured IT service quality in a library service, as did Landrum & Prybutok (2004). SERVQUAL (Parasuraman, Zeithaml & Berry, 1988) has been used in replication studies in a wide range of service industries like health care, banking, appliance repair and several other professions, more explicitly to the library field through several empirical studies undertaken in public, special and academic libraries around the world, as well as through descriptive articles and conference presentations (see, for example: Shoeb, 2011; Kiran, 2010; Ahmed & Shoeb, 2009; Green, 2008; Sahu, 2007; Satoh et al., 2005; Nagata et al., 2004; Martin, 2003; Andaleeb & Simmonds, 1998; Nitecki, 1996;

Edward & Browne, 1995; Hebert, 1994; and White, 1994). The present study also used SERVQUAL instruments for academic library performance measurement purpose with some modifications, adaptable to measuring service quality and satisfaction on user-focused environment in academic libraries of Bangladesh.

3.3.7 How to measure service quality?

Measuring service quality is a challenging task, because the concept of service quality is inherently intangible in nature and difficult to define (Kandampully, 1997). Service quality assessment is based on the assumption that customer perceptions are a valid source of information about the type and quality of services provided (Kyrillidou & Heath, 2001; and Ackermann, 2007). Measuring service quality and satisfaction traditionally involves asking customers for subjective attitudinal evaluations, i.e. asking if they personally felt the service they received was satisfactory. Libraries are services and they exist to provide a service to their customers/users, who need it. For years, researchers in library and information science (LIS) have examined information needs, user wants and user perceptions about the value of library services.

The subject of quality as perceived by customers has been researched extensively. Despite the all debates discussed before, many researchers were traditionally agreed and accepted that, service quality is a comparison between expectations with perceptions of performance. Gronroos (1982 & 1978) was one of the first researchers to recognize the need to develop valid and distinct measures of service quality. However, based on the original view of Parasuraman, Zeithaml & Berry (1985) service quality was conceptualized as a function for the differences between expectation and performance along with service quality attributes. In this premise, they (1988) developed a "Multiple-Item Scale" based on empirical study, in which two constructs "Expectations" and "Perceptions" were introduced for effective measure of service quality. The researchers thus stated that, since service quality depends on the relationship of customer expectations with customer perceptions (Landrum et al., 2009), it is appropriate to subjectively measure service quality by finding out the extent of discrepancy between customers' expectations or desires and their perceptions of the actual quality of

performed service, i.e. calculate service quality by subtracting expected to perceived service.

For instance: $P = \text{Perception}$, $E = \text{Expectation}$, $Q = \text{Service quality}$;

Now the formula of measuring service quality is: $Q = (P - E)$

The researchers, in addition asserted, good service quality exists when customer expectations are met or exceeded.

For instance: $(P = E)$ or $(P > E) = \text{Service quality is good}$;

In addition, Hernon & Whitman (2001) proposed that, it is possible to examine user "expectations" from two coequal and probably interrelated concepts, service quality and satisfaction. Service quality deals with those expectations that the library chooses to meet; whereas satisfaction is more of an emotional and subjective reaction to a time-limited event or the cumulative experiences that a customer has with a service provider. They also concluded that, service quality is typically defined in terms of gap analysis. The gap between customers' expectations in general, and those perceptions relating to the particular library and its services, i.e. " Q " (Service quality) = $(P - E)$.

Van Dyke, et al. (1997) pointed out that the use of difference scores by SERVQUAL in the "P-E" calculation (where "P" corresponds to perception, and "E" to expectation) reduces the reliability and validity of SERVQUAL. They observed the perception components of SERVQUAL alone exhibits much better reliability and validity. The researchers as well said that, the expectation construct in SERVQUAL can be interpreted by respondents in an ambiguous manner, leading to a number of measurement problems. They also concluded "it appears that the IS-SERVQUAL instrument, utilizing difference scores, is neither a reliable nor a valid measurement for operationalizing the service quality construct for an information systems services provider". The researchers consequently suggested to the use of the perceptions-only part of SERVQUAL as an alternative, due to its superior reliability and validity. Cronin & Taylor (1992) called this performance only subset instrument "SERVPERF". By discarding the expectations portion in the SERVQUAL model, the researchers justified the SERVPERF or performance-only instrument in place of the gap measurement approach. They accordingly claimed that, performance alone (by using SERVPERF) provides better predictive validity than SERVQUAL which is gap-

based. Consequently the other studies (Landrum et al. 2008; Landrum & Prybutok, 2004; and Brady et al., 2002) revealed that performance alone can exhibit better reliability and validity than difference scores.

Pitt et al. (1997) redefined their previous work from 1995 and tried to balance some of the arguments that were raised by Van Dyke et al. (1997) by presenting counter arguments. They did not agree with Van Dyke et al.'s (1997) criticism in the use of difference scores in SERVQUAL to measure service quality. The researchers (Pitt et al., 1997) pointed out that, even though the predictive validity might be slightly better from a statistic point of view, while measuring perceptions only or measuring service quality directly will diminish the diagnostic value that is gained from the difference score measurements. According to them, service quality measurements that incorporate customer expectations provide richer diagnostic information than those that merely use perceptions. Pitt et al. (1997) thus believed that, information systems manager (librarian) want to know and should know what their customers expect in order to manage those expectations. In addition they asserted there might be important differences between various groups of customers (users) with regard to their expectations of service quality, which might have customer relationship implications. These differences would not be detected if expectations were not measured, they remarked. Now it is evident that the direct measure of service quality as proposed by Van Dyke et al. (1997) may suffer from much higher measurement error than the difference score measurement.

Most importantly Kettinger & Lee (1997) presented an integrative model (see Figure 3.2) of customer service, which clarifies the distinction between the often confused constructs of customer satisfaction and service quality. In this model, the authors identified perceived service quality and customer satisfaction as two distinct construct, such as: predicted service, and perceived service. The model additionally proposed that there are two levels of service expectations against which customers can assess service quality. These are:

- i. **Desired service**, i.e. level of service that customer believes “can be” and “should be” provided;

- ii. **Adequate service**, i.e. the minimum level of service customers are willing to accept.

According to them, measuring service quality in this way resolves some of the ambiguities of IS-SERVQUAL, as described by Van Dyke et al. (1997), and has useful applications and practice. This format of SERVQUAL is called SERVQUAL⁺. The researchers furthermore claimed that, although SERVQUAL⁺ is longer than the standard SERVQUAL or the perceptions only instrument, it has the greatest potential and diagnostic ability for measuring service quality.

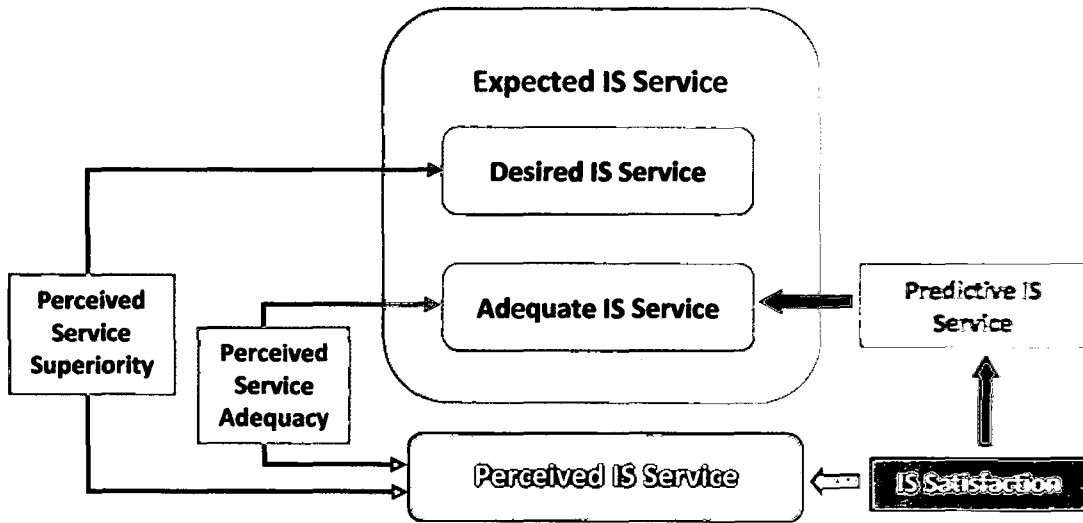


Figure 3.2: Comparison between customers' evaluation of perceived service quality & customer satisfaction; [Source: Zeithaml et al., 1993, and Kettinger & Lee, 1997]

The original SERVQUAL developed by Parasuraman et al. (1985) is consisted of 22 pairs of statements, which measure customer expectations and perceptions of service delivered on a on a seven/nine-point Likert scale. For each pair of statements, the gap difference between customer's expectation and perception scores is calculated. The idea is that, the service is good if perceptions meet or exceed expectations, and problematic if perceptions fall below expectations. Based on the original SERVQUAL view of 1985 and its revised edition of 1988, Parasuraman et al. (1994) further developed a multidimensional service quality assessment tool. This latest version of SERVQUAL (Parasuraman et al., 1994²) requires respondents to rate service quality in a three-column format, i.e. desired service expectation (DE), adequate/ minimum service expectation (ME), and perception (P) of service performance. The concept of Zone of

Tolerance (ZOT) was introduced in this version. They also proposed a technique to measure two aspects of service quality:

- i. The discrepancy between perceived service and desired service: referred to as Measure of Service Superiority (MSS);
- ii. The discrepancy between perceived service and adequate service (or minimum service): referred to as Measure of Service Adequacy (MSA);

For instance: DE = Desired service expectation, ME = Minimum service expectation, P = Perceived service, MSS = Measure of service superiority; MSA = Measure of service adequacy; [Now the formula of measuring service quality is]:

$MSS = (P - DE)$ i.e. Superiority gap; $MSA = (P - ME)$ i.e. Adequacy gap;

The desired and minimum service expectations appear at either end, with the area in between (i.e. ZOT = the range between DE and ME) known as the zone of tolerance. The zone of tolerance represents the range of service performance which consumers/users consider satisfactory. Berry & Parasuraman (1991) pointed out that, a service performance below the tolerance zone could create disappointment, frustration and dissatisfaction as well as decrease customer loyalty and reliability. A performance level above the tolerance zone would pleasantly surprise users and therefore strengthen their loyalty and reliability.

For instance: P = Perceived service performance, ZOT = Zone of Tolerance;

[Now the formula of measuring service quality is]:

$P < ZOT$ = Customers' Dissatisfaction / Disappointed or frustrated customers;

$P > ZOT$ = Customers' Satisfaction / Delighted or pleasant customers;

Parasuraman et al. (1994²) in addition claimed that, this latest version of SERVQUAL can be used for managers for diagnostic purposes and affords the opportunity for using the perception items separately for prediction purposes. Despite the potential diagnostic value (Cavana et al., 2007), there have been very few reported empirical studies using this instrument.

SERVQUAL has also been subjected to a number of theoretical and operational criticisms (for a review of such studies, see Buttle, 1996). Some studies (see for example: Brady et al., 2002; Andaleeb & Simmonds, 1998; and Cronin & Taylor, 1994) argued that

perception scores alone could explain service quality performance. They claimed that expected service, which is based on memory, may be biased by actual services received and may not measure performance correctly. In another study, Caruana et al. (2000) noted that respondents may not clearly visualize the difference between desired and minimum service expectations, and could often allocate lower scores to minimum expectation when asked in conjunction with desired expectation. They proposed that the questions on expectation and perception be distributed on separate occasions. In a recent study, Yu et al. (2008) also questioned a number of SERVQUAL assumptions and proposed a number of enhancements to increase its utility in library service assessment practice.

Despite all these criticisms, (since, SERVQUAL developers Parasuraman et al., 1988, claimed that it “provides a basic skeleton [. . .] which can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization”) studies have shown convincingly that subject to certain modification/adjustment, SERVQUAL can be applicable and useful for evaluating library services (Ahmed & Shoeb, 2009). That's why the researcher used the latest version of SERVQUAL with necessary modifications to conveniently perform the present research. Although SERVQUAL was first introduced and practiced at academic library quality assessment in Bangladesh in 2009 and collaboratively reprinted by Ahmed & Shoeb (2009), but the study was principally conducted on MPhil research. Differently the present research is the first effort in PhD research in Bangladesh, where the modified SERVQUAL with a new framework of service quality measurement was applied to evaluate the user-centered academic library service quality in Bangladesh.

3.3.8 How to measure user satisfaction?

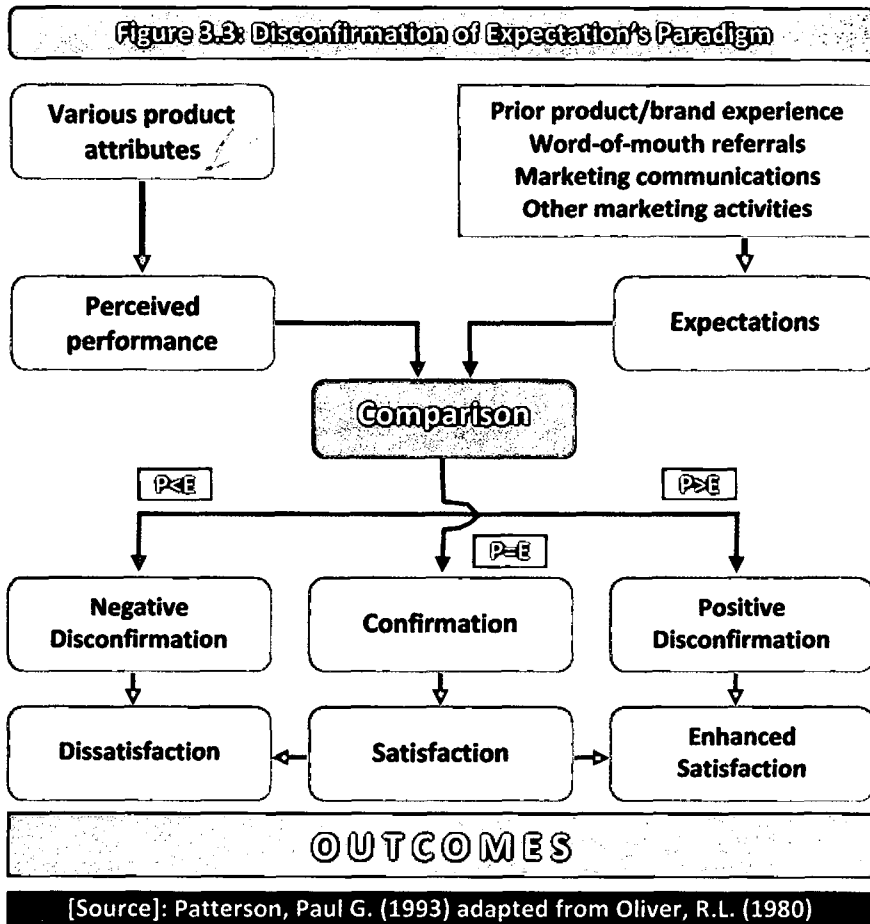
Customer satisfaction and how to measure it are much debated topics. The concept of customer satisfaction is also closely related to that of quality and they are often measured together. Customer satisfaction is the final target of total quality management, and many attempts have been made at its measurement. The first measurement of customer satisfaction (According to Kondo, 2001) is the number of customer complaints. Whereas, McColl-Kennedy & Schneider (2003) stated that,

customer satisfaction is generally measured in emotional and attitudinal dimensions and in action-oriented dimensions. The researchers further proclaimed “for research purpose, customer satisfaction is not measured alone, but in conjunction with service quality and success”. They accordingly proposed that, the best way of measuring customer satisfaction is by using standardized measures/instruments, if such standardized measures exist.

Student satisfaction is an important measure of service quality in academic libraries. In service quality in academic libraries, Hernon & Altman (1996) explored the question of user satisfaction and the part this plays in user perceptions of service quality (Cullen, 2001). Nadiri & Mayboudi (2010) also observed that, University libraries’ services quality as one of the most important factor that has a significant influence on students’ overall satisfaction from their universities need to be further analyzed. But students’ perceptions about academic libraries seem to have been largely ignored by library management in developing countries, accordingly not exception to Bangladesh. Hence satisfaction of library users has been a concern of researchers and practitioners alike in the field of library and information sciences (Shi, Holahan & Jurkat, 2004; Allen et al., 2003; Martensen & Grandholdt, 2003; Hiller, 2001; Nitecki & Franklin, 1999; Bydder, 1998; Calvert, 1998; and Harwood & Bydder, 1998).

Prior researches suggested that, satisfaction is an excellent predictor of repurchase intentions (Patrick, 2002). Rust & Oliver (1994) stated that, satisfaction reflects the degree to one believes that an experience evokes positive feelings. Thus satisfaction is an overall affective response due to the use of product or service (Oliver, 1981). An assessment of satisfaction has been attempted using various perspectives and theories, e.g. expectation-disconfirmation model, equity, norm and perceived overall performance. The most widely discussed and tested approach in measuring customer satisfaction is Oliver's (1980) expectancy-disconfirmation model or its variants. Expectancy-disconfirmation is a derivative of adaptation-level theory and says that customers compare actual product and service performance with their prior expectations. The paradigm postulates that customer satisfaction is related to the size and direction of disconfirmation, which is defined as the discrepancy between the

individual's pre-purchase (pre-choice) expectations (or some other comparison standard) and post-purchase (post-choice) performance of the product or service perceived by the customer (Oliver, 1980; and Anderson, 1973).



There are four essential constructs in the Oliver's (1980) expectancy-disconfirmation model, such as: expectation, performance, disconfirmation and satisfaction. Customers can develop their expectations of a product or service performance from various sources of communication. After consumption, three possibilities can occur: zero disconfirmation can result, when product/service performs as expected; positive disconfirmation can occur, when product/service performs better than expected; and negative disconfirmation can occur, when the product/service performs below expectation.

In another study Parasuraman, Zeithaml & Berry (1990) proposed to subjectively measure service quality by finding out the extent of discrepancy between customers' expectations or desire and their perceptions of the actual quality of performed service.

This discrepancy was elaborated by Patterson (1993) revised from Oliver's (1980) expectancy-disconfirmation model and recognized as "Disconfirmation of Expectations Paradigm" (see Figure 3.3), which is related to satisfaction of customer's pre-purchase expectations and perceptions of service performance and identified any difference as "Disconfirmation". Three additional constructs that evidently focus the level of customer's satisfaction, were included in the Patterson's (1993) model. According to the model confirmation occurs when service performs as expected and results satisfaction; positive disconfirmation occurs when service performs better than expected that results enhanced satisfaction; thus negative disconfirmation occurs when service performs below expectation that produces dissatisfaction of customers. However, the comparison processes which form the basis of this model are exposed in Table 3.2 (Kitchroen, 2004):

Table 3.2: The comparison process of Disconfirmation theory

Comparison Process		Result
Perceived performance > Expectation	Positive disconfirmation	Enhanced satisfaction
Perceived performance = Expectation	Confirmation	Satisfaction
Perceived performance < Expectation	Negative disconfirmation	Dissatisfaction

Despite its growing popularity, the expectancy-disconfirmation paradigm has received a great deal of theoretical and operational criticism, in particular for including expectations and for using difference scores in assessing customer satisfaction or dissatisfaction (Buttle, 1996, and Churchill & Supernant, 1982). Most criticism has been focused on the measurement bias, for example if expectations were measured after or even simultaneously with the service experience, the expectations would be biased by such experience (Gronroos, 1993). The problem would be, if the experience were positive the expectations would be overstated; and if negative it would be understated.

In view of the above contamination, researchers recommended that the expectations should be solicited before the service experience as the expectations will be contaminated by perceptions of the actual service provided (Getty & Thomson, 1994; and Carman, 1990). Some others, however, argue that measuring expectations before service experience can be problematic as the customer is likely to modify expectations during the service encounter and use those modified (perhaps more realistic) expectations as the standard of comparison (Weber, 1997; Danaher & Mattsson, 1994;

and Gronroos, 1993). Weber (1997) pointed out events that are completely unanticipated prior to a service encounter may become significant contributors to the consumers' overall dissatisfaction or satisfaction. The revision of expectations and its effects on the perceptions of performance of service delivery appears to be part of the satisfaction formation process not confined to one particular organization.

Dorfman (1979) argued that, a measurement of expectations can lead to consistently high ratings being given by customers, when they asked to indicate an expected level and an existing level seldom rate expected level lower than the existing level - a tendency to proclaim high expectations. If this is true, it will be very difficult to satisfy customers, as expectations can never be met or exceeded (Yuksel & Rimmington, 1998). In view of this, Yuksel & Rimmington (1998) raised doubts whether or not it is worthwhile including expectations in an instrument, as they may not produce responses significantly different from using the perception scores alone. Contrary to these observations, the use of expectation as a comparison standard in the measurement of customer satisfaction has wide support in the academic literature (Gardial et al, 1994; Halstead, Hartman & Schmidt, 1994; Zeithaml et al, 1990; Tse & Wilton, 1988 and Bearden & Teel, 1983).

Furthermore Halstead, Hartman & Schmidt (1994) proclaimed, if customers do not have well-formed expectations, researchers contend that such a measurement of expectations and thus disconfirmation may not be valid. In other words, a lack of experience with a service or lack of familiarity with a destination may cause expectations to be tentative and uncertain (Crompton & Love, 1995). Wider experience on the other hand seems to foster more realistic expectations. As noted by Westbrook & Newman (1978), people with extensive travel experience developed more-realistic expectations regarding trips and gave greater satisfaction ratings than did people without previous experience. The same would apply to users of academic libraries, who have had prior exposure to university education and therefore would form realistic expectations of the service delivery of the university library.

However, the use of expectations to measure satisfaction has been argued (Patrick & Backman, 2002). According to Barsky (1995), expectations have been frequently

accepted as affecting satisfaction, yet there is inconclusive evidence that they directly lead to satisfaction or dissatisfaction. But one problem with the model has been said that, if one's expectations are decreased, their satisfaction must inevitably increase. Thus the model would suggest that consumers who expect and receive poor performance will be satisfied (LaTour & Peat, 1979). Furthermore, based on the intangible nature of service, expectation on service are relatively weak. This makes information on expectations less concrete and less useful (Johnson, 1998). Thus Patrick & Backman (2002) asserted, while expectations may assist in understanding of satisfaction formation, they have been found to be detrimental in trying to predict future purchase intentions.

In spite of many criticisms, the expectancy-disconfirmation paradigm remains a popular and accepted framework for measuring satisfaction. Yuksel & Rimmington (1998) in their research employing a variety of techniques concluded that though the inferred method of expectancy-disconfirmation paradigm is intuitively appealing, the calculated difference scores do not provide adequate information in predicting behavioral intentions. It is held that, the difference scores (difference between expectation and perception of performance) do not present complete information on the varying degrees of satisfaction levels of customers (Buttle, 1996; and Brown et al., 1993). Identifying the degree to which the customer is satisfied, provides a greater insight into the understanding of satisfaction.

A more complex model was proposed, derived from Bitner & Hubbert (cited in Cullen, 2001), in which there are two perspectives for viewing satisfaction that are relevant to library services. The first is, service encounter satisfaction i.e. customer satisfaction or dissatisfaction with a specific service encounter; and the second is, overall service satisfaction i.e. customer satisfaction or dissatisfaction with an organization based on multiple encounters or experiences (Hernon & Altman, 1998). These are accordingly acknowledged (Yi & La, 2004; Jones & Suh, 2000; and Boulding et al., 1993) as transaction-specific satisfaction and cumulative satisfaction.

In a study Zeithaml et al. (1993) noted that, the adequate service expectation is defined as the lowest level of performance that consumers will accept, that is comparable to

minimum tolerable expectation. This is termed as “predictive expectation”, (shown in Figure 3.2) and is associated with customer satisfaction, the researchers said. They also reported that as conceptualized in the customer satisfaction/dissatisfaction literature, assessments of customer satisfaction results from a comparison of predicted service with perceived service. For instance:

$P > PE$ = Delighted or pleasant customers;

$P = PE$ = Satisfied customers;

$P < PE$ = Dissatisfied or frustrated customers;

[Note]: P = Perceived service performance, PE = Predictive expectation;

In view of above discussion the researcher treated, user satisfaction is a comparison process between expectations and perceptions of service consumption, rather than direct users’ assessment of their service experience. The rationale behind the concept is that the researcher said, direct users’ assessment do not have diagnostic value, and it may seem to be a monopoly judgment of users’ service experience. He also claimed, predictive service (proposed by Zeithaml et al., 1993) is not the comparison standard that users use in service quality assessments. The researcher importantly argued that, the widely used “expectancy disconfirmation model” (derived from Oliver, 1980 and revised by Patterson, 1993) has been extremely suffered from a deep insight of clarifying users’ satisfactions. He further asserted that, although user satisfaction is not an unfamiliar topic in library science, there is not yet a commonly accepted theoretical model that predicts library user satisfaction. Well-developed and tested theories of satisfaction are therefore needed to guide the practical aspects of library management. The current study proposes a theoretical model of user satisfaction/dissatisfaction (CS/D) from the field of marketing (see Figure 4.3 in Chapter-4, p. 84), derived from Oliver’s (1980) expectancy-disconfirmation model revised by Patterson (1993), and was restructured by the researcher of this study. In this model he claimed that, a single point of score can not be used as disconfirmation standard for measuring satisfaction, rather it is concerned with a range of scores. Hence, the researcher acknowledged the ZOT (zone of tolerance) as a comparison standard to calculate service satisfaction of users, in this research.

3.4 Summary

In the line of getting theoretical outlines based on comprehensive literature review it provides the preliminary foundation for this research particularly with regard to development of survey instruments, adaptation of models and theories in the light of prior relevant researches. This also provides a comprehensive and theoretical outline of the procedures of conducting the earlier studies. The overview of literature supports the researcher to generate innovative ideas in the pertinent field of academic library research. Moreover, it aids as an invisible base line upon which the research is going through and reached at the final position.

Chapter - 4

Integrated framework of measuring SQ-S: A conceptual paradigm

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4.1 Introduction

The provision of excellent customer service is recognized as a crucial business strategy in promoting overall business performance. Excellent service quality and high customer satisfaction have thus become extremely important issues for service industries (Hung et al., 2003) and the level of service quality now a days is considered by managers and academics alike to be a critical measure of organizational performance (Yavas & Yasin, 2001). Many models of service quality have been developed to assist business managers to identify service items that require improvement (Hung et al., 2003). However most models remain incomplete, the researcher claimed corresponding to Chen et al.'s (2006) assertion. In particular, most are unable to assess service quality gaps and thus the levels of service quality and customer satisfaction at the same platform, researcher asserted accordingly. The reality is that businesses generally determine such priorities for improvement on the basis of attributes associated with low customer satisfaction, rather than considering actual customer requirements (Yang, 2003).

Intensifying and rapid deregulations have led many service and retail business to seek profitable ways to differentiate themselves. One strategy that has been related to success in the business is the delivery of high service quality (Parasuraman et al., 1988). Many studies of service quality have examined the question of how best to measure the construct and thus facilitate the effective delivery of high-quality service (Parasuraman et al., 1988 and Yang, 2007). In the absence of objective measures, businesses must rely on consumers' perceptions of service quality to identify their strengths and weaknesses if they are to devise appropriate improvement strategies. Managers therefore require psychometrically sound and useful instruments to measure service quality and customer satisfaction (Karatepe et al., 2005).

Given that consequence, the present study has planned an integrated model that incorporates determination of service quality constructs, and their application in service quality and satisfaction assessment processes. It will be operated on two folds, such as: assessment of service quality using difference score, and determination of service quality and satisfaction levels by using disconfirmation method.

4.2 Literature analysis and hypotheses formulation

Complicating matters, almost everything is assessable and measurable. Measurement is a tool for the collection and analysis of data on which evaluators judge library performance against certain yardsticks (e.g., goals, objectives, performance and outcome measures, standards, and efficiencies). Simply stated, there are at least eleven questions about which assessment can be made: “how much”, “how many”, “how economical”, “how prompt”, “how accurate”, “how responsive”, “how well”, “how valuable”, “how reliable”, “how courteous”, and “how satisfied” (Hernon & Altman, 1998). Service quality addresses a number of these questions. Nevertheless, the service quality has been defined by Hernon & Nitecki (2001) from four perspectives:

- i. **Excellence:** Although the mark of an uncompromising student and high achievement, the attributes of excellence may change dramatically and rapidly. Excellence is often externally defined.
- ii. **Value:** It incorporates multiple attributes, but quality and value are different constructs—one the perception of meeting or exceeding expectations and the other stressing benefit to the recipient.
- iii. **Conformance to specifications:** It facilitates precise measurement, but users of a service may not know or care about internal specifications.
- iv. **Meeting and/or exceeding expectations:** This definition is all-encompassing and applies across service industries, but expectations change and may be shaped by experiences with other service providers.

Most marketing and LIS researchers have concentrated on the last perspective “i.e. meeting and/or exceeding expectations”. The gaps model of service quality reveals a framework to identify services in the form of the gaps that exceed or fail to meet customers' expectations. The model posits five gaps (Zeithaml et al., 1990; and Parasuraman et al., 1985) that reflect the discrepancy between:

- Gap-1:** Customers' expectations and management's perceptions of these expectations;
- Gap-2:** Management's perceptions of customers' expectations and service quality specification;

Gap-3: Service quality specifications and actual service delivery;

Gap-4: Actual service delivery and what is communicated to customers about it;

Gap-5: Customers' expected services and perceived service delivered;

Although all five gaps may hinder an organization in providing high quality service, the fifth gap is the basis of a customer-oriented definition of service quality that examines the discrepancy between customers' expectations for excellence and their perceptions of the actual service delivered, the researchers (Parasuraman et al., 1991) claimed. They stated, expectations are desired wants, the extent to which customers believe a particular attribute is essential for an excellent service provider, and perceptions are a judgment of service performance.

Furthermore, Dorfman (1979) argues that a measurement of expectations can lead to consistently high ratings being given by customers while Babakus & Boller (1992) maintain that customers when asked to indicate an expected level and an existing level seldom rate expected level lower than the existing level - a tendency to proclaim high expectations. If this is true, it will be very difficult to satisfy customers, as expectations can never be met or exceeded (Yuksel & Rimmington, 1998). In view of this Yuksel & Rimmington (1998) raise doubts whether or not it is worthwhile including expectations in an instrument, as they may not produce responses significantly different from using the perception scores alone. Contrary to these observations, the use of expectation as a comparison standard in the measurement of service quality and customer satisfaction has wide support in the academic literature (Halstead, Hartman & Schmidt, 1994; Gardial et al., 1994; Zeithaml et al., 1990; Tse & Wilton, 1988 and Bearden & Teel, 1983). Furthermore Halstead, Hartman & Schmidt (1994) proclaimed, if customers do not have well-formed expectations, researchers confronted that such a measurement of expectations and thus disconfirmation may not be valid. In other words, Crompton & Love (1995) stated, a lack of experience with a service may cause expectations to be tentative and uncertain.

In line with these thinking, the researcher also claimed, users' expectations should be formed in accordance of library's capabilities, otherwise unrealistic results may arise that will cause a common disappointment among the users' communities. Hence, the

researcher developed an integrated framework of measuring SQ-S for academic library services, in which he contends that user's desired service level (used by Parasuraman et al., 1994) can not be accepted as well-formed expectations, and may not produce a realistic output while comparing with perception scores. Because in a pilot survey, conducted on about 250 students of four public and private universities in Bangladesh, it was observed that users' desired expectations for service is consistently at highest level. Such form of impractical expectations may exceed the existing affordability of those libraries, the researcher assumed. In search for reason behind the fact, he examined the users' expectations source on six points, for instance word of mouth (Gronroos, 1990, P.158-9; and Teboul, 1991, p.173), past experience (Cadotte et al., 1987), existing condition, image of institution (Gronroos, 1982 & 1984), external communication, and the last one "it's my right" was newly included that the researcher deliberately and curiously applied. Surprising matter is, majority of users (230, 36.92% out of 605) choose the last one as the expectation source against their high rated expectation scores. On this premise, researcher hypothesized that:

H1: There is no significant alliance between male and female users in terms of their sources of expectations;

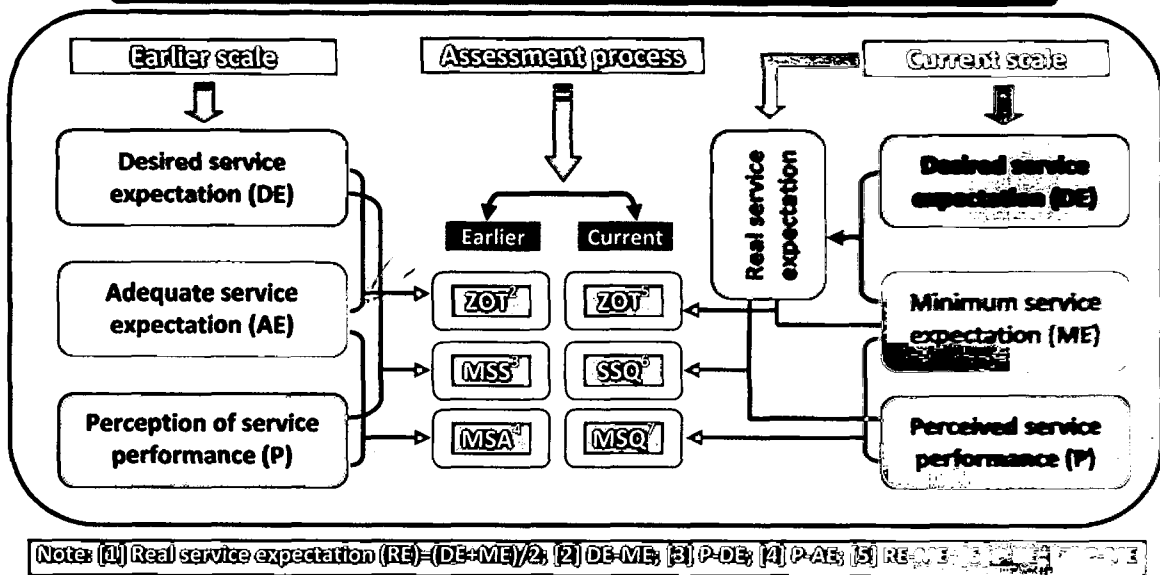
H2: There is no significant alliance between graduate and undergraduate users in terms of their sources of expectations;

H3: There is no significant alliance between users of different faculties in terms of their sources of expectations;

H4: There is no significant alliance between users of public and private universities in terms of their sources of expectations;

Notably taking this into account researcher proclaimed that, there should be an alternative scale that mediates and control this unrealistic consequence in service expectation, thus assist in making good result. Researcher, therefore, stated that service quality is measure of how well the service level delivered matches user's real (the new variable derived from the average score of desired and minimum service expectation) and minimum service expectations (as shown in Figure 4.1), rather than desired and minimum service expectations as declared by Parasuraman et al. (1994).

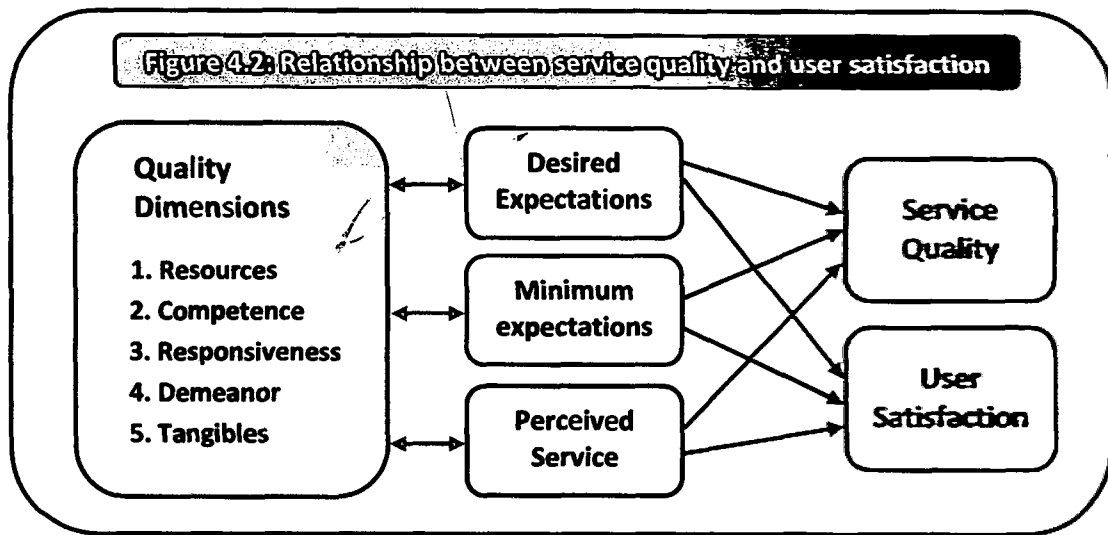
Figure 4.1: Service quality assessment process: a relative view



A comprehensive literature review regarding the relationship between service quality and satisfaction, and particularly in service marketing literature it was revealed that service quality and satisfaction are closely related constructs (Babakus et al., 2004; Cronin & Taylor, 1994 and Oliver, 1993). A number of writers have also referred to service quality as an antecedent to satisfaction; satisfaction as the antecedent to service quality; or service quality and satisfaction as either interrelated or discrete concepts (Anderson & Fornell, 1994; Taylor & Cronin, 1994; Cronin & Taylor, 1992 and Bolton & Drew, 1991). But, several studies showed that service quality may indirectly and directly affect customer satisfaction. For instance, in terms of direct relationship perspective Bitner (1990) examined that the service quality had been an important antecedent of customer satisfaction.

Besides, through conceptual improvement and empirical findings most researchers have agreed that quality judgments cause satisfaction (Cronin & Taylor, 1992 and Bitner, 1990). Obviously, the relationship between customer satisfaction and service quality stated by White & Abels (1995) is an ongoing question in service marketing. Both service quality and satisfaction can be an end in themselves. Each is worthy of examination as a framework for evaluating library services from a customer's perspective, they said. It was differently perceived by the authors Comm & Mathaisel (2000) and Andaleeb & Simmonds (1998), who have equated or confused service quality with satisfaction. A

recent study conducted by Ismail et al. (2009) explores that service quality constructs had a significant relationship with satisfaction.



Considering the numerous literary criticisms, the researcher of the study contends that service quality and satisfaction are two distinct constructs, but both are sharing the same dimensions while measuring service quality or satisfaction (See for example Figure 4.2). Researcher thus hypothesized that:

H5: There is no significant relationship between service quality constructs and users' overall opinions on service quality;

H6: There is no significant relationship between service quality constructs and users' overall opinions on satisfaction;

H7: There is no significant relationship between service quality and satisfaction;

To further authentication regarding the relationship among users' opinions of overall service quality and satisfaction based on their demographic characteristics, researcher accordingly assumed that:

H8: There is no significant relationship between male and female users in terms of their opinions on overall service quality and satisfaction;

H9: There is no significant relationship between graduate and undergraduate users in terms of their opinions on overall service quality and satisfaction;

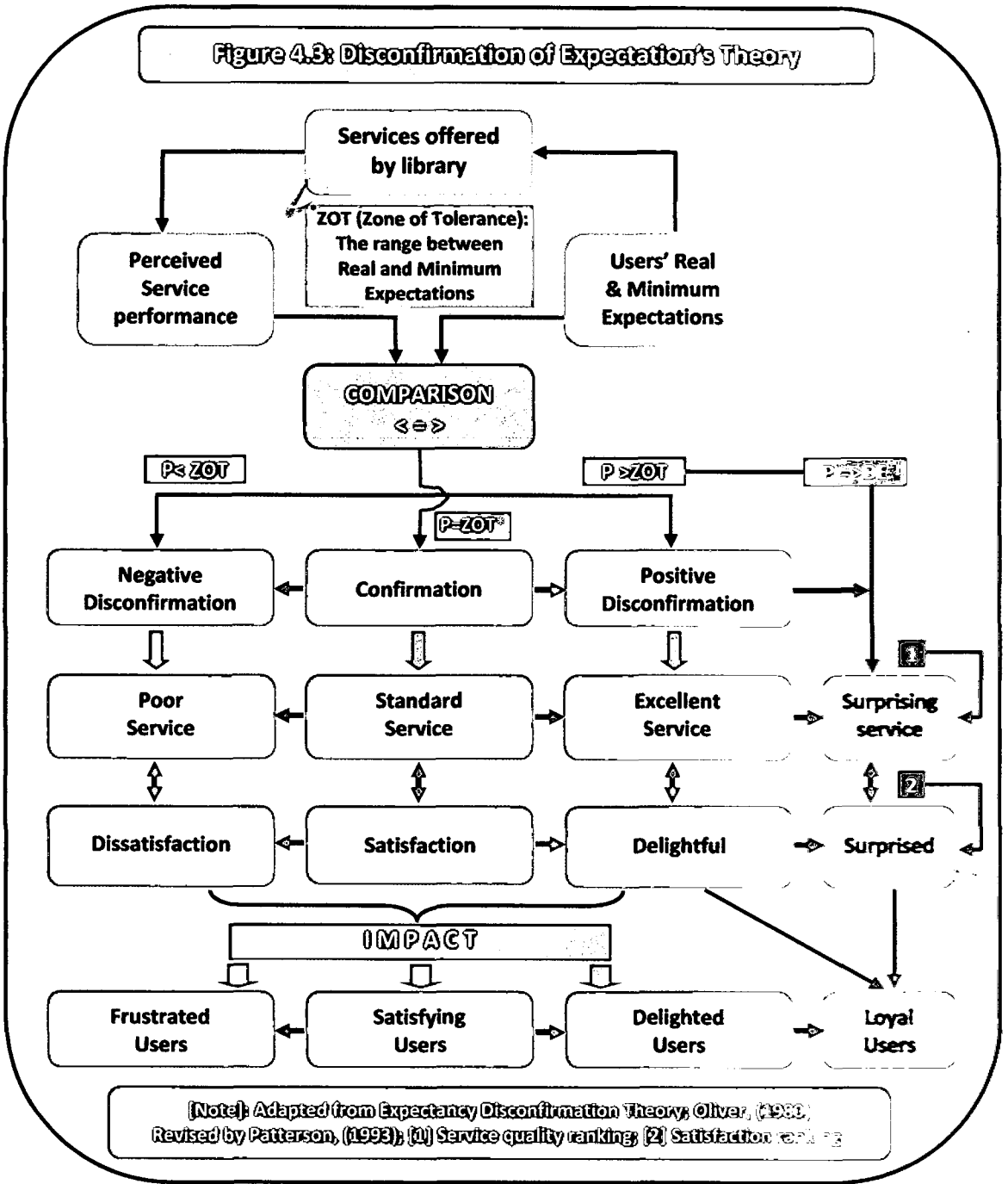
H10: There is no significant relationship between users of different faculties in terms of their opinions on overall service quality and satisfaction;

Moreover, in service quality in academic libraries, Herson & Altman (1996) also explored the question of user satisfaction and the part this plays in user perceptions of service quality (Cullen, 2001). Parasuraman et al. (1990) proposed to subjectively measure service quality by finding out the extent of discrepancy between customers' expectations or desire and their perceptions of the actual quality of performed service. This discrepancy was elaborated by Patterson (1993) and recognized as "disconfirmation of expectation's paradigm", which is related to satisfaction of customer's pre-purchase expectations and perceptions of service performance and identified any difference as "disconfirmation" (Kitchroen, 2004).

Now it is importantly noted that the term "expectation" is commonly used as disconfirmation mediator, based on which service quality and user satisfaction are judged, the researcher observed. He also observed that, at the same time it is used differently in the consumer satisfaction literature and the service quality literature, since this is a significant source of potential confusion. Specifically, in the satisfaction literature, expectations are viewed as predictions made by consumers about what is likely to happen during an impending transaction or exchange. Conversely, in the service quality literature, expectations are viewed as desired or want of consumers or what they feel a service should offer rather than would offer Cooper et al. (1998). But the researcher claimed that, "expectations" either in service quality or satisfaction literature, users' intention to set their expectations are playing the similar role in both areas, also there is no significant difference between its applications in both areas of literatures, the researcher observed.

Moreover, with regard to operational efficiency of expectancy disconfirmation theory in satisfaction measurement process, the researcher opposes the use of expectation as disconfirmation standard as other researchers (Oliver, 1980 and Patterson, 1993) considered this. Because he argues that, users could not limit their expectations with a fixed point of score rather within a certain range of scores (i.e. called zone of tolerance as introduced by Parasuraman et al., 1994²) corresponding to Berry & Parasuraman's (1991) assertion "customers' service expectations exist at two levels, the desired level and the adequate level". Researcher's basic premise is that, not only expectation rather

certain range of expectation (i.e. zone of tolerance) should be the disconfirmation standard for satisfaction measurement process as shown in Figure 4.3.



This could be equally applied for service quality ranking process, the researcher added also. Beyond this argument corresponding to hypotheses, such as: H-5, H-6, H-7, H-8, H-9, and H-10) as mentioned earlier, the researcher argues that it is logical to assess service quality and satisfaction at the same platform. Because he stated, client satisfaction is the final target of quality management of any service organization.

4.3 Grounds of designing the integrated framework

By taking a closer theoretical observation over the literary details relating to service quality assessment and judgment of customer satisfaction in service organizations, a number of confusions were triggered with the application of five dimensions of original SERVQUAL of Parasuraman et al. (1985) for instrumentation, difference scores of Parasuraman et al. (1994²) for service gap analysis, and most widely used Oliver's (1980) expectancy disconfirmation theory for satisfaction ranking, in context of library settings. Researcher, therefore, took initiatives to formulate an alternative framework by addressing the deficiencies over original SERVQUAL model, difference score method, and expectancy disconfirmation theory in favor of library settings and integrated them (shown in Figure 4.4) into a single framework.

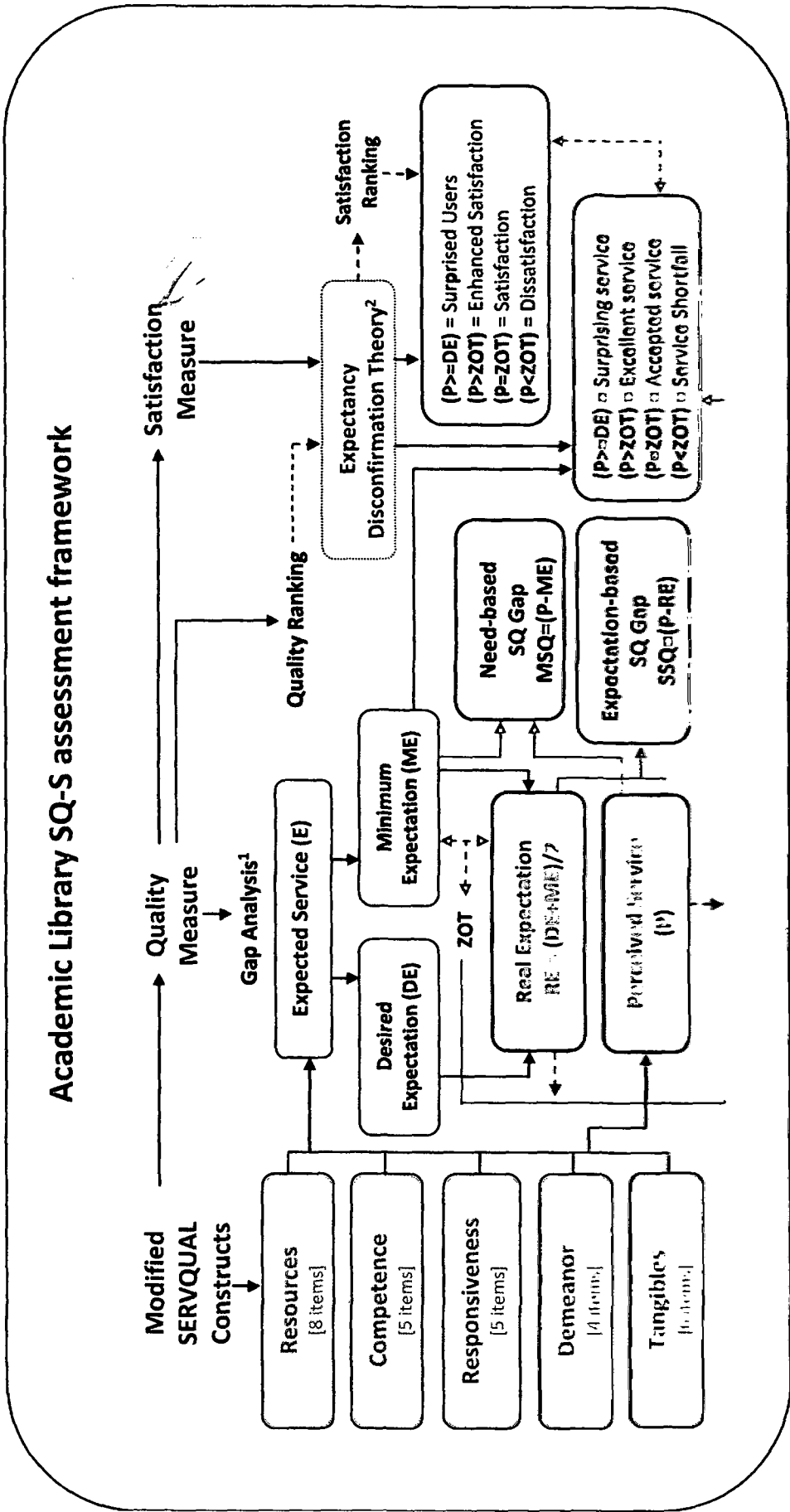
4.4 The conceptual framework

The conceptual framework illustrated in Figure 4.4 was adopted and modified from the former empirical study of Andaleeb & Simmonds (1998) for SERVQUAL instrumentation, Parasuraman et al. (1991 & 1994²) for multiple-item scale and difference score, Oliver (1980) and Patterson (1993) for theory of disconfirmation. Owing to the shortcomings of earlier models as identified before, researcher proposed some alternative solutions over these preceding empirical studies. For instance: introducing a new scale in calculating the difference scores, the computation of zone of tolerance and its multi-usage in service assessment. The framework however incorporates three folds: service quality dimensions, quality assessment process, and service quality and satisfaction ranking process.

4.4.1 Service quality dimensions

Given that the conceptual grounds relating to service quality dimensions applicable in academic library context, researcher adopted the 5-dimensions of service quality adapted by Andaleeb & Simmonds (1998) that includes resources, competence, responsiveness, demeanor, and tangibles. Keeping concern the researcher's contention depicted in Figure 4.2, these dimensions were correspondingly applied to satisfaction measurement processes.

Figure 4.4: Integrated framework of measuring SQ-S for academic library services



4.4.2 Service quality measure

Service quality is found as the degree of relative judgment between user's perceived experience and their anticipation of services. Service quality was measured at two levels for instance: ascertaining service quality gaps, and identify the level of service quality. To measure service quality gaps the model recognized a new scale entitled "real service expectation" derived from the average scores of desired service expectation and minimum service expectation. Assessment of service quality according to this model is the discrepancy of perceived service with the real service and minimum service expectations. At first the difference score was used to calculate two types of measures for instance:

- a. The discrepancy between perceived service (P) and minimum service expectation (ME) that is referred to minimum service quality "MSQ". The adjacent gap is recognized as MSQ gap that is calculated as:

For instance: $MSQ = (P - ME)$ indicates minimum service quality gap;

- b. The discrepancy between perceived service (P) and real service expectation (RE) that is referred to superior service quality "SSQ". The adjacent gap is recognized as SSQ gap that is calculated as:

For instance: $SSQ = (P - RE)$ indicates superior service quality gap;

The ZOT "zone of tolerance" was also recognized as the range between the real service expectation (RE) and minimum service expectation (ME) and was calculated as the difference between RE and ME, i.e. $ZOT = (RE - ME)$. Secondly the disconfirmation method was used to determine the level of service quality. Four levels of service quality were recognized by using ZOT as the disconfirmation standard, where RE indicates the highest zone and ME indicates the lowest zone. In addition to that, the desired service expectation (DE) was also incorporated to indicate the surprised level. For instance:

- a. The perceived service performance above the ZOT indicates that the library provides high quality of service. For instance:
 $P > RE$ indicates "excellent service";
 $P = DE$ indicates "surprising service";

- b. The perceived service performance below the ZOT indicates that the library provides poor service. For instance: " $P < ME$ " indicates "poor service";
- c. The perceived service performance within the ZOT indicates that the library provides standard service. For instance:
" $P = ZOT$ " (i.e. $P \geq ME$ & $P \leq RE$) indicates "standard service";

4.4.3 Satisfaction measure

The proposed framework also includes the satisfaction ranking process. Disconfirmation method was accordingly used to calculate the level of user satisfaction over the existing service performance. Corresponding to determining service quality level satisfaction was also measured at four levels. For instance:

- a. The perceived service performance above the ZOT indicates that users are pleasant with the existing service performance. For instance:
[1] " $P > RE$ " indicates "delightful";
[2] " $P \geq DE$ " indicates "Surprised";
- b. The perceived service performance below the ZOT indicates that users are frustrated with the existing service performance. For instance:
[3] " $P < ME$ " indicates "dissatisfaction";
- c. The perceived service performance within the ZOT indicates that users are somewhat happy with the existing service performance. For instance:
[4] " $P = ZOT$ " (i.e. $P \geq ME$ & $P \leq RE$) indicates "satisfaction";

4.5 Summary

The whole process was adapted from the field of marketing to the study of measuring service quality and user satisfaction of academic library services. To avoid any operational deficiencies and to proper implication of this model in the present research calls for an empirical verification, researcher said, that is experimented and discussed in the next chapter (chapter-5).

Chapter - 5

Data analysis and findings

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5.1 Demographic profile

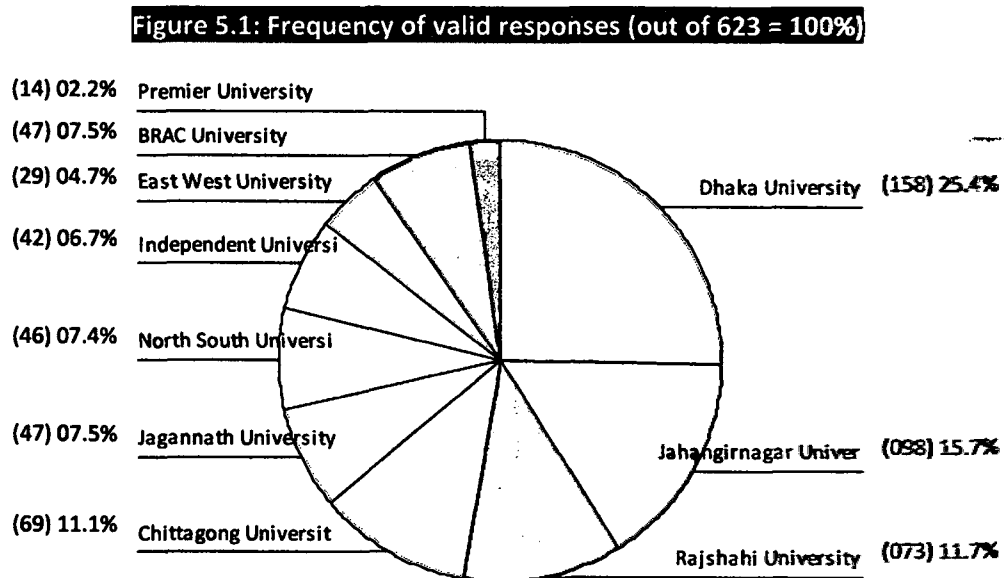
5.1.1 Sample profile

A total of 683 questionnaires were returned from students, yielding an approximately 75.88% response rate, from which 61 were rejected following data rejection technique due to a number of common mistakes. The rest 623 valid questionnaires were selected for research, which was 91.22% of the total returned (see in Table 5.1).

Table 5.1: Frequency distribution of questionnaires

Name of the universities	Frequency distribution of questionnaires					
	Distributed	Returned	Rate (%)	Rejected	Valid	Rate (%)
Dhaka University (DU)	200	176	88	18	158	89.77
Jahangirnagar University (JU)	100	99	99	01	98	98.99
Rajshahi University (RU)	100	94	94	21	73	77.66
Chittagong University (CU)	100	69	69	00	69	100
Jagannath University (JNU)	150	50	33.33	03	47	94
North South University (NSU)	50	49	98	03	46	93.88
Independent University Bd*(IUB)	50	45	90	03	42	93.33
East West University (EWU)	50	37	74	08	29	78.38
BRAC University (BRACU)	50	50	100	03	47	94.00
Premier University (PU)	50	14	28	00	14	100
Total	900	683	75.88	61	623	91.22

*Bd: Bangladesh; (among the total 900 questionnaires 69.22% are valid for analysis)



In relation to sample profile (according to Table 5.1) the majority of respondents were from Dhaka University (158), and lowest number of respondents was from Premier University (14). In terms of valid responses, Chittagong University (100%) and Premier University (100%) ranked best, and indicated the carefulness of surveyor.

5.1.2 Respondents' profile

Based on valid responses a total of 623 respondents were considered from 10 public and private university libraries. The basic data on respondents' demographic information shown in Table 5.2 revealed that the overall (100%) response for gender 622, respondents' status 621, nature of visit 622, source of expectation 605, and the exception was 'purpose of visit' due to multiple choices.

The data on gender distribution indicated that 62.44% of male respondents formed the majority of responses, and most of the respondents were undergraduate (64.21%) according to their academic status. A good balance was also observed between male and female respondents in both types of universities.

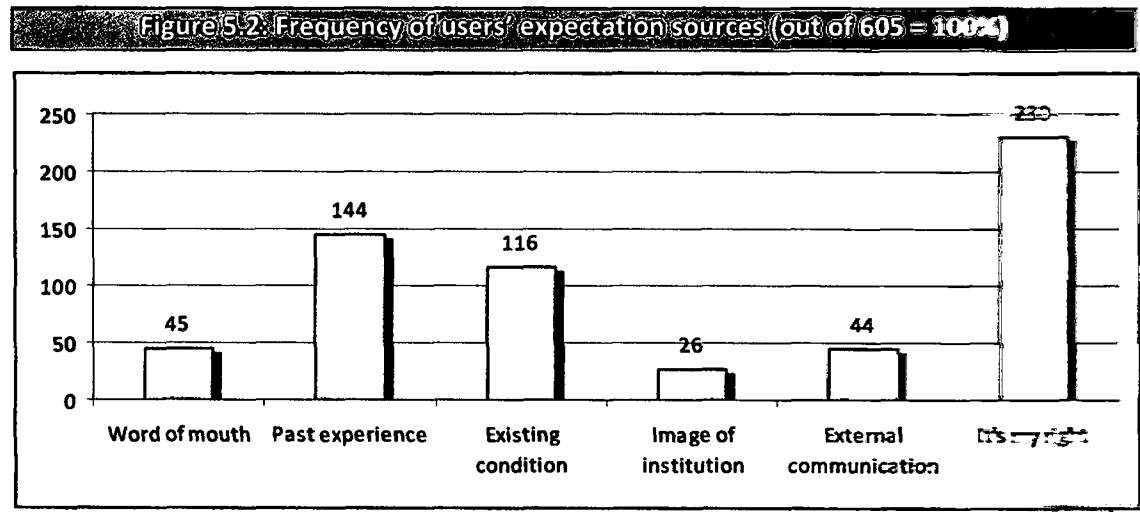
Table 5.2: Respondents' demographic information

Variables		Type of university		N	Percentage	Total
		Public	Private			
Gender	Male	279 (62.7%)	110 (61.8%)	389	62.44	622
	Female	165 (37.1%)	68 (38.2%)	233	37.40	
	No response	01 (0.2%)		01	0.16	
Respondents' status	Graduate	215 (48.3%)	06 (3.4%)	221	35.47	621
	Undergraduate	228 (51.2%)	172 (96.6%)	400	64.21	
	No response	02 (0.4%)		02	0.32	
Nature of visit	Regular	151 (33.9%)	47 (26.4%)	198	31.78	622
	Frequent	82 (18.4%)	69 (38.8%)	151	24.24	
	Once in a week	25 (5.6%)	09 (5.1%)	34	5.46	
	Whenever I need	187 (42.0%)	52 (29.2%)	239	38.35	
	No response		01 (0.6%)	01	0.16	
Purpose of visit	Individual study	259 (58.2%)	103 (57.9%)	362	58.11	Multiple choice
	Group study	138 (31.0%)	77 (43.3%)	215	34.51	
	Reference work	91 (20.4%)	70 (39.3%)	161	25.84	
	Internet use and others	24 (5.4%)	21 (11.8%)	45	7.22	
Source of expectation	Word of mouth	22 (4.9%)	23 (12.9%)	45	7.22	605
	Past experience	93 (20.9%)	51 (28.7%)	144	23.11	
	Existing condition	81 (18.2%)	35 (19.7%)	116	18.62	
	Image of institution	16 (3.6%)	10 (5.6%)	26	4.17	
	External communication	41 (9.2%)	03 (1.7%)	44	7.06	
	It's my right	178 (40.0%)	52 (29.2%)	230	36.92	
	No response	14 (3.1%)	04 (2.2%)	18	2.89	

Respondents' nature of library visit shown in the same table revealed that a large proportion of users 239 (38.36%) visited the library only when they feel the need, while 31.78% visited regularly which is not quite enough for the library's proper functioning, as observed by the researcher. Regarding the purpose of library visit, it was found that

more than 50% (362) users had come for individual study, in which larger similarity observed between public (58.2%) and private (57.9%) university libraries. It should be mentioned that a minute proportion of users (7.22%) used the library for Internet use.

Users' expectations for services were also examined. A total of 605 users responded of which 230 (36.92%) agreed on 'it's my right', a newly introduced variable, followed by past experience (23.11%) and existing condition (18.62%) as their sources of expectations, which is one of the paramount indicator that added a new dimension in performance measurement (over the previous related studies) for this research. While other variables word of mouth, external communication, and image of institution got the lowest support ranges between 4.17 – 7.22 percentages (see in Figure 5.2).



5.1.3 Cross-tabulation of demographic data

Cross tabulation of data was presented to analyze the varied influence of demographic characteristics with one another. The data on gender distribution according to respondents' status shown in Table 5.3 indicated approximately similar result between graduate (35.82% : 35.19%) and undergraduate (64.18% : 64.81%) male and female students respectively.

Table 5.3: Gender distribution according to respondents' status

Gender	Graduate		Undergraduate		Total	
	n=221	Rate (%)	n=400	Rate (%)	n=621	Rate (%)
Male	139	35.82	249	64.18	388	100.0
Female	082	35.19	151	64.81	233	100.0
Total	221	35.59	400	64.41	621	100.0

Respondents' nature of library visit according to the type of universities was also shown in Table 5.4 which exposed that significant inconsistencies were found in the frequency of library visit between public (18.4%) and private (38.8%) university libraries, while large consistency was found for once in a week in both types of universities (public 5.6%, and private 5.1%). Results of other variables were also inconsistent with each other. Although "whenever I need" was observed as relatively good, most importantly the result of regular visit was not quite satisfactory relating to overall outcome indicating the deficiency of library use in both types of universities.

Table 5.4: Nature of library visit according to the types of universities

Nature of visit	Public university libraries		Private university libraries		Total	
	n=445	Rate (%)	n=177	Rate (%)	n=622	Rate (%)
Regular	151	33.9	47	26.4	198	31.83
Frequent	082	18.4	69	38.8	151	24.28
Once in a week	025	05.6	09	05.1	034	05.47
Whenever I need	187	42.0	52	29.2	239	38.42
Total	445	100.0	177	99.4	622	100.0

The cross tabulation of data concerning users' expectation source according to their nature of library visit shown in Table 5.5 explained that the new variable "it's my right" got the highest point in terms of regular visit (74) 38.14%, followed by "past experience" 25.77%, and "existing condition" 17.53%; once in a week 11 (32.35%), followed by "past experience" 29.41%, and "existing condition" 23.53%; whenever I need 100 (44.25%), followed by "existing condition" 19.91%, and "past experience" 15.93%. Although in frequent visit the variable "it's my right" got the second highest score 45 (29.80%) within the column, it is closer to "past experience" 48 (31.79%).

Table 5.5: Distribution of expectation source: nature of library visit

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Source of expectation	Nature of library visit				Total
	Regular	Frequent	Once in a week	Whenever I need	
Word of mouth	13	14	03	15	45
Past experience	50 (25.77%)	48 (31.79%)	10 (29.41%)	36 (15.93%)	144 ^b
Existing condition	34 (17.53%)	29 (19.21%)	08 (23.53%)	45 (19.91%)	116 ^c
Image of institution	05	02	00	19	26
External communication	18	13	02	11	44
It's my right	74 (38.14%)	45 (29.80%)	11 (32.35%)	100 (44.25%)	230 ^a
Total	194	151	34	226	605

a = (230) 38.02% ; b = (144) 23.80% ; c = (116) 19.17%

The overall result demonstrated in Table 5.5 indicated that the new variable “It’s my right” was very much influenced by diverse nature of library visit, and more importantly influenced by “whenever I need (100; 44.25%)” that may be used as a paramount indicator of this research, which is also alarming for the use of existing scale (of Parasuraman, et al.’s, 1994²) in service quality assessment, the researcher assumes. Researcher as well remarked respondents characterized by “whenever I need” denoted that they did not have much experience on the library use. Whereas, it had the key impact on the new variable “it’s my right”. With this regard, he subsequently addressed on Crompton & Love’s (1995) assertion “a lack of experience with a service may cause expectations to be tentative and uncertain”. Based on these findings the researcher was required to develop a new scale in service quality assessment in addition to previous 3-column scale developed by Parasuraman, et al. (1994²).

5.2 Influence of demographic data on expectation sources

Search for uncovering the most dominant factor that affected users on imposing high expectation for services, researcher examined the influence and impact of demographic characteristics on users’ expectation sources of ten public and private university libraries surveyed. Pearson Chi-square was carried out to experiment the results.

Table 5.6: Distribution of expectation sources: gender

Source of expectation	Male		Female		Total	
	n=375	Rate (%)	n=229	Rate (%)	n=604	Rate (%)
Word of mouth	29	07.5	16	06.9	45	100.0%
Past experience	80	20.6	64	27.5	144	
Existing condition	77	19.8	39	16.7	116	
Image of institution	15	03.9	11	04.7	26	
External communication	23	05.9	21	09.0	44	
It’s my right	151	38.8	78	33.5	229	

[H1: There is no significant alliance between male and female users in terms of their sources of expectations]

The distribution of expectation sources according to gender was shown in Table 5.6 explored that the user’s expectation source “it’s my right” was highly affected by gender characteristics. But, the Chi-square test result ($\chi^2 = 7.081$, $df = 5$, $P = 0.215$) at 5% level of significance $P > 0.05$ indicated that there was no significant association between male

and female users in terms of their expectation sources. The null hypothesis (H1) was therefore accepted.

Table 5.7: Distribution of expectation sources: respondents' status

Source of expectation	Graduate		Undergraduate		Total	
	n=214	Rate (%)	n=389	Rate (%)	n=603	Rate (%)
Word of mouth	05	02.3	40	10.0	45	100.0%
Past experience	38	17.2	106	26.5	144	
Existing condition	37	16.7	79	19.8	116	
Image of institution	08	03.6	18	04.5	26	
External communication	19	08.6	25	06.3	44	
It's my right	107	48.4	121	30.3	228	

[H2: There is no significant alliance between graduate and undergraduate users in terms of their sources of expectations]

Distribution of expectation sources based on respondents' status revealed in Table 5.7 indicated that the expectation source "it's my right" was greatly influenced by users' status. The Chi-square test result ($\chi^2 = 31.969$, $df = 5$, $P = 0.000$) at 1% level of significance $P < 0.01$ indicated that significant association was found between graduate and undergraduate users in terms of their expectation sources. Hence the null hypothesis (H2) was rejected.

Table 5.8: Distribution of expectation sources: different faculties

Source of expectation	*Name of the faculties					n=604	Rate (%)
	1	2	3	4	5		
Word of mouth	06	11	25	03	-	45	100.0%
Past experience	24	34	60	25	01	144	
Existing condition	25	26	42	19	04	116	
Image of institution	02	05	14	04	01	26	
External communication	11	17	12	04	-	44	
It's my right	74	44	61	45	05	229	

*1. Arts; 2. Social Science; 3. Commerce/Business; 4. Science/Technology; 5. Engineering;

[H3: There is no significant alliance between users of different faculties in terms of their sources of expectations]

The influence of respondents from different faculties on their expectation sources was shown in Table 5.8 explored that the expectation source "it's my right" was highly affected by respondents of different faculties. The Chi-square test result ($\chi^2 = 47.470$, $df = 20$, $P = 0.001$) at 1% level of significance $P < 0.01$ denoted that significant association was found between different faculty respondents in terms of their expectation sources. Thus the null hypothesis (H3) was rejected.

Table 5.9: Distribution of expectation sources: types of universities

Source of expectation	Public university libraries		Private university libraries		Total	
	n=431	Rate (%)	n=174	Rate (%)	n=605	Rate(%)
Word of mouth	22	04.9	23	12.9	45	100.0%
Past experience	93	20.9	51	28.7	144	
Existing condition	81	18.2	35	19.7	116	
Image of institution	16	03.6	10	05.6	26	
External communication	41	09.2	03	01.7	44	
It's my right	178	40.0	52	29.2	230	

[H4: There is no significant alliance between users of public and private university libraries in terms of their sources of expectations]

The influence of respondents' opinions on expectation sources between public and private universities shown in Table 5.9 was relatively consistent with the previous results delineated in Table 5.7 and Table 5.8, and exposed that the user's source of expectation "it's my right" was greatly influenced by respondents of public and private universities. The Chi-square test result ($\chi^2 = 29.981$, $df = 5$, $P = 0.000$) at 1% level of significance $P < 0.01$ also indicated that significant association existed between public and private university respondents in terms of expectation sources. The null hypothesis (H4) was accordingly rejected.

Table 5.10: Influence of expectation sources on users' opinions of overall SQ-S

How would you rate the quality of library service as a whole?		How would you rate your satisfaction with the library services as a whole?	
Chi-Square	17.286	Chi-Square	28.211
df	5	df	5
Asymp. Sig.*	0.004	Asymp. Sig.*	0.000
Kruskal Wallis Test: (Grouping variables: Source of expectation), Significant at $P < 0.01$			

The exposure of overall result concerning influence and impact of demographic data on users' expectation sources explored in Table 5.7, 5.8, and Table 5.9 predicted that sources of expectations have direct impact on respondents' judgments regarding overall service quality and satisfaction, which was further experimented using Kruskal Wallis (K-W) Test (see Table 5.10). Results explained that users' opinions on overall service quality ($\chi^2 = 17.286$; $df = 5$; $P = 0.004$) and overall satisfaction ($\chi^2 = 28.211$; $df = 5$; $P = 0.000$) at 1% level of significance $P < 0.01$ denoted that users' expectation sources had a significant impact on their overall judgment of service quality and satisfaction, which accordingly drew researcher's attention, thus providing empirical support to establish the proposed measurement scale.

It also suggested that users should be practical enough toward forming their expectations in conformance with libraries' fiscal and other related capabilities. Because excessive expectation may cause a common disappointment to the user community as the researcher asserted, which is associated with Dorfman's (1979) argument "that a measurement of expectations can lead to consistently high ratings being given by customers" and also with Yuksel & Rimmington's (1998) assertion "if this is true, it will be very difficult to satisfy customers, as expectations can never be met or exceeded". The researcher further cited Halstead, Hartman & Schmidt's (1994) assertion, "if customers do not have well-formed expectations, researchers confronted that such a measurement of expectations and thus disconfirmation may not be valid".

5.3 Examining users' expectations and perceptions

Service quality and satisfaction is a debatable concept for many years. Despite the diverse controversies regarding the nature of relationship between service quality and satisfaction explained in the literature review, the researcher made a closer look and observed that, in terms of measuring service quality and satisfaction, "expectation" was commonly used as a prediction or disconfirmation mediator in service quality and satisfaction literature. In keeping with these premises based on detailed literary assessment, the researcher accordingly claimed that, "expectations" either in service quality or satisfaction literature, users' intention to set their expectations were playing the similar role in both areas, also there were no significant differences between its applications in both areas of literatures, the researcher observed. He also asserted that expectation is the one most crucial of service quality and satisfaction assessment, and according to Schneider & White (2004), expectations thereby are considered to be disconfirmed positively or negatively.

More importantly the researcher observed, respondents' anticipations were very much influenced by the characteristics of expectation source "it's my right" (as seen in Table 5.2), which enforced them to imply high scaled expectations. In particular, he reported, while respondents were asked to set their opinions into three columns, namely, desired and minimum service expectations, and perception of service performance from 1 – "lowest" to 7 – "highest" on a 7-point Likert scale, their ratings for desired expectations

on 28 service items were found relatively very large and maximum opinions were fallen within the top highest points 6 and 7 (see Table 5.11). While at the same time the other part for perception of service performance got very small ratings (see Table 5.12), and major ratings were fallen within 3, 4 and 5 scales (i.e. closer to average score 4).

Table 5.11: Distribution of users' opinions: desired service expectations

Item's Code	Ratings of users' desired service expectations							Descriptive statistics			
	1	2	3	4	5 (%)	6 (%)	7 (%)	m	S.E.	Std.	Variance
Res-1	2	-	5	33	109 (1.75)	280 (4.49)	192 (3.08)	5.99	0.04	0.92	0.85
Res-2	-	8	12	23	090 (14.4)	275 (44.1)	208 (33.4)	6.01	0.04	1.01	1.02
Res-3	-	3	11	16	103 (16.5)	274 (44.0)	207 (33.2)	6.04	0.04	0.92	0.85
Res-4	2	-	7	18	067 (10.8)	277 (44.5)	243 (39.0)	6.18	0.04	0.88	0.78
Res-5	1	4	9	19	096 (15.4)	252 (40.4)	237 (38.0)	6.09	0.04	0.97	0.93
Res-6	2	-	7	37	093 (14.9)	243 (39.0)	231 (37.1)	6.05	0.04	0.93	0.95
Res-7	1	1	11	26	094 (15.1)	262 (42.1)	221 (35.5)	6.05	0.04	0.95	0.91
Res-8	-	1	9	28	81 (13.0)	276 (44.3)	223 (35.8)	6.09	0.04	0.91	0.82
Com-9	-	-	8	25	081 (13.0)	289 (46.4)	212 (34.0)	6.09	0.04	0.87	0.75
Com-10	-	-	5	25	093 (14.9)	273 (43.8)	226 (36.3)	6.11	0.04	0.85	0.74
Com-11	-	2	6	25	096 (15.4)	278 (44.6)	211 (33.9)	6.06	0.04	0.89	0.80
Com-12	-	-	4	33	087 (14.0)	280 (44.9)	214 (34.3)	6.08	0.04	0.87	0.75
Com-13	-	2	11	21	097 (15.6)	280 (44.9)	202 (32.4)	6.04	0.04	0.92	0.84
Resp-14	-	-	8	26	088 (14.1)	248 (39.8)	249 (40.0)	6.14	0.04	0.90	0.81
Resp-15	-	2	7	21	085 (13.6)	291 (46.7)	212 (34.0)	6.09	0.04	0.87	0.76
Resp-16	1	2	7	39	108 (17.3)	263 (42.2)	198 (31.8)	5.96	0.04	0.97	0.94
Resp-17	-	2	7	23	083 (13.3)	266 (42.7)	237 (38.0)	6.13	0.04	0.90	0.81
Resp-18	-	3	8	23	107 (17.2)	278 (44.6)	200 (32.1)	6.02	0.04	0.92	0.84
Dem-19	1	1	3	29	087 (14.0)	267 (42.9)	230 (36.9)	6.11	0.04	0.90	0.80
Dem-20	-	-	11	24	083 (13.3)	290 (46.5)	207 (33.2)	6.18	0.12	2.95	8.72
Dem-21	-	-	9	32	103 (16.5)	263 (42.2)	208 (33.4)	6.02	0.04	0.92	0.85
Dem-22	1	2	9	35	106 (17.0)	264 (42.4)	200 (32.1)	5.97	0.04	0.97	0.93
Tan-23	1	2	2	17	075 (12.0)	247 (39.6)	272 (43.7)	6.23	0.04	0.85	0.74
Tan-24	1	1	4	16	071 (11.4)	247 (39.6)	281 (45.1)	6.25	0.04	0.85	0.73
Tan-25	3	1	12	24	99 (15.9)	257 (41.3)	225 (36.1)	6.04	0.04	1.00	1.00
Tan-26	2	1	7	15	084 (13.5)	258 (41.4)	255 (40.9)	6.17	0.04	0.91	0.82
Tan-27	1	3	8	25	094 (15.1)	269 (43.2)	220 (35.3)	6.06	0.04	0.95	0.90
Tan-28	-	2	5	19	066 (10.6)	250 (40.1)	280 (44.9)	6.25	0.04	0.85	0.74
Range:	1-2	1-8	2-12	15-39	066-109	243-290	192-280				

The parallel view of Table 5.11 and 5.12 indicated that imposing high expectation is users' common tendency that is consistent with Babakus & Boller's (1992) argument "customers when asked to indicate an expected level and an existing level seldom rate expected level lower than the existing level – a tendency to proclaim high expectations". In this circumstance, researcher believed that users' expectations can never be

exceeded or even met their perceptions, as also asserted by Dorfman's (1979) and Yuksel & Rimmington (1998).

Table 5.12: Distribution of users' opinions: perception of service performance

Item's Information		Ratings of users' perceptions of service performance						
Statement of Item	Code	1	2	3	4	5	6	7
Sufficient number of documents	Res-1	11	70	142	173	171	36	16
Up-to-date-ness of documents	Res-2	24	89	149	178	132	36	07
Informative & resourceful documents	Res-3	08	79	139	200	150	29	09
Easy access to documents	Res-4	11	85	124	188	141	48	14
Latest information services & facilities	Res-5	28	90	140	208	112	28	09
E-resources availability & accessibility	Res-6	66	74	133	153	143	29	14
Sufficient modern technological tools	Res-7	44	91	145	183	117	22	13
Sufficient number of staff	Res-8	14	60	112	195	165	44	24
Academic fitness of employees	Com-9	33	68	119	166	181	35	14
Professional skills of employees	Com-10	22	64	149	167	170	37	12
Ability to guide the users properly	Com-11	23	72	134	179	161	35	12
Ability to understand users' problems	Com-12	29	74	140	180	146	37	10
Ability to make quick solution	Com-13	29	84	155	153	155	28	09
Sincerity of employees on the job	Resp-14	33	79	128	170	160	35	15
Willingness to help users	Resp-15	40	74	142	168	143	31	17
Giving personal attention to users	Resp-16	43	69	127	206	140	16	16
Giving quick & timely service to users	Resp-17	36	78	130	186	144	30	14
Inform users on the regular progress	Resp-18	44	76	142	194	126	24	12
Courtesy & friendliness of employees	Dem-19	25	78	127	176	152	41	17
Handling users softly and carefully	Dem-20	21	77	132	209	126	35	15
Reliable personality	Dem-21	19	73	151	187	138	33	13
Loving users by heart	Dem-22	25	74	146	188	134	32	17
Appropriate study environment	Tan-23	21	67	103	171	165	55	34
Adequate space for study & learning	Tan-24	31	66	104	165	164	68	22
Suitable and attractive furniture	Tan-25	29	72	126	180	157	40	16
Documents are at the right place	Tan-26	26	71	115	178	167	42	22
Users can complaint & suggest easily	Tan-27	43	89	126	185	128	33	16
Suitable & convenient library hours	Tan-28	11	52	094	198	167	51	49
Range:		8-44	52-91	94-155	153-209	132-181	16-68	7-49

However looking for relationship as well as to further experiment between respondents' desired ratings (based on grouping variable: name of universities and user status), Kruskal-Wallis (K-W) and Mann Whitney U (M-W) tests were carried out. As seen in Table 5.13, all the dimensions resources, competence, responsiveness, demeanor and tangibles achieved the similar results in terms of their level of significance at $P < 0.01$. With regard to respondents' opinions, the results also expressed that significant association was found among the users' ratings for desired services, which is associated with Calvert's (2001) assertion, who pointed out that "academic library customers have

very similar expectations of service”, supported by comparative analysis of the survey data in the USA, New Zealand, Singapore and China. He also said, since the university libraries offer largely similar services, there is a strong possibility that users value the same dimensions in forming their expectations and in measuring the quality of service.

Table 5.13: Kruskal Wallis (K-W), and Mann Whitney U (M-W) Tests for desired ratings

Service quality dimensions	(K-W) Grouping variable: Name of universities	(M-W) Grouping variable: User status
1. Resources	($\chi^2 = 92.483$; $df = 9$; $P = 0.000$) *	(M-W = 32563.500; $Z = -3.195$; $P = 0.001$) *
2. Competence	($\chi^2 = 57.862$; $df = 9$; $P = 0.000$) *	(M-W = 33918.000; $Z = -3.182$; $P = 0.001$) *
3. Responsiveness	($\chi^2 = 76.820$; $df = 9$; $P = 0.000$) *	(M-W = 35104.000; $Z = -3.079$; $P = 0.002$) *
4. Demeanor	($\chi^2 = 69.288$; $df = 9$; $P = 0.000$) *	(M-W = 34525.500; $Z = -2.810$; $P = 0.005$) *
4. Tangibles	($\chi^2 = 82.221$; $df = 9$; $P = 0.000$) *	(M-W = 36269.500; $Z = -2.857$; $P = 0.004$) *
* $P < 0.01$ at 1% level of significance		

In addition, to measure the degree of conformity regarding desired service ratings between public and private university respondents, as supplementary evidence of Calvert’s (2001) assertion, Kendall’s-W test was further applied (see Table 5.14). Results explored that the level of significance (0.000, i.e. $P < 0.01$ at 1% level of significance) before users’ desired opinions of public university, and (0.015, i.e. $P < 0.05$ at 5% level of significance) before users’ desired opinions of private university indicated that a closer conformity was found among the desired ratings of both types of university users. These provided a further evidence of researcher’s prediction “users’ desired expectations are commonly high that can never be exceeded or even met their perceptions”.

Table 5.14: Kendall’s W Test for desired ratings

Users’ ratings of Desired service expectations	Kendall’s coefficient of concordance for Desired ratings				
	N	*K-W	χ^2	df	Asymp. Sig.
DE scores of Public university users	375	0.015	155.767	27	0.000**
DE scores of Private university users	162	0.010	45.383	27	0.015***
*Kendall’s-W; ** $P < 0.001$; *** $P < 0.05$					

Based on empirical findings and former literary statements, researcher thus proclaimed, for producing superior service quality the gap difference (of Parasuraman et al., 1994) between desired service expectations and perception of service performance will not bring forth a realistic result. He, therefore advocated that, while measuring service quality, there should be an alternative item-scale that will control this impractical consequence, and to remove the weaknesses of the existing measurement practices. He

also proposed a substitute item-scale to control over high scaled desired service expectation ratings and named it “real service expectation (RE)”, which is the result of average score between DE and ME, i.e. $RE = \{m(DE+ME)/2\}$ (as shown in Table 5.15).

Table 5.15: Distribution of users’ opinions with RE scores

Item's Information			DE		ME		RE		P	
Sl	Statement of item	Code	m	Std	m	Std	m	Std	m	Std
01	Sufficient number of documents	Res-1	5.99	0.92	3.77	1.06	4.88	0.83	3.96	1.26
02	Up-to-date-ness of documents	Res-2	6.01	1.01	3.86	1.10	4.94	0.90	3.72	1.28
03	Informative & resourceful documents	Res-3	6.04	0.92	3.94	1.09	5.00	0.83	3.86	1.19
04	Easy access to documents	Res-4	6.18	0.88	3.96	1.08	5.07	0.80	3.92	1.29
05	Latest information services & facilities	Res-5	6.09	0.97	3.95	1.11	5.02	0.87	3.66	1.27
06	E-resources availability & accessibility	Res-6	6.05	0.98	3.93	1.14	4.99	0.89	3.61	1.47
07	Sufficient modern technological tools	Res-7	6.05	0.95	3.89	1.15	4.97	0.87	3.58	1.35
08	Sufficient number of staff	Res-8	6.09	0.91	4.02	1.07	5.05	0.80	4.08	1.30
09	Academic fitness of employees	Com-9	6.09	0.87	3.99	1.10	5.04	0.82	3.90	1.36
10	Professional skills of employees	Com-10	6.11	0.86	3.97	1.13	5.04	0.79	3.90	1.28
11	Ability to guide the users properly	Com-11	6.06	0.89	3.91	1.08	4.99	0.80	3.87	1.29
12	Ability to understand users’ problems	Com-12	6.08	0.89	3.94	1.10	5.01	0.80	3.80	1.31
13	Ability to make quick solution	Com-13	6.04	0.92	3.87	1.09	4.95	0.82	3.72	1.31
14	Sincerity of employees on the job	Resp-14	6.14	0.90	4.06	1.16	5.10	0.85	3.82	1.37
15	Willingness to help users	Resp-15	6.09	0.87	3.96	1.09	5.03	0.79	3.75	1.39
16	Giving personal attention to users	Resp-16	5.96	0.97	3.93	1.11	4.95	0.86	3.72	1.33
17	Giving quick & timely service to users	Resp-17	6.13	0.90	4.04	1.10	5.09	0.82	3.75	1.35
18	Inform users on the regular progress	Resp-18	6.02	0.92	3.89	1.09	4.95	0.82	3.65	1.33
19	Courtesy & friendliness of employees	Dem-19	6.11	0.90	4.00	1.12	5.05	0.84	3.88	1.35
20	Handling users softly and carefully	Dem-20	6.18	2.95	3.96	1.13	5.07	1.64	3.82	1.28
21	Reliable personality	Dem-21	6.02	0.92	3.94	1.10	4.98	0.82	3.82	1.27
22	Loving users by heart	Dem-22	5.97	0.97	3.91	1.13	4.94	0.83	3.81	1.31
23	Appropriate study environment	Tan-23	6.23	0.86	4.13	1.22	5.19	0.85	4.15	1.42
24	Adequate space for study & learning	Tan-24	6.25	0.86	4.19	1.15	5.22	0.83	4.05	1.44
25	Suitable and attractive furniture	Tan-25	6.04	1.00	3.98	1.15	5.01	0.83	3.88	1.35
26	Documents are at the right place	Tan-26	6.17	0.91	4.10	1.15	5.13	0.85	3.97	1.37
27	Users can complaint & suggest easily	Tan-27	6.06	0.95	4.00	1.12	5.03	0.87	3.89	1.40
28	Suitable & convenient library hours	Tan-28	6.25	0.86	4.19	1.14	5.22	0.82	4.30	1.37
Overall mean			6.09	0.99	3.97	1.12	5.03	0.87	3.84	1.33
DE = Desired service expectation; ME = Minimum service expectation; RE = Real service expectation; P = Perceived service or Perception; m = Mean; Std = Standard deviation; $RE = \{m(DE+ME)/2\}$										

The researcher’s basic premise was that, service quality is measure of how well the service level delivered matches users’ real and minimum expectations, rather than Parasuraman et al.’s (1994²) desired and minimum expectations.

5.4 Scale purification and development

In line with good practices based on Hair et al. (1998) and Nunally & Bernstein (1994) exploration of the underlying structure of the data was carried out through exploratory

factory analysis (EFA). But the appropriateness of factor analysis, according to Field (2005) is based on several factors, which was taken as preliminary basis for scale purification by the researcher for this research. Field (2005) suggested that the sample size over 300 cases necessary for factor analysis is probably adequate, but communalities after extraction should probably be above (0.5). With reference to Field's proposition the first criteria regarding sample size for factor analysis is absolutely satisfied. The valid sample size 623 for this research is therefore appropriate for factor analysis. The communalities after extraction based on principal component analysis (PCA) was also ranges between 0.510 – 0.746 (with the exception of only item, no. 20 extracted with 0.214) which is found within Field's (2005) probability limit for factor analysis. Another criterion for scale purification (based on EFA) was also essentially taken for this research, as delineated below.

5.4.1 Data screening

5.4.1.1 Stage-1: [Internal consistency between variables]

Purification of the instrument began with the data screening using computation of Item-Total Correlation (Field, 2005) in order to evaluate the internal consistency between the variables, that is how closely related a set of items are as a group; and condensing the instruments by retaining only those items capable of discriminating well across respondents having differing quality perceptions of the library services. Result shown in Table 5.16 denoted that all items met the criteria with alpha value ranging from 0.9555 to 0.9643, which is greater than the necessary value (proposed by Nunally & Bernstein, 1994) of $P > 0.70$ and indicated good internal consistency among the items. The reliability coefficients (overall) alpha of 28 items was estimated at $\alpha = 0.9576$, which is also quite satisfactory, and provides an important basis for factor analysis. Thus the instrument is highly reliable for the research.

5.4.1.2 Stage-2: [Determining multi-collinearity problem & usefulness of data]

The items to be useful for the research was further tested using computation of Correlation matrix. All correlations (with the exception of only item, no. 20) were above 0.30, which was considered for substantial factor analysis proposed by Hair, Anderson, Tatham & Black (1998). Furthermore, an inspection of the correlation matrix revealed

that particularly all correlations were significant at $P < 0.01$ that provided an excellent basis for factor analysis. The determinant of correlation matrix was found $R = 9.530E-09$ (i.e. 0.0009530), which was greater than the necessary value 0.00001, indicating that (according to Hair et al., 1998) data were not affected by serious multi-collinearity problem and can be used for this research.

Table 5.16: Item-Total Correlations with descriptive statistics

Item's Information		Item's code	Descriptive Statistics		Alpha	Reliability
Sl.	Statement of item		Mean	Std.	If item deleted	Coefficients Alpha
01	Sufficient number of documents	Res-1	4.88	0.83	0.9566	0.9576
02	Up-to-date-ness of documents	Res-2	4.94	0.90	0.9559	
03	Informative & resourceful documents	Res-3	5.00	0.83	0.9558	
04	Easy access to documents	Res-4	5.07	0.80	0.9561	
05	Latest information services & facilities	Res-5	5.02	0.87	0.9556	
06	E-resources availability & accessibility	Res-6	4.99	0.89	0.9560	
07	Sufficient modern technological tools	Res-7	4.97	0.87	0.9557	
08	Sufficient number of staff	Res-8	5.06	0.80	0.9560	
09	Academic fitness of employees	Comp-9	5.04	0.82	0.9557	
10	Professional skills of employees	Comp-10	5.04	0.79	0.9556	
11	Ability to guide the users properly	Comp-11	4.99	0.80	0.9558	
12	Ability to understand users' problems	Comp-12	5.01	0.80	0.9557	
13	Ability to make quick solution	Comp-13	4.95	0.82	0.9557	
14	Sincerity of employees on the job	Resp-14	5.10	0.86	0.9555	
15	Willingness to help users	Resp-15	5.03	0.79	0.9556	
16	Giving personal attention to users	Resp-16	4.95	0.86	0.9556	
17	Giving quick & timely service to users	Resp-17	5.09	0.82	0.9555	
18	Inform users on the regular progress	Resp-18	4.95	0.82	0.9557	
19	Courtesy & friendliness of employees	Dem-19	5.05	0.84	0.9557	
20	Handling users softly and carefully	Dem-20	5.07	1.64	0.9643	
21	Reliable personality	Dem-21	4.98	0.82	0.9558	
22	Loving users by heart	Dem-22	4.94	0.89	0.9556	
23	Appropriate study environment	Tan-23	5.19	0.85	0.9560	
24	Adequate space for study & learning	Tan-24	5.22	0.83	0.9559	
25	Suitable and attractive furniture	Tan-25	5.01	0.89	0.9561	
26	Documents are at the right place	Tan-26	5.13	0.85	0.9561	
27	Users can complaint & suggest easily	Tan-27	5.03	0.87	0.9556	
28	Suitable & convenient library hours	Tan-28	5.22	0.82	0.9565	

5.4.1.3 Stage-3: [Measure of sampling adequacy]

The Kaiser-Mayer-Olkin (KMO) test and Bartlett's Test of Sphericity (BTS) was employed recommended by Hair et al. (1998) to measure the sampling adequacy and assessing the overall significance of the correlation matrix (see Table 5.17).

Table 5.17: Test of measuring sampling adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.971
Bartlett's Test of Sphericity	Approx. Chi-Square	9194.405
	Df	378
	Sig.	0.000

Result of the KMO index 0.971 indicated that the variables go beyond the minimum standard of KMO's value of $P > 0.5$, which suggested, data obtained from the sample were sufficient and appropriate for factor analysis. Assessing the overall significance of the correlation matrix, the result of BTS ($\chi^2 = 9194.405$, $df = 378$, $P = 0.000$) was also significant at $P < 0.001$, which further confirmed that the data were suitable for factor analysis.

5.4.2 Validity and Reliability analyses of the scales

The Exploratory Factor Analysis (EFA) based on the procedure established by Hair et al. (1998) and Nunally & Bernstein (1994) was used for validity and reliability testing of the measurement scales. The mean scores of controlled variable "Real service expectation (RE)" were selected and used to test the validity and reliability. A principal component factor analysis with oblique rotation using direct oblimin was conducted (shown in Table 5.18) to examine whether the measures loaded as expected on the selected constructs. The reliability of each construct was further assessed by coefficient alpha presented in Table 5.19. Results ($*P > 0.70$) indicated that it was highly acceptable.

5.4.2.1 EFA of user's real expectation (RE) for service quality

The analysis was carried out changing the number of factors, referring to eigenvalues, variance and cumulative variance rates, and it was found that grouping up with three factors were recovered while no constraints were imposed on the extraction of factors (see Table 5.18). The Rotated Pattern Matrix presented three dimensional structures, which items were relatively consistent with the initial or predefined factors in the questionnaire, in which the measures of competence, responsiveness and demeanor loaded with the first factor that included 14 items. Other factors remained the same as loaded with 7 items for factor-2, and 5 items for factor-3. Items of each factor that exceeded the necessary value of factor loading (i.e. $P > 0.40$) recommended by Hair et al.

(1998) were considered, which indicated the validity of extracted items. Only the items “suitable and attractive furniture” and “sufficient number of staff” that did not match with Hair et al.’s (1998) recommended value for factor consideration, that’s why these two items were eliminated from the extracted factorial items.

Table 5.18: Factor analyses of service quality (unconstrained factors)

Item no.	Statement of item	Item's Code	Pattern Matrix (3 Factors)		
			Factor-1	Factor-2	Factor-3
13	Ability to make quick solution	Comp-13	.787	-.157	-.162
18	Inform users on the regular progress	Resp-18	.767	.010	.053
11	Ability to guide the users properly	Comp-11	.759	-.146	-.128
16	Giving personal attention to users	Resp-16	.697	-.012	.109
10	Professional skills of employees	Comp-10	.629	-.206	-.012
22	Loving users by heart	Dem-22	.615	-.011	.208
14	Sincerity of employees on the job	Resp-14	.603	-.117	.130
12	Ability to understand users' problems	Comp-12	.578	-.252	-.059
17	Giving quick & timely service to users	Resp-17	.577	.047	.334
15	Willingness to help users	Resp-15	.544	-.119	.197
20	Handling users softly and carefully	Dem-20	.515	.115	.025
19	Courtesy & friendliness of employees	Dem-19	.508	-.082	.259
09	Academic fitness of employees	Comp-9	.476	-.311	.050
21	Reliable personality	Dem-21	.450	-.057	.290
25	Suitable and attractive furniture	Tan-25	.395	-.035	.375
01	Sufficient number of documents	Res-1	-.053	-.826	-.032
03	Informative & resourceful documents	Res-3	.028	-.777	.055
02	Up-to-date-ness of documents	Res-2	.077	-.758	-.002
05	Latest information services & facilities	Res-5	-.031	-.705	.231
06	E-resources availability & accessibility	Res-6	.138	-.653	.022
04	Easy access to documents	Res-4	-.004	-.645	.190
07	Sufficient modern technological tools	Res-7	.320	-.545	-.032
08	Sufficient number of staff	Res-8	.302	-.389	.128
24	Adequate space for study & learning	Tan-24	-.019	-.113	.813
28	Suitable & convenient library hours	Tan-28	-.061	-.158	.720
23	Appropriate study environment	Tan-23	.211	-.024	.625
26	Documents are at the right place	Tan-26	.202	-.029	.615
27	Users can complaint & suggest easily	Tan-27	.248	-.175	.471
Total Variance Explained					
Eigenvalues			14.200	1.320	1.031
Variance (Percentage)			50.714	4.714	3.683
Cumulative variance (percentage)			50.714	55.429	59.111
Factor Correlation Matrix					
Factors			1	2	3
1			1.000	-.659	.613
2			-.659	1.000	-.515
3			.613	-.515	1.000
[Note] Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalization; Rotation converged in 10 iterations.					

Table 5.19: Reliability analysis of extracted factors

Factors	Measures or Constructs	Items with factor loadings <i>P</i> > 0.40 (Hair et al., 1998)	Cronbach's Alpha	Overall coefficient Alpha
1	Assurance	Q9_r / Q22_r (14 items)	0.92*	0.9018*
2	Resources	Q1_r / Q7_r (7 items)	0.89*	
3	Library as a place	Q23_r; Q24_r and Q26_r / Q28_r (5 items)	0.86*	
Total:	3 constructs	26 items	Sig. at: * <i>P</i> > 0.70	

5.4.2.2 Dimensionalities of service quality based on EFA

With regard to dimensionalities as indicated in Table 5.18, based on the factor structure the construct validity of the 3 factors was good. The 3 factors (included 26 items) extracted from 28 modified SERVQUAL items were consistently similar with the study of Hernon & Nitecki (1999), who pointed out that service quality included three areas: resources (i.e. information content), organization (i.e. service environment and resource delivery) and service delivered by staff. And also partially consistent with the study of Cook & Thompson (2000), who also found three dimensions to apply to library services, namely tangibles, reliability or service efficiency, and affect of service (responsiveness, assurance and empathy). Following a close inspection over the items of each factor, the three factors were summarily named as: factor-1 "assurance" included 14 items, factor-2 "resources" included 7 items, and factor-3 "library as a place" included 5 items. However, the extracted factors are summarized below:

Factor-1: [Assurance]

This is the largest and most important dimension among the three extracted dimensions, which accounted 50.714 percent of the total variance based on 14 staff-related items. After careful assessment on the measures that loaded on the first unconstrained factor, the items of measuring competence, responsiveness and demeanor were found combined, and the researcher termed the factor "assurance". Because, he asserted, delivery of users' needs are largely dependent on staff-related factors. The researcher also proclaimed that good combination of staff's competence, responsiveness and demeanor provides users a sense of assurance that their needs will be addressed and met appropriately. This factor is correspondingly associated with the study of Andaleeb & Simmonds (1998), and partially with Cook & Thompson's (2000)

study implied that gaining service quality and user satisfaction of academic library mostly depends on staff related factors.

Factor-2: [Resources]

The second factor included 7 items, which doesn't mean only information contents (Hernon & Nitecki, 1999), and size of the library collections but, rather, also included variety of other resources that, to the users, make access to information the key to judging resource adequacy (Andaleeb & Simmonds, 1998). Tracking with this belief, the dimension accordingly reflect adequacy of latest technological tools and updated informative documents, latest information services and facilities, availability and accessibility of e-resources, and easy access to documents. Based on the factorial scores also the researcher proclaimed that, resources are the most important factor of maintaining service quality and according to Andaleeb & Simmonds (1998) while satisfaction is adjoining to it.

Factor-3: [Library as a place]

The items included in 3rd factor are concerned with physical evidences and facilities, which the researcher termed "library as a place". Nagata et al. (2004) noted that library as a place is composed not only of physical facilities such as reading rooms and study rooms, but also mental aspects of quietness, comfort and exchange with other users and library staff. The items in this factor consisted of adequate space for study and learning, suitable or convenient library hours, appropriate study environment, documents are at right place, and users can complaint and suggest easily, which corresponded to Nagata et al.'s (2004) assertion. This factor is also consistent with Ahmed & Shoeb (2009), and Shoeb's (2011) study. In addition, considering the extracted dimensionalities, the researcher accordingly suggested that, for maintaining and measuring service quality for academic libraries staff related factors (i.e. "assurance") should be more emphasized.

5.4.2.3 Search for additional constructs within factor-1

The result of the rotated factor loadings as seen in Table 5.18, revealed that factor-1 included many more (14) items, which were previously associated with three service dimensions namely "competence", "responsiveness", and "demeanor". As the number

of items of factor-1 were bounded within (Mardia, Kent, & Bibby, 1979)'s stated limit about the minimum number of variables required for different numbers of factors, researcher, in order to extracting more substantial constructs re-examined the internal items of this factor using principal component analysis with oblique rotation method by the use of direct oblimin.

Table 5.20: 3-Factor analysis for "assurance" (constrained factors)

Item no.	Statement of item	Item's Code	Pattern Matrix (3 Factors)		
			Factor-1	Factor-2	Factor-3
16	Giving personal attention to users	Resp-16	.876	-.010	-.059
22	Loving users by heart	Dem-22	.856	.059	-.074
17	Giving quick & timely service to users	Resp-17	.763	-.048	.054
19	Courtesy & friendliness of employees	Dem-19	.761	.082	.008
21	Reliable personality	Dem-21	.710	.103	.022
18	Inform users on the regular progress	Resp-18	.627	-.053	.224
15	Willingness to help users	Resp-15	.465	.045	.355
13	Ability to make quick solution	Comp-13	.460	-.155	.409
20	Handling users softly and carefully	Dem-20	.105	.916	.076
10	Professional skills of employees	Comp-10	-.091	.115	.895
09	Academic fitness of employees	Comp-9	-.064	.068	.847
11	Ability to guide the users properly	Comp-11	.136	-.089	.711
12	Ability to understand users' problems	Comp-12	.139	-.054	.697
14	Sincerity of employees on the job	Resp-14	.305	.092	.506
Total Variance Explained					
Eigenvalues			7.695	0.854	0.747
Variance (Percentage)			54.966	6.096	5.334
Cumulative variance (percentage)			54.966	61.062	66.396
[Note] Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalization; Rotation converged in 11 iterations.					

While the factor analysis procedure was constrained to extracting 3 factors, the scale items loaded as expected with some variations. The underlined items assigned to each factor consistently have high loadings at $P > 0.40$, which was very much acceptable. Result shows that among the 3 extracted factors (see Table 5.20) with the eigenvalues 7.695, 0.854 and 0.747, and the cumulative percentage of total variance is 66.396, factor-2 was exceptionally loaded with only one item, which is duly insufficient to maintain as a single factor. Considering this limitation researcher retained this factor with the first factorial items based on its subject matter, and as the adjacent loading score 0.105 was found relatively closer to factor-1. Thus the factor-1 counted with 9 items was termed as "caring".

However, the latent root criterion indicated that the factor-3 had an eigenvalue of less than one. While in factor analysis, only factors having eigenvalues greater than one are considered and significant. Considering this measurement error based on (Hair, Anderson, Tatham & Black, 1992)'s assertion "when the eigenvalue for a factor is close to one, the factor might be retained for inclusion in the model" factor-3 was also taken as a construct, which included 5 items and termed as "competence" based on the subject matter. However, the extracted factors are summarized as follows:

Factor-1 and 2: [Caring]

Considering the quantity (9 items) and size of factor loadings, this is the largest construct, which included the items of former "responsiveness" and "demeanor" dimensions. Only the item "ability to make quick solution" related to "competence" dimension was also included in this factor. Based on a closer look over the loaded items, researcher termed the factor "caring". Because, the researcher maintained, delivery of user needs is directly influenced by means of staff's responsibility and behavioral pattern, and without caring mentality, staff's sound responsibility and good manner will hardly possible. Significantly, the factor is associated with the original SERVQUAL dimension "empathy" (i.e. the provision of caring and individualized attention to customers) of Parasuraman et al. (1988), and also somewhat corroborated with the construct "affect of service (personal)" derived from the study of Shoeb (2011), Ahmed & Shoeb (2009), and Satoh et al. (2005).

Factor-3: [Competence]

Most items included in this factor were associated with the capability of staff's service delivery, which enables them to understand users' problems accurately, guides them properly with expertise and knowledgeable solutions. This factor was loaded with 5 items, in which 4 items were combined from former "competence" dimension, and 1 item (i.e. sincerity of employees on the job) was differently coupled from former "responsiveness" dimension. Yet, the researcher named it as earlier "competence". Because, the researcher said, without honesty and sincerity proficiency is absolutely an idle factor. The items in this factor are also associated with Parasuraman et al.'s (1988)

original SERVQUAL dimension “reliability” (i.e. ability to perform the promised service dependably and accurately).

5.4.2.4 Summary of factor extraction

Results of the exploratory factor analyses of data (through unconstrained and constrained factor analysis) were summarized in Table 5.21 indicated that all the constructs exceeded Hair/et al.’s (1998) recommended value for factor loadings of $P>0.40$ with minimum standard of KMO’s value $P>0.5$ and are significant in BTS at $P<0.001$. The eigenvalues (excepting “competence” at $P<1.0$) shown are within the standard limit of $P>1.0$ with acceptable variance. Despite the limited eigenvalue “competence” was retained based on (Hair, Anderson, Tatham & Black, 1992)’s assertion (discussed earlier), and due to filling other criterion. The order of modified SERVQUAL constructs (see Table 5.21) was based on highest value of each construct in factor loadings.

Table 5.21: Summary: overall validity analyses of the measurement scales

Measures or Constructs	Number of items	Factor Loadings	KMO	BTS	Eigenvalue	Variance Explained
1. Caring	09	0.46-0.92*	0.94*	2500.71*	7.70*	54.97
2. Competence	05	0.51-0.90*	0.87*	1367.03*	0.75*	05.33
3. Resources	07	0.55-0.83*	0.91*	1951.82*	1.32*	04.71
4. Library as a place	05	0.47-0.81*	0.83*	1347.22*	1.03*	03.68
**Assurance	(14)	0.45-0.79*	0.96*	4421.43*	14.20*	50.71
Significant level at *P (26 items) $P>0.40$ $P>0.5$ $P<0.001$ $P>1.0$						

**Assurance reflects a combination of Caring and Competence measures

To examine the degree of reliability of all constructs alpha coefficients were also acquired for the values of real expectations (shown in Table 5.22). Result shows that alpha value of each construct exceeded Nunally & Bernstein’s (1994) recommended value at $P>0.70$ (ranges between $\alpha = 0.86$ to 0.92) that is very much significant and suggested good unity of the constructs.

Moreover, Pearson correlation coefficient and descriptive statistics were employed also in order to understand whether there was significant relationship among the constructs (Table 5.22). The result indicated that the internal correlation of the four constructs in this research is reasonable. Each construct is significantly related with other at $P<0.01$

denoted that these constructs are highly approachable for evaluating service quality in academic library.

Table 5.22: Overall reliability analyses of the measurement scales

Measures or Constructs	Mean	Standard Deviation	Pearson Correlation					Cronbach's Alpha
			1	2	3	4	5	
1. Caring	5.02	0.66	(1)					0.87
2. Competence	5.04	0.66	0.81**	(1)				0.87
3. Resources	5.00	0.65	0.74**	0.78**	(1)			0.89
4. Library as a place	5.16	0.67	0.77**	0.74**	0.70**	(1)		0.86
¶ Assurance	5.03	0.62	0.98**	0.92**	0.78**	0.79**	(1)	0.92

Note: ** Correlation is significant at the 0.01 level (2-tailed); Reliability estimation are shown diagonally (value: 1); ¶ Assurance: combination of Caring and Competence

The overall empirical results supported the notion of original SERVQUAL developers Parasuraman et al.'s (1988) proclamation that it "provides a basic skeleton [...] which can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization", which signifies the goodness of data for this research. And is also consistent with (Campbell, 1960 & Peter, 1981)'s assertion "SERVQUAL's high reliabilities and consistent factor structures across several independent samples provide support for its trait validity".

5.5 Exploring relationship between quality constructs and SQ-S*

Results based on EFA and overall reliability signifies the authenticity of four dimensions (e.g. caring, competence, resources, and library as a place) as service quality characteristics, which led to the service quality constructs for this research, the researcher asserted. But, in terms of service quality in academic libraries, Hernon & Altman (1996) explored the question of user satisfaction and the part this plays in user perceptions of service quality. Several studies (base on literature review) also showed that, service quality may indirectly and directly affect customer satisfaction.

However, to determine what relationship exists between service quality constructs and users' overall opinions regarding service quality and satisfaction, Pearson correlation analysis and descriptive statistics (based on perceived mean scores) were carried out (see Table 5.23). Results illustrated that the perceived mean value for each construct is between 3.75 and 4.04, indicating the level of caring, competence, resources, and

library as a place. Accordingly for constructs of users’ overall judgment about service quality and satisfaction (SQ-S) is shown between 3.30 and 3.35.

Table 5.23 shows the results of testing two direct effect hypotheses (e.g. H5 and H6). The effect of testing the first type of relationship revealed that “caring” is positively and significantly related at ($r = 0.54, P<0.01$) followed by “competence” at ($r = 0.52, P<0.01$), “resources” ($r = 0.48, P<0.01$), and accordingly ($r = 0.50, P<0.01$) for “library as a place” to users’ overall opinions on service quality. The null hypothesis H5 was therefore rejected.

Furthermore, the effect of testing the second type of relationship revealed that “caring” is positively and significantly related to users’ overall opinions on satisfaction at ($r = 0.57, P<0.01$), followed by “competence” at ($r = 0.55, P<0.01$), “resources” ($r = 0.52, P<0.01$), and accordingly “library as a place” at ($r = 0.51, P<0.01$), which consequently denoted the null hypothesis H6 was rejected.

Table 5.23: Relationship between quality constructs and SQ-S

Measures or Constructs	Mean	Standard Deviation	Pearson Correlation						
			1	2	3	4	¶	Q	S
1. Caring	3.76	1.09	(1)						
2. Competence	3.86	1.14	0.88**	(1)					
3. Resources	3.75	1.07	0.80**	0.80**	(1)				
4. Library as a place	4.04	1.14	0.81**	0.77**	0.76**	(1)			
¶ Assurance	3.80	1.07	0.98**	0.95**	0.82**	0.82**	(1)		
How would you rate the quality of library services as a whole?	3.30	0.91	0.54**	0.52**	0.48**	0.50**	0.55**	(1)	
How would you rate your satisfaction with the library?	3.35	0.94	0.57**	0.55**	0.52**	0.51**	0.58**	0.65**	(1)

[Note]: ** Correlation is significant at the 0.01 level (2-tailed); Reliability estimation are shown diagonally value; 1), ¶ Assurance: combination of Caring and Competence; Q: Service Quality, S: User Satisfaction

- [H5: There is no significant relationship between service quality constructs and users’ overall opinions on service quality]
- [H6: There is no significant relationship between service quality constructs and users’ overall opinions on satisfaction]

Moreover, to examine the relationship of service quality and satisfaction with each other a Linear Regression Analysis (R^2) was conducted (Table 5.24). Both regression results explained about 42 percent of the variation in the dependent variables as

indicated by the adjusted R^2 values, which signify the degree of relationship between them. The statistical significance of the regression test (F -test) was also applied.

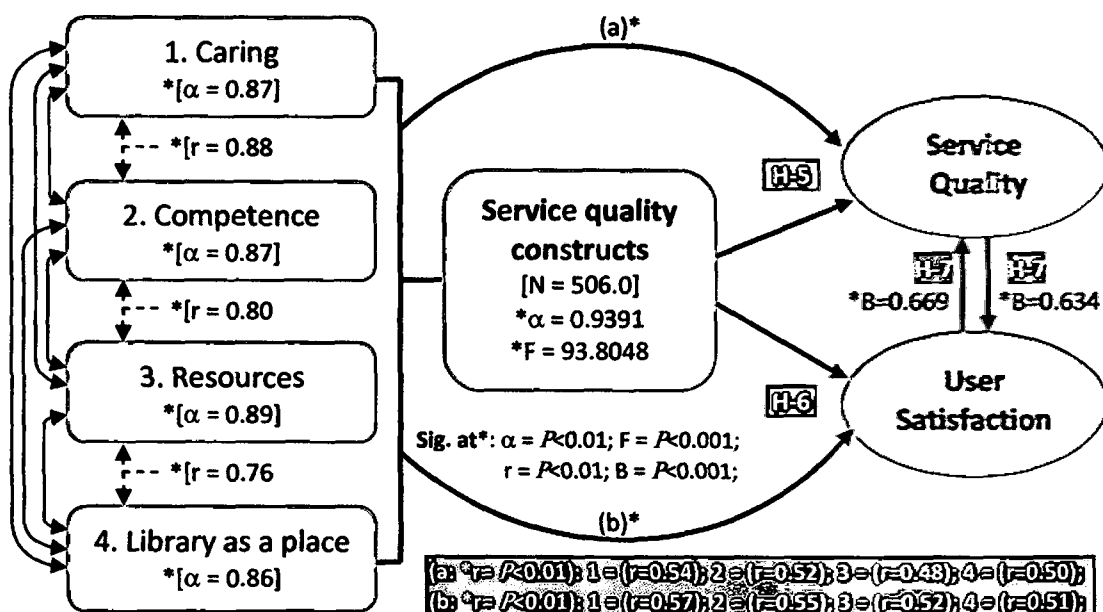
Table 5.24: Linear regression table: relationship between SQ-S

Independent variables (IV)	Un-standardized coefficient		standardized coefficient	t-value	Sig. at $P < 0.001$
	B	S.E.	β (Beta)		
(Constant)	1.141	0.108		10.575	0.000
Service quality	0.669	0.031	0.651	21.246	0.000
(Dependent variable: Satisfaction)					
$R^2 = 0.42$; Adjusted $R^2 = 0.42$ $F = 451.37$; Sig. 0.000 ($P < 0.001$)					
(Constant)	1.179	0.104		11.360	0.000
Satisfaction	0.634	0.030	0.651	21.246	0.000
(Dependent variable: Service quality)					
$R^2 = 0.42$; Adjusted $R^2 = 0.42$ $F = 451.37$; Sig. 0.000 ($P < 0.001$)					

[H7: There is no significant relationship between service quality and satisfaction]

Results (from Table 5.24) indicated that service quality and satisfaction are significantly related to each other as indicated by the overall F statistics ($F = 451.37$; $P < 0.001$). It may also be noted, the regression results ($B = 0.669$, $P < 0.001$) for service quality and ($B = 0.634$, $P < 0.001$) for satisfaction indicated that service quality and satisfaction had a significant impact on each other.

Figure 5.3: Hypotheses model-1 (H-5, H-6, and H-7)



An examination of the parameter estimates (particularly the standardized beta values “ $\beta=0.651$ ” for both service quality and satisfaction) suggested that service quality and satisfaction are strongly related to each other, that is consistent with Bitner & Hubbert’s (1994) assertion. The hypothesis (H7) was therefore rejected, and thus research objective-1 was achieved. To clearly understand the overall result of hypotheses H-5, H-6, and H-7 Figure 5.3 was illustrated. However, to corroborate the result and to explore if there any relationship exists among users’ opinions on overall service quality and satisfaction based on their demographic characteristics, Mann Whitney U (M-W), and Kruskal Wallis (K-W) Tests result has been reflected in Table 5.25.

Table 5.25: Mann Whitney (M-W) and Kruskal Wallis (K-W) Tests: H8 – H10

Hypotheses	Service quality	Sig. at	Satisfaction	Sig. at	Result
H8 ^a (M-W)	(M-W = 38253.500; Z= -2.861; P=0.004)	P<0.01 (1% level)	(M-W = 40044.500; Z= -1.967; P=0.049)	P<0.05 (5% level)	H-8 is accepted
H9 ^b (M-W)	(M-W = 34625.000; Z= -4.322; P=0.000)	P<0.01 (1% level)	(M-W = 34213.500; Z= -4.522; P=0.000)	P<0.01 (1% level)	H-9 is accepted
H10 ^c (K-W)	(χ^2 = 24.054; df = 4; P= 0.000)	P<0.01 (1% level)	(χ^2 = 22.969; df = 4; P= 0.000)	P<0.01 (1% level)	H-10 is accepted

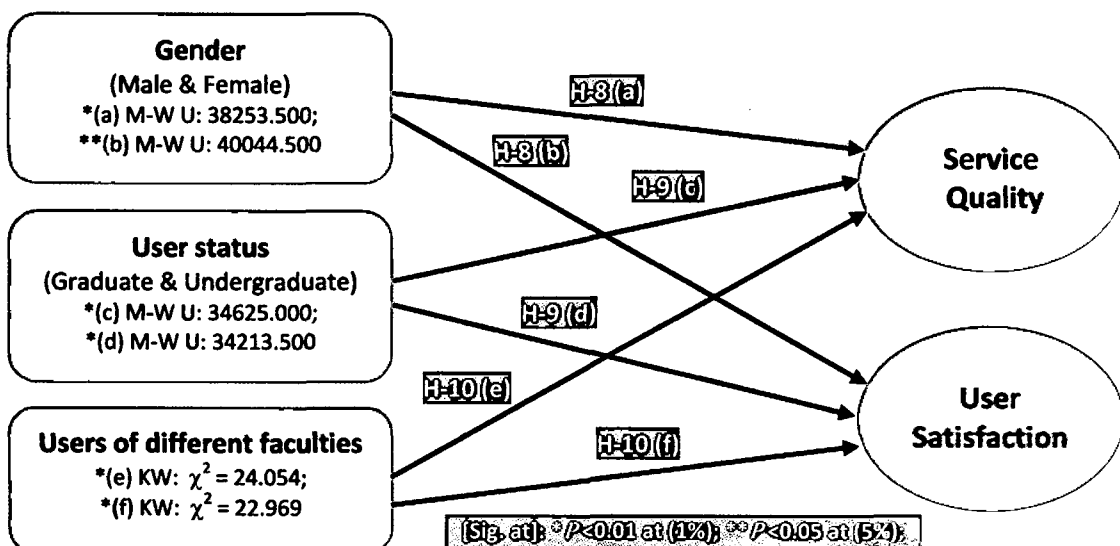
Grouping variable: a = male & female, b = graduate & undergraduate, c = users of different faculties;

[H8: There is no significant relationship between male and female users in terms of their opinions on overall service quality and satisfaction]

[H9: There is no significant relationship between graduate and undergraduate users in terms of their opinions on overall service quality and satisfaction]

[H10: There is no significant relationship between users of different faculties in terms of their opinions on overall service quality and satisfaction]

Figure 5.4: Hypotheses model-2 (H-8, H-9, and H-10)



The M-W test results ($M-W = 38253.500$; $Z = -2.861$; $P = 0.004$, for service quality at 1% level of significance $P < 0.01$; and $M-W = 40044.500$; $Z = -1.967$; $P = 0.049$, for satisfaction at 5% level of significance $P < 0.05$) shown in Table 5.25 for gender indicated that significant relationship was found between male and female users in terms of their opinions on overall service quality and satisfaction. The null hypothesis (H8) is therefore rejected.

The M-W test results ($M-W = 34625.000$; $Z = -4.322$; $P = 0.000$, for service quality; and $M-W = 34213.500$; $Z = -4.522$; $P = 0.000$, for satisfaction) for user status at 1% level of significance $P < 0.01$ indicated that significant relationship was found between graduate and undergraduate users in terms of their opinions on overall service quality and satisfaction. The null hypothesis (H9) is therefore rejected.

The K-W test results ($\chi^2 = 24.054$; $df = 4$; $P = 0.000$, for service quality; and $\chi^2 = 22.969$; $df = 4$; $P = 0.000$, for satisfaction) for users of different faculties at 1% level of significance $P < 0.01$ indicated that significant relationship was found between users of different faculties in terms of their opinions on overall service quality and satisfaction. The null hypothesis (H10) is therefore rejected. The hypothetical results implied that there is a closer relationship between service quality and satisfaction from users' point of view (as depicted in Figure 5.4), which is consistent with the empirical findings of Babakus et al.'s (2004) study. The research objective-1 was thus confirmed.

5.6 Development of SQ-S assessment model

The hypothesis model-1 and model-2 provided the basis for the proposed model of measuring SQ-S in this research. The number of constructs, "caring, competence, resources, and library as a place" were determined with 26 service items (see Table 5.26) after extraction through exploratory factor analysis (EFA), and named as "LIS SERVQUAL⁺". Service quality and satisfaction were measured by using the new adapted LIS SERVQUAL⁺ model (see Figure 5.5) in this research. With regard to measuring service quality, a crucial change was occurred over Parasuraman et al.'s (1994²) MSS (Measure of Service Superiority) service gap analysis, and in calculation of ZOT (Zone of Tolerance) in this research. That's why K-W (Kruskal Wallis) and M-W (Mann Whitney U) tests in

Table 5.13 and Kendall's coefficient of concordance (K-W) in Table 5.14 tests were carried out to examine users' desired service expectations.

Table 5.26: Service items with their identities (before and after extraction)

Items before extraction		Item's Information	Items after extraction	
Earlier Code	Earlier Dimension	Statement of item	Existing Code	Existing Dimension
Res-01	Resources	Sufficient number of documents	Res - 15	Resources
Res-02	Resources	Up-to-date-ness of documents	Res - 16	Resources
Res-03	Resources	Informative & resourceful documents	Res - 17	Resources
Res-04	Resources	Easy access to documents	Res - 18	Resources
Res-05	Resources	Latest information services & facilities	Res - 19	Resources
Res-06	Resources	E-resources availability & accessibility	Res - 20	Resources
Res-07	Resources	Sufficient modern technological tools	Res - 21	Resources
Res-08	Resources	Sufficient number of staff	Discarded	
Com-09	Competence	Academic fitness of employees	Com - 10	Competence
Com-10	Competence	Professional skills of employees	Com - 11	Competence
Com-11	Competence	Ability to guide the users properly	Com - 12	Competence
Com-12	Competence	Ability to understand users' problems	Com - 13	Competence
Com-13	Competence	Ability to make quick solution	Car - 01	Caring
Resp-14	Responsiveness	Sincerity of employees on the job	Com - 14	Competence
Resp-15	Responsiveness	Willingness to help users	Car - 02	Caring
Resp-16	Responsiveness	Giving personal attention to users	Car - 03	Caring
Resp-17	Responsiveness	Giving quick & timely service to users	Car - 04	Caring
Resp-18	Responsiveness	Inform users on the regular progress	Car - 05	Caring
Dem-19	Demeanor	Courtesy & friendliness of employees	Car -06	Caring
Dem-20	Demeanor	Handling users softly and carefully	Car - 07	Caring
Dem-21	Demeanor	Reliable personality	Car - 08	Caring
Dem-22	Demeanor	Loving users by heart	Car - 09	Caring
Tan-23	Tangibles	Appropriate study environment	Lib - 22	Library as a place
Tan-24	Tangibles	Adequate space for study & learning	Lib - 23	Library as a place
Tan-25	Tangibles	Suitable and attractive furniture	Discarded	
Tan-26	Tangibles	Documents are at the right place	Lib - 24	Library as a place
Tan-27	Tangibles	Users can complaint & suggest easily	Lib - 25	Library as a place
Tan-28	Tangibles	Suitable & convenient library hours	Lib - 26	Library as a place
23 items 5 Dimensions			26 items 4 Dimensions	

The statistical results shown in Table 5.13 and 5.14, and particularly users' desired opinions ascribed in Table 5.11 reported that users' desired service expectations (DE) did not produce the realistic value to measure superior service quality. A new controllable variable "Real Service Expectation (RE)" derived from average score of DE and ME was therefore emerged and applied in this research, which formed a new-fangled gap between users' expectations and perceptions and was called "superior service quality (SSQ)", i.e. $SSQ = (P - RE)$, in which expectation-based service quality gap was identified. The other gap MSA (measure of service adequacy) was remained the

same but renamed with MSQ (minimum service quality), i.e. $MSQ = (P - ME)$, which denoted users' need-based service quality gap. The zone of tolerance (ZOT) was also reintroduced, as the discrepancy between RE and ME scores (i.e. $ZOT = RE - ME$).

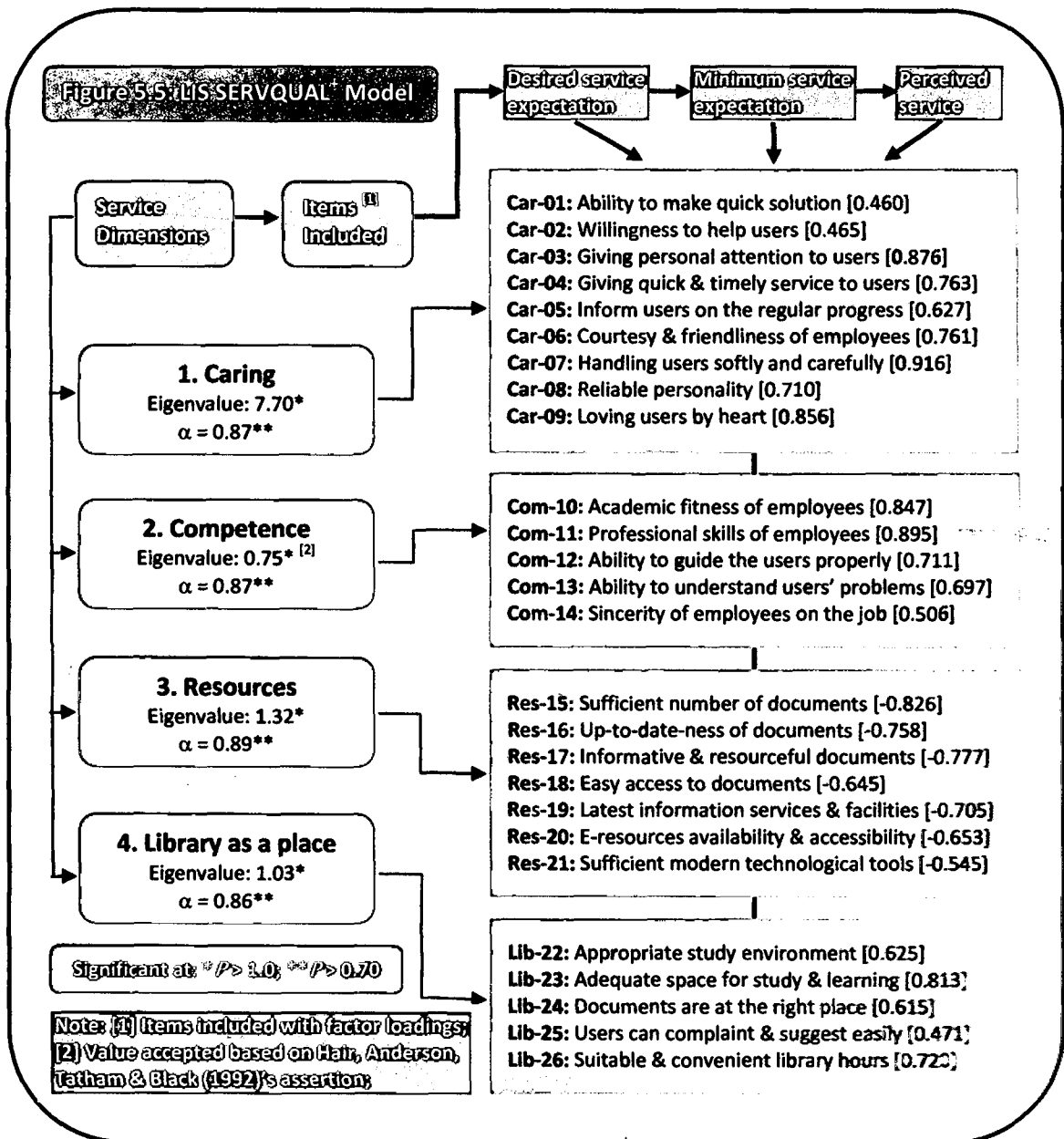
Table 5.27: Wilcoxon Signed Ranks Test

Service items	Item's ID	P & RE	P & ME	RE & ME
		Z	Z	Z
Ability to make quick solution	Car - 01	-16.764(a)*	-2.742(b)*	-20.913(a)*
Willingness to help users	Car - 02	-16.756(a)*	-3.522(b)*	-21.139(a)*
Giving personal attention to users	Car - 03	-16.533(a)*	-3.735(b)*	-20.963(a)*
Giving quick & timely service to users	Car - 04	-17.263(a)*	-4.665(b)*	-21.024(a)*
Inform users on the regular progress	Car - 05	-17.363(a)*	-4.398(b)*	-21.223(a)*
Courtesy & friendliness of employees	Car - 06	-15.971(a)*	-2.135(b)**	-21.188(a)*
Handling users softly and carefully	Car - 07	-16.647(a)*	-2.128(b)**	-20.980(a)*
Reliable personality	Car - 08	-16.496(a)*	-2.500(b)**	-20.865(a)*
Loving users by heart	Car - 09	-15.994(a)*	-1.753(b)***	-20.894(a)*
Overall signed rank	Caring	-17.950(a)*	-3.106(a)*	-20.608(a)*
Academic fitness of employees	Com - 10	-15.590(a)*	-1.553(b)***	-21.238(a)*
Professional skills of employees	Com - 11	-16.238(a)*	-1.419(b)***	-21.060(a)*
Ability to guide the users properly	Com - 12	-16.251(a)*	-1.103(b)***	-21.220(a)*
Ability to understand users' problems	Com - 13	-17.002(a)*	-2.705(b)*	-21.143(a)*
Sincerity of employees on the job	Com - 14	-16.596(a)*	-3.694(b)*	-21.204(a)*
Overall signed rank	Competence	-17.676(a)*	-1.795(a)***	-21.165(a)*
Sufficient number of documents	Res - 15	-14.011(a)*	-2.846(a)*	-21.440(a)*
Up-to-date-ness of documents	Res - 16	-16.065(a)*	-2.361(b)**	-21.350(a)*
Informative & resourceful documents	Res - 17	-16.717(a)*	-1.486(b)***	-21.117(a)*
Easy access to documents	Res - 18	-16.566(a)*	-0.809(b)***	-21.271(a)*
Latest information services & facilities	Res - 19	-17.612(a)*	-4.587(b)*	-21.087(a)*
E-resources availability & accessibility	Res - 20	-16.698(a)*	-4.373(b)*	-21.125(a)*
Sufficient modern technological tools	Res - 21	-17.419(a)*	-4.774(b)*	-21.130(a)*
Overall signed rank	Resources	-17.982(a)*	-2.158(a)**	-20.733(a)*
Appropriate study environment	Lib - 22	-14.587(a)*	-0.623(b)***	-21.029(a)*
Adequate space for study & learning	Lib - 23	-15.637(a)*	-1.930(b)***	-21.097(a)*
Documents are at the right place	Lib - 24	-16.086(a)*	-1.900(b)***	-21.015(a)*
Users can complaint & suggest easily	Lib - 25	-17.006(a)*	-4.930(b)*	-20.931(a)*
Suitable & convenient library hours	Lib - 26	-14.088(a)*	-1.311(a)***	-21.097(a)*
Overall signed rank	Library as a place	-17.388(a)*	-1.539(a)***	-21.130(a)*

[Note]: (1) SSQ, (2) MSQ, (3) ZOT; (a) Negative rank; (b) Positive rank;
Asymp. Sig. (2-tailed); Significant at * $P < 0.01$, ** $P < 0.05$; Not sig. at *** $P > 0.05$;

To establish the new recognized service quality gap "SSQ" between perceived services and real service expectation, "MSQ" between perceived services and minimum service expectation, and the "ZOT" between real service expectation and minimum service expectation, a non-parametric Wilcoxon signed ranks test (see in Table 5.27) was applied. The results showed that all expected and perceived services for gap differences between P and RE; and in respect of ZOT the gap differences between RE and ME were

negatively signed after ranking with two-tailed significant value $P < 0.01$ for all items. With moderate disparity for the gap difference between P and ME, results showed that majority of items were positively signed with significant value $P < 0.01$, and $P < 0.05$. A number of items although shown with insignificant value at $P > 0.05$, but based on overall coefficient alpha (shown in Table 5.28) concerning the reliability of gap difference these were considered also as significant for the current research. Now it can be acknowledged that the gap differences between P and RE for "SSQ", P and ME for "MSQ" and accordingly RE and ME for "ZOT" are significant and appropriate for measuring service quality and satisfaction in academic library services.

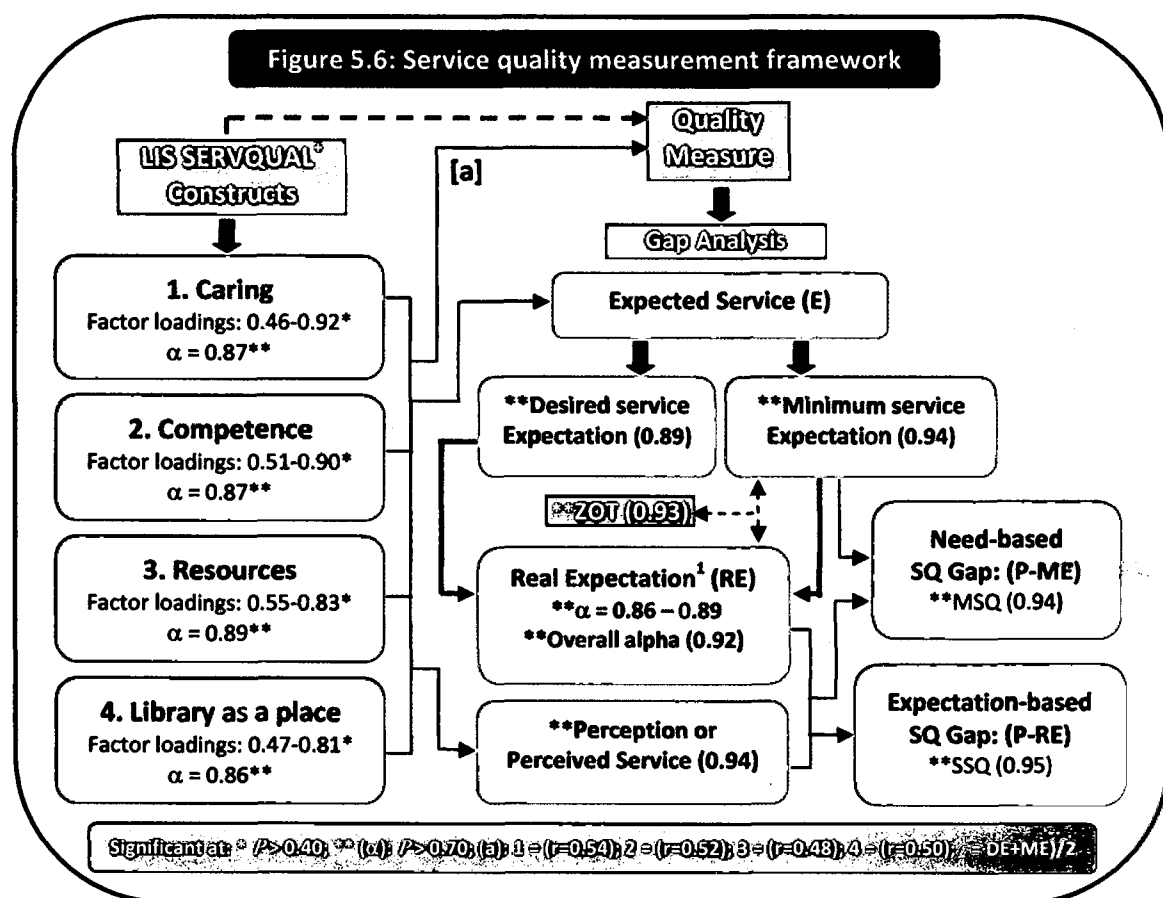


Examining the reliability of service constructs (i.e. caring, competence, resources, and library as a place) according to controllable variables (i.e. DE, ME, RE, and P) and their neighboring gaps (i.e. SSQ, MSQ, & ZOT), Cronbach's Alpha was applied (see Table 5.28).

Table 5.28: Reliability analysis of controllable variables

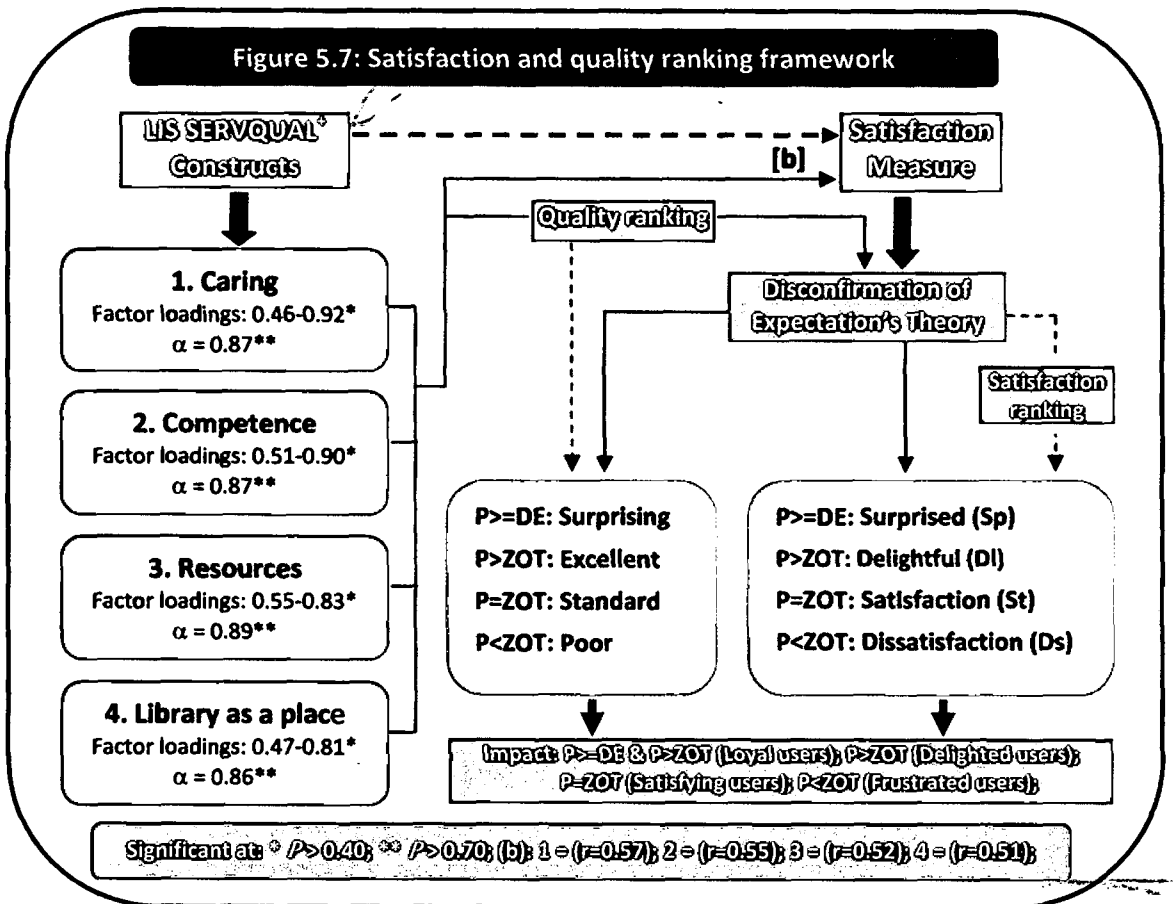
Service Constructs	User's opinion scores (Cronbach's Alpha)				Gap scores (Cronbach's Alpha)		
	DE	ME	RE	P	SSQ	MSQ	ZOT
1. Caring	0.75*	0.93*	0.87*	0.95*	0.95*	0.95*	0.82*
2. Competence	0.85*	0.89*	0.87*	0.91*	0.92*	0.92*	0.88*
3. Resources	0.87*	0.91*	0.89*	0.92*	0.93*	0.93*	0.90*
4. Library as a place	0.84*	0.88*	0.86*	0.88*	0.89*	0.90*	0.87*
Overall coefficient alpha	0.89*	0.94*	0.92*	0.94*	0.95*	0.94*	0.93*

[Note]: * Significant at: $P > 0.70$



Results demonstrated that the alpha value of each construct according to DE, ME, P, RE, SSQ, MSQ, and ZOT exceeded the Nunally & Bernstein's (1994) recommended value at $P > 0.70$ signifies that the items of each construct based on each controllable variable and relative gap attributes have relatively high internal consistency, and accordingly suggested that the service constructs and their related items can be used with the assigned variables "DE, ME, RE, P, SSQ, MSQ, and ZOT" for this research. The overall

coefficient alpha (i.e. $\alpha = 0.89-0.95$) was also found within highly acceptable range, denoted the worthiness of assigned variables to be applicable in this research. However, assessment of service quality of this research based on the latest gap theory along with LIS SERVQUAL⁺ dimensions was structured in Figure 5.6.



Furthermore, the test effect of H-5, H-6 and H-7 (shown in Table 5.23 and 5.24), and the result of Wilcoxon Signed Ranks Test (explained in Table 5.27) provide a basis for measuring satisfaction aligned with service quality assessment using the same dimensionalities in this research (as shown in Figure 5.7) that is consistent with McColl-Kennedy & Schneider's (2003) assertion, who stated "for research purpose, customer satisfaction is not measured alone, but in conjunction with service quality and success". These statistical consequences provide a logical ground to incorporate the three inter-related frameworks "LIS SERVQUAL⁺ (Figure 5.5) model, Service quality measurement framework (Figure 5.6), and Satisfaction and quality ranking framework (Figure 5.7)" into one single structure as shown in Appendix-E (p.247) that the researcher named it "Academic library SQ-S assessment framework". Considering Smith & Houston's (1982)

assertion "satisfaction with services is related to confirmation or disconfirmation of expectations", satisfaction ranking in this research was measured using the revised edition of Oliver's (1980) "expectancy disconfirmation theory" with some adjustment.

Corresponding to Berry & Parasuraman's (1991) view "ZOT" was used as the confirmation and disconfirmation standard in this research. A new dimension "i.e. service quality ranking" was also integrate at the same model adjacent to the satisfaction ranking considering the significant statistical effects, mentioned earlier. In addition to ZOT as confirmation and disconfirmation standard, DE (desired service expectation) was used as supplementary positive disconfirmation for indicating surprising level of service quality and satisfaction, as it was shown with significant result.

5.7 Exploring perceived service performance (PSP)

For ongoing monitoring and reporting of the existing libraries' service scenario (to support the objective-ill "to assess existing scenario of perceived service performance of academic libraries of Bangladesh") users' direct responses on "perception" scores were used and examined. Positive and negative service performance was calculated on the basis of specified range of perception scores explained in Table 2.3 from chapter-2 (Methodology, p. 30). Since, there may be the possibility of biasness regarding users' judgments for services they availed from their libraries, researcher therefore, needed to verify the consistency between users' perceived judgments for service items and their overall judgments. This may provide a deep insight in users' opinion ratings, and thus ensure the authenticity of using the perception scores for measuring degree of service performance of the sampled university libraries, the researcher stated.

5.7.1 Consistency between users' perceptions and overall judgments

Evidences as regards to corresponding uniformity between measures of perceived performance by users and their overall judgments regarding service quality constructs was provided in Table 5.29. Pearson Correlation was used for the purpose. Results show that users' judgment was significantly related to one another at $P < 0.01$, denoting a good conformity and association between users' opinions of perceived performance and their overall judgments regarding library personnel, resources, and physical affairs that

form service quality. This implied the authenticity and reliability of users' judgments regarding the service performance, and accordingly let the researcher to use the perceptions scores for the defined objectives.

Table 5.29: Reliability check: perceived constructs and overall observations

Perceived and overall measures	Mean	Standard Deviation	Pearson Correlation					
			1	Q-31	2	Q-29	3	Q-30
1. Assurance*	3.80	1.07	(1)					
[Q-31]: Library personnel	3.28	0.99	0.58**	(1)				
2. Resources	3.75	1.07	0.82**	0.50**	(1)			
[Q-29]: Information need	3.33	0.89	0.59**	0.58**	0.54**	(1)		
3. Library as a place	4.04	1.14	0.82**	0.52**	0.76**	0.52**	(1)	
[Q-30]: Services & facilities	3.32	0.90	0.55**	0.59**	0.49**	0.63**	0.52**	(1)

[Note]: ** Correlation is significant at the 0.01 level (2-tailed); Reliability estimation is shown diagonally (value 1).
 *Assurance: combination of Caring and Competence.

5.7.2 Perceived service scenario of academic libraries in Bangladesh

The user's acceptability of library services was dependent on quality of service performance they perceived, which was used as the key indicator of measuring service quality and satisfaction in this research. The existing status of service performance derived from users' practical experiences provided by 10 sampled public and private universities was shown in Table 5.30 with perceived ranking status in Table 5.31.

Table 5.30: User's perception of service performance

Service Dimensions with number of items	Perceived service performance									
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Caring - 01	3.10	4.16	3.71	2.67	3.15	4.65	5.10	4.54	4.55	3.14
Caring - 02	3.02	4.25	3.84	2.76	3.17	4.74	5.28	4.25	4.64	3.07
Caring - 03	2.87	4.16	3.92	3.03	3.17	4.54	5.15	4.59	4.38	3.50
Caring - 04	3.20	4.24	3.89	2.58	3.17	4.76	5.21	4.28	4.23	3.54
Caring - 05	2.95	3.91	3.88	2.72	3.04	4.52	5.33	4.36	4.23	3.69
Caring - 06	3.38	4.28	4.18	2.71	3.21	4.70	5.32	4.68	4.36	3.00
Caring - 07	3.17	4.32	3.86	2.78	3.38	4.63	5.50	4.69	4.21	3.14
Caring - 08	3.47	4.12	3.77	2.75	3.17	4.70	4.95	4.66	4.43	3.07
Caring - 09	3.27	4.32	3.78	2.75	3.34	4.50	5.02	4.52	4.49	3.15
Competence - 10	3.40	4.47	3.92	2.64	3.11	4.89	5.17	4.63	4.74	3.07
Competence - 11	3.49	4.23	3.82	2.83	3.21	4.83	5.05	4.75	4.72	3.21
Competence - 12	3.29	4.26	4.06	2.76	3.15	4.72	5.00	5.14	4.53	3.57
Competence - 13	3.18	4.15	3.96	2.78	3.13	4.78	5.00	4.76	4.49	3.50
Competence - 14	3.16	4.28	3.94	2.86	3.04	4.78	5.24	4.50	4.62	3.43
Resources - 15	3.83	3.98	4.11	2.91	2.66	4.93	5.07	4.83	4.68	3.29
Resources - 16	3.32	3.86	3.79	2.68	2.79	4.78	4.98	4.61	4.48	3.36
Resources - 17	3.68	4.00	3.92	2.72	2.89	4.70	4.98	4.76	4.51	3.23
Resources - 18	3.63	4.06	4.54	2.70	2.96	4.50	5.05	4.88	4.49	3.36

Resources - 19	3.22	3.94	3.88	2.57	3.09	4.43	4.98	4.43	4.02	3.46
Resources - 20	3.03	3.86	3.81	2.14	3.06	4.63	4.98	4.86	4.40	3.71
Resources - 21	3.11	3.98	3.76	2.22	3.11	4.50	4.80	4.36	4.11	3.43
Library as a place - 22	3.78	4.68	4.39	2.81	3.09	4.91	5.55	4.57	4.64	3.14
Library as a place - 23	3.60	4.53	4.55	2.65	3.17	4.96	5.50	4.41	4.64	3.23
Library as a place - 24	3.55	4.28	4.21	2.53	3.19	4.80	5.29	5.03	4.79	3.36
Library as a place - 25	2.99	4.22	3.82	2.49	3.21	4.37	5.21	4.83	4.40	3.00
Library as a place - 26	4.32	4.53	4.60	2.96	3.36	4.72	5.48	5.38	4.43	3.00

Results, based on perceived service performance computation method (see Table 2.3 in chapter-2 "Methodology") ascribed that large number of public university students had negative perception about the quality of library service performance they received in their respective universities as most ratings fell below 4.00 (i.e. <4.00) in average score, while large number of private university students were positive about the quality of library service performance they received in their respective universities as most ratings were found above 4.00 (i.e. >4.00) in average score. In terms of overall service performance the same conditions happened.

Table 5.31: Status of user's perception of service performance

Statement of service item	Item's Code	Perceived service ranking									
		DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Ability to make quick solution	Car - 01	21	15	26	18	13	17	14	18	09	18
Willingness to help users	Car - 02	23	11	18	09	08	11	08	26	05	21
Giving personal attention to users	Car - 03	26	16	11	01	09	20	13	16	20	05
Giving quick & timely service to users	Car - 04	16	12	14	21	10	10	10	25	22	04
Inform users on the regular progress	Car - 05	25	24	15	13	21	21	05	23	23	02
Courtesy & friendliness of employees	Car - 06	11	07	06	15	04	14	06	12	21	24
Handling users softly and carefully	Car - 07	18	05	17	07	01	18	02	11	24	19
Reliable personality	Car - 08	09	18	24	11	11	15	25	13	16	22
Loving users by heart	Car - 09	14	06	23	12	03	22	18	19	12	17
Academic fitness of employees	Com - 10	10	04	12	20	16	04	12	14	02	23
Professional skills of employees	Com - 11	08	13	19	05	05	05	16	10	03	16
Ability to guide the users properly	Com - 12	13	10	08	10	14	12	19	02	10	03
Ability to understand users' problems	Com - 13	17	17	09	08	15	07	20	08	13	06
Sincerity of employees on the job	Com - 14	19	08	10	04	22	08	09	20	08	08
Sufficient number of documents	Res - 15	02	21	07	03	26	02	15	06	04	13
Up-to-date-ness of documents	Res - 16	12	25	22	17	25	09	21	15	15	10
Informative & resourceful documents	Res - 17	04	20	13	14	24	16	22	09	11	14
Easy access to documents	Res - 18	05	19	03	16	23	23	17	04	14	11
Latest information services & facilities	Res - 19	15	23	16	22	18	25	23	21	26	07
E-resources availability & accessibility	Res - 20	22	26	21	26	20	19	24	05	18	01
Sufficient modern technological tools	Res - 21	20	22	25	25	17	24	26	24	25	09
Appropriate study environment	Lib - 22	03	01	04	06	19	03	01	17	06	20
Adequate space for study & learning	Lib - 23	06	02	02	19	12	01	03	22	07	15
Documents are at the right place	Lib - 24	07	09	05	23	07	06	07	03	01	12

Users can complaint & suggest easily	Lib - 25	24	14	20	24	06	25	11	07	19	25
Suitable & convenient library hours	Lib - 26	01	03	01	02	02	13	04	01	17	26

[Note]: A low perceived rank value indicated that users estimated an attribute highly positive, and a high perceived rank value indicated that users estimated an attribute highly negative.

It was also observed (in Table 5.30) that the most service items that found relatively negative impression of service performance among users was related to staffing factor “caring” in public university libraries; and the most number of items that found relatively positive notion of service performance was related to physical evidences and facilities “library as a place” in private university libraries.

Table 5.32: User’s perception of overall service performance

Service Dimensions	Public universities					Private universities				
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
1. Caring	3.16	4.20	3.87	2.75	3.20	4.64	5.21	4.51	4.39	3.26
2. Competence	3.30	4.28	3.94	2.77	3.13	4.80	5.09	4.76	4.62	3.36
3. Resources	3.40	3.95	3.97	2.56	2.94	4.64	4.98	4.68	4.38	3.41
4. Library as a place	3.65	4.45	4.31	2.69	3.20	4.75	5.41	4.84	4.58	3.15
Overall performance	3.38	4.22	4.02	2.69	3.12	4.71	5.17	4.70	4.49	3.30

However, with regard to understanding how various factors or dimensions of service quality affected users’ perceptions within a university library setting, distinctive performance of service items was clarified based on perceived mean scores (shown in Table 5.30) and related ranking status (shown in Table 5.31). The overall service performance based on user’s experience was also explained in Table 5.32. To further clarification about users’ perceived judgments the result was distinctively summarized in Table 5.34 and 5.35.

5.7.2.1 Dhaka University Library (DUL)

Findings of DU library perceived service situation explored that the whole service items except “suitable & convenient library hours (4.32:1)” were ranked below the average scores 4.00, indicated the wickedness of its service performance. The most alarming items were concerned with staffing factor “caring”, which included “giving personal attention to users (2.87:26)”, followed by “inform users on the regular progress (2.95:25); and physical evidences & facilities factor “library as a place”, which included “users can complaint & suggest easily (2.99:24). Another items, with regard to perceived service ranking position that the users perceived negatively included, willingness to help users (3.02:23), e-resources availability & accessibility (3.03:22), and ability to make

quick solution (3.10:21)". Correspondingly the researcher argued that there were some other items that significantly focused on user's value and operational efficiency of library staff should not be kept away from users' negative assertion, included "sincerity of employees on the job (3.16:19), handling users softly and carefully (3.17:18), and ability to understand users' problems (3.18:17)". These are also the vital factors for better service performance, researcher stated conforming with McClain et al.'s (1992) proclamation "superior service is accomplished through providing value to the customer and utilizing operations to achieve the goals".

At a glance over the performance of total service items, the most surprising matter the researcher observed, was related to resources' factor "e-resources availability & accessibility" in terms of its perceived ranking position. He maintained that, DU library facilitated the leading amount and approximately access to over 5000 (five thousand) e-resources (including e-books and e-journals) for its users, where as on users' view point this attribute was highly alleged as problematic item and poorly perceived by them with service ranking position 22. The context of overall perceived service performance of DU library demonstrated in Table 5.32 also revealed the negative feelings of users toward library services.

5.7.2.2 Jahangirnagar University library (JUL)

The service status of JU library was accordingly observed and found that, the most service items were fallen equal and above the average score 4.00 (i.e. ≥ 4.00), indicated the goodness of service performance from users' standpoint. The "resources" factor with regard to perceived service ranking was relatively found more problematic that imposed negative impact on its users. It may be grounded to threatening for library's survival, researcher claimed. However, the most vulnerable items that caused lower perception to users regarding existing service performance "e-resources availability & accessibility (3.86:26), up-to-date-ness of documents (3.86:25), latest information services & facilities (3.94:23), sufficient modern technological tools (3.98:22), and sufficient number of documents (3.98:21)". It was also significantly reported that users of JU library were not well informed about the regular progress of library services, as the item occupied 24th position in perceived service ranking. The overall performance was

also shown within the positive range except for resources, which suggested that the resources factor should be more customized for better service quality and improving user satisfaction.

5.7.2.3 Rajshahi University library (RUL)

The existing perceived account of RU library services reported that, nearly all service items except major items of "library as a place" dimension, users' perceptions were shown below the average score (i.e. <4.00). This indicated that the users were not positively influenced by the existing service performance of their library particularly in terms of staffing (i.e. caring and competence) and resources factors. With regard to staffing "courtesy & friendliness of employees" for caring (4.18:6), and "ability to guide the users properly" for competence (4.06:8) got the positive service perceptions, and all other attributes were negatively perceived. Regarding resources dimension, majority of items (mean range between 3.76 – 3.92) except "sufficient number of documents (4.11:7)" and "easy access to document (4.54:3)" were also negatively perceived. The overall service performance, although shown within the positive range due to impact of physical evidence factor, the most significant factors (i.e. staffing and resources) to which users' satisfaction is largely related as the researcher claimed, did not have positive impact on users' perceptions.

5.7.2.4 Chittagong University library (CUL)

The current service performance of CUL based on users experiences were found exceptionally and extremely negative among the users of 10 sampled public and private university libraries. Results showed that all service items except for "giving personal attention to users (3.03:1)" were fallen below the negative range of service performance i.e. <3.00, reported the alarming condition beside library's survival. It also notified that users of CUL were very much deprived from all aspects of library facilities, and it may consequently hinder the rising flow of academic strength of the university. The most critical and severe condition was found against the technological factors "e-resources availability & accessibility (2.14:26)" and "sufficient modern technological tools (2.22:25)". The overall service performance was also shown negatively perceived.

5.7.2.5 Jagannath University library (JNUL)

Findings of perceived performance of JAGU library services reported that, the whole service items obtained mean scores below the average level i.e. <4.00, denoted the negative perception of users' service experiences. The highly negative perceived items were related to resources dimension included "sufficient number of documents (2.66:26), up-to-date-ness of documents (2.79:25), informative & resourceful documents (2.89:24), and easy access to documents (2.96:23)", reflected the performance deficiencies of existing library services. Such situation was also alarming for users' retention and loyalty toward library practices, as the researcher conceived. In terms of overall perception, the users' experiences were not quite good as well.

5.7.2.6 North South University library (NSUL)

Results of perceived performance of NSU library services explained that, the mean scores for total service items, and also the overall perception score exceeded the average level i.e. >4.00, denoted the goodness of existing service performance in terms of users' perspectives. By taking a closer look over the perceived mean scores and perceived ranking status of whole service items, the resources' items "latest information services & facilities (4.43:25), sufficient modern technological tools (4.50:24), easy access to documents (4.50:23), e-resources availability & accessibility (4.63:19), and informative & resourceful documents (4.70:16)" were shown relatively lower performance than others. The findings also reported that in terms of perceived service ranking the staffing factors particularly "loving users by heart (4.50:22), inform users on the regular progress (4.52:21), and giving personal attention to users (4.54:20)" indicated that, users were not given priority for service delivery. The most deficit factor that the users perceived "users can complaint & suggest easily (4.37:26)" got the lowest service performance explored that customer care is not an imperative factor to library authority.

5.7.2.7 Independent University Bangladesh library (IUBL)

The service performance of IUB library was exclusively perceived by its users that the major service items moderately exceeded the lowest positive range 4.00 i.e. between 5.00-5.55. Other items were also found nearly to 5.00 (i.e. 4.80-4.95) indicated the

goodness of users' service experience. With regard to perceived service ranking, the resources items relating to modern technological approach toward library services such as: "sufficient modern technological tools (4.80:26), e-resources availability & accessibility (4.98:24), and latest information services & facilities (4.98:23)" got the lowest perception of service performance. Other items of resources dimension were relatively got poor perception. In terms of perceived service status, the competence factor was also placed at lower perception. The overall findings disclosed that the physical evidence factor "library as a place (5.41)" got the highest perceived position, followed by "caring (5.21)", "competence (5.09)", and the lowest perceived performance was found for "resources (4.98)" dimension.

5.7.2.8 East West University library (EWUL)

The findings of EWU library service performance revealed that, the whole service items fall within the positive perceived range 4.25-5.38, and the overall perceived service performance (ranges between 4.51-4.84) for library as a place followed by competence, resources, and caring indicated the goodness of existing service position to users' standpoint. With regard to caring factor, majority of items (in terms of perceived service ranking) achieved relatively poor performance to users that indicated, the employees are not fairly supportive for the users, and proper monitoring did not imposed over the employee's regular job.

In search for reason behind this depressing service condition researcher had a closer observation and asserted that such negative situation of course influenced by competence factor "sincerity of employees on the job (4.50:20)". Because the researcher said, in terms of service ranking position "sincerity of employees on the job" indicated that employees were not much sincere enough in their job, while the adjacent competence factor "ability to guide the users properly (5.14:2)" denoted, the employees are capable enough to provide proper guidance to users.

There was a large inconsistency found relating to technological services and facilities "sufficient modern technological tools (4.36:24), latest information services & facilities (4.43:21), and e-resources availability & accessibility (4.86:5). This indicated, although user's perception regarding availability and accessibility of electronic resources was

more positively perceived with good service ranking, but owing to paucity of latest technological supports and ineffective & facilities electronic resources were not properly utilized by its users.

5.7.2.9 BRAC University library (BRACUL)

The perceived service performance of BRACU library was found within the range 4.02-4.79 indicated that the whole service items were positively perceived by its users. Based on a closer observation over the service items researcher found that items of the staffing factor was differently and inconsistently perceived by users. Researcher said, in terms of perceived service ranking the competence items “academic fitness of employees (4.74:2), professional skills of employees (4.72:3)”, and the caring item “willingness to help users (4.64:5)” obviously explored the efficiency and positive manner of the employees. It was further established by the perceived service position of competence factor “sincerity of employees on the job (4.62:8), and caring factor “ability to make quick solution (4.55:9). Whereas, the other associated items (excepting the items mentioned above) of caring factor were perceived with lower ranking. This indicated that, a clear inconsistency was found between users’ perception about employee’s functional and behavioral capabilities and proper implication of these abilities in their existing practices, researcher asserted.

A little inconsistency was also found relating to technological services and facilities of resources factor included “latest information services & facilities (4.02:26), sufficient modern technological tools (4.11:25), and e-resources availability & accessibility (4.40:18). This indicated that, although user’s perception regarding availability and accessibility of electronic resources was relatively perceived with good service ranking, but not quite effective due to inadequacy of latest technological supports and facilities. The overall service performance was also found within the positive range (between 4.38-4.62) for competence followed by library as a place, caring, and resources reported the goodness of overall service performance.

5.7.2.10 Premier University library (PUL)

Results of perceived service performance of PU library explored that the entire service items were found below the average score 4.00, which indicated that the current

service situation for total service items were negatively perceived by its users. With regard to perceived service ranking, most importantly the competence items “ability to guide the users properly (3.57:3), ability to understand users’ problems (3.50:6), and sincerity of employees on the job (3.43:8)” expressed the hopeful indicator (in terms of perceived service ranking) of employees’ roles toward service delivery, although they did not possess required academic fitness, professional skills, and unable to make quick solution, as perceived by users. But these were negatively concealed by their behavioral pattern “courtesy & friendliness of employees (3.00:24), reliable personality (3.07:22), willingness to help users (3.07:21), handling users softly and carefully (3.14:19), and loving users by heart (3.15:17)” as the researcher believed. The resources factor particularly relating to technological services & facilities was found relatively in better position than the others. The library hours was found also absolutely insufficient for the users (3.00:26). Users were also negatively impressed by the overall service performance. This indicated that the existing service performance of PU library was not good at all to fulfill users’ information needs.

5.7.3 Summary of current perceived service performance

To provide a glimpse over user’s perceived experience about service performance, the service items were distinctively summarized in Table 5.34 and 5.35 followed by service performance index (SPI) described in Table 5.33.

Table 5.33: Service performance index

Index of sampled Universities		Service performance Index (SPI)		
Index No.	Name of Universities	Service performance remark	Range of Scores	Index Color
01	Dhaka University (DU)	Excellent	>=6.00	
02	Jahangirnagar University (JU)	Standard	>=5.00 & <6.00	
03	Rajshahi University (RU)	Fairly standard but seeking improvement	>=4.00 & <5.00	
04	Chittagong University (CU)	Problematic and risky	>=3.00 & <4.00	
05	Jagannath University (JNU)	Alarming	<3.00	
06	North South University (NSU)			
07	Independent University Bangladesh (IUB)			
08	East West University (EWU)			
09	BRAC University (BRACU)			
10	Premier University (PU)			

The results addressed a deep insight about existing performance of library services at all levels of service attributes based on users’ view points that can be used as essential

indicator for evaluating service quality and satisfaction. As Zeithaml et al. (2009) pointed out that the entire discussion of service quality and satisfaction is based on customer's perception of the service and not some predetermined objective criteria of what service is, or should be.

Table 5.34: Summary of perceive service performance

Statement of service item	Item's Code	Perceived service performance									
		1	2	3	4	5	6	7	8	9	10
Ability to make quick solution	Car - 01	3.10	4.16	3.71	2.67	3.15	4.65	5.10	4.54	4.55	3.14
Willingness to help users	Car - 02	3.02	4.25	3.84	2.76	3.17	4.74	5.28	4.25	4.64	3.07
Giving personal attention to users	Car - 03	2.87	4.16	3.92	3.03	3.17	4.54	5.15	4.59	4.38	3.50
Giving quick & timely service to users	Car - 04	3.20	4.24	3.89	2.58	3.17	4.76	5.21	4.28	4.23	3.54
Inform users on the regular progress	Car - 05	2.95	3.91	3.88	2.72	3.04	4.52	5.33	4.36	4.23	3.69
Courtesy & friendliness of employees	Car - 06	3.38	4.28	4.18	2.71	3.21	4.70	5.32	4.68	4.36	3.00
Handling users softly and carefully	Car - 07	3.17	4.32	3.86	2.78	3.38	4.63	5.50	4.69	4.21	3.14
Reliable personality	Car - 08	3.47	4.12	3.77	2.75	3.17	4.70	4.95	4.66	4.43	3.07
Loving users by heart	Car - 09	3.27	4.32	3.78	2.75	3.34	4.50	5.02	4.52	4.49	3.15
Academic fitness of employees	Com - 10	3.40	4.47	3.92	2.64	3.11	4.89	5.17	4.63	4.74	3.07
Professional skills of employees	Com - 11	3.49	4.23	3.82	2.83	3.21	4.83	5.05	4.75	4.72	3.21
Ability to guide the users properly	Com - 12	3.29	4.26	4.06	2.76	3.15	4.72	5.00	5.14	4.53	3.57
Ability to understand users' problems	Com - 13	3.18	4.15	3.96	2.78	3.13	4.78	5.00	4.76	4.49	3.50
Sincerity of employees on the job	Com - 14	3.16	4.28	3.94	2.86	3.04	4.78	5.24	4.50	4.62	3.43
Sufficient number of documents	Res - 15	3.83	3.98	4.11	2.91	2.66	4.93	5.07	4.83	4.68	3.29
Up-to-date-ness of documents	Res - 16	3.32	3.86	3.79	2.68	2.79	4.78	4.98	4.61	4.48	3.36
Informative & resourceful documents	Res - 17	3.68	4.00	3.92	2.72	2.89	4.70	4.98	4.76	4.51	3.23
Easy access to documents	Res - 18	3.63	4.06	4.54	2.70	2.96	4.50	5.05	4.88	4.49	3.36
Latest information services & facilities	Res - 19	3.22	3.94	3.88	2.57	3.09	4.43	4.98	4.43	4.02	3.46
E-resources availability & accessibility	Res - 20	3.03	3.86	3.81	2.14	3.06	4.63	4.98	4.86	4.40	3.71
Sufficient modern technological tools	Res - 21	3.11	3.98	3.76	2.22	3.11	4.50	4.80	4.36	4.11	3.43
Appropriate study environment	Lib - 22	3.78	4.68	4.39	2.81	3.09	4.91	5.55	4.57	4.64	3.14
Adequate space for study & learning	Lib - 23	3.60	4.53	4.55	2.65	3.17	4.96	5.50	4.41	4.64	3.23
Documents are at the right place	Lib - 24	3.55	4.28	4.21	2.53	3.19	4.80	5.29	5.03	4.79	3.36
Users can complaint & suggest easily	Lib - 25	2.99	4.22	3.82	2.49	3.21	4.37	5.21	4.83	4.40	3.00
Suitable & convenient library hours	Lib - 26	4.32	4.53	4.60	2.96	3.36	4.72	5.48	5.38	4.43	3.00

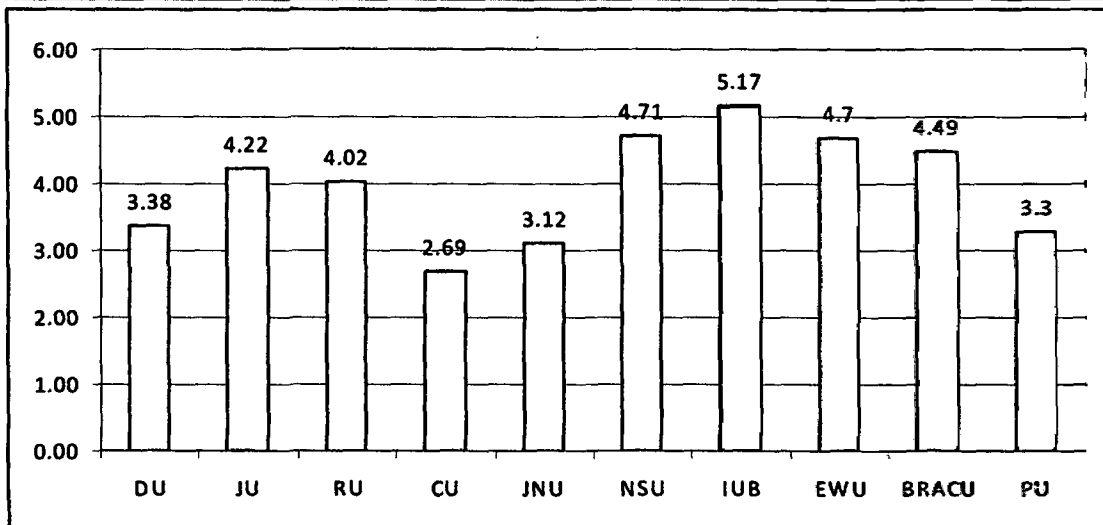
Table 5.35: Summary of overall perceived service performance

Service Dimensions	Overall perceived service performance									
	1	2	3	4	5	6	7	8	9	10
1. Caring	3.16	4.20	3.87	2.75	3.20	4.64	5.21	4.51	4.39	3.26
2. Competence	3.30	4.28	3.94	2.77	3.13	4.80	5.09	4.76	4.62	3.36
3. Resources	3.40	3.95	3.97	2.56	2.94	4.64	4.98	4.68	4.36	3.41
4. Library as a place	3.65	4.45	4.31	2.69	3.20	4.75	5.41	4.84	4.58	3.15
Overall performance	3.38	4.22	4.02	2.69	3.12	4.71	5.17	4.70	4.40	3.30

Findings explored that users of 10 sampled universities were not exceedingly perceived with the services they availed from their respective libraries. It also explained (as shown

in Figure 5.8 based on Table 5.35), only the IUB library was exceptionally driven with standardized service performance (5.17) as perceived by its users, which is dominated by physical evidence factor “library as a place (5.41)”. It was followed by closer performance of NSU, EWU and BRACU, which required further improvement. And at the edging level JU (4.22), and lastly RU (4.02) were also shown within fairly standard to the respective users.

Figure 5.8: Overall perceived service performance of 10 university libraries



Whereas the services of CU library were found extremely negative performance (2.69) among the others that is alarming for its endurance, researcher assumed. He consequently remarked, authority should pay too much attention and take immediate revival and remedial actions against the causes of service deficits. Otherwise, academic fitness of the respective university will be distorted in near future.

5.7.4 User's preference for service items

Users' service preferences were directly assigned from users' expectation scores in two levels (i.e. desired and minimum service expectation) in this research. With this perspective Zeithaml & Bitner (2003) hypothesized and confirmed that the more important the attribute to the customer, the closer the limits of desired service and minimum service will be. But users' opinions regarding their basic information needs were nearly focused in minimum service expectation, researcher believed. Because the researcher said, desired service expectation was verified earlier as unrealistic hope derived from the respondents. Hence to clarify the importance of service items the

degree of user preferences or the user priorities for information services were determined by using mean scores of user's minimum service expectation (see in Table 5.36) in the current research. Relative importance of service items based on minimum service expectation scores was also described (see Table 5.37 and 5.38).

Table 5.36: Users' preferences for importance of services

Service Dimensions with number of items	User preference of service items									
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Caring - 01	3.63	3.91	4.29	4.00	3.47	3.98	3.71	4.12	3.96	4.14
Caring - 02	3.82	4.03	4.47	3.93	3.55	3.98	3.88	4.15	3.94	4.00
Caring - 03	3.62	3.97	4.38	4.14	3.55	4.02	3.83	4.31	3.89	4.29
Caring - 04	3.94	3.99	4.57	3.97	3.63	4.02	4.02	4.48	3.89	4.29
Caring - 05	3.67	3.79	4.44	3.94	3.51	4.00	3.86	4.15	3.89	4.36
Caring - 06	3.90	4.00	4.48	4.01	3.32	4.02	3.90	4.52	3.89	4.23
Caring - 07	3.78	4.04	4.43	3.88	3.49	3.98	3.86	4.52	3.89	4.38
Caring - 08	3.84	3.92	4.48	4.07	3.34	4.00	3.74	4.21	3.89	3.79
Caring - 09	3.70	3.85	4.42	4.03	3.53	4.00	3.90	4.31	3.87	3.86
Competence - 10	3.86	3.93	4.45	4.07	3.52	4.02	3.76	4.46	3.96	4.14
Competence - 11	3.94	3.92	4.49	4.00	3.49	3.89	3.62	4.29	4.04	3.86
Competence - 12	3.85	3.77	4.42	3.84	3.43	3.98	3.56	4.66	3.94	4.00
Competence - 13	3.75	3.83	4.47	4.03	3.55	4.04	3.78	4.43	3.94	4.21
Competence - 14	3.92	4.02	4.54	4.12	3.68	4.04	4.10	4.25	3.96	4.36
Resources - 15	3.60	3.63	4.17	3.87	3.26	3.98	3.79	4.07	3.89	4.07
Resources - 16	3.71	3.69	4.30	4.21	3.34	4.04	3.69	4.00	3.89	4.00
Resources - 17	3.93	3.75	4.28	4.12	3.40	4.02	3.79	4.24	3.94	4.25
Resources - 18	3.88	3.80	4.47	4.03	3.49	3.96	3.69	4.76	3.94	4.21
Resources - 19	3.94	3.85	4.25	3.97	3.54	4.00	3.80	4.25	3.94	4.36
Resources - 20	3.74	3.90	4.24	4.13	3.57	3.98	3.59	4.52	3.91	4.79
Resources - 21	3.77	3.78	4.15	3.88	3.60	3.98	3.76	4.30	3.96	4.77
Library as a place - 22	4.15	4.04	4.74	4.18	3.64	4.07	3.71	4.57	4.00	4.07
Library as a place - 23	4.29	4.21	4.74	4.01	3.51	4.11	4.07	4.32	3.98	4.00
Library as a place - 24	4.05	4.04	4.62	4.07	3.55	4.13	3.90	4.31	4.09	4.23
Library as a place - 25	3.82	3.99	4.56	3.94	3.62	4.00	3.76	4.52	4.06	4.31
Library as a place - 26	4.27	4.15	4.77	4.13	3.60	4.00	4.02	4.50	4.02	4.14

Table 5.37: Relative importance of services

Statement of service item	Item's Code	Status of service importance									
		DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Ability to make quick solution	Car - 01	24	15	21	16	20	18	20	24	07	15
Willingness to help users	Car - 02	15	06	11	22	08	19	08	22	11	20
Giving personal attention to users	Car - 03	25	11	19	03	09	07	11	13	18	08
Giving quick & timely service to users	Car - 04	05	09	05	18	03	08	03	09	19	09
Inform users on the regular progress	Car - 05	23	21	15	20	15	12	09	23	20	04
Courtesy & friendliness of employees	Car - 06	10	08	09	14	25	09	05	04	21	11
Handling users softly and carefully	Car - 07	17	03	16	23	17	20	10	05	22	03
Reliable personality	Car - 08	14	13	10	08	23	13	19	21	23	26
Loving users by heart	Car - 09	22	17	17	11	13	14	06	14	26	24

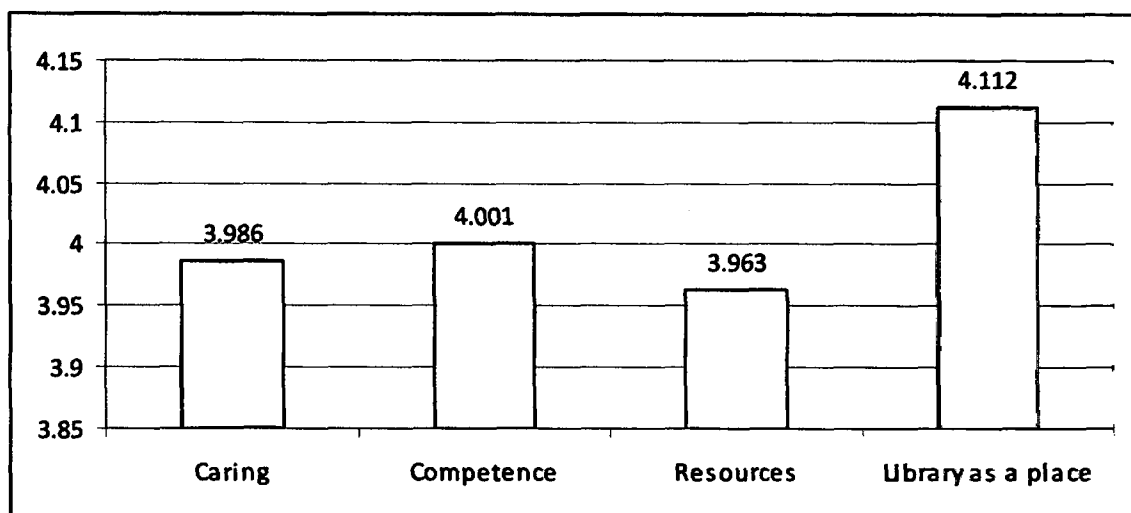
Academic fitness of employees	Com - 10	12	12	14	09	14	10	16	10	08	16
Professional skills of employees	Com - 11	06	14	08	17	18	26	24	17	03	25
Ability to guide the users properly	Com - 12	13	23	18	26	21	21	26	02	12	21
Ability to understand users' problems	Com - 13	19	19	12	12	10	04	15	11	13	13
Sincerity of employees on the job	Com - 14	09	07	07	06	01	05	01	18	09	05
Sufficient number of documents	Res - 15	26	26	25	25	26	22	13	25	24	18
Up-to-date-ness of documents	Res - 16	21	25	20	01	24	06	22	26	25	22
Informative & resourceful documents	Res - 17	08	24	22	07	22	11	14	20	14	10
Easy access to documents	Res - 18	11	20	13	13	19	25	23	01	15	14
Latest information services & facilities	Res - 19	07	18	23	19	12	15	12	19	16	06
E-resources availability & accessibility	Res - 20	20	16	24	04	07	23	25	06	17	01
Sufficient modern technological tools	Res - 21	18	22	26	24	05	24	17	16	10	02
Appropriate study environment	Lib - 22	03	04	02	02	02	03	21	03	05	19
Adequate space for study & learning	Lib - 23	01	01	03	15	16	02	02	12	06	23
Documents are at the right place	Lib - 24	04	05	04	10	11	01	07	15	01	12
Users can complaint & suggest easily	Lib - 25	16	10	06	21	04	16	18	07	02	07
Suitable & convenient library hours	Lib - 26	02	02	01	05	06	17	04	08	04	17

[Note]: A low rank value indicated that users were preferred an attribute highly important, and a high rank value indicated that users were preferred an attribute little important.

Table 5.38: Relative importance of overall services

Service Dimensions	Public universities					Private universities				
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
1. Caring	3.77	3.94	4.44	4.00	3.49	4.00	3.86	4.31	3.90	4.15
2. Competence	3.86	3.89	4.47	4.01	3.53	3.99	3.76	4.42	3.97	4.11
3. Resources	3.80	3.77	4.27	4.03	3.46	3.99	3.73	4.31	3.92	4.35
4. Library as a place	4.12	4.09	4.69	4.07	3.58	4.06	3.89	4.44	4.03	4.15
Overall performance	3.89	3.92	4.47	4.03	3.52	4.01	3.81	4.37	3.96	4.19
Preference ranking Index: 1 2 3 4										

Figure 5.9: Relative importance of service dimensions



However, user preference for relative importance of service items based on minimum service expectation shown in Table 5.37 and 5.38, explored that a great similarity was

observed regarding the importance of “Library as a place” among the sampled universities’ respondents. This also indicated that users’ first priority for service importance was related to physical facilities followed by staffing factor “competence, and caring”, and accordingly “resources” factor achieved the last priority to users (shown in Figure 5.9) in terms of service importance. To better understand the relative service performance a cross matching between user preference of service items and their experience of service performance was explained in Table 5.39.

Table 5.39: Cross matching between ME and P scores

Service Dimensions	Public universities						Private universities			
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
1. Caring [ME]	3.77	3.94	4.44	4.00	3.49	4.00	3.86	4.31	3.90	4.15
1. Caring [P]	3.16	4.20	3.87	2.75	3.20	4.64	5.21	4.51	4.39	3.26
2. Competence [ME]	3.86	3.89	4.47	4.01	3.53	3.99	3.76	4.42	3.97	4.11
2. Competence [P]	3.30	4.28	3.94	2.77	3.13	4.80	5.09	4.76	4.62	3.36
3. Resources [ME]	3.80	3.77	4.27	4.03	3.46	3.99	3.73	4.31	3.92	4.35
3. Resources [P]	3.40	3.95	3.97	2.56	2.94	4.64	4.98	4.68	4.38	3.41
4. Library as a place [ME]	4.12	4.09	4.69	4.07	3.58	4.06	3.89	4.44	4.03	4.15
4. Library as a place [P]	3.65	4.45	4.31	2.69	3.20	4.75	5.41	4.84	4.58	3.15

Results predicted a deep insight with respect to performance gap over the existing available service items that can not be recognized using the perception scores alone. Researcher therefore proclaimed that the subset instrument “SERVPERF” developed by Cronin & Taylor (1992) suffered from diagnostic capabilities in performance assessment.

5.8 Assessment of service quality

Assessment of service quality based on mean scores of RE, ME, and P provided insight into the gap between users’ expectations of library service performance and their perceptions of service performance, which is the key to assessment of service quality in this research. It also provided insight into the needs for the improvement of library services, and helped to determine what steps to take to overcome the performance gap. Two types of assessments were calculated. The superior service quality (SSQ) that indicated expectation-based service quality was calculated as the discrepancy between users’ perceptions of service performance and real service expectations; and minimum service quality (MSQ) that indicated the need-based service quality was accordingly calculated as the difference between users’ perceptions of service performance and

minimum service expectations. In addition, two types of service quality gaps were also determined adjacent to SSQ and MSQ, i.e. SSQ gaps, and MSQ gaps.

5.8.1 Assessment of minimum service quality (MSQ)

The gaps difference between users' perceived services and minimum service expectations (i.e. P-ME) was calculated (shown in Table 5.40) to explore the minimum service quality that could reflect users' basic needs. Results indicated that the services of NSU, IUB, and BRAC library completely fell within positive service gaps that indicated services of the respective university libraries had the ability to fulfill their users' needs. Similar results were also found before JU and EWU libraries excepting the negative gaps regarding "E-resources availability & accessibility" for JU, and relating to service delivery "Giving quick & timely service to users" for EWU.

Table 5.40: Minimum service quality (MSQ) gap

Service Dimensions with number of items	Minimum service quality (MSQ)* gaps									
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Caring - 01	-0.53	0.25	-0.58	-1.33	-0.32	0.67	1.39	0.42	0.59	-1.00
Caring - 02	-0.80	0.22	-0.63	-1.17	-0.38	0.76	1.40	0.10	0.70	-0.93
Caring - 03	-0.75	0.19	-0.46	-1.11	-0.38	0.52	1.32	0.28	0.49	-0.79
Caring - 04	-0.74	0.25	-0.68	-1.39	-0.46	0.74	1.19	-0.20	0.34	-0.75
Caring - 05	-0.72	0.12	-0.56	-1.22	-0.47	0.52	1.47	0.21	0.34	-0.67
Caring - 06	-0.52	0.28	-0.30	-1.30	-0.11	0.68	1.42	0.16	0.47	-1.23
Caring - 07	-0.61	0.28	-0.57	-1.10	-0.11	0.65	1.64	0.17	0.32	-1.24
Caring - 08	-0.37	0.20	-0.71	-1.32	-0.17	0.70	1.21	0.45	0.54	-0.72
Caring - 09	-0.43	0.47	-0.64	-1.28	-0.19	0.50	1.12	0.21	0.62	-0.71
Competence - 10	-0.46	0.54	-0.53	-1.43	-0.41	0.87	1.41	0.17	0.78	-1.07
Competence - 11	-0.45	0.31	-0.67	-1.17	-0.28	0.94	1.43	0.45	0.68	-0.65
Competence - 12	-0.56	0.49	-0.36	-1.08	-0.28	0.74	1.44	0.43	0.59	-0.43
Competence - 13	-0.57	0.32	-0.51	-1.25	-0.42	0.74	1.22	0.33	0.55	-0.71
Competence - 14	-0.76	0.26	-0.60	-1.26	-0.64	0.74	1.14	0.25	0.66	-0.93
Resources - 15	0.23	0.35	-0.06	-0.96	-0.60	0.95	1.28	0.76	0.79	-0.78
Resources - 16	-0.39	0.17	-0.51	-1.53	-0.55	0.74	1.29	0.61	0.59	-0.64
Resources - 17	-0.25	0.25	-0.36	-1.40	-0.51	0.68	1.19	0.52	0.57	-1.02
Resources - 18	-0.25	0.26	0.07	-1.33	-0.53	0.54	1.36	0.12	0.55	-0.85
Resources - 19	-0.72	0.09	-0.37	-1.40	-0.45	0.43	1.18	0.18	0.08	-0.90
Resources - 20	-0.71	-0.04	-0.43	-1.99	-0.51	0.65	1.39	0.34	0.49	-1.08
Resources - 21	-0.66	0.20	-0.39	-1.66	-0.49	0.52	1.04	0.06	0.15	-1.34
Library as a place - 22	-0.37	0.64	-0.35	-1.37	-0.55	0.84	1.84	0.00	0.64	-0.93
Library as a place - 23	-0.69	0.32	-0.19	-1.36	-0.34	0.85	1.43	0.09	0.66	-0.77
Library as a place - 24	-0.50	0.24	-0.41	-1.54	-0.36	0.67	1.39	0.72	0.70	-0.87
Library as a place - 25	-0.83	0.23	-0.74	-1.45	-0.41	0.37	1.45	0.31	0.34	-1.31
Library as a place - 26	0.05	0.38	-0.17	-1.17	-0.24	0.72	1.46	0.88	0.41	-1.14

[Note]: *MSQ = (P – ME)

The entire services of other university libraries were marked with negative gaps apart from “Sufficient number of documents, and Suitable & convenient library hours” for DU; and “easy access to documents” for Rajshahi University library, which denoted the executive and operational drawbacks in service delivery of the respective university libraries. With regard to individual service items the most important negative gaps were drawn in the area of customer care or help desk service “users can complaint & suggest easily” for DU (-0.83) and RU (-0.74) libraries; consistent with JU negative gaps related to e-services and facilities were also found before CU library “e-resources availability & accessibility (-1.99), and sufficient modern technological tools (-1.66), which is the most negative gap (-1.34) for PU library also. The top most negative gap found for JNU library was relating to employee’s responsibility “sincerity of employees on the job (-0.64)”. Results indicated that the largest part of service items marked with negative gaps of the respective university libraries did not satisfy users’ needs at a large scale.

Table 5.41: Overall minimum service quality (MSQ) gaps

Service Dimensions	Public universities					Private universities				
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
1. Caring	-0.61	0.25	-0.57	-1.25	-0.29	0.64	1.35	0.20	0.49	-0.89
2. Competence	-0.56	0.38	-0.53	-1.24	-0.41	0.81	1.33	0.34	0.65	-0.76
3. Resources	-0.39	0.18	-0.29	-1.47	-0.52	0.64	1.25	0.37	0.46	-0.94
4. Library as a place	-0.47	0.36	-0.37	-1.38	-0.38	0.69	1.51	0.40	0.55	-1.00

Nevertheless, considering the overall MSQ gaps (shown in Table 5.41), it was observed that the largest negative gaps result were mainly due to staff related (i.e. caring) problems for DU and RU libraries, resources problems for CU and GNU libraries, and eventually the physical evidence problems for PU library.

5.8.2 Assessment of superior service quality (SSQ)

The gaps difference between users’ perceived services and real service expectations (i.e. P-RE) was computed also (as shown in Table 5.42) to determine the SSQ of respective university libraries. Findings revealed that except for IUB library the whole service items of all other university libraries were marked with negative gap difference. This indicated the whole service items of IUB library were effectively satisfy users’ expectations. Besides a small number of items for instance: “professional skills of employees (-0.01), followed by sufficient number of documents (-0.03), appropriate study environment (-

0.07), academic fitness of employees, and adequate space for study & learning (-0.08)” for NSU library; and “suitable & convenient library hours (-0.01)” for EWU library were observed as closer to expected values, which required a minimum effort to meet users’ expectations for these items.

Table 5.42: Superior service quality (SSQ) gap

Service Dimensions with number of Items	Superior service quality (SSQ)* gaps									
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Caring – 01	-1.66	-0.89	-1.52	-2.41	-1.82	-0.30	0.30	-0.43	-0.29	-1.97
Caring – 02	-1.94	-0.85	-1.51	-2.21	-1.85	-0.19	0.32	-0.77	-0.24	-2.01
Caring – 03	-1.80	-0.87	-1.31	-2.13	-1.85	-0.42	0.37	-0.58	-0.43	-1.69
Caring – 04	-1.79	-0.88	-1.58	-2.47	-1.94	-0.22	0.20	-1.05	-0.57	-1.57
Caring – 05	-1.76	-1.05	-1.44	-2.33	-2.03	-0.41	0.45	-0.77	-0.59	-1.64
Caring – 06	-1.59	-0.83	-1.17	-2.37	-1.70	-0.27	0.40	-0.65	-0.47	-2.26
Caring – 07	-1.68	-0.82	-1.48	-2.28	-1.53	-0.31	0.54	-0.61	-0.62	-2.09
Caring – 08	-1.41	-0.84	-1.56	-2.37	-1.81	-0.25	0.18	-0.41	-0.40	-1.86
Caring – 09	-1.43	-0.63	-1.55	-2.35	-1.71	-0.45	0.22	-0.64	-0.32	-1.75
Competence - 10	-1.53	-0.58	-1.42	-2.46	-1.95	-0.08	0.30	-0.58	-0.14	-2.16
Competence - 11	-1.54	-0.82	-1.54	-2.32	-1.72	-0.01	0.33	-0.42	-0.22	-1.79
Competence - 12	-1.63	-0.68	-1.28	-2.20	-1.81	-0.23	0.29	-0.30	-0.32	-1.36
Competence - 13	-1.67	-0.86	-1.44	-2.30	-1.90	-0.19	0.17	-0.53	-0.33	-1.68
Competence - 14	-1.86	-0.86	-1.47	-2.27	-2.13	-0.16	0.13	-0.65	-0.23	-1.57
Resources – 15	-0.95	-0.73	-1.14	-2.01	-2.21	-0.03	0.25	-0.22	-0.14	-1.71
Resources – 16	-1.48	-0.95	-1.53	-2.52	-2.16	-0.19	0.28	-0.36	-0.32	-1.54
Resources – 17	-1.24	-0.90	-1.37	-2.53	-2.09	-0.27	0.16	-0.33	-0.29	-1.71
Resources - 18	-1.34	-0.98	-0.94	-2.49	-2.02	-0.37	0.17	-0.71	-0.36	-1.82
Resources - 19	-1.79	-1.07	-1.36	-2.51	-1.90	-0.50	0.12	-0.70	-0.79	-1.87
Resources - 20	-1.76	-1.22	-1.42	-3.07	-1.95	-0.29	0.29	-0.44	-0.44	-1.79
Resources - 21	-1.77	-0.98	-1.50	-2.72	-1.95	-0.42	0.07	-0.88	-0.71	-1.96
Library as a place - 22	-1.45	-0.51	-1.17	-2.38	-1.96	-0.07	0.59	-0.75	-0.27	-2.13
Library as a place - 23	-1.69	-0.80	-1.03	-2.55	-1.86	-0.08	0.50	-0.68	-0.30	-1.81
Library as a place - 24	-1.56	-0.86	-1.34	-2.56	-1.86	-0.26	0.33	-0.12	-0.19	-1.65
Library as a place - 25	-1.88	-0.82	-1.64	-2.55	-1.90	-0.58	0.42	-0.45	-0.47	-2.23
Library as a place - 26	-0.96	-0.72	-1.01	-2.30	-1.76	-0.24	0.52	-0.01	-0.47	-1.97

[Note]: *SSQ = (P – RE)

Regarding individual service items the most significant negative gaps identified were relating to customer care or help desk service “users can complaint & suggest easily” for RU and NSU libraries followed by DU, PU and CU libraries denoted that users’ priority is not an important factor to the concerned authority of the respective university libraries. Whereas, as a voluntary service organization user’s complaint must be given emphasize if satisfaction is the ultimate goal of the respective libraries, the researcher stated. Other significant gaps were found relating to staff’s responsibility to service delivery

“Inform users on the regular progress” for JU and EWU libraries followed by BRACU, JNU and NSU libraries respectively.

More specifically the vital factors for maintaining staff’s accountability “Willingness to help users” and “Giving personal attention to users” were also shown with negative gap most importantly for DU library followed by EWU and PU for first factor and NSU libraries for second accountability factor. These are also the most considerable feature of customer care or help desk service.

Table 5.43: Overall superior service quality (SSQ) gaps

Service Dimensions	Public universities						Private universities			
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
1. Caring	-1.67	-0.85	-1.46	-2.32	-1.80	-0.31	0.33	-0.65	-0.44	-1.87
2. Competence	-1.64	-0.76	-1.43	-2.31	-1.90	-0.13	0.24	-0.43	-0.25	-1.71
3. Resources	-1.47	-0.97	-1.32	-2.55	-2.04	-0.29	0.19	-0.52	-0.44	-1.77
4. Library as a place	-1.51	-0.74	-1.24	-2.46	-1.87	-0.24	0.47	-0.40	-0.34	-1.95

Considering the overall SSQ gaps (as shown in Table 5.43) the largest negative gaps were related to staff’s responsibility and conductive factor “caring” behind the DU library followed by RU, EWU, BRACU and NSU libraries respectively. Overall resources gaps were also encountered as significant negative gaps most importantly for CU and JNU libraries followed by JU and BRACU libraries. The overall SSQ gaps for PU library was related to physical evidence factor. Results indicated that after a the respective university (except IUB library) libraries are not capable enough to satisfy their users’ expectations at all.

5.9 Determining service quality and satisfaction level

Corresponding to the quality assessment regarding user’s need and expectation gaps the pertinent levels of service quality and user satisfaction were also determined based on disconfirmation of expectation’s theory designed for the current research. The zone of tolerance (ZOT) was used as disconfirmation standard to determine the levels. Four types of analysis were considered, for instance (as shown in Figure 5.10), which is referred to as 4-level ZOT: zone above the real service expectation, corresponding to the “superior zone”; zone equivalent or above the desired service expectation, corresponding to the “surprising zone”; zone below the minimum service expectation, corresponding to the “defective zone”; and the zone within the range of real and

minimum service expectation, is corresponding to the “standard zone”. However, to better understand the SQ-S ranking based on 4-level ZOT analysis the whole service items were typically presented in Table 5.44, 5.45, 5.46 and consequently in Table 5.47, arranged under respective service quality dimensions (i.e. caring, competence, resources, and library as a place) separately.

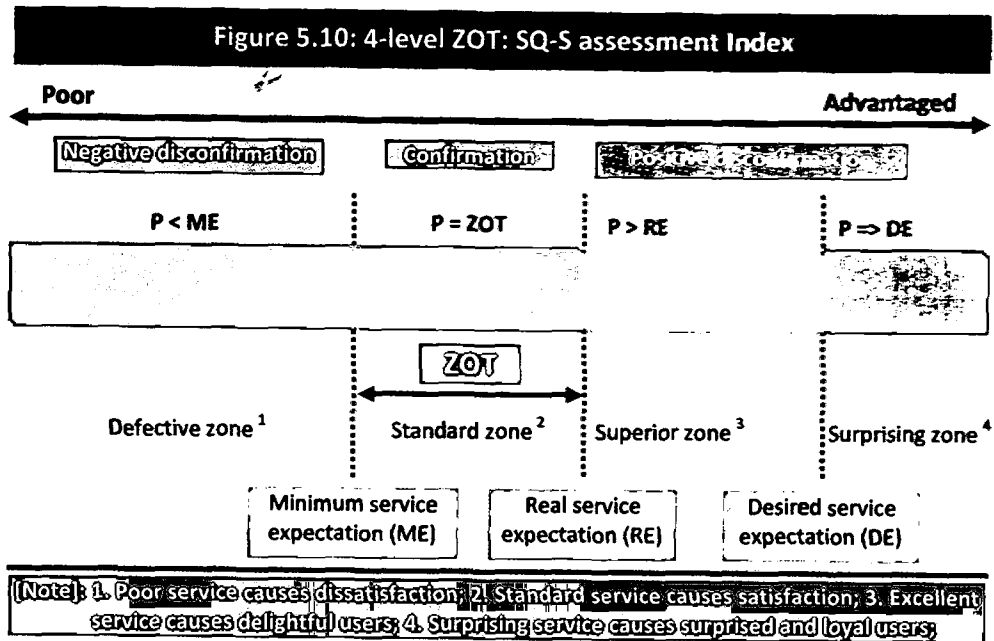


Table 5.44: Zone of Tolerance of service items: Caring

Service Dimension	Caring: relative view of users' service expectations and perceptions									
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Caring – 01a	3.10	4.16	3.71	2.67	3.15	4.65	5.10	4.54	4.55	3.14
Caring – 01b	3.63	3.91	4.29	4.00	3.47	3.98	3.71	4.12	3.96	4.14
Caring – 01c	4.76	5.05	5.23	5.08	4.97	4.95	4.81	4.97	4.84	5.11
Caring – 01d	5.89	6.19	6.17	6.16	6.47	5.91	5.90	5.81	5.72	6.07
Caring – 02a	3.02	4.25	3.84	2.76	3.17	4.74	5.28	4.25	4.64	3.07
Caring – 02b	3.82	4.03	4.47	3.93	3.55	3.98	3.88	4.15	3.94	4.00
Caring – 02c	4.96	5.10	5.35	4.97	5.02	4.93	4.97	5.02	4.88	5.08
Caring – 02d	6.09	6.17	6.22	6.00	6.49	5.87	6.05	5.89	5.81	6.15
Caring – 03a	2.87	4.16	3.92	3.03	3.17	4.54	5.15	4.59	4.38	3.50
Caring – 03b	3.62	3.97	4.38	4.14	3.55	4.02	3.83	4.31	3.89	4.29
Caring – 03c	4.67	5.03	5.23	5.16	5.02	4.96	4.79	5.17	4.81	5.19
Caring – 03d	5.72	6.08	6.08	6.18	6.49	5.89	5.74	6.03	5.72	6.08
Caring – 04a	3.20	4.24	3.89	2.58	3.17	4.76	5.21	4.28	4.23	3.54
Caring – 04b	3.94	3.99	4.57	3.97	3.63	4.02	4.02	4.48	3.89	4.29
Caring – 04c	4.99	5.12	5.47	5.05	5.11	4.98	5.01	5.33	4.81	5.11
Caring – 04d	6.03	6.24	6.37	6.13	6.59	5.93	6.00	6.17	5.72	5.92
Caring – 05a	2.95	3.91	3.88	2.72	3.04	4.52	5.33	4.36	4.23	3.69
Caring – 05b	3.67	3.79	4.44	3.94	3.51	4.00	3.86	4.15	3.89	4.36
Caring – 05c	4.71	4.96	5.32	5.05	5.07	4.93	4.88	5.13	4.82	5.33
Caring – 05d	5.75	6.12	6.19	6.16	6.62	5.85	5.90	6.11	5.74	6.29

Caring – 06a	3.38	4.28	4.18	2.71	3.21	4.70	5.32	4.68	4.36	3.00
Caring – 06b	3.90	4.00	4.48	4.01	3.32	4.02	3.90	4.52	3.89	4.23
Caring – 06c	4.97	5.11	5.35	5.08	4.91	4.98	4.93	5.33	4.83	5.26
Caring – 06d	6.04	6.21	6.22	6.15	6.49	5.93	5.95	6.14	5.77	6.29
Caring – 07a	3.17	4.32	3.86	2.78	3.38	4.63	5.50	4.69	4.21	3.14
Caring – 07b	3.78	4.04	4.43	3.88	3.49	3.98	3.86	4.52	3.89	4.38
Caring – 07c	4.85	5.14	5.34	5.06	4.91	4.94	4.97	5.30	4.83	5.23
Caring – 07d	5.92	6.24	6.25	6.24	6.32	5.89	6.07	6.07	5.77	6.08
Caring – 08a	3.47	4.12	3.77	2.75	3.17	4.70	4.95	4.66	4.43	3.07
Caring – 08b	3.84	3.92	4.48	4.07	3.34	4.00	3.74	4.21	3.89	3.79
Caring – 08c	4.88	4.96	5.33	5.12	4.98	4.95	4.78	5.07	4.83	4.93
Caring – 08d	5.91	5.99	6.18	6.16	6.62	5.89	5.81	5.93	5.77	6.07
Caring – 09a	3.27	4.32	3.78	2.75	3.34	4.50	5.02	4.52	4.49	3.15
Caring – 09b	3.70	3.85	4.42	4.03	3.53	4.00	3.90	4.31	3.87	3.86
Caring – 09c	4.70	4.95	5.33	5.10	5.05	4.95	4.81	5.16	4.81	4.90
Caring – 09d	5.70	6.05	6.24	6.16	6.57	5.89	5.71	6.00	5.74	5.93

[Note]: a = Perceived performance; b = Minimum service expectation; c = Real service expectation; d = Desired service expectation

Table 5.45: Zone of Tolerance of service items: Competence

Service Dimension	Competence: relative view of users' expectations and perceptions									
	DU	JU	RU	CU	JNU	NSU	IUB	EWU	BRACU	PU
Competence – 10a	3.40	4.47	3.92	2.64	3.11	4.89	5.17	4.63	4.74	3.07
Competence – 10b	3.86	3.93	4.45	4.07	3.52	4.02	3.76	4.46	3.96	4.14
Competence – 10c	4.93	5.05	5.34	5.10	5.06	4.97	4.87	5.21	4.88	5.23
Competence – 10d	5.99	6.17	6.23	6.13	6.60	5.91	5.98	5.96	5.79	6.31
Competence – 11a	3.49	4.23	3.82	2.83	3.21	4.83	5.05	4.75	4.72	3.21
Competence – 11b	3.94	3.92	4.49	4.00	3.49	3.89	3.62	4.29	4.04	3.86
Competence – 11c	5.03	5.05	5.36	5.15	4.93	4.85	4.73	5.17	4.94	5.00
Competence – 11d	6.11	6.18	6.22	6.30	6.36	5.80	5.83	6.04	5.83	6.14
Competence – 12a	3.29	4.26	4.06	2.76	3.15	4.72	5.00	5.14	4.53	3.57
Competence – 12b	3.85	3.77	4.42	3.84	3.43	3.98	3.56	4.66	3.94	4.00
Competence – 12c	4.92	4.94	5.34	4.96	4.96	4.95	4.71	5.44	4.86	4.93
Competence – 12d	5.99	6.11	6.25	6.07	6.49	5.91	5.86	6.21	5.77	5.86
Competence – 13a	3.18	4.15	3.96	2.78	3.13	4.78	5.00	4.76	4.49	3.50
Competence – 13b	3.75	3.83	4.47	4.03	3.55	4.04	3.78	4.43	3.94	4.21
Competence – 13c	4.85	5.01	5.40	5.08	5.03	4.97	4.83	5.29	4.82	5.18
Competence – 13d	5.95	6.18	6.32	6.13	6.51	5.89	5.88	6.14	5.70	6.15
Competence – 14a	3.16	4.28	3.94	2.86	3.04	4.78	5.24	4.50	4.62	3.43
Competence – 14b	3.92	4.02	4.54	4.12	3.68	4.04	4.10	4.25	3.96	4.36
Competence – 14c	5.02	5.15	5.41	5.13	5.17	4.94	5.11	5.15	4.85	5.00
Competence – 14d	6.11	6.27	6.28	6.14	6.66	5.83	6.12	6.04	5.74	5.64

Table 5.46: Zone of Tolerance of service items: Resources

Service Dimension	Resources: relative view of users' expectations and perceptions									
	DU	JU	RU	CU	JAGU	NSU	IUB	EWU	BRACU	PU
Resources – 15a	3.83	3.98	4.11	2.91	2.66	4.93	5.07	4.83	4.68	3.29
Resources – 15b	3.60	3.63	4.17	3.87	3.26	3.98	3.79	4.07	3.89	4.07
Resources – 15c	4.78	4.71	5.25	4.92	4.87	4.96	4.83	5.05	4.82	5.00

Resources – 15d	5.95	5.78	6.32	5.97	6.47	5.93	5.86	6.03	5.74	5.93
Resources – 16a	3.32	3.86	3.79	2.68	2.79	4.78	4.98	4.61	4.48	3.36
Resources – 16b	3.71	3.69	4.30	4.21	3.34	4.04	3.69	4.00	3.89	4.00
Resources – 16c	4.80	4.81	5.32	5.20	4.95	4.98	4.70	4.97	4.81	4.90
Resources – 16d	5.89	5.93	6.33	6.18	6.55	5.91	5.71	5.93	5.72	5.79
Resources – 17a	3.68	4.00	3.92	2.72	2.89	4.70	4.98	4.76	4.51	3.23
Resources – 17b	3.93	3.75	4.28	4.12	3.40	4.02	3.79	4.24	3.94	4.25
Resources – 17c	4.92	4.90	5.29	5.25	4.98	4.97	4.83	5.09	4.80	4.94
Resources – 17d	5.90	6.04	6.3	6.37	6.55	5.91	5.86	5.93	5.66	5.62
Resources – 18a	3.63	4.06	4.54	2.70	2.96	4.50	5.05	4.88	4.49	3.36
Resources – 18b	3.88	3.80	4.47	4.03	3.49	3.96	3.69	4.76	3.94	4.21
Resources – 18c	4.97	5.04	5.48	5.19	4.98	4.87	4.88	5.59	4.86	5.18
Resources – 18d	6.05	6.27	6.49	6.34	6.47	5.78	6.07	6.42	5.77	6.14
Resources – 19a	3.22	3.94	3.88	2.57	3.09	4.43	4.98	4.43	4.02	3.46
Resources – 19b	3.94	3.85	4.25	3.97	3.54	4.00	3.80	4.25	3.94	4.36
Resources – 19c	5.01	5.01	5.24	5.08	4.99	4.93	4.87	5.13	4.81	5.33
Resources – 19d	6.07	6.16	6.23	6.18	6.43	5.85	5.93	6.00	5.68	6.29
Resources – 20a	3.03	3.86	3.81	2.14	3.06	4.63	4.98	4.86	4.40	3.71
Resources – 20b	3.74	3.90	4.24	4.13	3.57	3.98	3.59	4.52	3.91	4.79
Resources – 20c	4.79	5.08	5.23	5.21	5.01	4.92	4.70	5.30	4.84	5.50
Resources – 20d	5.83	6.25	6.21	6.28	6.45	5.85	5.80	6.07	5.77	6.21
Resources – 21a	3.11	3.98	3.76	2.22	3.11	4.50	4.80	4.36	4.11	3.43
Resources – 21b	3.77	3.78	4.15	3.88	3.60	3.98	3.76	4.30	3.96	4.77
Resources – 21c	4.88	4.96	5.26	4.94	5.06	4.92	4.74	5.24	4.82	5.39
Resources – 21d	5.99	6.14	6.37	5.99	6.51	5.85	5.71	6.18	5.68	6.00

Table 5.47: Zone of Tolerance of service items: Library as a place

Service Dimension	Library as a place: relative view of users' expectations and perceptions									
	DU	JU	RU	CU	JAGU	NSU	IUB	EWU	BRACU	PU
Library as a place – 22a	3.78	4.68	4.39	2.81	3.09	4.91	5.55	4.57	4.64	3.14
Library as a place – 22b	4.15	4.04	4.74	4.18	3.64	4.07	3.71	4.57	4.00	4.07
Library as a place – 22c	5.23	5.19	5.56	5.19	5.05	4.98	4.96	5.32	4.91	5.27
Library as a place – 22d	6.30	6.33	6.37	6.20	6.45	5.89	6.21	6.07	5.81	6.46
Library as a place – 23a	3.60	4.53	4.55	2.65	3.17	4.96	5.50	4.41	4.64	3.23
Library as a place – 23b	4.29	4.21	4.74	4.01	3.51	4.11	4.07	4.32	3.98	4.00
Library as a place – 23c	5.29	5.33	5.58	5.20	5.03	5.04	5.00	5.09	4.94	5.04
Library as a place – 23d	6.28	6.44	6.42	6.38	6.55	5.96	5.93	5.86	5.89	6.07
Library as a place – 24a	3.55	4.28	4.21	2.53	3.19	4.80	5.29	5.03	4.79	3.36
Library as a place – 24b	4.05	4.04	4.62	4.07	3.55	4.13	3.90	4.31	4.09	4.23
Library as a place – 24c	5.11	5.14	5.55	5.09	5.05	5.06	4.96	5.16	4.98	5.01
Library as a place – 24d	6.16	6.23	6.47	6.10	6.55	5.98	6.02	6.00	5.87	5.79
Library as a place – 25a	2.99	4.22	3.82	2.49	3.21	4.37	5.21	4.83	4.40	3.00
Library as a place – 25b	3.82	3.99	4.56	3.94	3.62	4.00	3.76	4.52	4.06	4.31
Library as a place – 25c	4.87	5.04	5.46	5.04	5.11	4.95	4.80	5.28	4.87	5.23
Library as a place – 25d	5.92	6.08	6.36	6.13	6.60	5.89	5.83	6.03	5.68	6.14
Library as a place – 26a	4.32	4.53	4.60	2.96	3.36	4.72	5.48	5.38	4.43	3.00
Library as a place – 26b	4.27	4.15	4.77	4.13	3.60	4.00	4.02	4.50	4.02	4.14
Library as a place – 26c	5.28	5.25	5.61	5.26	5.12	4.96	4.96	5.39	4.90	4.97
Library as a place – 26d	6.29	6.34	6.44	6.38	6.64	5.91	5.90	6.28	5.77	5.79

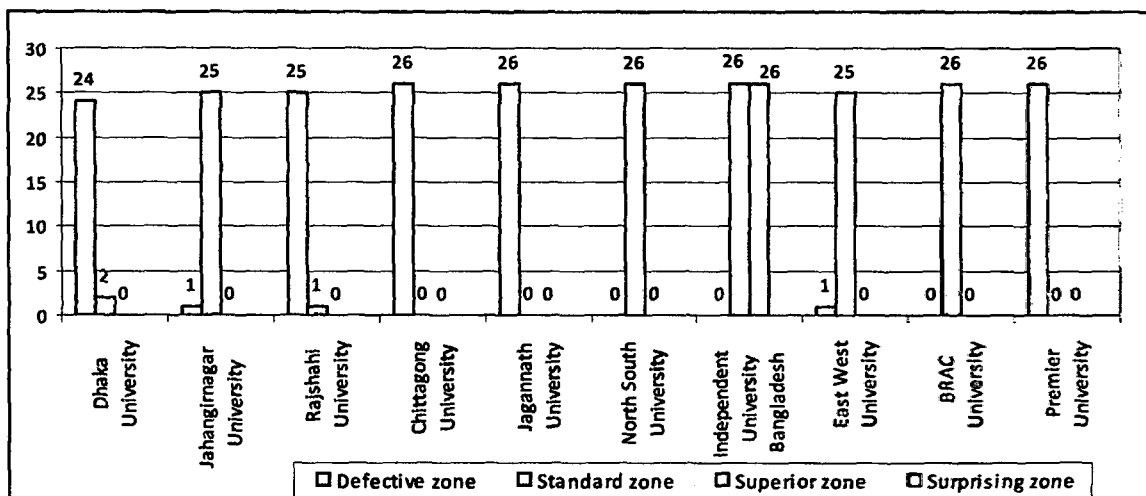
5.9.1 SQ-S assessment based on 4-level ZOT

Corresponding to SQ-S ranking based on 4-level ZOT analysis the services of respective university libraries were precisely explored in the following quadrant (Figure 5.11), and the number of service items included in respective zones were described in Figure 5.12.

Figure 5.11: Quadrant approach to SQ-S ranking using 4-level ZOT

Defective zone ¹ (Service items included)		Standard zone ² (Service items included)	
DU	All service items excluding >	DU	Res-15, Lib-26
JU	Res-20	JU	All service items excluding <
RU	All service items excluding >	RU	Res-18
CU	All service items	CU	Nil
JNU	All service items	JNU	Nil
NSU	Nil	NSU	All service items
IUB	Nil	IUB	All service items
EWU	Car-04	EWU	All service items excluding <
BRACU	Nil	BRACU	All service items
PU	All service items	PU	Nil
Surprising zone ⁴ (Service items included)		Superior zone ³ (Service items included)	
DU	Nil	DU	Nil
JU	Nil	JU	Nil
RU	Nil	RU	Nil
CU	Nil	CU	Nil
JNU	Nil	JNU	Nil
NSU	Nil	NSU	Nil
IUB	Nil	IUB	All service items
EWU	Nil	EWU	Nil
BRACU	Nil	BRACU	Nil
PU	Nil	PU	Nil

Figure 5.12: Number of service items included into specified zone



Results exposed in Figure 5.12 reports that no items were found within surprising zone indicating that users of respective university libraries were not surprised with the services they availed from their libraries in any way. Moreover to better understanding the effects of SQ-S assessment corresponding to 4-level ZOT analysis the respective university libraries was clustered into five groups, for instance shown in Table 5.48.

Table 5.48: SQ-S assessment corresponding to 4-level ZOT

Results of 4-level ZOT analysis		University library
1	Libraries fall within superior and standard zone for whole service items	IUB
2	Libraries fall within standard zone only for whole service items	NSU, BRACU
3	Libraries fall within standard zone for utmost service items	JU, EWU
4	Libraries fall within defective zone for utmost service items	DU, RU
5	Libraries fall within defective zone for whole service items	CU, JNU, PU

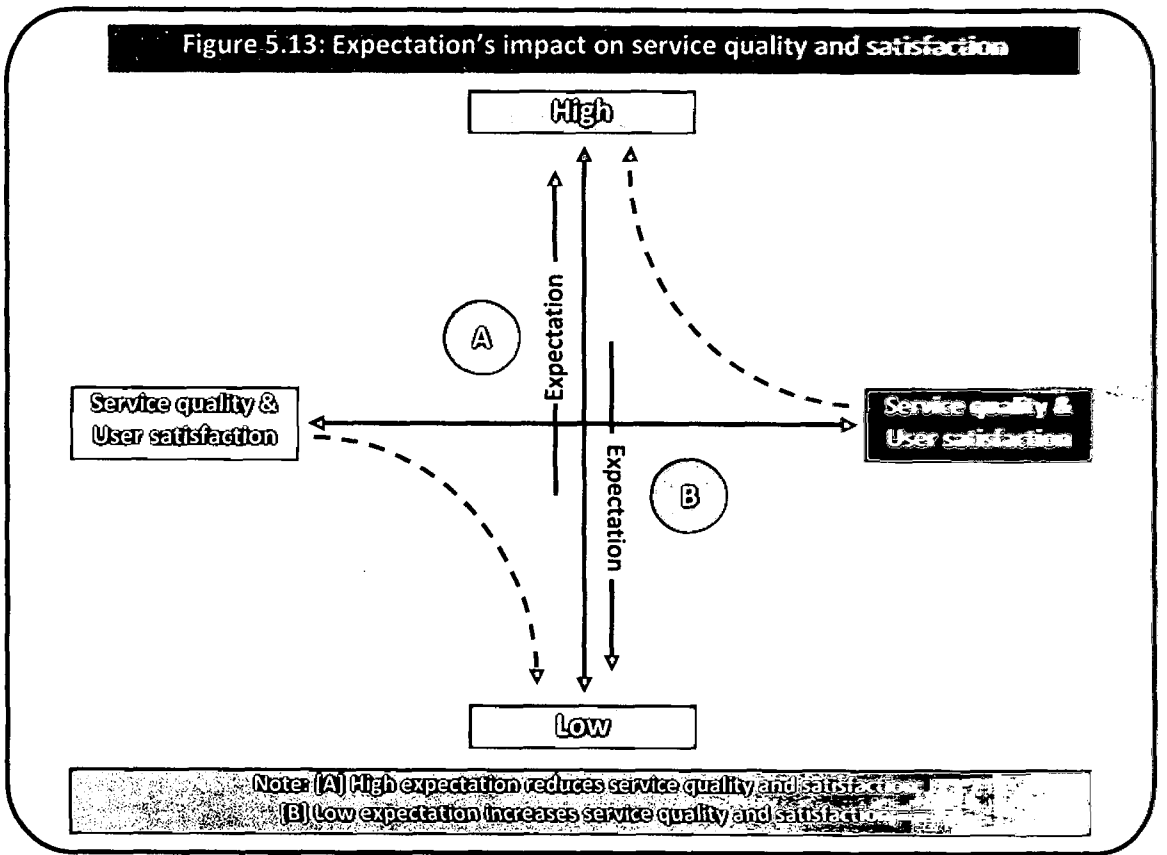
The explication illustrated in Table 5.48 reveals that the IUB library alone touched the superior zone alongside the standard zone for the whole services that indicated its service standard and excellence, and thus ensures satisfaction and delightfulness of its users. Considering the 4-level ZOT analysis for SQ-S assessment of other respective university libraries, the services of BRACU and NSU libraries as a whole, and the entire services of JU library (excepting the item “e-resources availability & accessibility”) and consequently the EWU library services (except for “giving quick & timely service to users”) were found within standard zone indicating their service standard and satisfaction to users with the respective service items.

Likewise the service items of DU library (apart from “sufficient number of documents, and suitable & convenient library hours), and of RU library (excepting “easy access to documents”) completely fell within defective zone. This indicated that except for identified items the whole services were found as poor that calls user dissatisfaction toward the library services at all. Services of CU, JNU, and PU library were completely constrained within defective zone as well indicating poor service quality and accordingly cause user frustration. The overall results, however derived from 4-level ZOT analysis, as corresponded to (Walker et al., 2005; Foster, 2004; & Parasuraman et al., 1988)’s allegation researcher consequently proclaimed, how far the library is meeting its users’ needs and expectations, this may ensure higher service quality and thus lead to higher user satisfaction. Allowing Parasuraman, Zeithaml & Berry (1985)’s assertion, he as well

asserted, “quality service means the resources and other relevant constituents that satisfy users’ needs and expectations”.

5.10 Causes of dissatisfaction: exploratory findings

Dissatisfaction is not the result of a one-time occurrence, the researcher believes this. It happens over a period of time. If, from the onset, communication is poor or nonexistent, researcher said, the foundation for user dissatisfaction is being laid. However to explore the causes of user dissatisfaction researcher made a closer look over the ZOT of service items explained in Table 5.44, 5.45, 5.46 and Table 5.47, and found that user’s service expectation is found unreasonably high, which he considered as the key source of users’ dissatisfaction. The same thing was triggered on Goodman’s (2009) eyes, who said that customer error or unreasonable expectations is one of the typical causes of customer dissatisfaction.



Search for discovering the fact that why dissatisfaction was occurred at a big scale, researcher concentrated toward the nature of user’s opinions of service expectation and perception scores (see Table 5.44, 5.45, 5.46 and Table 5.47) and found that user’s expectation had the key contribution of exploring service quality and their satisfaction,

that was correspondingly observed by Yuksel & Yukse (2001). Adopting a closer look he also uncovered, user’s high expectation is a vital excuse of user’s frustration, and accordingly acknowledged “user’s high expectation for service causes declining service quality and satisfaction, and thus low expectation causes rising service quality and satisfaction” (as illustrated conceptually in Figure 5.13).

Figure 5.14: Expectations’ role in quality and satisfaction formation -1

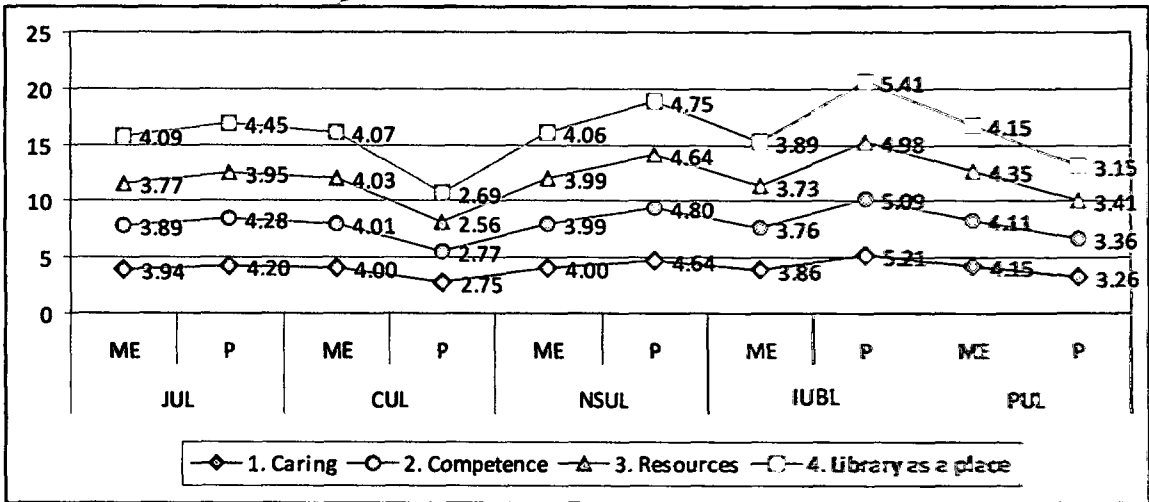
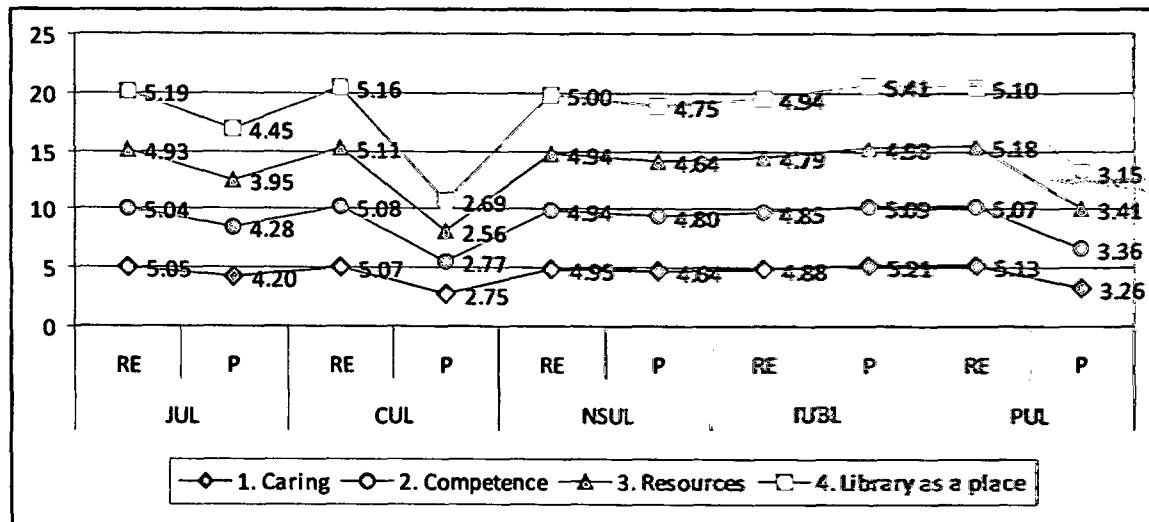


Figure 5.15: Expectations’ role in quality and satisfaction formation -2

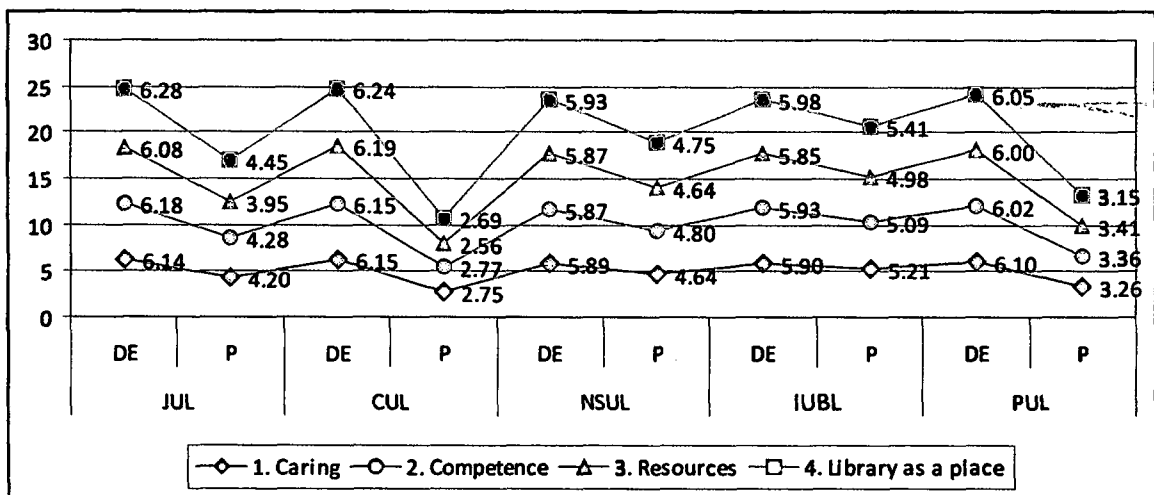


In support of this accreditation the researcher for instance presented three proportional views of users’ opinions on an experiment basis based on mean scores of ME vs. P (see Figure 5.14), RE vs. P (see Figure 5.15), and consequently DE vs. P scores (as shown in Figure 5.16) with respect to four service quality dimensions (i.e. caring, competence, resources, and library as a place) of five respective university libraries (i.e. JUL, CUL,

NSUL, IUBL, and PUL) to facilitate a supplementary evidence of researcher's current observation as illustrated in Figure 5.13. Results showed that while exploring service quality of five respective university libraries, user's expectation of CU and PU libraries was found relatively high that causes declining their satisfaction levels. Conversely while user's expectation of IUB library was shown as relatively low (as exposed in Figure 5.14, and 5.15) it causes enhancement of service quality and thus satisfaction to its users at minimum and superior level.

Differently at the same time when users of IUB library imposed their expectations at a high scale (see in Figure 5.16) in terms of desired service expectation, it turned out service shortfall and dissatisfaction of users at this level. But there is a dilemma, the researcher found, while the result of personal interviews with a number (14) of IUB students explored that although their perception is relatively low only with regard to quantity of library resources, but they felt no constraints regarding library resources, services, and other particulars at all. In this circumstance researcher therefore claimed that their desired service expectation was irrational and is not reliable for quality and satisfaction formation process.

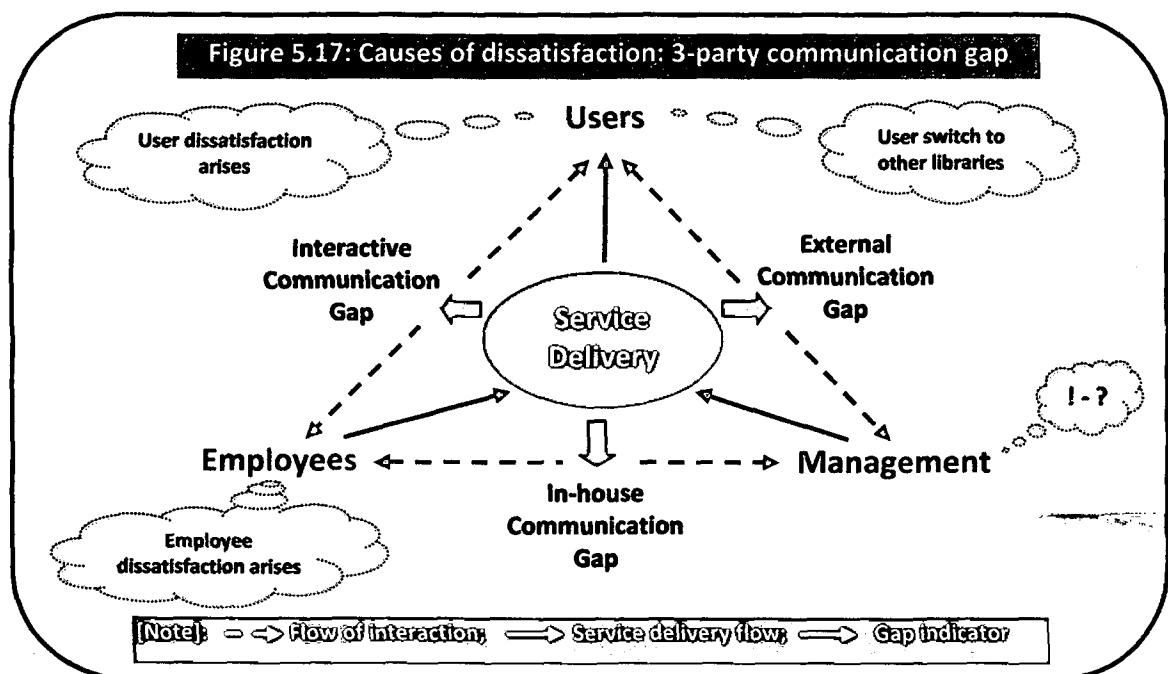
Figure 5.16: Expectations' role in quality and satisfaction formation - 3



Given that consequence he concentrated toward Halstead, Hartman & Schmidt (1994)'s assertion, "if customers do not have well-formed expectations, researchers confronted that such a measurement of expectations and thus disconfirmation may not be valid" and established the actuality of his prior acknowledgement "user's high expectation for service causes declining service quality and satisfaction, and thus low expectation

causes rising service quality and satisfaction". This also provides coherent of launching the new measurement scale "real service expectation" and thus created the Foundation for establishing the new-fangled gap (i.e. SSQ "superior service quality" gap) between users' expectations and perceptions through this research.

To explore the other grounds of dissatisfaction a careful reading of defective items reveals that user's high expectation for services is not the core service failure alone that causes dissatisfaction, but rather lack of employee's and management's response to the user's implicit and explicit needs may be the another cause of user's disappointment, researcher argued. Premising on this argument he in addition took interview from a number of users and employees of the respective university libraries.



Results, based on in-depth personal discussion corresponding to effect of service quality gap analysis (demonstrated in Table 5.40 and 5.42), and 4-level ZOT analysis (illustrated in Figure 5.11), researcher determined three communication gaps that involves three parties (as depicted in Figure 5.17). He acknowledged these as: interactive communication gap that is happening between users and employees; in-house communication gap, happened between employees and management; and the external communication gap, taken place between management and users. He accordingly attributed three causes of defects exist relating to these gaps, for instance: interactive communication gap arises due to the lack of user-employee relationship; in-house

communication gap occurs owing to the lack of administrative control over staff's line of business, and least attention was paid toward their practical needs to be fulfilled; and the external communication gap come to pass due to lack of authority's awareness toward user's implicit and explicit needs to be fulfilled. These are the main reasons for occurring user's disappointment, researcher proclaimed.

However, to better explain the root causes of dissatisfaction, the negative effect of individual service items derived from service quality gap analysis (explained in Table 5.40 and 5.42) and 4-level ZOT analysis (shown in Figure 5.11) provide an excellent basis to select the root causes of defects that is summarize in Table 5.49. In this premise, considering Bitner, Booms & Tetreault (1990)'s acknowledgment "dissatisfactory encounters occur when contact employees demonstrate poor attitudes toward the customer, ignore the customer or treat the customer impersonally as evidenced by such behaviors as being impatient, not anticipating needs, not caring about the customer's comfort, and failing to provide information" researcher stated that the negative performance of a number of caring items, for instance, "willingness to help users", "giving personal attention to users", "courtesy and friendliness of employees", "handling users softly and carefully", "reliable personality", and "loving users by heart" indicate that there is a lack of user-employee relationship between them. It was also reported the lack of willingness, courtesy and friendliness toward service delivery was shown as common tendency among the employees of most public university libraries. Users were not gently and carefully handled with reliable attitude. Researcher thereby asserted, if service interactions are not properly controlled and handled, or not even handled at all, the outcome will be very poor that lead user dissatisfaction.

The goal of every service encounter is to provide the best service in the best physical environment possible, but service failure may occur, and which may happen due to the outcome (what they receive) or the process (how they receive it), and the magnitude of the loss (Smith, Bolton, & Wagner, 1999), and the researcher added where they receive it. In line with this thinking, researcher turned to the negative effect of those service items relating to resources items, for instance, "sufficient number of documents", "up-to-date-ness of documents", "informative and resourceful documents", "easy access to

documents", "latest information services and facilities", "e-resources availability and accessibility, and with sufficient modern technological tools"; and the physical evidence factor (i.e. library as a place), for instance, "appropriate study environment", "adequate space for study and learning", "documents are at the right place", "suitable and convenient library hours" and also stated that the negative consequence beyond these items indicate the lack of awareness toward user's needs. One way to receive feedback from disappointed customers is to encourage and facilitate the complaint process, researcher said. But there was also a lacking relating to user's complaint and suggestion area particularly found in most public university libraries. This indicates the ineffectiveness of customer service of the respective university libraries that create external communication gap between library and users, and leads to user dissatisfaction.

Table 5.49: Causes of dissatisfaction

Area of defects	Observable cause	Root cause
User expectation	High expectation for service	1. Lack of user experience;
Service delivery		
User-Employee communication	Interactive communication gap	1. Lack of user-employee relationship;
Employee-Management communication	Internal communication gap	1. Lack of administrative control over employee's job; 2. Lack of attention toward employee's needs;
Management-User communication	External communication gap	1. Lack of awareness toward user's needs; 2. Ineffective customer service;

Another issue regarding user dissatisfaction, researcher opines aligned with Zeithaml et al's (2009) assertion that employees like the mirror of an organization, are the interface between the organization and the customer, and the satisfaction of the employees enhances employee's productivity and retention, which leads to customer satisfaction. As Grönroos (2001) stated also, if employees are not satisfied with their jobs, achieving customer satisfaction will be difficult. The researcher therefore, conducted in-depth personal interview with a number of employees of the respective university libraries, and explored that staffs from major public university libraries are not feeling happy with their jobs that leads user dissatisfaction at a large scale as shown in Figure 5.11. Authority did not pay much attention toward satisfying their diverse needs, they made objection. Such circumstance negatively influenced their job performance during service

delivery, researcher believed. Because, researcher emphasized as Adams (2009) and Kartz (2001) proclaimed employees’ needs analysis allows libraries to get a strategic overview of the training required to raise the level of service, enhance job satisfaction, and provide more opportunities for staff.

Moreover the low perception particularly from users of public university libraries with regard to “sincerity of employees on the job”, “giving quick and timely service to users”, “inform users on the regular progress” indicate that no management control exists in terms of accountability and less monitoring over the employees’ functional activities that hamper their regular flow of actions and ultimately grow user dissatisfaction, the researcher claimed. Staff’s efficiency particularly on “ability to make quick solution”, “ability to guide the users properly”, “ability to understand user’s problem”, and “professional skills of the employee” for major public university libraries were also shown with low perception indicate that management of respective university libraries are not paying much attention toward their staffs’ fitness to serve their purposes that made them insincere in the regular job, and causes users’ complaint.

5.11 Summary of findings

To provide a glimpse look over the whole findings of the research can be summed up as:

Research issues	Findings
❑ New scale	Real service expectation;
❑ Key dimensions of service quality	Caring, competence, resources, and library as a place;
❑ Number of service items	26 service items;
❑ Questionnaire model entitled as	LIS SERVQUAL ⁺ ;
❑ Is there relationship found between service quality and satisfaction?	A closer relationship found between service quality and satisfaction;
❑ Integration between service quality dimensions, difference scores and disconfirmation of expectation’s theory	Empirical results allows to integrate three models i.e. LIS SERVQUAL ⁺ , service quality assessment model, and disconfirmation of expectation’s theory;
❑ Existing scenario of perceived service Performance in selected university Libraries	Service performance of most private university libraries are more agreeable to to their users than public universities;

Meeting user's need: Assessment of minimum service Quality	Only the Services of NSU, IUB, EWU, BRACU and JU libraries are completely meeting their users' minimum need that ensures their minimum service quality;
Meeting user's expectation: Assessment of superior service quality	Only the services of IUB library are completely meeting its users' expectations that ensures its superior service quality;
Levels of service quality and	The IUB library only provides excellent service and users are also delightful. Services of NSU and BRACU libraries with little variance of EWU and JU libraries are discovered as standard service that provides minimum satisfaction to their users. Services of other university libraries with very little variance to DU and RU libraries are poor and not quite satisfactory to their users;
Causes of dissatisfaction	High service expectation from users; lack of user-employee relationship, lack of employee-management relationship, and lack of management-user relationship;

Note: It is noted that the descriptive statistics of desired service expectation, minimum service expectation, and perception of service performance are shown in Appendices (Appendix-F, pp. 248-250).

Chapter - 6

Discussion and corrective measures

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6.1 Chapter overview

The chapter is conferred about the key findings of the research with considerable recommendations. The discussion aligned with findings recount: how to determine service quality constructs and their practical appliance in the assessment of service quality and user satisfaction; demonstrate the practice of using zone of tolerance in service quality and satisfaction ranking. Premising with these the weak spots of former relevant models (e.g. Multiple-Item-scale SERVQUAL, difference scores, and Expectancy disconfirmation theory) were also explored. Several grounds of user dissatisfaction were presented at the edge of the findings. To better solution for entire library services a conceptual model of “User-focused Library System (UFLS)” was proposed at the last part of the research. The surveyed data from 10 selected university students were the basis of the whole research work.

6.2 Conceptual grounds of key research findings

User’s needs and wants are the core center of library service and development. Library administrator is therefore, conscious of the trends of user-focus and eager to know if the outcome conforming to user’s expectations. Hence, evaluation methods come with the tide of fashion. Given the growth of services in the last two decades, many researchers have recognized the need to develop measures of service quality. One of the most often used measures is the SERVQUAL based on extensive research in generic determinants of perceived service quality, which was originated by marketing researchers Parasuraman, et al. (1988, 1991, & 1994), and Zeithaml, et al. (1990), and consequently used by many researchers in different fields of service organizations most particularly in library sectors. For instance: in banking sectors (Jabnoun & Al-Tamimi, 2003), hospitality (Saleh & Ryan, 1992), health (Arasli et al., 2008), education (Tan & Kek, 2004), travel and tourism (Fick & Ritchie, 1991), and has been demonstrated to be applicable in the information systems arena by Pitt, Watson & Kavan (1995), and most importantly in library setting by Shoeb (2011), Kiran (2010), Ahmed & Shoeb (2009), Yu & Gu (2008), Nitecki (2007, 1996), Martin (2003), Simmonds & Andaleeb (2001), Cook & Thompson (2000), Andaleeb & Simmonds (1998), and Hernon & Altman (1996) with some modifications as required.

Beyond the broader spectrum of SERVQUAL's utility for measuring service quality, it has been subjected to a number of criticisms by a number of researchers. For instance with regard to SERVQUAL dimensions, a number of authors concurred that service dimensions are service industry specific: the number of dimensions and their stability across various service industries are likely to vary (e.g. see Van Dyke, Kapelman, & Prybutok, 1997; Taylor et al., 1993; Babakus & Boiler, 1992; Carman, 1990; and Crompton & MacKay, 1989). A vital criticism was also encountered, perhaps pertains to the lack of a clear link between satisfaction and perceived service quality identified by some researchers (Duffy & Ketchard, 1998).

Considering a number of theoretical criticisms and based on current research findings several limitations were also emerged as regards to SERVQUAL's applicability in academic library settings, researcher observed. For instance: regarding SERVQUAL dimensionalities, researcher argued that the five dimensions of Parasuraman et al.'s (1985) original SERVQUAL did not cover the main antecedent of library services, on which service quality and user satisfaction largely depend. Because the researcher said, without "resources (i.e. information materials)" establishment of library can not be imagined. Assessment of service quality, more specifically the MSS "measure of service superiority" (i.e. the discrepancy between perceived service performance and desired service expectation) as originated by Parasuraman et al. (1994²) has been triggered as another constraint in this research. Beyond this, researcher claimed, user's desired service expectation was found as unreasonably high that could not produce realistic result. Hence, an alternative scale needs to be developed to control over such irrational expectations, he emphasized. Besides, the existing exercise of Parasuraman et al.'s (1994²) SERVQUAL measurement framework is not appropriate for satisfaction measurement aligned with service quality measurement, researcher alleged. Whereas, based on research result it was reported that service quality and satisfaction is closely related to each other, and both are sharing the same antecedents, he reminds.

Furthermore, SERVQUAL developers' (Parasuraman et al., 1988, p.31) assertion "(SERVQUAL) provides a basic skeleton [. . .] which can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization"; and in

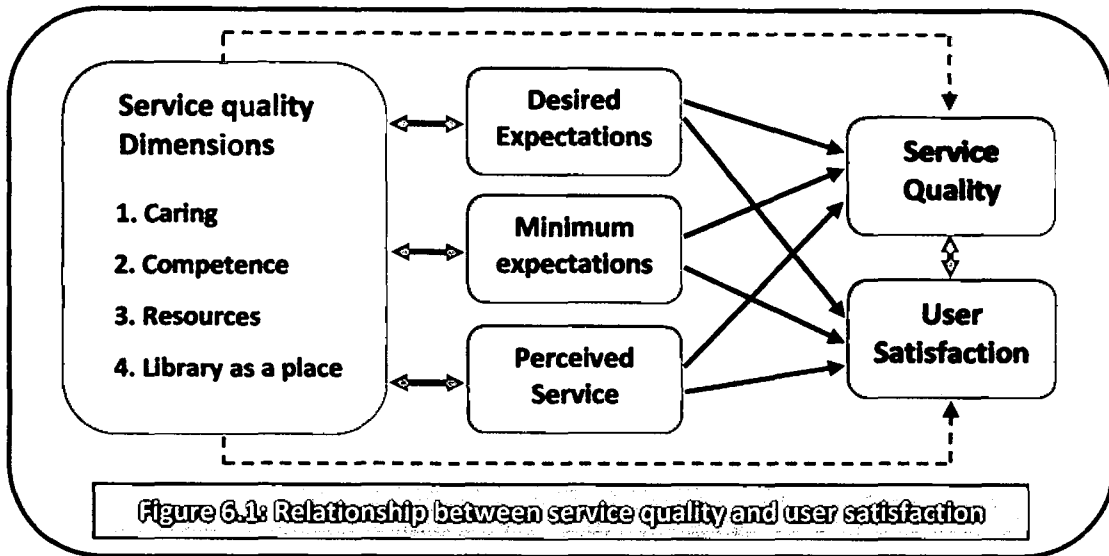
context of specific service situations, Carman (1990, p.157) accordingly suggested that, it may be necessary to delete or modify some of the SERVQUAL dimensions or even introduce new ones. Nevertheless, the widely applied SERVQUAL scale can serve as a basis for development of new scales appropriate for different industries taking into account their unique operation characteristics. Premising on SERVQUAL developers' statement (mentioned earlier) researcher of this study as well made an effort to design and develop an integrated framework through overcoming the identified constraints, which is the central theme of this research.

There is also a critical insight regarding SERVQUAL's applicability in information service sector in the use of difference scores (i.e. discrepancy between perception and expectation) as pointed out by Van Dyke, et al. (1997) and Cronin & Taylor (1992). Researchers claimed that utilizing difference scores is neither a reliable nor a valid measurement for operationalizing the service quality construct for an information systems services provider. Given that, they observed the perception components of SERVQUAL alone exhibits much better reliability and validity. The researchers consequently suggested the use of the perceptions-only part of SERVQUAL as an alternative, due to its superior reliability and validity. Cronin & Taylor (1992) called this performance-only subset instrument "SERVPERF" by discarding the expectations portion in the SERVQUAL model. They justified this performance-only instrument in place of the gap measurement approach, and accordingly claimed that performance alone provides better predictive validity than SERVQUAL which is gap-based. Consequently other studies (Landrum et al., 2008; Landrum & Prybutok, 2004; and Brady et al., 2002) also revealed that performance alone can exhibit better reliability and validity than difference scores.

Premising on these arguments and considering the current research effect, researcher along with Pitt et al.'s (1997) judgment did not agree with Van Dyke, et al.'s (1997) and Cronin & Taylor's (1992) criticism, and pointed out that in terms of performance measure in information service sector the subset instrument "SERVPERF" developed by Cronin & Taylor (1992) suffered from lack of serious diagnostic capabilities even though the predictive validity might be slightly better from a statistic point of view. Researcher

however understood that users might be satisfied or not with the services they received that can be definitely estimated through their perceived scores directly. But difficulties may arise he avowed in case of service failure, when users feel lacking of appropriate services they actually expected. In such circumstances now the question is, how it could be detected to calculate the degree of deficiency that is needed to be recovered, if anticipations were not measured alongside the perception scores from the same users. He as well asserted that users determine their perception based on a certain degree of own anticipation, and without having a certain range of anticipation it will be difficult to approximate their perception on the services they received. So it is evident that the direct measure of service quality using "SERVPERF" model as proposed by Van Dyke, et al.'s (1997) and Cronin & Taylor's (1992) may suffer from much higher measurement error that can not be used for quality assessment purpose, but can be used to assess current service situation on user's point of view, researcher proclaimed.

Questions were arisen regarding the relationship between service quality and satisfaction. Because researcher said, the relationship between customer satisfaction and service quality as stated by White & Abels (1995) is an ongoing question in service marketing. This is also a key concern of this research that if the relationship exists between them. Numerous points of view exist beyond the topic. A number of writers have referred to service quality as an antecedent to satisfaction; satisfaction as the antecedent to service quality; or service quality and satisfaction as either interrelated or discrete concepts (Anderson & Fornell, 1994; Taylor & Cronin, 1994; Cronin & Taylor, 1992; and Bolton & Drew, 1991). But, several studies showed that service quality may indirectly and directly affect customer satisfaction. For instance, in terms of direct relationship perspective Bitner (1990) examined that the service quality had been an important antecedent of customer satisfaction. Besides, through conceptual improvement and empirical findings most researchers have agreed that quality judgments cause satisfaction (Cronin & Taylor, 1992 and Bitner, 1990). Keeping concern the numerous points of view, researcher based on current empirical findings contended that service quality and satisfaction are two interrelated concepts and both are sharing the same dimensions while measuring service quality or satisfaction, and this is clearly delineated in the following figure (see Figure 6.1).



Accurate measurement of customer satisfaction is also a prerequisite for developing effective management strategies (Yüksel & Yüksel, 2001). The most frequently used construct for determining satisfaction is the expectancy disconfirmation model developed by Oliver (1980), which has become the dominant framework employed in the assessment of customer satisfaction in different service sectors, and not exception to current research although with some modification. The model explores that disconfirmation results when there are differences between what consumers want and what they actually receive in an experience (Parasuraman, Zeithaml, & Berry, 1994). If performance is below expectation, negative disconfirmation results, and when performance is higher than expectation, positive disconfirmation occurs. This theory seems as stated by Yüksel & Yüksel (2001), expectations as the primary determinant of customer dissatisfaction or satisfaction.

Despite the growing popularity and its dominance, it has received a number of considerable theoretical and operational criticisms. In particular, it has been criticized for including expectations and using difference scores in assessing customer satisfaction or dissatisfaction (Yüksel & Yüksel, 2001; Buttle, 1996 and Churchill & Supernant, 1982). Most criticism has been focused on the measurement bias, for instance, that expectations measured after or even simultaneously with the service experience are biased by the experience (Gronroos, 1993). Other researchers such as Getty & Thomson (1994) and Carman (1990) recommend that the expectations should be solicited before the service experience as the expectations will be contaminated by perceptions of the

actual service provided. Some others, however, argued that measuring expectations before service experience can be problematic as the customer is likely to modify expectations during the service encounter (Weber, 1997; Danaher & Mattsson, 1994; and Gronroos, 1993).

Beyond a number of arguments, researcher's (of the study) ground in context of using expectations and difference score in disconfirmation processes as he stated that difference scores relates calculation and indicates the result of discrepancy between perception and expectation scores, and disconfirmation relates the comparison process between perception and expectation scores. Contrasting Yüksel & Yüksel (2001), Buttle (1996) and Churchill & Suprenant's (1982) assertion he added, the existing disconfirmation model does not include difference scores, rather it considers comparison process. Because he said, difference scores used for diagnostic purpose that explains size of disconfirmation either positive or negative; and disconfirmation theory as a comparison method determines the level of user's perceived experience or feelings in terms of anticipation. So researchers' contention is not quite right, he proclaimed. The other arguments (of Getty & Thomson, 1994; Gronroos, 1993; and Carman, 1990) relating to measuring expectations before or after the service experience, researcher does not have any interest to concentration.

Moreover, with regard to operational efficiency of expectancy disconfirmation theory in satisfaction measurement process, researcher opposed the use of expectation as disconfirmation standard as other researchers (Oliver, 1980 and Patterson, 1993) considered this. Because user's expectation for services is tolerable in nature that they could not limit their expectations with a fixed point of score rather within a certain range of scores (i.e. called zone of tolerance as introduced by Parasuraman et al., 1994²), researcher said corresponding to Berry & Parasuraman's (1991) assertion "customers' service expectations exist at two levels, the desired level and the adequate level". Researcher's basic premise based on current research findings is that, not only expectation rather zone of tolerance (i.e. certain range of expectation) will be the best fit as disconfirmation standard for satisfaction measurement process, which can be equally applied for service quality ranking process.

6.3 Service quality dimensions: LIS SERVQUAL⁺

The reliability of the analysis of data taken from 10 sampled university students with distinct service attributes was considered as the foundation of this research. The mean values of real service expectation (i.e. average result of desired and minimum service expectations) were used to form the quality constructs for academic library service assessment. In the current research model 28 service items were initially determined based on five SERVQUAL dimensions i.e. resources, competence, responsiveness, demeanor, and tangibles established by Andaleeb & Simmonds (1998). The data obtained from this SERVQUAL instruments were put through exploratory factor analysis, on the basis that inconsistency regarding exactly which item belongs to which dimension remains (Buttle, 1996). Four factors were extracted namely caring, competence, resources, and library as a place. Out of 28 service items 26 items were found within the extracted factors with standardized factorial value recommended by Hair et al. (1998), which indicates, service quality of academic library mostly depends on these 26 items. This constitutes a new approach of modified SERVQUAL model toward academic library setting, and researcher named it "LIS SERVQUAL⁺". Service quality was measured by using this new adapted LIS SERVQUAL⁺ model in this research.

In the effect of exploratory factor analysis, the first factor "caring" was loaded with staff related items through combination of earlier "responsiveness" and "demeanor" dimensions. The other factors were extracted as the same as former service dimensions "competence", "resources", and with the exception of "library as a place" which was previously termed as "tangibles". The extracted factorial items were also very much consistent with predefined settings but rearranged within items of each respective dimension except for earlier responsiveness item "sincerity of employees on the job" that is merged with present competence factor, while the other item "ability to make quick solution" of former competence dimension is included in first "caring" factor in the current service dimension. However, as regard to sum up of the new adapted LIS SERVQUAL⁺ dimensions, each respective dimension along with conceptual outline, number of service items included, and statement of the relevant items are demonstrated in the Table 6.1.

Table 6.1: LIS SERVQUAL⁺ dimensionalities and number of service items

Dimensionalities & number of items	Associated with:	Statement of service items
1. Caring [Nine items] [Note]: Delivery of user needs is directly influenced by means of staff's responsibility and behavioral pattern, and without caring mentality, staff's sound responsibility and good manner will hardly possible. * [Combination of early responsiveness and demeanor dimensions]	"Empathy" derived from Parasuraman et al. (1988); and "Affect of service (personal)" from Ahmed & Hossain (2009), and Satoh et al. (2005);	Ability to make quick solution Willingness to help users Giving personal attention to users Giving quick & timely service to users Inform users on the regular progress Courtesy & friendliness of employees Handling users softly and carefully Reliable personality Loving users by heart
2. Competence [Five items] [Note]: Capability of staff's service delivery, which enables them to understand users' problems accurately, guides them properly with expertise and knowledgeable solutions.	"Reliability" derived from Parasuraman et al. (1988); and "Competence" from Andaleeb & Simmonds (1998);	Academic fitness of employees Professional skills of employees Ability to guide the users properly Ability to understand users' problems Sincerity of employees on the job
3. Resources [Seven items] [Note]: It doesn't mean only quality of information contents and size of the library collections but, rather, also includes variety of other resources relating to technological objects.	"Resources" derived from Andaleeb & Simmonds (1998); and Hernon et al. (1999);	Sufficient number of documents Up-to-date-ness of documents Informative & resourceful documents Easy access to documents Latest information services & facilities E-resources availability & accessibility Sufficient modern technological tools
4. Library as a place [Five items] [Note]: Reflects not only physical facilities such as reading rooms and study rooms, but also mental aspects of quietness, comfort and exchange with other users and library staff.	"Library as a place" derived from Nagata et al. (2004); Ahmed & Hossain (2009); and "Library as place" derived from Nadiri & Mayboudi (2010);	Appropriate study environment Adequate space for study & learning Documents are at the right place Users can complaint & suggest easily Suitable & convenient library hours
Total 4 dimensions		26 service items

With regard to dimensionalities of service quality in academic libraries Calvert's (2001) assertion is "academic library customers have very similar expectations of service". Nagata et al. (2004) also quoted, since the university libraries offer largely similar services, there is a strong possibility that users value the same dimensions in forming their expectations and in measuring the quality of service. Consistent with these assertions it could be noted that there is more or less concurrency of current LIS SERVQUAL⁺ dimensions with earlier similar studies as explored in Table 6.2.

Table 6.2: Recent developments of SERVQUAL for academic library service

Name of researcher	Year of study	Method & No. of dimensions	Dimensionalities
Andaleeb, Syed Saad and Simmonds, Patience L.	1998	(SERVQUAL) 05	<u>Resources, competence, responsiveness, demeanor, and tangibles;</u>
Hernon, P.; Nitecki, D.A., & Altman. E.	1999	(SERVQUAL) 03	<u>Resources, organization, and service delivered by staff;</u>
Cook, C. and Thompson, B.	2000	(SERVQUAL) 03	<u>Tangibles, reliability, affect of service;</u>
Cook, C. and Heath, F.	2001	(LibQual+™) 06	Affect of service, easy of access, self-reliance, <u>reliability, comprehensive collections, and library as place;</u>
Nimsomboon, N. and Nagata. H.	2003	(SERVQUAL) 03	Affect of service (organizational), collection and access, and <u>affect of service (personal);</u>
Satoh, Y. and Nagata, H.	2003	(SERVQUAL) 05	<u>effect of service (personal), library as ba (place), reliability, collections and access, and effect of service (organizational)</u>
Nagata, Haruki; Satoh, Yoshinori; Gerrard, Sarah; and Kytömäki, Päivi	2004	(SERVQUAL) 04	<u>Effect of service (personal), library as ba, collection and access, and effect of service (organizational);</u>
Satoh, Y., Nagata, H., Kytomaki, P. and Gerrard, S.	2005	(SERVQUAL) 04	<u>effect of service (personal), library as ba (place), collections and access, and effect of service (organizational)</u>
Ahmed, S.M.Z. and Shoeb, M.Z.H.	2009	(SERVQUAL) 04	Affect of service (organizational), collection and access, <u>library as a place, and affect of service (personal);</u>
Nadiri, Halil and Mayboudi, Sayed Muhammad Ali	2010	(LibQual+™) 03	Affect of service, information control, and <u>library as place</u>
Shoeb, M.Z.H.	2011	(SERVQUAL) 03	Affect of service, collection and access, <u>library as a place;</u>
Current study	2012	(SERVQUAL) 04	Caring, competence, resources, <u>library as a place;</u>
(Note): The underlined dimensions are relatively matched with latest USSERVQUAL dimensions			

Moreover while questioning the relationship between each dimension i.e. caring, competence, resources, and library as a place, and their ability to construct service quality and satisfaction, the degree of reliability was shown significant findings. This indicates that service quality of academic library and satisfaction of its users is mostly related to these dimensions. In terms of examining the relationship between service

quality and satisfaction a significant relationship was found between them, which is consistent with the study of Bigne, Moliner & Sanchez (2003) and supported by Abu Hasan & Ilias (2008) who also found, the overall service quality have a significant relationship with satisfaction. Another empirical findings relating to users' opinions based on their different demographic characteristics (i.e. gender, user status, and users of different faculties) also doing the same consequence.

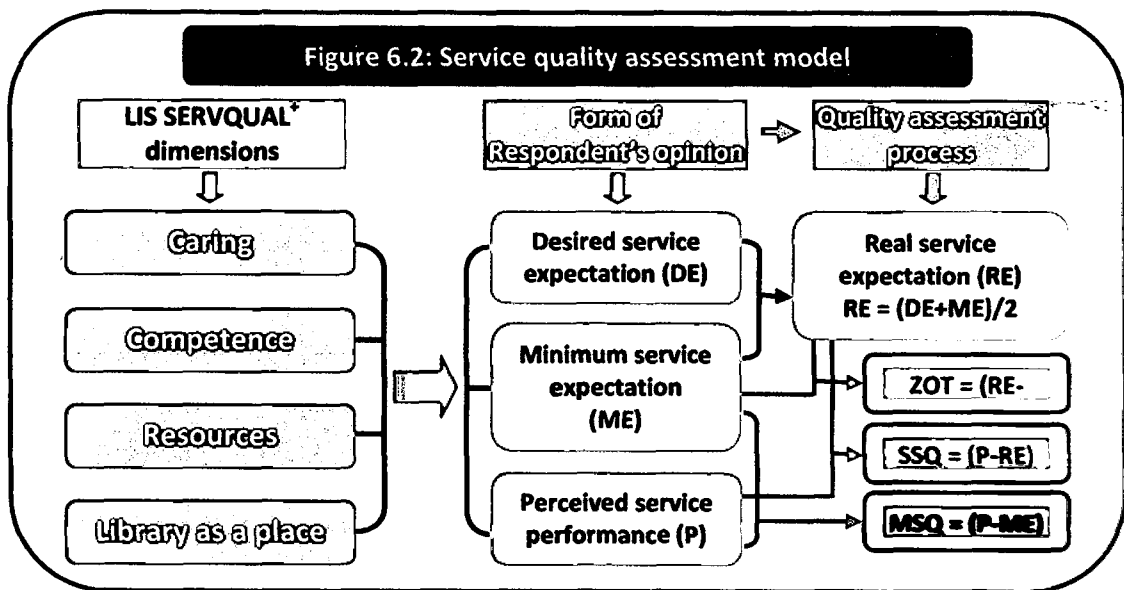
Further experiment was conducted to ensure the effect of relationship between them, and the result shows that "service quality and satisfaction had significant impact on each other". Similar result was found also from Nadiri & Mayboudi's (2010) study, who observed that university library's service quality as one of the most important factor that has a significant influence on students' overall satisfaction. On this premise researcher stated, service quality and satisfaction had a reciprocal relationship; if service quality improved then it will consequently affect user satisfaction. He thereby proclaimed, service quality is the degree of relative judgment occurred between users' perceived experience with their anticipations for services, and satisfaction is the result of their psychological concurrence on that judgment. And the assessment of service quality and satisfaction is the degree of confirmation or disconfirmation of their expectations.

6.4 Service quality assessment model

The notion of service quality perceived by Zeithaml et al. (1990) "[...] the extent of discrepancy between customers' expectations or desires and their perceptions" indicates good quality service is meeting or exceeding what customers expect from the service. Therefore, a thorough understanding of customer expectations is the critical foundation on which perceived high quality service must rest. Researcher, therefore, examined users' service expectation at the outset of this research, and found that their anticipations were unreasonably so high. It was apparent that 38.02% respondents out of 605 felt that expectation for services is their own right that enforced them to imply high scaled expectation in the form of "desired service expectation", and ultimately resultant declining service quality and user frustration, he argued. Hence the researcher felt need and developed an alternative item-scale to control over such irrational

anticipations. The new item-scale was named as “real service expectation” resultant from average score of desired service expectation and minimum service expectation, which was empirically tested through validity and reliability analysis using Exploratory Factor Analysis (EFA) and Coefficient Alpha.

The unique insight of this research into the effect of service gap analysis on user’s expectation revealed that “user’s high expectation for service causes declining service quality and satisfaction, and thus low expectation causes rising service quality and satisfaction”. Given that consequence researcher would like to set an evidence from early research particularly of Halstead, Hartman & Schmidt (1994)’s assertion, “if customers do not have well-formed expectations, researchers confronted that such a measurement of expectations and thus disconfirmation may not be valid”. This provides coherent of launching the new measurement scale “real service expectation” and thus created the foundation for establishing the new-fangled gap (i.e. SSQ “superior service quality” gap) between users’ expectations and perceptions through this research. Beyond this, researcher’s basic premise is that service quality is measure of how well the service level delivered matches users’ real and minimum expectations, rather than Parasuraman et al.’s (1994²) desired and minimum expectations.



Hence, the assessment of new-fangled service gap “SSQ” superior service quality was calculated as the discrepancy between perceived service and real service expectation (i.e. $SSQ = P - RE$), which is the substitute of previous MSS (measure of service

superiority, i.e. P-DE) as originated by Parasuraman, et al. (1994²). The other service gap “MSA” measure of service adequacy was remained the same but replaced with “MSQ” minimum service quality (i.e. MSQ = P-ME) in this research. The concept of “ZOT” zone of tolerance was also remained, but in different way, the discrepancy between real service expectation and minimum service expectation scores (i.e. ZOT = RE-ME) rather than “ZOT = DE-ME”. Function of each type of service gap was also specifically delineated as: SSQ indicates expectation-based service quality, and MSQ reflects need-based service quality. And the effect of service gap may be either in positive or negative for both SSQ and MSQ, which is recognized as SSQ gap, and MSQ gap. However, measuring service quality based on the latest gap theory along with LIS SERVQUAL⁺ dimensions is thus illustrated in Figure 6.2.

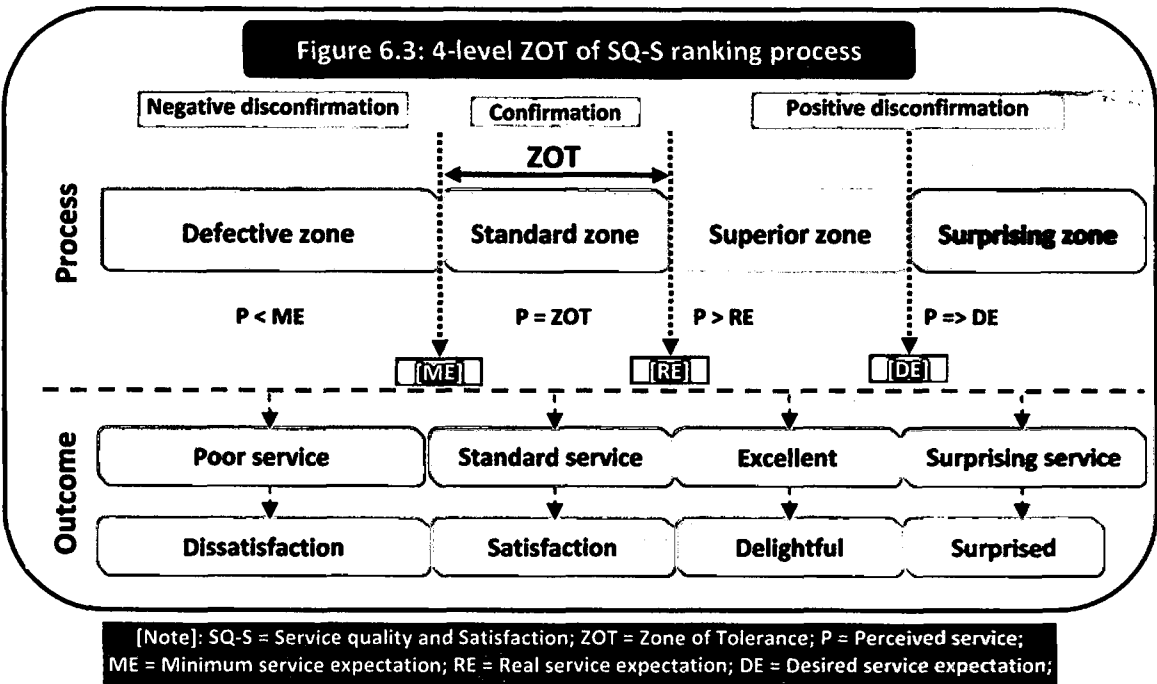
The finding of this research accordingly shows that user’s service expectation is the key factor of exploring service quality and satisfaction, which is correspondingly observed in Yüksel & Yüksel’s (2001) study that “expectation is the primary determinant of customer dissatisfaction or satisfaction”. It was also evident that user’s desired service expectation doesn’t have realistic value in quality and satisfaction formation processes, rather can be used as a supplementary index to determine highest positive disconfirmation in quality and satisfaction formation process. This is one of the cardinal effects of this research.

6.5 SQ-S ranking process: Disconfirmation of expectation’s theory

Accurate measurement of customer satisfaction is also a prerequisite for developing effective management strategies (Yüksel & Yüksel, 2001). Only with reliable customer feedback gathered through an adequate and appropriate assessment framework, let the managers be in possession of facts that will allow them to implement satisfaction improvement programs. The process of measuring satisfaction is primarily based on disconfirmation of user’s expectations, as Smith & Houston (1982) claimed, “satisfaction with services is related to confirmation or disconfirmation of expectations”. Yüksel & Yüksel (2001) also had the same intention that expectation is the primary determinant of customer dissatisfaction or satisfaction. But, researcher’s basic premise is that users could not limit their expectations with a fixed point of score rather within a certain

range of scores. Because their expectation for services is changeable in nature depending upon the service situation, he said. Researcher, therefore, used “zone of tolerance” as the confirmation and disconfirmation standard in this research as corresponding to Berry & Parasuraman’s (1991) view. The same consequence was also found in Zeithaml, Berry & Parasuraman’s (1996) study, who applied the concept to customer service satisfaction.

Based on empirical supports regarding the relationship between service quality and satisfaction, the current research findings explores that “service quality and satisfaction had a significant impact on each other”. A closer relationship was also found between them in terms of user’s point of view. Taking this into account, researcher added a new dimension “i.e. service quality ranking” at the same model adjacent to the satisfaction ranking. In addition to ZOT as confirmation and disconfirmation standard, desired service expectation (DE) was used as supplementary positive disconfirmation for indicating surprising level of service quality and satisfaction. In the current research model the “zone of tolerance” (ZOT) was used as confirmation and disconfirmation standard that refers to the ranking scale of service quality and user satisfaction (SQ-S), and was interpreted with 4-level ZOT for SQ-S ranking process (as shown in Figure 6.3).



The concept of 4-level ZOT in this research had an effect on the way: [1] The superior zone, that refers to the SQ-S rating scale, where the measured SQ-S level falls above the user's standard level of anticipations (i.e. real service expectation), and indicates the excellent service situation, thus ensures delightful users; [2] The surprising zone that indicates the SQ-S rating scale, where measured SQ-S level falls above or equal to user's highest level of service expectation (i.e. desired service expectation). Also indicates surprising level of existing service situation and users are also surprised having with this service condition; [3] The standard zone, that refers to the rating scale, where the measured SQ-S level falls between the range of real and minimum service expectation. This indicates the standard level of existing service condition, and ensures user satisfaction; [4] The defective zone, where the measured SQ-S level falls below the minimum service expectation, indicating poor level of service condition and thus making users dissatisfied.

This new concept is substantially corresponding to Heskett, et al.'s (1994) study, who expanded the former concept of zone of tolerance by introducing three satisfaction zones, such as: [1] zone of defection, indicates the zone, where customer falls below the minimum satisfaction level; [2] zone of indifference, that equates to a zone, where the customer is indifferent to service interventions; and likewise [3] the zone of affection, that refers to the zone, where the satisfaction level is above the desired service level. And also significantly consistent with the recent study conducted by Chen (2012), who identified the performance control matrix (PCM) into three big performance zones, respectively [1] improvement zone; [2] maintain zone, and [3] excellent zone.

6.6 Descriptive outcome of the research

The effect of the current research findings relating to current service performance of 10 university libraries as perceived by the respective user groups was determined. This addresses a deep insight about existing performance of given university libraries at all levels of service attributes based on their respective users' view points, and that has been used as essential indicator for evaluating service quality and satisfaction. Earlier researches also support this notion, as Zeithaml et al. (2009) postulates, the entire discussion of service quality and satisfaction is based on customer's perception of the

service and not some predetermined objective criteria of what service is, or should be. Determination of service quality gaps and the pertinent consequence was triggered also based on the latest service gaps theory as depicted in Figure 6.2 and 4-level ZOT analysis illustrated in Figure 6.3.

Results explore that no service attributes of the respective university libraries were exceedingly perceived by the respective users and thus did not fall into surprising zone. Services of IUB library only perceived at standard level and got the highest perceived experience. The whole service attributes uncovered within the standard and surprising zone indicates that the library alone capable of meeting its users' basic needs and expectations, and made them delightful with excellent service situation. Users of this library are happy with the library staffs particularly for their job sincerity and careful handing of users with good conduct. This indicates the reliability of customer service of IUB library. They are also very much influenced by library's physical facilities mostly for "appropriate study environment, and adequate space for study and learning". Despite the diverse performance, the current study suggests that authority should pay more attention toward availability of library resources.

Entire services of NSU, EWU and BRACU libraries are showing almost the same performance and falling within the standard zone indicating that users of these libraries are satisfied with standard level of services. While the whole services delivered them are meeting their needs, but in the question of meeting or exceeding highest level of service expectations no service items were touched with users' expectations for services. This indicates that services of the respective university libraries are suffered from lagging better solution to users' requirements. It was reported that such incidents occurred due to negative service gaps beyond the whole service items for EWU library, followed by BRACU and NSU libraries. The most influential factors that create such negative circumstances are relating to poor customer service, and inadequate technological facilities. Closer performance was also found beyond JU library with minor variance in service performance.

In the line of inquiry, services of DU and RU libraries are showing almost the same performance. Excepting "sufficient number of documents" and "suitable and convenient

library hours" for DU library, and "easy access to documents" for RU library, the whole service items are falling within the defective zone, indicates that these libraries are unable to meet user's minimum service expectation. This calls user's frustration at a large scale toward library services. Hence, authority should pay much attention, and at least to satisfy the minimum service expectations of their users. Otherwise, they will lose their sustainability from users positive attitudes.

With regard to JNU and PU library services both are demonstrated with similar performance. The entire services of these libraries shown within the defective zone indicate that users are at all deprived from having their minimum service needs from their university libraries. Accordingly the service performance of CU library is also found the same result, but at the lowest perceived experience at all levels of service attributes that is certainly alarming for its endurance, research indicates. Users are found very much deprived from all aspects of library facilities. This circumstance calls for immediate corrective actions. Otherwise it may hinder the rising flow of academic strength of this university in near future, researcher assumed.

6.7 Exploring the causes of dissatisfaction

Dissatisfaction is not the result of a one-time occurrence, researcher think so. It happens over a period of time. If, from the onset, communication is poor or nonexistent, researcher said, the foundation for user dissatisfaction is being laid. The utmost effect of research findings demonstrates that dissatisfaction and frustration is found as the regular companion of users in academic libraries of Bangladesh. To explore the grounds of this consequence researcher identified two general factors. One is related to user's own matter and this is "user's service expectation is too high". Another is related to library side, i.e. lack of employee's and management's response toward users' needs that is acknowledged as "3-party communication gap" in this research. Three types of lacking are occupied in this gap structure for instance: [1] lack of user-employee relationship, and the study recognized it as "interactive communication gap"; [2] lack of employee-management relationship that is recognized as "in-house communication gap"; and [3] lack of management-user relationship, which is termed as "external

communication gap". However, the root causes of dissatisfaction that made these gaps are explained below.

6.7.1 Lack of user experience

This is one of the key effect of research findings that researcher observed, user's service expectation is unreasonably high, which he considered as the key source of user's dissatisfaction. Beyond this thinking he made a closer look to Goodman's (2009) assertion, who said that customer error or unreasonable expectations is one of the typical causes of customer dissatisfaction. Given that consequence he as well concentrated toward Halstead, Hartman & Schmidt (1994)'s assertion, "if customers do not have well-formed expectations, researchers confronted that such a measurement of expectations and thus disconfirmation may not be valid". The thought was then experimented and uncovered user's service expectation had the key contribution of exploring service quality and their satisfaction, which was correspondingly observed by Yuksel & Yukse (2001). In this line of action, researcher acknowledged "user's high expectation for service causes declining service quality and satisfaction, and thus low expectation causes rising service quality and satisfaction".

6.7.2 Lack of user-employee relationship

The service personnel in an organization are crucial to the emotional connection and development of a long-term relationship with the customer Heskett et al., (1997). But it is reported that lack of willingness, courtesy and friendliness toward service delivery was shown as common tendency among the employees of most public university libraries in this country. Users were not gently and carefully handled with reliable attitude. These cause dissatisfaction to users. Whereas if service interactions are not properly controlled and handled, the outcome is poor perception of service quality and customer dissatisfaction. Associated with this reason researcher supposed to verify this ground with Bitner, Booms & Tetreault (1990)'s acknowledgment "dissatisfactory encounters occur when contact employees demonstrate poor attitudes toward the customer, ignore the customer or treat the customer impersonally as evidenced by such behaviors as being impatient, not anticipating needs, not caring about the customer's comfort, and failing to provide information".

Another issue that the users importantly mentioned while taking interviews that no personal attention and sincerity was shown during service transaction. Researcher said as corresponding to Bitner's (1990) voice, such interaction is considered to be a crucial part of the service experience that will influence the relationship with the (service company) library. He added also, Natalisa & Subroto's (2004) statement "in service industries, customer satisfaction is always influenced by the quality of interactions between customers and the personnel involved in the contact services". Keeping such premises it could be denoted that there is a great lacking of sound behavior of the employees that upholds an interactive communication gap between users and employees, and results dissatisfaction to users of the respective university libraries.

6.7.3 Lack of administrative control over employee's job

Another issue, covertly derived from personal feedback from a number of employees indicates that there is no management control in terms of accountability and monitoring over employee's functional activities that creates insincerity toward effective service delivery and thus hampering their regular flow of actions and ultimately affects user satisfaction. No importance was given about Job accountability of the employees, recorded from employee's feedback. This consequence creates futility among the employees and thereby affects their competencies and responsibilities, and causes dissatisfaction to users, researcher assumed. Because he believed satisfaction is created by an excellent staff, efficient operations, convenience, competitive costs, and excellent image as with Jones's (2004) word, and which often leads to a repeat purchase as with Laroche et al.'s (2004) voices.

6.7.4 Least attention toward Employee's needs

it is a common sense, when people feel great about the place where they work, they provide better customer service. Employees can strongly contribute to a library's success by having a user-centric approach in their work and work-related interactions. Such interaction according to Bitner (1990) is considered to be a crucial part of the service experience that will influences the relationship with the service company. They are more likely to do so if they are satisfied with their job, researcher believed this considering Grönroos's (2001) statement "if employees are not satisfied with their jobs,

achieving customer satisfaction will be difficult". In such premise the effect of in-depth personal interview with a number of employees reported that service personnel of major public university libraries are not feeling so happy with their functionalities. Authority did not pay much attention toward satisfying their diverse needs, they claimed. Such circumstance may negatively influence their job performance during service transaction, researcher believed. In this line he emphasized as Adams (2009) and Kartz (2001) proclaimed, employees' needs analysis allows libraries to get a strategic overview of the training required to raise the level of service, enhance job satisfaction, and provide more opportunities for staff.

Imposing the same question upon private university libraries, different situation came out while meeting a number of employees particularly from NSU, IUB, BRACU and EWU libraries. They reported overwhelmingly and appreciated the carefulness of their management authority toward them that indicated their job satisfaction, and resulting user satisfaction as confirmed in the effect of current research. In this premise, researcher also voiced in the word of Zeithaml et al's (2006) that employees like the mirror of an organization are the interface between the organization and the customer, and the satisfaction of the employees enhances employee's productivity and retention, which leads to customer satisfaction.

6.7.5 Lack of awareness toward user's needs

Another factor responsible for user dissatisfaction in respective academic libraries in this country is related to user's stated requirements that were not sufficiently addressing their needs and expectations. Findings reveal that only a small number of university libraries are meeting their users' basic information needs. Whereas, realization of users needs is the first imperative for library authority to deliver their functionalities, researcher stated. Moreover, no libraries can meet the needs of their users without a good understanding of what the user needs and expectations are. As Hennestad (1999) stated, collaboration between providers and customers can lead to a mutual understanding of the customers' needs and desires, as well as an understanding of the technological opportunities. Chang et al. (2003) as well found that companies which exhibit a customer orientation, by being alert regarding the needs of customers, would

achieve better performance. But the practical situation is that no importance was given toward recognizing users' needs and desires in terms of resource selection, service development, policy adaptation, and other facilitations in the complained libraries. And this is a common scenario observed in major academic libraries of Bangladesh.

6.7.6 Ineffective customer service

The service encounter failure may occur due to the outcome (what they receive) or the process (how they receive it), and the magnitude of the loss (Smith, Bolton, & Wagner, 1999). Hence, a culture of service needs to be created and maintained which fosters an attitude of willingness to serve others (Brown, 2001). But in terms of current research findings there was a lacking shown relating to user's complaint and suggestion area particularly found in most public university libraries. This indicates that authority is not aware of the importance of customer service in library perspective. Whereas, one way to receive feedback from disappointed customers is to encourage and facilitate the complaint process. And this is an important aspect for a university library to maintain user's feedback regularly. Moreover, good customer service is one of the basic tenets on which libraries operate (Topper, 2009).

6.8 Measures of priority to improve service performance

The effect of research findings address a deep insight about existing performance of given university libraries at all levels of service attributes based on their respective users' view points, and that has been used as essential indicator for evaluating service quality and satisfaction. Whatever the situation derived from users' opinions regarding overall service performance of respective university libraries, it is a general speaking, researcher stated in the word of Chen et al. (2006) and Chen et al. (2011) that, if an organization possesses abundant resources, general improvement can be made; however, if resources are limited and only a few items can be improved, some items have to be selected as priorities. Premising on this remark researcher stressed that, it is necessary to determine the priorities of service items for improvement. Because he said, resources and service facilities of utmost libraries found in the current research findings are limited and unsatisfactory that cannot usually be simultaneously improved to the required level of satisfaction. Furthermore he argued in accordance with current

research findings that priority of service improvement may vary from library to library. Beyond this argument researcher said, some libraries may usually demonstrate excellent performance, while some others typically demonstrate less-standard and poor performance. In this line his contention is, user's needs and expectations of those libraries may also vary. Users with excellent library performance are like to satisfy with high quality of service performance, while users of others categories would like to satisfy with average quality of service performance.

The study, therefore, calculates the service performance control matrix (SPCM) to determine improvement priorities, and to establish the best strategy for improving service quality and the level of user satisfaction (shown in Figure 6.4). Result of each service attribute is mapped onto the SPCM. The SPCM consists of four major zones that represent the degree of effectiveness of service performance and the adjacent service strategy to be adopted with each zone. The four zones for instance: "X-zone" indicates service performance zone, "Y-zone" indicates study area zone, "Z-zone" indicates service strategy implementation zone, and "A-zone" indicates the zone of action or recommendation for action.

6.8.1 Service performance zone (X)

Attributes within this zone are described based on four performance criteria, i.e. [1] need unmet (X_1): attributes that did not meet user's needs are placed in the zone; [2] need met (X_2): service items that met user's needs are included in this zone; [3] expectation met (X_3): service items that met user's expectations for services are included in this zone; [4] expectation exceeded (X_4): those attributes that exceed user's expectation level and had shown excellent performance are demonstrated in this zone.

6.8.2 Service strategy implementation zone (Z)

Improvement of service items included in "X-zone" is implemented according to adjacent service strategy criteria demonstrated in "Z-zone". However, implementation of "Z-zone" is based on four criteria. [1] Z_1 "Problematic zone": indicates that items of X_1 zone requiring prompt action to recovery of service performance; [2] Z_2 "Improvement zone": this indicates items of X_2 zone that require immediate improvement of service

items; [3] Z_3 "Maintain zone": indicates the service items shown within X_3 zone that entail the existing performance of the respective service attributes should be strictly maintained; and [4] Z_4 "Excellent zone": indicates that the level of existing performance of the service attributes that are included in X_4 zone can be maintained as it now.

Figure 6.4: Service performance control matrix (SPCM)

Service performance zone (X)					
	Need unmet (X_1) ($P < me$)	Need met (X_2) ($P = me$)	Expectation met (X_3) ($P = re$)	Expectation exceeded (X_4) ($P > re$)	(A) Zone of action
DU (Y_1)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	15, 26	X	X	A_1
JU (Y_2)	20	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26	X	X	A_2
RU (Y_3)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26	18	X	X	A_3
CU (Y_4)	All items	X	X	X	A_4
JNU (Y_5)	All items	X	X	X	A_5
NSU (Y_6)	X	All items	X	X	A_6
IUB (Y_7)	X	All items	All items	All items	A_7
EWU (Y_8)	04	1, 2, 3, 5, 6, 7, 8, 9, 10, 11 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26	22	X	A_8
BRACU (Y_9)	X	All items	X	X	A_9
PU (Y_{10})	All items	X	X	X	A_{10}
Study area zone (Y)	Problematic zone (Z_1)	Improvement zone (Z_2)	Maintain zone (Z_3)	Excellent zone (Z_4)	Recommendations explained in Table- 4 can be adopted here in accordance with the nature of problem
	Prompt action to recovery of service performance	Immediate Improvement of service performance	Maintain service performance strictly	Maintain service performance as it was	
Service strategy implementation zone (Z)					

6.8.3 Study area zone (Y)

Attributes within this zone are described based on the number of study areas. Attributes of each area are distributed within " X_1 , X_2 , X_3 , and X_4 " of X -zone as appropriate according to their performance level explored in service gap (i.e. effect of SSQ and MSQ) analysis. Effectiveness of each attribute is addressed based on " X -zone". Implementation of appropriate strategy for service improvement (where and when necessary) for the items of each zone are according to " Z -zone", and what type of action necessary for the items of each zone are implemented based on adjacent " A -zone".

6.8.4 Zone of action (A)

This zone provides necessary recommendations as appropriate for the service items in accordance with the effectiveness of service performance revealed by X -zone. Improvement actions over the existing performance of service items will be performed based on the adjacent recommendations mentioned with the same line of study areas.

6.8.5 The result of SPCM

The overall effect of service scenario summarized in Figure 6.4 using SPCM method explores that the services of IUB library alone were exclusively shown within Z_4 or excellent zone. This indicates the sign of goodness of service performance that simultaneously satisfies users' needs and expectations at the same time, and suggests this might be retained as it exists. It was accordingly found that the similar performance for whole service items of NSU and BRACU library were uncovered within Z_2 or improvement zone. This indicates service performance of these libraries is capable of satisfying their users' needs, and suggests, initiative should be taken immediately to improve existing service performance. In the line of inquiry the whole services of PU library followed by JNU and CU libraries were demonstrated within Z_1 or problematic zone that indicates the existing service performance of these libraries are in measurable conditions, and put forward for prompt action to recovery of service performance. Services of other libraries are detected with diverse performance that was confined within problematic and improvement zones. It was observed that twenty four items of DUL, one item of JUL, and twenty five items of RUL and accordingly only one item of EWU library were discovered in Z_1 (problematic) zone that suggests prompt action to be

taken to recovery of service performance for these service items. Accordingly the adjacent items other than the problematic ones of these four university libraries were found within Z_2 (improvement) zone that require immediate improvement.

With regard to setting priority for improvement of individual service item, the degree of user's preference for service items (shown in Table 5.37, chapter-5, p. 133) was determined as the measures of priority setting. In line with this measure attributes of problematic zone with the highest preferred item should be given first priority followed by order of arrangement, researchers stated. Correspondingly, the other service items demonstrated in Z_2 (improvement zone) should be given priority for improvement that was followed by service items discovered in Z_3 (maintain zone). However, the order of given items for priority improvement has been shown in Table 6.3.

Table 6.3: Order of priority for improving service items

Study areas	Service items with priority order	No. of Items
DU library	23, 22, 24, 4, 11, 19, 17, 14, 6, 18, 10, 12, 8, 2, 25, 7, 21, 13, 20, 16, 9, 5, 1, 3, 26, 15	26 items
JU library	20, 23, 26, 7, 22, 24, 2, 14, 6, 4, 25, 3, 10, 8, 11, 1, 9, 19, 13, 18, 5, 21, 12, 17, 16, 15	26 items
RU library	26, 22, 23, 24, 4, 25, 14, 11, 6, 8, 2, 13, 10, 5, 7, 9, 12, 3, 16, 1, 17, 19, 20, 15, 21, 18	26 items
CU library	16, 22, 3, 20, 26, 14, 17, 8, 10, 24, 9, 13, 18, 6, 23, 1, 11, 4, 19, 5, 25, 2, 7, 21, 15, 12	26 items
JNU library	14, 22, 4, 25, 21, 26, 20, 2, 3, 13, 24, 19, 9, 10, 5, 23, 7, 11, 18, 1, 12, 17, 8, 16, 6, 15	26 items
NSU library	24, 23, 22, 13, 14, 16, 3, 4, 6, 10, 17, 5, 8, 9, 19, 25, 26, 1, 2, 7, 12, 15, 20, 21, 18, 11	26 items
IUB library	Requires no improvement	No items
EWU library	4, 18, 12, 6, 7, 20, 25, 26, 10, 13, 23, 3, 9, 24, 21, 11, 14, 19, 17, 8, 2, 5, 1, 15, 16	25 items
BRACU library	24, 25, 11, 26, 22, 23, 1, 10, 14, 21, 2, 12, 13, 17, 18, 19, 20, 3, 4, 5, 6, 7, 8, 15, 16, 9	26 items
PU library	20, 21, 7, 5, 14, 19, 25, 3, 4, 17, 6, 24, 13, 18, 1, 10, 26, 15, 22, 2, 12, 16, 23, 9, 11, 8	26 items

[Note]: Light face characters indicate the items discovered in Z_1 zone; character with bold face indicate, items discovered in Z_2 zone;

Worthily noted that, the whole service items of IUB library was not included in Table 6.3 as further improvement is not imperative for those items. And only the item of EWU library (i.e. item no. 22) discovered within Z_3 (maintain) zone although requires no instant improvement, but needs to strictly maintain the existing service performance.

6.9 Recommendations

Library, as a service organization could be offering quality service thus making efforts to satisfy its users. But, when negative consequence occurred and found after service delivery, it means library does not meet its users' needs and expectations that may result into waste. Library authority should therefore ensure that they know their users'

needs and desires, and they are going through the possible efforts to satisfy them. In line with the action, researcher proposed a number of measures (shown in Table 6.4) based on current research output that may be considered as remedial agents for those service attributes where user dissatisfaction occurred.

Table 6.4: Recommendations for action

Specific issues	Recommendations
1. User's experience Remark: Users are not practically experienced about their library to form their expectations in conformance with library's fiscal and other capabilities;	• Initiative to be taken to strengthen external communication between library and users; • Initiative to be taken to strengthen interactive communication between users and employees; • Organizing user orientation program; • Organizing library product and service orientation program through library staffs; • Organizing department-wise book orientation program at each procurement session in order to building awareness about subjective materials among the students;
2. Interactive communication Remark: Lack of user-employee relationship;	• Implementing relationship marketing strategies within total service culture: • Staff orientation with the library users: Take care of users whenever they come to the library, ask them about their needs, help them in searching desired information, listen to them at any query, guide them when they need, inform them about regular progress of library services; • Always let the users to know that their query will be cordially received and showing much attention for better solution;
3. In-house communication Remark: Lack of employee-management relationship;	• Take care of employees' needs in regular basis; • Employee satisfaction survey in a fixed interval; • Employees' performance appraisal and give them reward; • Providing on-job training and encourage them in doing research and education; • Maintaining cooperation with the employees; • Let the employees to know that authority is aware of their needs, and giving importance to meet those needs; • Ensure friendly environment to make them feel comfortable to work;

4. External communication Remark: Lack of management-user relationship;	• Take care of users' needs in regular basis; • Conducting user satisfaction survey in a fixed interval; • Receiving user feedback regularly; • Implementing complaint management system; • Providing part-time job facilities for users; • Involving users in library service and policy development processes;
5. Library administration Remark: Library authority and management are not much aware of the importance of library services;	• Posting the employees at the right place based on their expertise; • Instant monitoring: Use of close circuit (CC) camera with speaker (sound box) at each functional desk centrally connected with librarian's digital monitor; • Floor walking: Continuous floor walking without any regular interval within functional areas including reading rooms; • Casual observation: Taking observation through highly administrative personnel at any time without notice; • Self accountability: Building a corporate culture so that employees are self-accountable. If it is absent (according to Dru, Scott 2000) there will be low quality output, energy wastage, time wastage, and high level of burnout; • Service guidelines: Providing each service guidelines to users, particularly guidelines of using e-resources; • Quality and performance monitoring in perspective of information materials, services, service delivery techniques, employee behavior with the users, effectiveness of reading and working environment, and etc.

Once the corrective actions are taken, it is also important to measure the effectiveness of those actions. Quality monitoring of user interactions is therefore key to competitive survival for libraries. To better implementation of these actions library authority should plan that would enable management to build a workforce with the necessary skill sets which could meet the diverse needs (regarding users and employees) of the library.

Chapter - 7

User-focused Library System (UFLS): A proposed outline

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"A goal must be to empower our users and make customer self-sufficiency a priority; that is, make our libraries and services as transparent as possible and provide a suite of integrated tools that allow user-centered retrieval and management of information and knowledge resources without our mediation"

Jordan, Mary W. (2005)

7.1 Introduction

Business management and marketing are concerned with ways of satisfying and retaining customers for the purpose of generating profits, improving companies' competitiveness and securing market share. Some of the major themes in the business management domain include studies of customer relationship marketing, which analyses how customer satisfaction relates to competitiveness and profits, methods for measuring customer satisfaction (Thomson, 1995), and approaches that can help transfer customer satisfaction data into strategies for improvement of customer relations and their retention (Reidenbach & McClung, 1998; Johnson & Gustafsson, 2000; Schellhase, Hardock et al., 2000). Learning from the service strategies of the commercial and service oriented organizations, Gupta & Jain (1996) stated, many LICs (library and information centers) are now concentrating and developing customer orientation. Their focus is on distinctive competencies, value delivery, customer defined quality, relationship management, continuous improvement and a customer-focused organizational culture. They accordingly proclaimed, only that library system triumphs, which has more user-focused approach and rely on direct or relationship marketing. But in practice, it was observed that the conceptualization of such approach has not yet been addressed in major academic libraries of Bangladesh.

Keeping concern the output resulting from the current study, it was evident that university libraries of Bangladesh need a plan that would enable the respective authority to build a quality culture that could meet information needs and expectations of their respective users. Researcher, therefore, commenced a structured planning and proposed a conceptual model that will add a level of positive conformance to user's anticipation for services from the respective university libraries. This chapter, however, commences with a theoretical background that provides a basis for the theoretical model. An exploratory investigation was conducted and experimented to determine the key factors of UFLS model, which form the basis to represent the model.

7.2 Conceptual development of UFLS model

The acronym "UFLS" stands for user-focused library system. Keeping with the notion of existing service scenario derived from current research findings, the study proposed a

conceptual model of user-focused library system (see Figure 7.5, p.194) showing the functional linkage between essential determinants of building user-focused marketing culture within academic library environment. But the lacking of relevant researches made the task so difficult to commence for the researcher. The determinants fixed up for the proposed model was, therefore, initially accumulated from the success factors of customer-focused marketing noted in previous researches of diverse nature (e.g. Customer satisfaction model, IS success model, and so forth), and also from the views and insights from a number of allied constituencies in this country. Doing this job, an exploratory investigation in the form of executive interview, focus group discussion, and questionnaire survey were applied. The assumption of the model is that if the management of libraries fosters user-centered marketing behavior then their attitudes, knowledge, operational activities and service performance should also be reflected accordingly. In this line of assumption, attention may be paid on Gupta & Jain's (1996) assertion, who pointed out "only that library system triumphs, which has more user-focused approach and rely on direct marketing and/or relationship marketing".

7.2.1 Theoretical background of the model

One reason concerning the lack of studies in the area could be that, the lack of user-oriented behavior among the practitioners in the similar field. Another reason could be the lack of proper knowledge of practitioners about the importance of user-focused marketing culture in library environment. Besides, growing new users rather than ensuring the retention of existing users is a common tendency among the library professionals that may be the other cause of awareness toward implementation of user-focused marketing practices within academic library in this country. Most of the library service oriented researches in this country has been focused on the assessment of adequacy of library resources; rather than discovering users' actual needs for services, and their perceptions of service consumption, their attitudes and intentions toward library services, nature of interaction between library, its peoples and its users. However, the idea regarding the proposed UFLS model in this study was therefore enriched from different types of marketing researches associated with the diversity of profit/non-profit making service organization conducted by different researchers, who

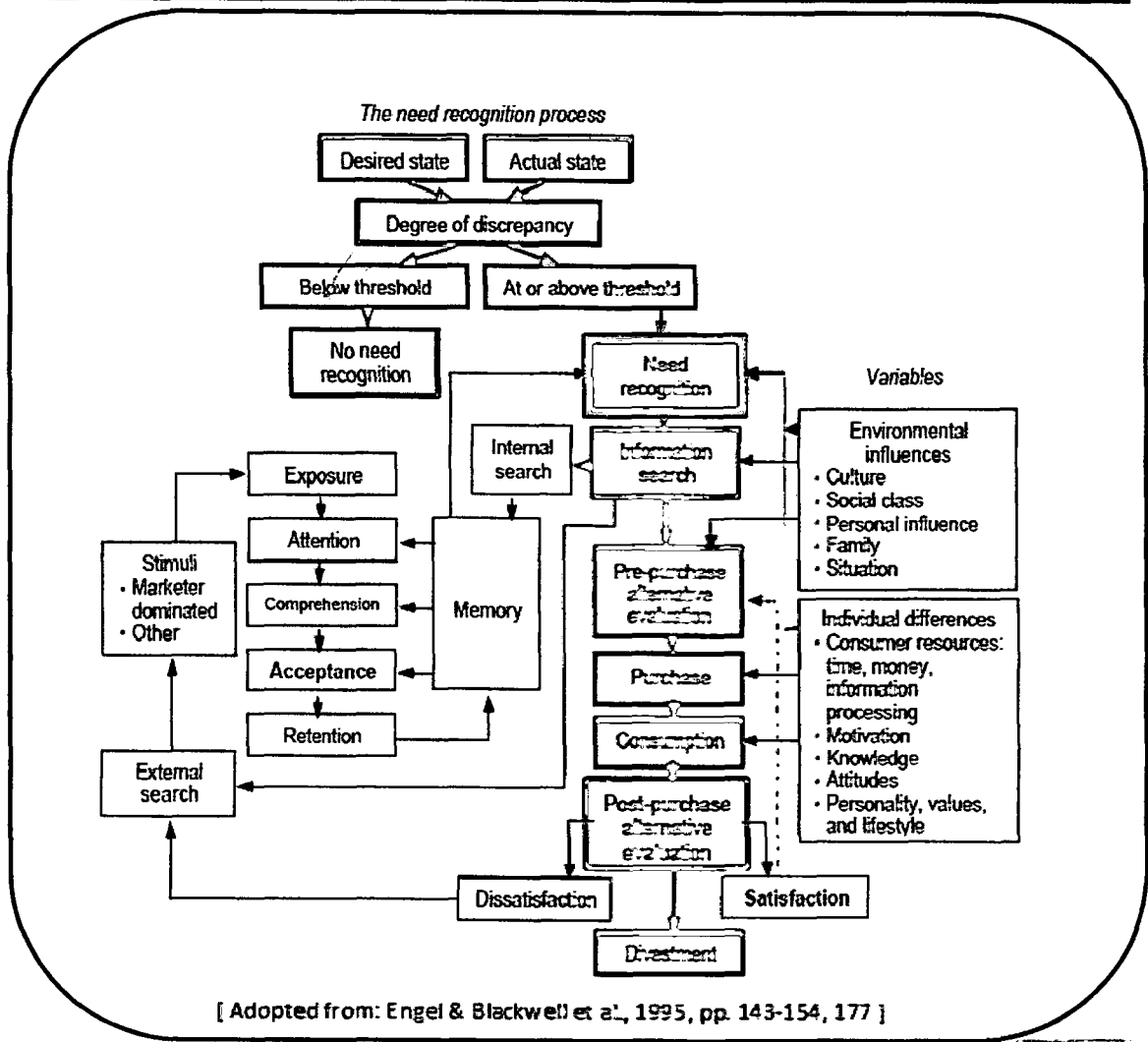
hold the banner of research aimed at gaining customer attention, quality assurance, and customer satisfaction.

Business management and marketing are concerned with the ways of satisfying and retaining customers for the purpose of generating profits, improving companies' competitiveness and securing market share. Some of the major themes in the business management domain include studies of customer relationship marketing, which analyses how customer satisfaction relates to competitiveness and profits, methods for measuring customer satisfaction (Thomson, 1995), and approaches that can help transfer customer satisfaction data into strategies for improvement of customer relations and their retention (Johnson & Gustafsson, 2000; Schellhase & Hardock et al., 2000; and Reidenbach & McClung, 1998).

The paramount goal of the marketing domain is to understand the consumer and to influence buying behavior. One of the main perspectives of the consumer behavior research analyses buying behavior from the so-called "information processing perspective" (Holbrook & Hirschman, 1982). The basic concept is derived from the model of the consumer's decision-making process, suggested by Dewey (1910) and adapted by Simon (1955) that includes the following major steps: problem recognition, search, alternative evaluation, choice and outcomes. Later this model was expanded to include other steps and add more details. One of the models used in this study as a basis for generating a user-oriented model for academic library service, is the "customer satisfaction process model" (see Figure 7.1, p.184) suggested by Engel et al. (1995), because it combines some influencing factors that can be equally applied for information service sectors.

According to the model, the customer decision-making process comprises a need-satisfying behavior and a wide range of motivating and influencing factors. In this model customer decision-making process has the following steps: need recognition, information search, pre-purchase alternative evaluation, purchase, consumption, post-purchase alternative evaluation, and lastly divestment. Worthy mentioning, satisfaction or dissatisfaction is the result of post-consumption evaluation.

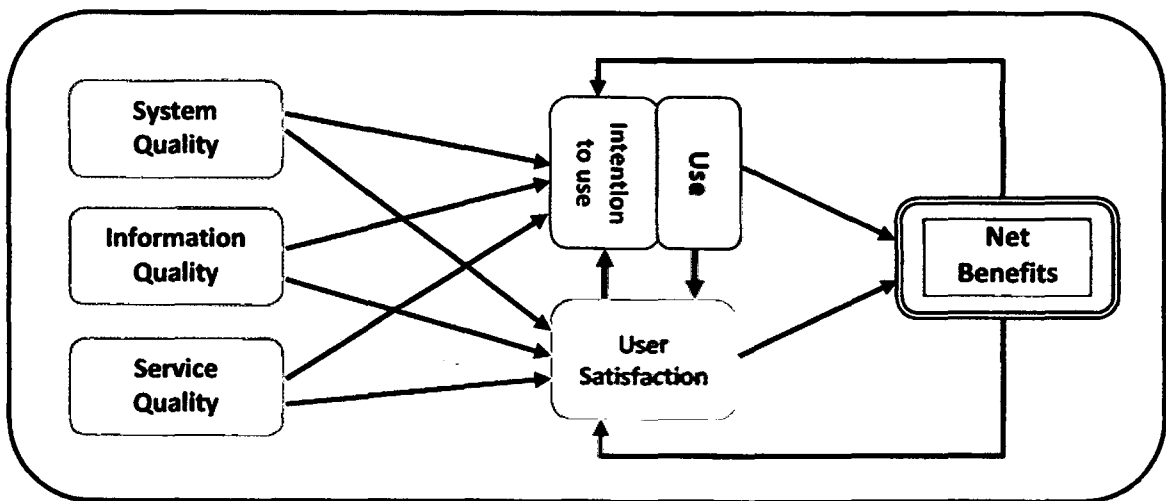
Figure 7.1: Customer satisfaction process (Source: Mont & Plepys, 2003)



Another model known as “D&M IS success model” (see Figure 7.2, p.185) has been widely used as expressed in the extensive article by Petter et al. (2008). It has been modified to meet the requirements set by several kinds of ISs from different points of view in several times. For instance, Holsapple & Lee-Post (2006) edited the model to be used in evaluating e-learning. Lin (2007) modified the D&M success model to be used in the assessment of successful use of online learning system. Further, Wang et al. (2007) used it when they assessed the efficiency and success of e-learning ISs from the viewpoint of organizations and their employees. DeLone and McLean used their success model (DeLone & McLean, 2003) when they evaluated success of e-commerce. From the e-commerce point of view, the key users are, instead of internal users, the customers and providers. In addition, interaction and business processes can be evaluated with the

help of six measures (DeLone & McLean, 2004.) Halonen et al. (2010) applied the model when they evaluated knowledge transfer in a virtual learning environment. One of the latest is the meta-analysis carried out by Petter & McLean (2009) who stated that the majority of the relationships posited in the updated D&M model in 2003 have been supported. In the current research project, the model is used as a strategic support to develop a user-centered library model.

Figure 7.2: Updated DeLone and McLean IS success model
(Source: DeLone & McLean, 2004)

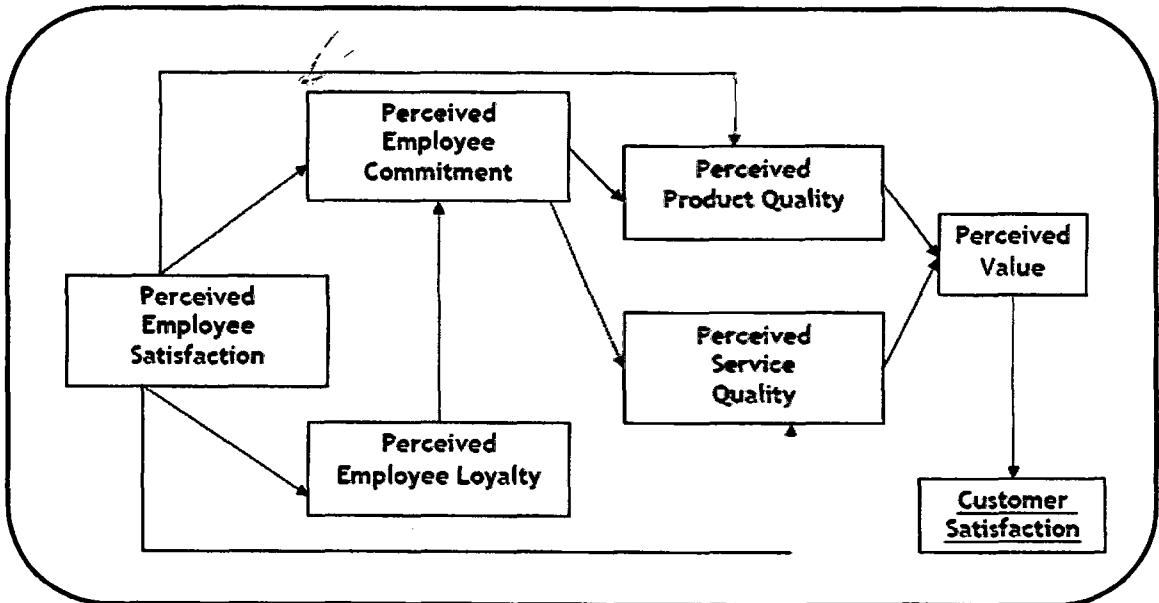


As shown in Figure 7.2 the model includes six factors, namely information quality, system quality, service quality, intention to use, use and user satisfaction that influence net benefits. Net benefit indicates user satisfaction and intention to further use.

Moreover, some investigations regarding the relationship between employee satisfaction and customer satisfaction, although shown in the commercial field but inherently related to our subject have provided explicit measures of this relationship. For example (cited from Caterina, 2005), a study at Sears Roebuck & Co. showed that a five-point improvement in employee attitudes led to a 1.3 rise in customer satisfaction which, in turn, generated a 0.5 increase in revenues. Brooks (2000) reviewed the relationship between financial success and customer and employee variables (e.g., customer satisfaction, employee satisfaction, etc.) and found that, depending on market segment and industry, between 40 and 80 percent of customer satisfaction and customer loyalty was accounted for by the relationship between employee attitudes and customer-related variables. Similarly, Vilares & Cohelo (2000) found that perceived

employee satisfaction, perceived employee loyalty, and perceived employee commitment had a sizable impact on perceived product quality and on perceived service quality (see Figure 7.3) that influences customer satisfaction.

Figure 7.3: Employee satisfaction and customer satisfaction relationship, Vilares and Cohelo, 2000; [Source: Caterina, 2005]



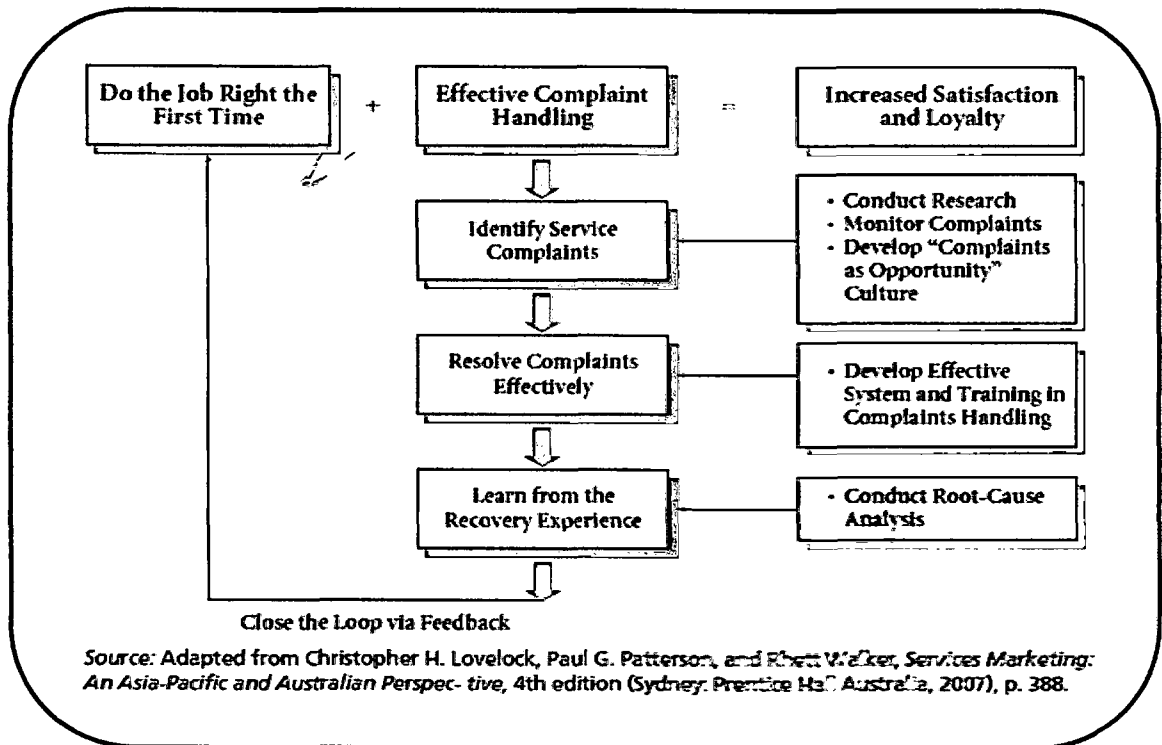
According to their model, employee satisfaction not only affects employee commitment and employee loyalty, but it also has a twofold impact (i.e., direct and indirect) on critical customer satisfaction-related variables. With regard to customer complaint Lovelock et al. (2007) proposed a model that demonstrates customer satisfaction and loyalty largely depend on effective handling of customer complaint (Figure 7.4, p.187).

7.2.1.1 Extractions of prior models

Corresponding to prior discussion regarding customer satisfaction model depicted in Figure 7.1, 7.2, 7.3 and 7.4 it can be noted that “successful organization is that, which ultimate result is achieving customer satisfaction”. As a service organization the central focus of a library has accordingly the same intention. In this line of notion library stands at the same principle but with diverse functionalities. The essence of the prior models (discussed above) at a little extent provides some significant constituents, for instance: user’s need recognition depicted in figure 7.1; quality assurance for system, information and service illustrated in figure 7.2; employee satisfaction influences customer satisfaction demonstrated in figure 7.3; and effective handling of customer complaint

shown in figure 7.4. All these attributes are adopted with necessary changes and applied to the development of proposed UFLS model.

Figure 7.4: Effective service recovery system (Lovelock et al., 2007)



7.2.1.2 Preliminary groundwork of UFLS model

Based on earlier focus, successful implementation of UFLS model requires that, the key intention of library marketing should understand its users and to influence effective use of library resources that requires clarification of users' information needs, provide them quality resources that meet their needs, their approaches to the information use, let them to give feedback, consider them as a functional agent to regular assessment of existing service quality, and support them beyond any complaint. After all users will be the central focus and dominant factor for successful marketing in library domain. Besides, employees are the only mediator between library resources and users. In this premise it can be said that successful transaction largely depends on employees' attitude. If they are possessed with good attitude, service will be well delivered; and if not, users will be certainly deprived. Avoiding such unwanted situation entails employees will be the other dominant factor for successful marketing in library or any information center domain. Employee's characteristics, therefore, be taken into account

aligned with user characteristics for successful library marketing. But the prior models (discussed above) individually or collectively did not provide a complete idea that can be equally implied for library perspective, rather offered some significant ideas helpful for the development of UFLS model.

7.2.2 Exploratory investigation

The literature concerning the subject of user-focused library system is not yet rich enough to provide a sound conceptual foundation for developing a user-focused library system. An exploratory quantitative investigation, therefore, was conducted to determine the key determinants of building UFLS model, which was undertaken in 29 constituencies including subject specialists, relevant professionals, experts of different similar organizations, and graduate students of related disciplines.

An exploratory qualitative study in the form of focus group discussions with graduate and undergraduate students, and executive interviews (in-depth interviews) with faculty members and expert professionals of related fields (from national and international regions) were conducted to gain insights about the following questions so as to ascertain their views regarding development of user-focused library system.

- What is their intellectual thinking about user focused library system?
- What they perceive the objectives of user focused library system?
- What is their thinking about user involvement in library functions?
- Do the service provider (library employees) as vital agent for successful user-focused library system?
- What determining factors do they think to be considered for developing user focused library system?
- What successful indicators do they think to be considered for successful development of user-focused library system?

The approach used in consistent with procedures recommended for marketing theory development by several scholars, for instance: Parasuraman, Zeithaml, & Berry (1985), Deshpande (1983), Peter & Olson (1983), and Zaltman, LeMaster, & Heffring (1982).

7.2.2.1 Executive interview

In-depth personal interviews comprised of open-ended questions were conducted with 10 executives, who were assigned from the faculty members of the department of ISLM, University of Dhaka and Rajshahi, expert professionals, and researchers on similar discipline. The executives were interviewed about a broad range of quality service and satisfaction issues, for instance: what they perceive about the development of user-focused library system, the role of active and domain users in generating quality service and satisfaction, what problems may arise while implementing user-focused library system, what initiatives should be taken to control over problematic issues and thus improve service quality and satisfaction.

7.2.2.2 Focus group discussion

A total of 02 (consisted of 26 students) focus group discussions were conducted with graduate and undergraduate students of Information Science and Library Management department of Dhaka University. Participants were asked about their positive and negative feelings they experienced regarding the library services; their thinking concerning library's policies and procedures, they think the library should have; and sharing their creative ideas with regard to continuous quality improvement process that may satisfy them and build them as loyal users.

7.2.2.3 Questionnaire investigation

Prior to making any decision on these matters, an exploratory quantitative survey was conducted to ascertain the expert professionals' and scholars' views on proposed UFLS model. Very clear feedback was received from 29 respondents of different levels from national and international regions. Survey was basically accomplished in the form of structured questionnaire (see Appendix-C). The review of literatures and prior models, results of executive interviews and focus group discussions, self experience and visiting library sites were used to discover the essential determinants for building UFLS model. However, twelve factors (shown in Table 7.1) were primarily selected and used to form the questionnaire.

Table 7.1: Determining factors for building UFLS model

Factor No.	Attributes
01	Scanning user's needs and desires
02	Scanning employee's needs and desires
03	User's satisfaction
04	Employee's satisfaction
05	User's loyalty
06	Quality assurance
07	Library helpdesk or customer service
08	User-centered service quality assessment
09	Library's physical facilities
10	Quality of product
11	Quality of service
12	Quality of service provider

Fifteen questionnaire items based on the selected factors were determined, from which seven items were included as system development factor, three items for quality and satisfaction assurance factor, and the five items were included as system's output factor in the questionnaire. Respondents were requested to mention additional factors if they feel necessary for building UFLS, which was placed at the last section of the questionnaire.

7.2.3 Investigative outcome

The investigative outcomes in perspective of determining the key factors of building UFLS model derived from user's opinions (over 15 questionnaire items) were statistically examined if they are reliable for building the model, and to check if any unnecessary factor included in the questionnaire items. Item-Total-Correlation (if item deleted) test was therefore applied (shown in Table 7.2).

Result shows that all items met the criteria with alpha value ranging from $\alpha = 0.7136$ to 0.7642 , and overall coefficient alpha for fifteen questionnaire items $\alpha = 0.7568$, which is greater than the necessary value of $P > 0.70$ as proposed by Nunally & Bernstein (1994). This indicates that all the questionnaire items are highly reliable, and suggests all the determining factors shown in Table 7.1 can be used to construct UFLS model for academic library environment.

Table 7.2: Result of Item-Total Correlation (if item deleted)

Item No.	Questionnaire items	Mean	Std.	If Item deleted (α)
Q_1	Regular scanning of user needs and desires	6.7500	0.7005	0.7264 *
Q_2	Regular scanning of employee needs and desires	5.8929	1.1655	0.7136 *
Q_3	Employee satisfaction has greater influence on quality service delivery	6.3929	0.9560	0.7510 *
Q_4	Quality assurance is vital factor (e.g. product's quality, service quality, provider's quality)	6.6786	0.7228	0.7339 *
Q_5	Library helpdesk or customer service is vital factor (e.g. complaint management)	6.3214	0.9049	0.7543 *
Q_6	User participation in service quality assessment on regular basis	5.6786	1.1239	0.7528 *
Q_7	Proper physical facilities (e.g. accommodation, furniture, environment, attractiveness)	6.2857	0.8545	0.7397 *
Q_8	Quality of information products (e.g. up-to-date-ness, informative, adequacy)	6.7143	0.5998	0.7642 *
Q_9	Quality of information services (e.g. service delivery tools & techniques, physical facilities)	6.6071	0.7860	0.7381 *
Q_10	Quality of service provider (e.g. academic fitness, experience, responsibilities, behavior)	6.5000	0.9230	0.7486 *
Q_11	Quality service is the result of effective and efficient combination of above factors	6.2500	0.8444	0.7350 *
Q_12	Impact of quality service results user satisfaction	6.3214	0.7724	0.7418 *
Q_13	Highly user satisfaction results user loyalty	5.9643	0.9616	0.7526 *
Q_14	The success of academic library largely depends on user loyalty	5.2857	1.0838	0.7469 *
Q_15	Improved service quality and satisfaction largely depends on user-focused library system	6.0357	0.7927	0.7520 *
[Note]: Significant at $\alpha = P > 0.70$				

7.3 Outlines of UFLS model

7.3.1 Objective of the model

The central objective of the information services is to act as a bridge between existing information and the user. The user-oriented marketing approach in libraries and information services is aimed at coordinating and planning the total efforts of the library toward user communities. Keeping track with such account, the principal purpose of designing the proposed "UFLS" model is to ensure the smooth manipulation of entire

service culture of the library that satisfy users' needs by addressing their goals, behaviors, attitudes and aptitudes. The central focus of the model is user goals instead of just tasks and workflows, which also intends not inviting new users only, but to keep them, and make them come back to the library. The proposed model may provides librarians understanding about what the user's needs and wants, identifying how they can best meet these needs, let them to know how to ensure quality across the library functions, and thus strengthen user's satisfaction and loyalty.

7.3.2 Framework of the model

The proposed "UFLS" model depicted in Figure 7.5 incorporates several viewpoints based on literary and exploratory investigations, which demonstrate that quality service has been seen as a direct result of the quality of library products, services, and service providers that influence user satisfaction and loyalty. The framework also utilizes an open system view of the library where quality improvement and operational efficiencies are working together to achieve a competitive advantage for library users. It also stresses strategic focus on employee's satisfaction, user-centered quality assessment approach, and library helpdesk or customer service functions for producing organization-wide quality culture. Operationally, the model has been divided into five major functional segments: need recognition, service delivery, quality assessment, service recovery and solution, and lastly system's output and result.

7.3.2.1 Need recognition

Realization of users needs is the first imperative for library authority to deliver their functionalities. Library services can not be separated from those who deliver the service. The service personnel, who are in frequent and close contact with users of their services, therefore, have a pervasive impact on users' perceptions of overall service value and quality. Moreover, for the success of any service organization, the role of service providers can never be avoided. Besides, Berry (1981) claimed that employees have the need like other customers that is supposed to be fulfilled, and they are to be considered as the internal customer of the organization. In perspective of customer's satisfaction or dissatisfaction George (1977) expressed that to have satisfied customers, the firm must also have satisfied employees that is aligned with Berry's (1981) view.

Piercy (1994) accordingly suggested that internal customer satisfaction is directly linked with external customer satisfaction. However, corresponding to the notion of prior researchers service employees is considered here as internal users, while users are treated as external users of the library. However, two types of users are recognized.

Active users: Active users are those, who are basically using the library resources and services for satisfying their information needs and requirements, such as: students and faculty members.

Domain users: Domain users are considered here as service providers. They are not to be considered like active users; rather they should be considered as library's internal users.

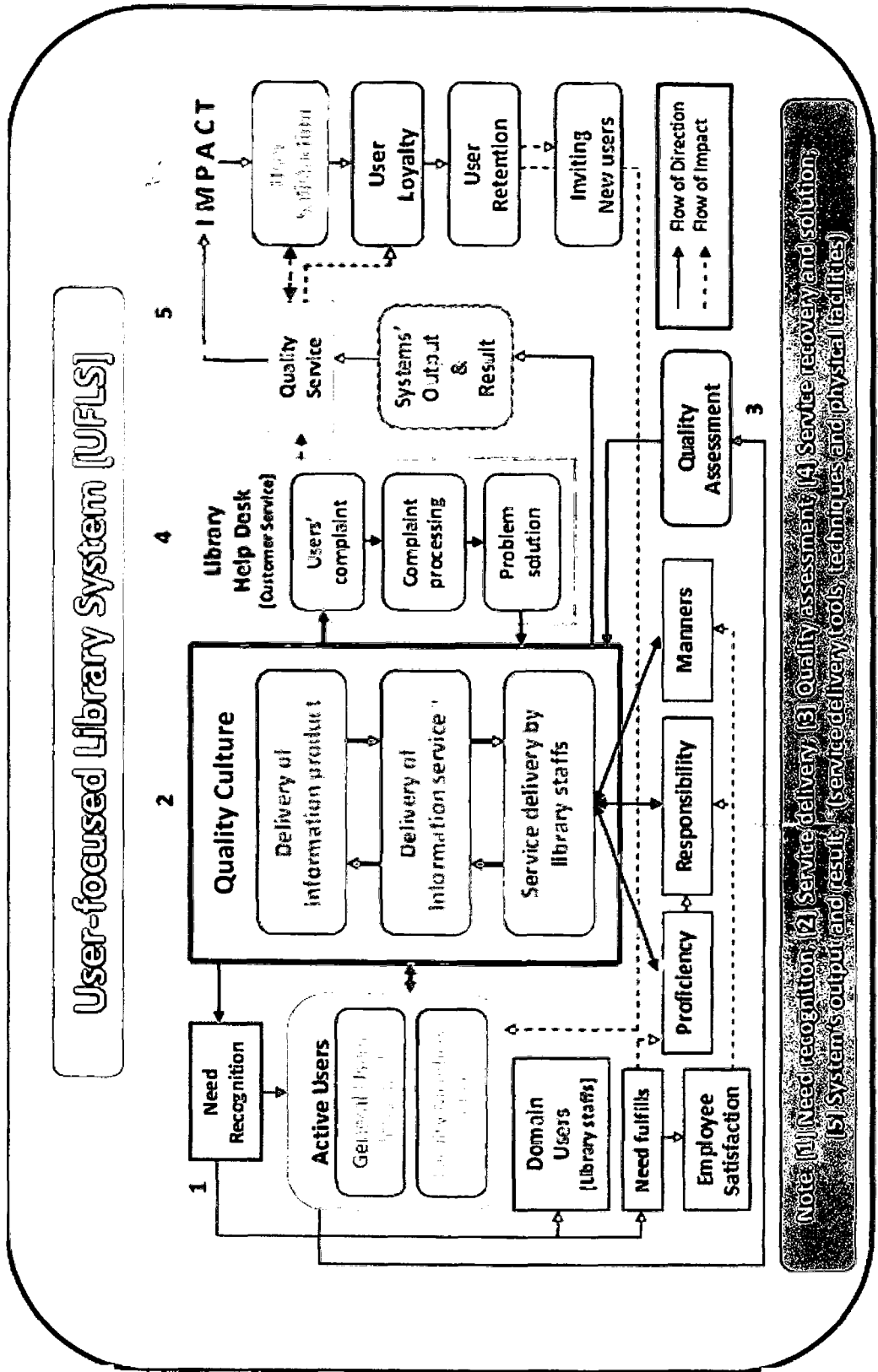
It is noted that in service settings the relationship between customers (i.e. active users) and service personnel (i.e. domain users) are self-reinforcing (Heskett et al., 1997). They added also, service personnel in an organization are crucial to the emotional connection and development of a long-term relationship with the customer.

7.3.2.1.1 Need analysis and fulfills

Prior researches indicate that in order to ensure external customer's needs and desires are effectively meet and to satisfy them, internal customers' (service employees) needs and desired can not be ignored any way. No organizations can meet the needs of their customers without a good understanding of what the customer needs and expectations are. Moreover, in any customer improvement initiative is to talk to the customers to find out their perception of the services and programs being provided and what their needs and expectations are. The same consequence may be followed in library context that, while users are identified as active users and domain users, the next step is to recognize their needs to trigger the action. Librarians or information managers are responsible for understanding their users' needs and desires, and thereby making effort to satisfy those needs and desires. Librarians, in addition have to keep in mind that users' needs and expectations are a moving target. What a user wants today will be very different from what the user wants a year or five years down the road. As things change, needs and expectations change also. So they are to trick to find out what it is the users' actual needs, and put together plans to meet those needs. Numerous studies (Hung,

2007 and Spreng et al., 2009) have demonstrated that the importance of library service is users-oriented and the needs of meeting their demand and expectations.

Figure 7.5: A Conceptual model of User-focused Library System



7.3.2.2 Service Delivery

The entire service delivery process of academic library requires answering of four questions, for instance: what is to be served? by what means required items to be served? where to be served? who serves? Here, “what” means, information materials or products; “by what means” means the processes or techniques used to delivery of user needs or requirements; “where” means, the internal environment where transaction or interaction happens; and “who” means the interacting people or service employee, who are the only responsible for service delivery. However, the all things with regard to service delivery include products, services, environment, and people. Worthy mentioning that quality is the imperative factor with all attributes, while user satisfaction is the ultimate goal.

7.3.2.2.1 Information products

Products, here means the information materials. The existence of library can not be imagined without information products. Users’ wants and satisfaction is principally centered with information products. Quality of information products is therefore, should be the vital factor for gaining user satisfaction. However, products’ quality refers, for instance: up-to-date-ness, adequacy or sufficiency, informative or resourcefulness of reading materials that may satisfy users’ needs.

7.3.2.2.2 Information services

Information service is playing a mediating role that establishes a link between users and their desired information products. Quality assurance of information service is also a vital factor that affects user satisfaction. Service quality however refers, easy and convenient access to printed and electronic resources, up to date information services that meet distinct nature of users’ information needs, sufficient modern technological tools for effective service delivery, and efficient guidelines of using technological tools, service availability to satisfy user’s diverse needs for information, and so forth.

7.3.2.2.3 Service environment

The “service environment” here means the internal atmosphere where transaction or service delivery occurs. A sound internal environment always impresses both the service employees and users that made their jobs comfortable. The quality assurance regarding

service environment includes space adequacy to conduct study, the appropriate environment for study and learning, suitable furniture, documents are appeared at the right place, convenient library hours, and so forth.

7.3.2.2.4 Information providers

In service industries, customer satisfaction is always influenced by the quality of interactions between customers and the personnel involved in the contact services (Natalisa & Subroto, 2004). As suggested by the wealth of numerous findings Caterina (2005) stated also, positive changes in employee attitudes lead to positive changes in customer satisfaction. The most successful service companies emphasize employee's personal attention as the pre-eminent factor for service delivery (Berry et al., 1990). Given that importance, quality service delivery requires certain capabilities from the service employees that made them presentable and competent enough to face any kind of difficulties occurred while service transaction. However, quality of information providers particularly involves proficiencies, responsibilities and good manners of the employees. All these have a pervasive impact on users' perceptions of overall service quality, and build-up user satisfaction and loyalty.

7.3.2.3 Quality assessment

Libraries never stay the same. They either go forward or backward. As a result, service quality must be regularly monitored to assess whether it is improving or disintegrating. It was stated in perspective of quality assessment as Altman & Hernon (1998) voiced "quality service is a competitive necessity for business and service organizations". They stressed also "assessing service quality is the first step in retaining customers (users) in today's competitive environment". Bawden, Petuchovaite & Vilar (2005) believed that "the evaluation of library services is a topic, and an activity, of importance in all countries with established library services". Without timely feedback of quality, library systems could deteriorate such that recovery or meeting users' satisfaction is difficult, if not impossible. Moreover, a significant aspect of quality assessment was stated by Zeithaml, Parasuraman & Berry (1990) "the key to delivering high quality service is to continually monitor customer perceptions of service quality, identify causes of service quality shortfalls, and take appropriate actions to improve the quality of service"; and by

Hernon & Altman (1996) "Quality is in the eyes of the beholder... If customers say there is quality service, then there is. If they do not, then there is not. It does not matter what an organization believes about its level of service". Corresponding to these assertion quality assessment efforts on the basis of end-users' viewpoint are treated as one of the major concerns and an integral part of the UFLS model. The information or data that holds quality about library resources, services, physical supports and service providers are considered here to the assessment purpose. Data necessitate for exploring user's needs and desires are also considered. The model suggests that service quality assessment activities should be implemented on a regular basis in the form of user's opinion and satisfaction survey on existing service condition of the library. Nevertheless, according to proposed UFLS model quality assessment efforts may be performed on six vital factors, such as: user need recognition factors, product quality factors, service quality factors, provider's quality factors, help desk or customer service factors, and the physical support factors.

7.3.2.3.1 Need recognition of users

This is concerned with identification of users (i.e. active and domain users), recognizing there needs and desires, and assessment of their needs in terms of importance. However, some of the questions to be asked about include:

Who they are? What they do? Why they use library? When they use library? How they use library? How much time they usually spent in the library? What makes them feel good about library service? What they expect from library? What they think library should be? What they think regarding library products, services, internal environment, physical facilities, service employees, should be in terms of quality? Some other questions may be included also:

- a. Are they given priority in needed information selection?
- b. To what extent the existing products or services meet their information needs?
- c. Do they think existing products or services should further improve?
- d. To what extent they are satisfied with existing products and services?
- e. Does the library support them in case of meeting any immediate need?

7.3.2.3.2 Quality of information products

Product refers to reading materials available in the library. Quality of product means, such attributes of the product that satisfy user's diverse needs of interest with the concerned product. Product's quality depends on a number of factors include:

- a. Adequacy or sufficiency of documents
- b. Up-to-date-ness of documents (i.e. latest edition, recently published)
- c. Informative or resourcefulness of documents
- d. Subject coverage as reflected in the titles

Other factors, e.g. authoritative factor i.e. author, publisher; physical condition i.e. printing, binding, size and so forth may be necessary to quality assessment of a product.

7.3.2.3.3 Quality of information services

Information service means the ways by which users can get their required information thus fulfill their diverse needs of interests. This acts as a bridge between users and information materials. Quality assessment for information service may include answering of the following questions:

- a. Easy and convenient access to information
- b. Adequacy of information service to fulfill diverse needs of interest
- c. Up-to-date-ness of information service
- d. Accessibility of e-resources
- e. Sufficient modern technological tools for effective service delivery
- f. Unambiguous and user friendly

7.3.2.3.4 Quality of service providers

A reliable and efficient employee combined with a responsive and well informed client base (according to Antonuk, 2009) is the fundamental element in creating a successful industry (library). Qualities of employees, therefore, have a pervasive impact on user's perceptions of service quality as discussed earlier. A number of factors that may influence provider's quality include employees' proficiencies or expertise, their responsibilities, and good conduct with the users.

1. Proficiency [expertise]

- a. Academic fitness of employees

- b. Professional skills of employees
- c. Ability to guide the users properly
- d. Ability to understand users' problems
- e. Ability to make quick solution

2. Responsibility [awareness]

- a. Sincerity of employees
- b. Willingness to help users
- c. Giving personal attention to users
- d. Quick or timely service delivery
- e. Inform users on the regular progress

3. Manner [behavior]

- a. Courteous, friendliness and affectionate to users
- b. Handling users softly and carefully
- c. Reliable personality

7.3.2.3.5 Quality of customer service

Customer service of library is one of the most important criteria when it comes to user satisfaction. Certain number of factors mentioned below, may be considered to the assessment of quality of customer service in the library.

- a. User's needs and desires are treated fairly and with respect
- b. Users are given first priority
- c. Users can complaint easily
- d. Prompt initiative is taken to problem solution
- e. User's suggestion is cordially received
- f. Coordination among the employees

7.3.2.3.6 Quality of physical supports

Sound internal environment in a library always impresses both the service employees and users that made their jobs comfortable. Quality of physical support that draws user's attention depends on a number of factors, as mentioned below:

- a. Adequate space for study and learning
- b. Appropriateness of study environment

- c. Suitable and attractive furniture
- d. Accurate placement of documents
- e. Appealing and Comfortable atmosphere
- f. Suitable or convenient library hours

7.3.2.4 Library help-desk or customer service

Once user needs and desires are identified and service quality is measured, it is time to create goals to improve existing level of service quality and thus achieving user satisfaction. Employees therefore need to be held accountable for achieving user satisfaction goals, and should have a good understanding of how their service to the users affects the library's overall performance. This requires an accessible service point which will provide on-demand service, information or action to aid the user in carrying out of any service related activities. A good customer service is one of the basic tenets on which libraries operate (Adams, 2009).

Help-desk is an easily reached service point that acts as a customer service frontline and is one of the most important criteria when it comes to user satisfaction. Handling user complaint is a vital component of library help-desk or customer service. Customer service in a user-focused library should attend to get user feedback, and thus receive user complaint that will be processed simultaneously, and then prompt initiative to be taken to solution of the problem. For effective help-desk or customer service requires adoption of some internal strategies, for instance:

- a. User's needs and desires to be treated fairly and with respect;
- b. Everyone should understand that serving users is the first priority;
- c. Every job description should begin with providing excellent service to the users;
- d. Every staff should know how to suggest alternatives when they cannot meet user's needs in time; and
- e. Everyone needs to understand and work towards the same purpose.

7.3.2.4.1 Getting user feedback and complaint

Encouraging user feedback provides an important means of increasing user satisfaction and retention. It is an opportunity to get into the hearts and minds of the user. In all but the worst instances, complaining users are indicating that they want to continue their

relationship with the library, but they are also indicating that all is not well and that they expect the library to make things right. Customer feedback and complaints, discussed in the earlier researches, are key drivers for improving different aspects of business and may help the provider to develop a sustainable company. An effective complaint management process can be an important quality improvement tool. Many studies emphasize that customer feedback and complaints should be welcomed and encouraged by the service provider because they generate valuable information (Reynolds & Harris, 2006; Nyer & Gopinath, 2005; and Tax & Brown, 1998). Hence, customer complaints may be useful in many ways, for instance:

- Providing marketing intelligence data (Harrison-Walker, 2001; Priluck & Lala, 2009);
- Correcting the root cause of the problem and to improve the service or product (McCollough et al., 2000; and Brown et al., 1996);
- Identifying common service problems (Johnston & Mehra, 2002; Tax & Brown, 1998; Harari, 1992; and Richins & Verhage, 1985);
- Learning about organization (Johnston & Mehra, 2002; Hoch & Deighton, 1989; and Tax & Brown, 1998);
- Improving service design and delivery (Marquis & Filiatrault, 2002; East, 2000; and Tax & Brown, 1998);
- Measuring and enhancing the perception of service quality (Marquis & Filiatrault, 2002; Harrison-Walker, 2001; and Edvardsson, 1992);
- Helping strategic planning (Johnston & Mehra, 2002; and Dröge & Halstead, 1991); and
- Obtaining customer feedback that is useful in making improvements to increase customer satisfaction, loyalty, long-term sales and profits (Fornell & Wernefelt, 1987; Kelley et al., 1993; Reichheld, 1993; and Reichheld & Sasser, 1990).

Taking importance of complaint system from prior studies, researcher thinks it essential for library services. Because, it may influences the possibility for library's survival, reduce the effect of negative impression from the users, and helps the service provider to develop a sustainable library systems, he said. However, user feedback and complaint

in context of library service can be received in the form of recommendation register or suggestion box, complaint register or complaint box, direct complain, and so forth.

7.3.2.4.2 Complaint processing

After receiving complaints, customer service personnel should take prompt initiative to be acquainted with those complaints that involves a number of factors, as follows:

- a. The complaint is what about? This requires detection of complaint area/areas;
- b. Nature of complaint, for instance: are the complaints related to library's policies and procedures, employee's interaction, or outcome of service delivery, etc?
- c. Try to find out the reasons of complaint;
- d. Selection of personnel, who can deal with those complaints, and build up a complaint handling team; and
- e. Find out the possible methods of complaint solution. In this perspective libraries need to develop effective strategies to recover from service failures so they can maintain user goodwill. This is vital for the long-term success of the library.

7.3.2.4.3 Problems solution

Solution refers to the elimination of problems for what complaints came to light. Resolving customer problems effectively has a strong impact on customer satisfaction, loyalty, word of mouth communication, and bottom line performance (Zeithaml et al., 2006, p. 214). While alternative methods of complaint solution were discovered at preceding stage, now it is to be decided which one is most feasible, cost effective, and conveniently applied on existing system performance to effective solution of the problem. With this perspective, service benchmarking with similar type of libraries may plays a vital role.

7.3.2.5 System's output and result

The output and result of the model reveals that user satisfaction is tied directly to quality service. If users are pleased or satisfied, they tend to be fixed and loyal. And if they are loyal, they not only use more, but invite and appeal other users toward library. This notion is somewhat or more consistent with a number of earlier researches. For instance:

- Service quality attributes are positively related to customer satisfaction, and customer satisfaction is positively related to customer loyalty in the retail banking settings in Bangladesh (Siddiqi, 2010);
- Examining the interrelationships between service quality, customer satisfaction and customer loyalty in the retail banking sector a number of researchers (Tariq & Moussaoui, 2009; Han et al., 2008; and Ehigie, 2006) discovered that service quality and customer satisfaction are the predictors of customer loyalty;
- Zeithaml et al. (2008) developed a conceptual model that correlates service quality, customer satisfaction and customer loyalty in one frame;
- One key to customer retention is customer satisfaction; a satisfied customer stays loyal longer (Kotler et al., 2006, p. 145);
- Service quality is positively related to loyalty mediated by customer satisfaction (Caruana, 2002);
- Heskett et al. (1997) developed a model known as “Service Profit Chain” which explores that there is direct and strong relationships between profits, growth, customer loyalty, customer satisfaction, the value of goods and services delivered to customers; and employee capability, satisfaction, loyalty, and productivity; and
- Customers will remain loyal to a service organization if the value of what they receive is determined to be relatively greater than that expected from competitors (Zeithaml & Bitner, 1996).

More specifically, in a current study conducted on “antecedents of customer loyalty in academic library setting” by Kiran & Diljit (2011) reveals that service quality and service value have a direct effect on customer satisfaction, which then directly impacts customer loyalty. The overall notion is that, there is a positive relationship between the service quality attributes and customer satisfaction, and customer satisfaction is positively related to customer loyalty. And this provides a theoretical validity of the proposed UFLS model. However system’s output and result includes three factors, i.e. quality service, user satisfaction, and user loyalty.

7.3.2.5.1 Quality service, user satisfaction and loyalty

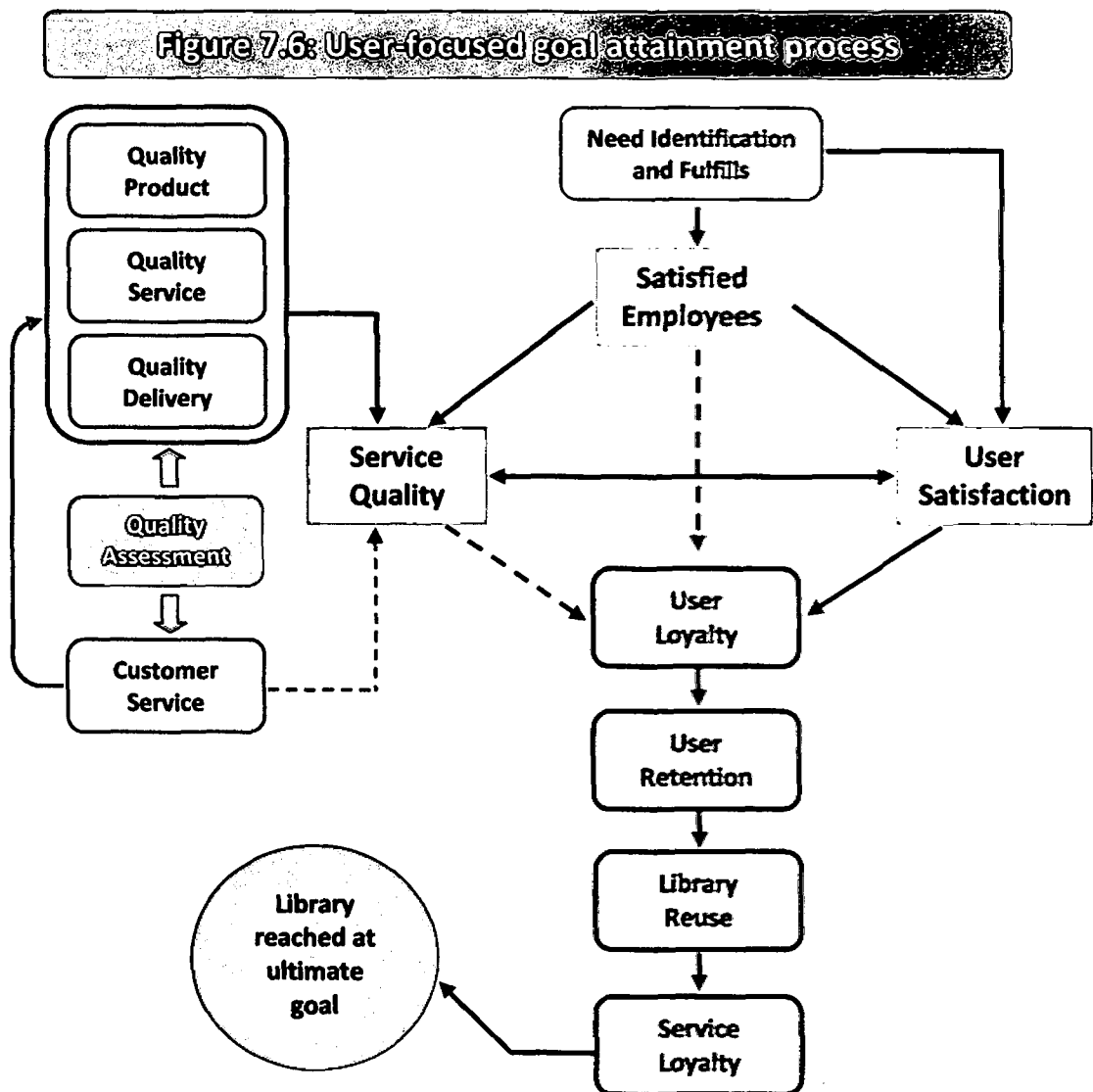
Quality service is the effect of satisfied employees, delivery of quality products and services, service evaluation from user's point of view, and careful handling of user complaint to problem solution. Sound functioning of these four antecedents influence user satisfaction, and the ultimate satisfaction makes users loyal. Worthy mentioning that (Berry et al., 1990) while service organizations aim to gain customers' loyalty, customers on the other hand, seek an organization's service loyalty (i.e. the assurance of a consistent and superior quality of service) as proof of the organization's commitment to offering superior service, for both the present and the long term.

7.4 Management implications

The abstraction of the present model demonstrates, how users are the central theme from all functional perspectives of library services, illustrates how user-focused development process leads to ensure quality service, user satisfaction and loyalty. It does not necessarily imply that the users are always right to fulfill their needs and desires, and to be satisfied. Rather, information provided as to the cause of user's inquiry may vary, that may some when cause dissatisfaction. In such condition users expect a good explanation of what has happened, an apology that the library will make an effort in trying to make them happy again. In short, they expect, the library will take the responsibility of the situation and solve the problem. This indicates the importance of service delivery as the successful indicator of achieving user satisfaction. In the line of functioning and corresponding to Berry et al.'s (1990) assertion "the most successful service companies emphasize employees' personal attention as the pre-eminent factor for service delivery" the present UFLS model includes employee's proficiency, responsibility and manner as pre-dominant factor for quality service delivery. Librarians are therefore advised to employ efficient, responsible and good conductive employees in library's service desk.

It is obvious that library users confronted with wider choice are becoming more and more demanding. The more services that libraries offer under market conditions, the more they come to understand that their mission is to provide continuous satisfaction for their users. They are becoming aware of the fact that their existence depends on the

relationship with their users. In this perspective Heskett et al. (1997) noted that service personnel in an organization are crucial to the emotional connection and development of a long-term relationship with the customer. They added also, in service settings the relationships were self-reinforcing, that is, satisfied customers contributed to employee satisfaction, and vice versa. This was accordingly encouraged by Heskett et al. (1997) in their model “Service profit chain”, which explores that there is a direct and strong relationship between profits, growth, customer satisfaction, and customer loyalty; and employee capability, satisfaction, loyalty, and productivity.



Employee satisfaction is therefore considered here as the most important agent to the successful execution of user-focused library system. Librarians are thereby recommended to give attention to their employees’ needs, satisfy them along with their

requirements, and made them convince toward service delivery. This will lead to achieving service quality, user satisfaction and loyalty, and ultimately make the library to reach its goal. Given that importance the influence of satisfied employees, however, succinctly depicted in Figure 7.6 (p. 205) recognized with “User-focused goal attainment process”. The central focus of the model is satisfied employees that have a direct influence on service quality and user satisfaction. User loyalty is an antecedent that is directly influenced by satisfied users, and also influenced by service quality and satisfied employees. Also noted that loyalty ensures user retention that lead them to further use of library service. It has been claimed that customers are attracted by the promises, but retained through satisfaction (Kotler, 1995). Moreover, while service organizations aim to gain customers’ loyalty, customers on the other hand, seek an organization’s service loyalty as proof of the organization’s commitment to offering superior service, for both the present and the long term (Berry et al., 1990). Coupling with this premise it is evident that when user loyalty achieved, it means library performed its commitment to the users and achieved at the ultimate goal.

7.5 Guidelines for service personnel

Considering the prior discussion, to develop a user-focused library culture, researcher in the long run turned to the role of library human resources. In this notion, he looked at the Grönroos’s (2001) argument that a customer perception of service quality is impacted by customer-oriented behavior of employees. It was also noted that in Jone’s (2004) word, satisfaction is created by an excellent staff, efficient operations, convenience, competitive costs, and excellent image, which often leads to a repeat purchase as with Laroche et al.’s (2004) voices. Hence, to ensure user-centered service delivery as to achieve library’s goal, researcher argument is, there should be some user-oriented ethos that the service personnel have to consider. Researcher as well put forward some basic guidelines for service personnel to think themselves as:

- a. Not who we’re; but we’re for whom?
- b. Not we know everything; rather to ensure effective delivery of our knowledge;
- c. Not we’re; but user will judge service quality;
- d. Not we’re; but user will determine his/her information needs.

Researcher in addition synthesized ten basic recommendations for authorized service personnel to be lessoned for employing user-focused attitude in service delivery. The underlying suggestions include:

- Be accessible and patience with any kind of user's query;
- Service has been taken as the counterpart of job's responsibility;
- Ranks and designations of employees are to be utilized, not to be exercised;
- Self-dignity is to be maintained coupled with courtesy and respect to users;
- Organization's decisions should be given priority over self-interest;
- Having co-operative approach with one another to perform the functional jobs;
- Clash of personality with each other must be clearly and absolutely avoided;
- Users are to be considered as the heart of the library;
- Users are not liable to library; instead library is absolutely liable to users; and
- Avoiding negative attitudes; instead always care with positive attitudes".

Researcher in addition proclaimed, if all the service personnel in the delivery of information can agree to subscribe those underlying principles the information service is well on its way to succeeding in the provision of quality information to its users.

Chapter - 8

Conclusion

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8.1 Review of findings

Delivering consistently good service quality is an essential and difficult challenge for service organizations more particularly in 21st century's academic library market place. Developing an understanding of how users of academic libraries of Bangladesh perceived with their library service performance as a whole, and how their expectations influence on library service quality and satisfaction, to what extent the university libraries of Bangladesh meet their users' needs and expectations, why dissatisfaction may frequently happen, and finally to understand the measure of priority to improve service performance is the limelight of this research.

The initial findings of the study based on users' opinions of desired service expectation by using Kruskal Wallis, Mann Whitney U, and Kendall's W test reveal that user's are intended to proclaim high expectation for services. This is not actually reasonable and can not produce realistic output, researcher believed by taking reference from prior research. He therefore advocates, while measuring service quality, there should be an alternative item-scale that will control this impractical consequence, and to remove the weaknesses of the existing measurement practices. However, with regard to developing a new scale for measuring service quality and satisfaction, researcher proposed an alternative scale namely "real service expectation" derived from the average result of "desired service expectation and minimum service expectation". At the outset of the problem, however, four factors (i.e. caring, competence, resources, and library as a place with 26 service items) were identified as key service dimensions through exploratory factor analysis (EFA) over the mean scores of real service expectation. These dimensions are found significantly correlated with each other, and with overall service quality and satisfaction, the empirical result demonstrates. These empirical grounds emerged a new idea and become known as "LIS SERVQUAL⁺" model, where user's need assessment was calculated as the discrepancy between "perceived service performance and minimum service expectation"; and service expectation assessment was calculated as the difference between "perceived service performance and real service expectation". Service quality was measured by using this new adapted model in this research.

In perspective of testing relationship between service quality and satisfaction, the regression result also explores closer relationship between them and provides a basis to recognize new framework to evaluate service quality and satisfaction at the same platform. In this line of action a new dimension “service quality ranking” was added with the prior model “expectancy disconfirmation theory” with some adjustments. The zone of tolerance (ZOT), calculated as the difference between “desired service expectation and minimum service expectation” was used as a confirmation and disconfirmation standard (rather than “expectation” used in the prior model) in detecting SQ-S ranking process. This new model is named as “disconfirmation of expectation’s theory” in this study. In addition to prior assessment level user’s desired service expectation was used as a supplementary positive disconfirmation.

The descriptive output of the study explores that private university libraries are more capable of meeting their users’ needs at a large scale rather than public university libraries in this country. Users of public university libraries are also found as disappointed at a big scale. To explore the grounds of these consequence two general factors were identified. One is related to user’s own matter and this is “user’s service expectation is too high”. Another is related to library side, i.e. lack of employee’s and management’s response toward users’ needs that is acknowledged as “3-party communication gap” in this research, which includes interactive communication gap, in-house communication gap, and external communication gap.

Moreover to determine improvement priorities, and to establish the best strategy for improving service quality and the level of user satisfaction, a service performance control matrix (SPCM) was developed and applied. However considering the paramount importance of continuous improvement of service quality and user satisfaction through effective management of library service, finally the study proposed an outline of user-focused library system (UFLS) at the last part of the project.

8.2 Theoretical implications

At the outset, literature from the marketing fields was reviewed and integrated to develop insights regarding the key subject matter. Several difficulties regarding prior

methodological aspects were uncovered. In perspective of determining generic instruments for measuring service quality in service sectors SERVQUAL is widely acceptable method, but has been subjected to a number of criticisms by a number of researchers. With regard to SERVQUAL's applicability in academic library settings researcher argued that the five dimensions of Parasuraman et al.'s (1985) original SERVQUAL did not cover the main antecedent of library services, on which service quality and user satisfaction is largely depended. Because without "resources (i.e. information materials)" establishment of library can not be imagined, researcher stated.

Assessment of service quality based on prior methodological approach namely the "difference score" was also treated under operational criticism in this study. More specifically the measure of service superiority (calculated as the difference between perception of service performance and desired service expectation) originated by Parasuraman et al. (1994²) has been triggered as another constraint in this research. Beyond this, researcher claimed, user's desired service expectation was found as unreasonably high that could not produce realistic outcome. Hence, an alternative scale needs to be developed to control over such irrational expectations, he emphasized. Besides, the existing exercise of Parasuraman et al.'s (1994²) SERVQUAL measurement framework is not appropriate for satisfaction measurement aligned with service quality measurement, researcher alleged. Whereas, based on research result it was reported that service quality and satisfaction is closely related to each other, and both are sharing the same antecedents, he reminds.

Accurate measurement of customer satisfaction is also a prerequisite for developing effective management strategies (Yüksel & Yüksel, 2001). The most frequently and dominantly used framework for determining satisfaction is the expectancy disconfirmation model developed by Oliver (1980). But, despite the growing popularity and its dominance, it also received considerable theoretical and operational criticism. In particular, it has been criticized for including expectations and using difference scores in assessing customer satisfaction or dissatisfaction (Yüksel & Yüksel, 2001; Buttle, 1996 and Churchill & Suprenant, 1982). Beyond a number of arguments of this model, particularly with regard to operational efficiency in satisfaction measurement process,

researcher opposed the use of expectation as disconfirmation standard as other researchers (Oliver, 1980 and Patterson, 1993) considered this. He accordingly stated that users could not limit their expectations with a fixed point of score rather within a certain range of scores. Because their expectation for services is changeable in nature depending upon the service situation, researcher said. He, therefore, used “zone of tolerance” as the confirmation and disconfirmation standard in this research as corresponding to Berry & Parasuraman’s (1991) view.

8.3 Professional implications

The results of this study have several implications for information science practitioners, information managers or librarians, and other relevant professionals, and most particularly for service quality assessment practitioners in the way of understanding the real picture of existing service performance from user’s point of view. By conducting this research, it was hoped that the effect of the new adapted models may aid the authority of any academic libraries in the prediction of actual scenario of service performance they provided to users. A contentious issue examined in this study relates to the operationalization of service quality construct advocates that service quality and user satisfaction of academic library perspective is related to four key dimensions, “caring, competence, resources, and library as a place” that was provided with higher validity and reliability, which can be serve as a basis for development of new scales appropriate for specific research needs of any type of library or information organization.

In perspective of service quality assessment in academic library environment, since the focus of the prior studies has been on an assessment of the psychometric and methodological soundness alone of the service quality scales, and that too in the context of the developed world, this study represents a pioneering effort to introduce an alternative scale with sound diagnostic capability in the context of a developing country like Bangladesh. The new adapted scale is named as “real service expectation” resulted from the average score of former desired service expectation and minimum service expectation. Assessment of superior service quality was based on this new scale that is calculated as the difference between user’s perception of service performance and real service expectation (i.e. P-RE) rather than prior assessment method (of

Parasuraman et al., 1994²) discrepancy between perception of service performance and desired service expectation (i.e. P-DE). From a diagnostic perspective, it also turns out to be the most effective measure of service quality and is capable of diagnosing the real picture of existing library services.

In addition to measuring the quality gap between user's expectation and perceived experience, it was also necessary to determine the level of service quality. In this perspective the current research outlined an integrated approach based on the empirical findings that denotes service quality and satisfaction has a closer relationship with each other, and they are sharing the same dimensions for measurement purpose. It turns out to be the most parsimonious measurement yardstick that is capable of diagnosing the real picture of existing library services through indicating the existing level of service quality and user satisfaction, researcher proclaimed. This made a new dimension for service assessment practitioners in their practical field of research. Because by using this approach service quality and user satisfaction can be measured at a time at the same platform that prior research methods could not. Moreover, the results potentially provide helpful insights to librarians responsible for developing user-oriented service systems.

8.4 Limitations and future research directions

This study is an attempt to gain a better understanding of the relationship between service quality and user satisfaction both in theoretical and operational level. Whatever the findings, as it may provide a significant insight for a successful research in the relevant field, but it has been undertaken with the subjective measure completely from the user's point of view that intends satisfaction is always the subject of user well-being. The findings, therefore, do not point in that direction for a long-term basis that signal the need for additional research.

The results of this study are only generalizable to a number of public and private university library settings that were significantly discovered, but no guarantee exists similar results will be found at other university libraries in the country. Therefore, the addition of further research will increase the study's external validity. Besides, the

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findings of the research only reflect the opinions from the users of ten selected public and private university libraries in Bangladesh, rather than on collections and other things that a library possesses. This is the major limitation of this research. To provide a deeper insight in perspective of quality assessment output it requires supplementary research. Moreover, the assessment approach was employed on ten selected universities libraries in Bangladesh that can not be a good representative on behalf of the overall assessment of whole university libraries in this country. Future research will help to provide an overall service scenario if the assessment conducted on a good representative number of academic libraries in the country.

The empirical findings of the research with regard to service quality dimensions for academic library perspective explore that service quality and user satisfaction of university library is related to four key dimensions "caring, competence, resources and library as a place". Even so, these can be adapted or supplemented by deleting or modifying some of the items included with each dimension for specific research needs at the relevant field, and particularly can serve as a basis for development of new scales appropriate for specific research needs of any type of library or information organization. Additional research could also be done with regard to detecting the root causes of high expectation imposed upon the library service performance from respective user groups that was treated as a primary cause of user dissatisfaction in this research, and the way how to control such unreasonable expectation.

Keeping concern the output resulting from the current study, researcher commenced a structured planning based on exploratory investigation and proposed a conceptual model of user-focused library system that would enable the respective authority to build a quality culture that could meet information needs and expectations of their respective users. In this concern, future directions may require further refinement of the survey instrument, replication and determination of how the proposed model "user-focused library system" may be implemented extensively within academic library environment in Bangladesh.

8.5 Concluding remarks

The concept with regard to service quality and satisfaction and their assessment, drawn from the procedure of current research is that "service quality is the degree of relative judgment occurred between users' perceived experience with their anticipations for services, and satisfaction is the result of their psychological concurrence on that judgment; and the assessment of service quality and satisfaction is the degree of confirmation or disconfirmation of their expectations". In line with this notion, the results of the current study may provide a unique insight for librarians and information managers to feel the necessity of the development of user-centered library system. It was believed that a better understanding of the proposed "UFLS" model will help them to think the way to build quality culture within academic library environment, to gain satisfaction of the users and employees, the way to maintain employees' self and corporate accountability in their job, and also to build-up sustainable triangle relationship between users-employees-library authority.

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Appendix – A: [Questionnaire I]

Measuring service quality and satisfaction on user-focused marketing in academic libraries of Bangladesh

Student's use only

[Section-i] General information

- a1. Type of university: [1] Public [2] Private
- a2. Name of the university:
- a3. Faculty: [1] Arts [2] Social Science [3] Commerce / Business [4] Science/Technology
[5] Engineering
- a4. Gender: [1] Male [2] Female
- a5. Status: [1] Graduate (M.A.) [2] Undergraduate (3rd / 4th year only)
- a6. Nature of library visit: [1] Regular [2] Frequent [3] Once in a week [4] Whenever I need
- a7. Purpose of library visit: [1] Individual study [2] Group study [3] Reference work
[4] Internet use and others
- a8. Source of expectation: [1] Word of mouth [2] Past experience [3] Existing condition
[4] Image of institution [5] External communication [6] It's my right;

[Section-II] Measuring service quality and user satisfaction

Direction: Based on your experience as a user of the university library, please think and assess the service quality level in three scales of measurement "[1] My desired service (i.e. your highest expectation of service), [2] My minimum service (i.e. your lowest expectation of service), and [3] My perception (i.e. existing services provided by the library)" using a single score from each scale. (E.g. Please circle or (✓) "7" for highest expectation and perception, "4" for mediocre, and "1" for lowest. Thus use "5 or 6" for highest, and "2 or 3" for lowest expectation and perception of service performance.

When I get access to Library, my expectations and perception are:	My Desired Service							My Minimum Service							My Perception						
	Lowest			Highest				Lowest			Highest				Lowest			Highest			
1. Sufficient number of documents	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. Up-to-date-ness of documents	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. Informative & resourceful documents	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. Easy access to documents	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5. Latest information services & facilities	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6. E-resources availability & accessibility	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7. Sufficient modern technological tools	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8. Sufficient number of staff	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9. Academic fitness of employees	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10. Professional skills of employees	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
11. Ability to guide the users properly	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7

12. Ability to understand users' problems	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
13. Ability to make quick solution	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
14. Sincerity of employees on the job	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
15. Willingness to help users	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
16. Giving personal attention to users	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
17. Giving quick & timely service to users	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
18. Inform users on the regular progress	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
19. Courtesy & friendliness of employees	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
20. Handling users softly and carefully	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
21. Reliable personality	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
22. Loving users by heart	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
23. Appropriate study environment	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
24. Adequate space for study & learning	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
25. Suitable and attractive furniture	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
26. Documents are at the right place	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
27. Users can complaint & suggest easily	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
28. Suitable & convenient library hours	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7

[Section-III] Users' overall observation about service quality and satisfaction

[Please (✓) the appropriate one on the following questions]:

[5] Excellent [4] Very good [3] Fair [2] Poor [1] Very poor

Statements	Lowest	Highest
29. How adequately does the library meet your resource (information) need?	1 2 3 4 5	
30. How effective are the library services and physical facilities?	1 2 3 4 5	
31. How efficient are the library personnel?	1 2 3 4 5	
32. How would you rate the quality of library services as a whole?	1 2 3 4 5	
33. How would you rate your satisfaction with the library services?	1 2 3 4 5	

Appendix – B: [Questionnaire II]

Assessing user-centered approach in Academic libraries of Bangladesh

Teacher's use only

[Section-I] General information

- a1. Type of university: [1] Public [2] Private
- a2. Name of the university:
- a3. Faculty: [1] Arts [2] Social Science [3] Commerce/Business [4] Science/Technology
[5] Engineering
- a4. Your experience at the university: [1] 2-5 years [2] 6-10 years [3] 11-15 years [4] 16- > years

[Section-II] Assessment of user-centered library service

01. Does the university library seek your information need on a regular basis? [1] Yes [2] No
02. Does the library attempt to collect accurate documents to fulfill your need? [1] Yes [2] No

[Please Tick (✓) the appropriate one on the following questions]:

[5] Excellent [4] Very good [3] Fair [2] Poor [1] Very poor

03. What is your assessment on collected documents?

- | | | | | | |
|-------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 3a. adequacy / sufficiency | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 3b. Updated documents | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 3c. Informative / resourceful | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |

04. What is your assessment on existing services in the library?

- | | | | | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 4a. adequacy / sufficiency | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 4b. Modern / Latest | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 4c. Logistic supports | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |

05. What is your assessment on employees' capabilities / proficiencies?

- | | | | | | |
|-------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 5a. Academic fitness | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 5b. Efficiency / skill | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 5c. Responsibilities | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 5d. Behavior / users' communication | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |

06. What is your assessment on management functions?

- | | | | | | |
|----------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 6a. Effort / initiative to drive | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 6b. Co-operation / co-ordination | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 6c. Organize the library | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |

07. What is your assessment on library helpdesk / customer service functions?

- | | | | | | |
|--------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 7a. Attention to users | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 7b. Receiving users' complaint | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |
| 7c. Prompt solution to problem | ☐ 5 | ☐ 4 | ☐ 3 | ☐ 2 | ☐ 1 |

08. Please put your assessment on overall service quality of your university library:

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

09. Please estimates your satisfaction level on existing service quality of your university library:

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

10. Do you feel interest to use your university library?

[1] Yes [2] No [if 'No' pl. use Q-12]

11. How often do you use the library?

[1] Regularly [2] Frequently [3] Whenever I need [4] Rarely

12. Please put the reason why you are not interested to use the library.

[1] I got everything in online other than the library website

[2] Negative impression on existing service scenario of the library

[3] Present collections do not fulfill my information needs

[Section-III] What should be done to develop a user-centered library system?

(Your suggestion please):

Appendix – C : [Questionnaire III]

Determining factors for building User Centered Library System

LIS professional's use only

[Section-A] General information

a1. Name:

Name & Address of institution (Involved in):

a2. Position/designation:

a3. Category: [1] Academician [2] Library professional [3] Researcher [4] Graduate student

a4. On job experience: [1] 5-10 years [2] 11-15 [3] 16-20 [4] 21-25 [5] 26-30 [6] Above 30
[7] Least or No experience

[Section-B] Determining factors for building UFLS

To what extent the following factors are to be considered for building user-centered library system?

(Please put your rate of opinion using (✓): [7] Strongly agree [6] Agree [5] Partially agree
[4] Neutral [3] Partially disagree [2] Disagree [1] Strongly disagree

[B-I] System development factors

01. Regular scanning of user needs and desires;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

02. Regular scanning of employee needs and desires;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

03. Employee satisfaction has greater influence on quality service delivery;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

04. Quality assurance is vital factor (e.g. product's quality, service quality, provider's quality);

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

05. Library helpdesk or customer service is vital factor (e.g. complaint management);

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

06. User participation in service quality assessment on regular basis;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

07. Proper physical facilities (e.g. accommodation, furniture, environment, attractiveness);

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

[B-II] Quality and satisfaction assurance factors

08. Quality of information products (e.g. up-to-date-ness, informative, adequacy);

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

09. Quality of information services (e.g. service delivery tools & techniques, physical facilities);

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

10. Quality of service provider (e.g. academic fitness, experience, responsibilities, behavior);

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

[B-III] System's output factors

11. Quality service is the result of effective and efficient combination of above factors;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

12. Impact of quality service results user satisfaction;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

13. Highly user satisfaction results user loyalty;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

14. The success of academic library largely depends on user loyalty;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

15. Improved service quality & satisfaction largely depends on User focused library system;

☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

[B-IV] If other factors (Pl. specify with the opinion rate using 7 - 1): [Rate of opinion]

16.; []

17.; []

18.; []

19.; []

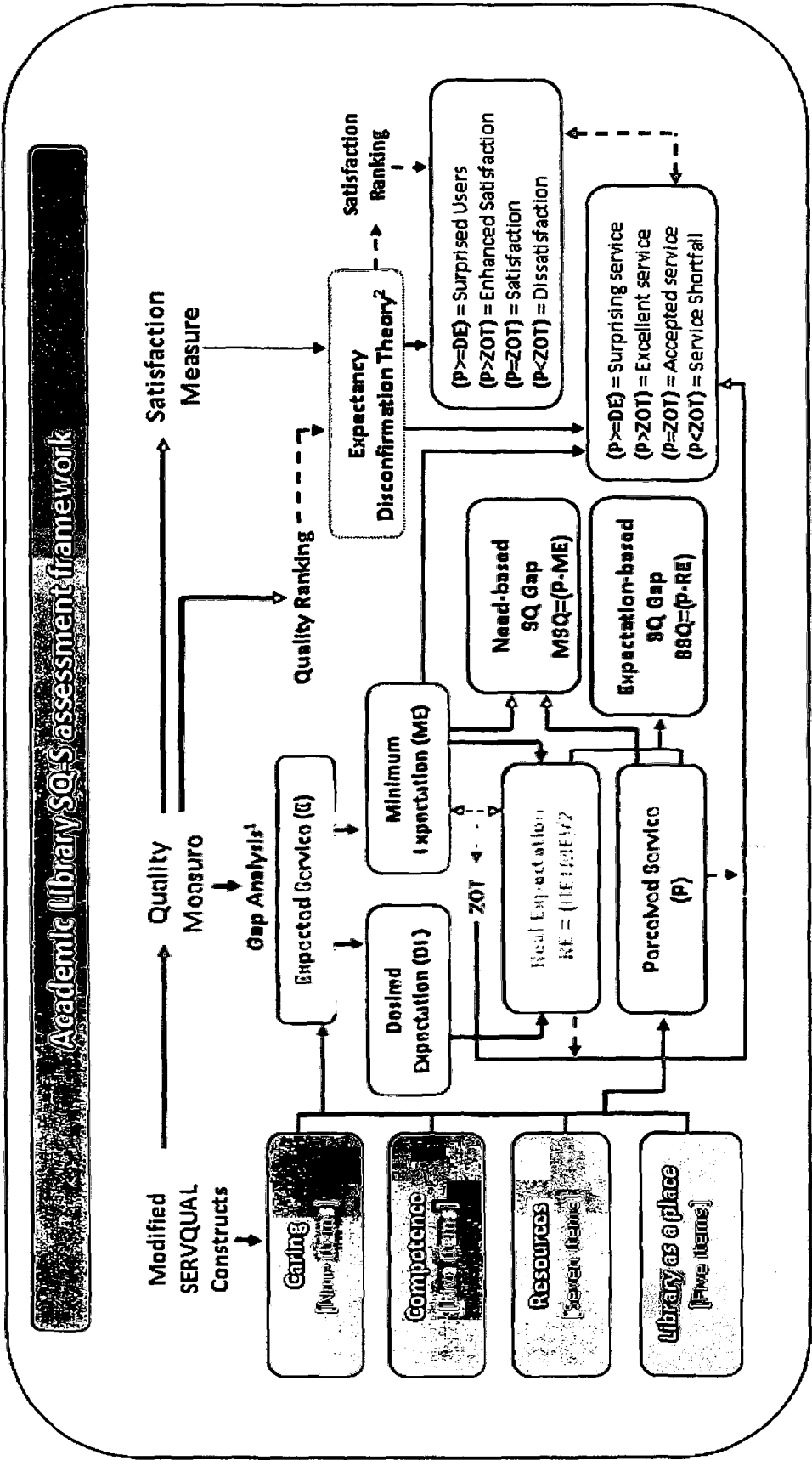
20.; []

Appendix – D : Sample library profiles

Attributes	Profile of Universities										
	DU	IU	IUB	CU	NSU	IUU	WU	BRACU	PU		
Year of establishment	1921	1970	1953	1966	1992	2005	1993	1996	2001		
Number of Faculties*	10	05	09	07	04	04	04	03	02		
Number of Departments*	67	30	47	36	11	28	09	08	07		
Number of staffs in the library	242	54	97	68	22	14	13	18	15		
Total collections*	639133	97360	303243	272810	32921	20727	21338	23705	21726		
E-resource availa bility	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No		
E-resource accessibility	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Bibliographic database software	DULIB	Winsis	No	Lib. Software Management CU	NSU Library Management Software	No	Koha	Koha	Koha, View fine		
Institutional repository	No	No	No	No	No	No	No	Green Stone	D-Space		
Online journal	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No		
Library hours	8 am to 9 pm	8 am to 8 pm	8 am to 8 pm	8 am to 8 pm	8 am to 9:30 pm	8 am to 4 pm	8:30 am to 8:30 pm	8:30 am to 10:30 pm	9 am to 9 pm		

* [Source]: UGC (2010), *Annual Report of University Grant Commission of Bangladesh*, pp. 91-92, 95-96, 113, 145, 147, 154, 159, 166.

Appendix – E : (Fig.1) Academic library SQ-S assessment framework



Appendix – F: Descriptive statistics

Table-1: Descriptive statistics: Dosrod service expectation

Itemcode	OCT		JUL		AUG		SEP		OCT		NOV		DEC		TOTAL		AVG	
	Σ	Q	Σ	Q	Σ	Q	Σ	Q	Σ	Q	Σ	Q	Σ	Q	Σ	Q	Σ	Q
Car - 01	5.89	1.18	6.19	0.83	6.17	0.89	6.16	0.80	6.47	0.90	5.91	0.49	5.90	0.90	5.01	1.20	5.72	0.50
Car - 02	6.09	1.10	6.17	0.80	6.22	0.90	6.09	0.75	6.49	0.91	5.87	0.54	6.05	0.80	5.09	1.07	5.81	0.45
Car - 03	5.72	1.16	6.08	0.95	6.08	1.05	6.18	0.71	6.49	0.91	5.89	0.64	5.74	1.16	6.03	1.21	5.72	0.45
Car - 04	6.03	1.10	6.24	0.77	6.37	0.87	6.13	0.95	6.39	0.90	5.90	0.99	6.00	0.91	6.17	1.10	5.72	0.50
Car - 05	5.75	1.20	6.12	0.82	6.19	0.86	6.16	0.80	6.62	0.49	5.85	0.10	5.90	0.93	6.11	0.96	5.74	0.49
Car - 06	6.04	1.07	6.21	0.85	6.22	0.95	6.15	0.92	6.49	0.72	5.93	0.33	5.95	0.94	6.14	0.99	5.77	0.40
Car - 07	5.92	1.08	6.24	0.69	6.25	0.88	6.24	0.85	6.32	0.76	5.89	0.32	7.55	1.06	6.07	1.25	5.77	0.45
Car - 08	5.91	1.12	5.99	0.84	6.18	0.96	6.16	0.84	6.62	0.49	5.89	0.30	5.81	0.92	5.93	1.40	5.77	0.40
Car - 09	5.70	1.21	6.05	0.98	6.24	0.94	6.16	0.78	6.57	0.50	5.89	0.43	5.71	0.97	6.00	1.20	5.74	0.44
Com - 10	5.99	1.04	6.17	0.69	6.23	0.84	6.13	0.86	6.60	0.50	5.91	0.29	5.98	1.00	5.96	1.20	5.79	0.46
Com - 11	6.11	0.97	6.18	0.79	6.22	0.89	6.30	0.79	6.36	0.49	5.80	0.40	5.89	1.12	6.04	1.25	5.89	0.56
Com - 12	5.99	1.05	6.11	0.86	6.25	0.90	6.07	0.91	6.49	0.51	5.91	0.29	5.86	1.10	6.21	1.09	5.77	0.40
Com - 13	5.95	1.06	6.18	0.75	6.32	0.80	6.13	0.78	6.51	0.55	5.89	0.32	5.88	1.17	6.14	0.99	5.70	0.55
Com - 14	6.11	1.13	6.27	0.75	6.28	0.84	6.14	0.81	6.66	0.52	5.83	0.38	6.12	0.07	6.04	1.26	5.74	0.53
Res - 15	5.95	1.14	5.78	0.88	6.32	0.86	5.97	0.73	6.47	0.50	5.93	0.39	5.86	1.12	6.03	1.21	5.74	0.44
Res - 16	5.89	1.31	5.93	0.94	6.33	0.85	6.18	0.75	6.55	0.50	5.91	0.35	5.71	1.27	5.93	1.22	5.72	0.45
Res - 17	5.90	1.19	6.04	0.74	6.30	0.78	6.37	0.73	6.55	0.50	5.91	0.29	5.86	1.12	5.93	1.23	5.66	0.48
Res - 18	6.05	1.17	6.27	0.76	6.49	0.69	6.34	0.64	6.47	0.50	5.78	0.42	6.07	1.89	6.42	1.03	5.77	0.43
Res - 19	6.07	1.24	6.16	0.95	6.23	0.89	6.18	0.81	6.43	0.54	5.85	0.36	5.93	1.10	6.00	1.22	5.68	0.47
Res - 20	5.83	1.22	6.25	0.88	6.21	0.96	6.28	0.89	6.45	0.58	5.85	0.42	5.80	1.10	6.07	1.22	5.77	0.43
Res - 21	5.99	1.24	6.14	0.87	6.37	0.83	5.99	0.76	6.51	0.55	5.85	0.36	5.71	1.02	6.18	1.25	5.68	0.47
Lib - 22	6.30	1.03	6.33	0.79	6.37	0.76	6.20	0.72	6.45	0.54	5.89	0.43	6.21	0.95	6.07	1.51	5.81	0.54
Lib - 23	6.28	0.91	6.44	0.70	6.42	0.82	6.38	0.71	6.55	0.58	5.96	0.36	5.93	1.02	5.86	1.55	5.89	0.56
Lib - 24	6.16	1.02	6.23	0.74	6.47	0.78	6.10	0.99	6.55	0.50	5.98	0.39	6.02	1.05	6.80	1.51	5.87	0.49
Lib - 25	5.92	1.10	6.08	0.92	6.36	0.77	6.13	0.86	6.60	0.50	5.89	0.32	5.83	1.25	6.03	1.45	5.68	0.47
Lib - 26	6.29	0.90	6.34	0.82	6.44	0.91	6.38	0.73	6.64	0.53	5.91	0.29	5.90	1.10	6.28	1.16	5.77	0.48

Note]: $\bar{X}$ = Mean; σ = Standard deviation;

Table-2: Descriptive statistics: Minimum service expectation

Itemcode	DUL		JUL		RUL		OUL		JNUL		NSUL		TUB		BWDI		BRAC	
	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ
Car - 01	3.63	1.32	3.91	0.99	4.29	0.85	4.00	1.26	3.47	0.69	3.98	0.33	3.71	1.27	4.12	1.42	3.96	0.51
Car - 02	3.82	1.31	4.03	1.07	4.47	0.83	3.93	1.20	3.55	0.69	3.98	0.33	3.88	1.25	4.15	1.41	3.94	0.44
Car - 03	3.62	1.33	3.97	1.00	4.38	0.91	4.14	1.20	3.55	0.75	4.02	0.26	3.83	1.22	4.31	1.34	3.89	0.43
Car - 04	3.94	1.27	3.99	1.03	4.57	0.87	3.97	1.33	3.63	0.71	4.02	0.26	4.02	1.18	4.48	1.66	3.89	0.38
Car - 05	3.67	1.35	3.79	1.01	4.44	0.85	3.94	1.09	3.51	0.75	4.00	0.30	3.86	1.14	4.15	1.43	3.89	0.43
Car - 06	3.90	1.37	4.00	0.97	4.40	0.85	4.01	1.22	3.32	0.73	4.02	0.33	3.90	1.36	4.52	1.50	3.89	0.43
Car - 07	3.78	1.37	4.04	1.11	4.43	0.80	4.03	1.23	3.49	0.72	3.98	0.33	3.86	1.22	4.52	1.64	3.89	0.43
Car - 08	3.84	1.31	3.92	0.10	4.40	0.83	4.07	1.30	3.34	0.67	4.00	0.42	3.74	1.06	4.21	1.42	3.89	0.43
Car - 09	3.70	1.41	3.85	1.02	4.42	0.93	4.01	1.13	3.53	0.65	4.00	0.42	3.90	1.09	4.31	1.71	3.87	0.40
Com - 10	3.86	1.32	3.93	0.95	4.45	0.75	4.07	1.26	3.52	0.69	4.02	0.33	3.76	1.41	4.46	1.53	3.96	0.42
Com - 11	3.94	1.30	3.92	1.03	4.49	0.77	4.00	1.37	3.49	0.65	3.89	0.43	3.62	1.43	4.29	1.46	4.04	0.51
Com - 12	3.85	1.18	3.77	0.93	4.42	0.85	4.04	1.27	3.43	0.62	3.98	0.33	3.56	1.40	4.66	1.47	3.94	0.49
Com - 13	3.75	1.29	3.83	0.95	4.41	0.93	4.01	1.21	3.55	0.73	4.04	0.36	3.78	1.26	4.43	1.37	3.94	0.53
Com - 14	3.92	1.43	4.02	0.90	4.54	0.93	4.12	1.37	3.63	0.63	4.04	0.30	4.10	1.38	4.25	1.60	3.96	0.51
Res - 15	3.60	1.17	3.63	0.91	4.17	0.73	4.07	1.11	3.76	0.43	3.98	0.26	3.79	1.30	4.07	1.60	3.89	0.38
Res - 16	3.71	1.35	3.69	0.91	4.30	0.71	4.21	1.23	3.34	0.43	4.04	0.36	3.69	1.24	4.00	1.56	3.89	0.38
Res - 17	3.93	1.25	3.75	1.05	4.28	0.83	4.12	1.40	3.40	0.50	4.02	0.35	3.79	1.26	4.24	1.41	3.94	0.39
Res - 18	3.88	1.27	3.80	1.01	4.47	0.76	4.03	1.41	3.49	0.62	3.96	0.42	3.69	1.14	4.76	1.54	3.94	0.44
Res - 19	3.94	1.32	3.85	1.11	4.25	0.86	3.97	1.31	3.54	0.61	4.00	0.37	3.80	1.29	4.25	1.43	3.94	0.49
Res - 20	3.74	1.30	3.90	1.13	4.24	0.85	4.13	1.33	3.57	0.71	3.93	0.33	3.59	1.34	4.52	1.57	3.91	0.35
Res - 21	3.77	1.44	3.78	1.09	4.15	0.94	3.88	1.29	3.60	0.61	3.93	0.39	3.76	1.27	4.30	1.59	3.96	0.46
Lib - 22	4.15	1.50	4.04	1.15	4.74	0.87	4.18	1.28	3.64	0.64	4.07	0.31	3.71	1.31	4.57	1.87	4.00	0.42
Lib - 23	4.29	1.34	4.21	1.09	4.74	0.91	4.01	1.30	3.51	0.73	4.11	0.31	4.07	1.14	4.32	1.61	3.98	0.53
Lib - 24	4.05	1.41	4.04	1.05	4.62	0.91	4.07	1.31	3.55	0.61	4.13	0.40	3.90	1.12	4.31	1.69	4.09	0.41
Lib - 25	3.82	1.40	3.99	0.99	4.56	0.85	3.94	1.17	3.62	0.71	4.00	0.30	3.76	1.32	4.52	1.43	4.06	0.44
Lib - 26	4.27	1.37	4.15	1.01	4.77	1.05	4.13	1.21	3.60	0.65	4.00	0.30	4.02	1.16	4.50	1.43	4.02	0.39

[Note]: X = Mean; σ = Standard deviation;

Table-3: Descriptive statistics: Perception of service performance

Itemcode	DUL		JUL		RUL		EUL		JNUL		NSUL		JUBL		EVL		JUBL		EVL	
	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ	X	σ
Car - 01	3.10	1.32	4.16	1.05	3.71	1.21	2.67	0.90	3.15	0.75	4.65	0.46	5.10	1.30	4.54	1.27	4.53	0.62	3.14	1.17
Car - 02	3.02	1.45	4.25	1.04	3.84	1.25	2.76	0.94	3.17	0.67	4.74	0.44	5.28	1.49	4.25	1.46	4.64	0.53	3.07	1.14
Car - 03	2.87	1.39	4.16	0.96	3.92	1.06	3.03	0.99	3.17	0.73	4.54	0.55	5.13	1.46	4.59	1.40	4.38	0.57	3.50	1.29
Car - 04	3.20	1.51	4.24	0.84	3.89	1.06	2.58	0.86	3.17	0.79	4.76	0.43	5.21	1.52	4.28	1.39	4.23	0.70	3.54	0.88
Car - 05	2.95	1.52	3.91	0.99	3.88	1.11	2.72	0.95	3.04	0.69	4.52	0.59	5.33	1.07	4.36	1.13	4.23	0.60	3.69	1.18
Car - 06	3.38	1.47	4.28	1.01	4.18	1.10	2.71	0.92	3.21	0.72	4.70	0.47	5.32	1.40	4.68	1.39	4.30	0.71	3.00	1.18
Car - 07	3.17	1.30	4.32	0.94	3.86	0.96	2.70	0.97	3.38	0.71	4.63	0.49	5.50	1.13	4.69	1.49	4.21	0.66	3.14	1.10
Car - 08	3.47	1.34	4.12	0.95	3.77	1.07	2.75	1.03	3.17	0.56	4.78	0.51	4.95	1.45	4.86	1.61	4.43	0.62	3.07	0.92
Car - 09	3.27	1.42	4.32	1.06	3.78	1.10	2.75	0.91	3.34	0.56	4.50	0.55	5.02	1.42	4.52	1.53	4.49	0.62	3.15	1.21
Com - 10	3.40	1.43	4.47	0.61	3.92	1.12	2.64	1.06	3.11	0.63	4.89	0.36	5.17	1.40	4.63	1.67	4.74	0.44	3.07	1.27
Com - 11	3.49	1.36	4.23	0.82	3.82	1.19	2.83	0.99	3.21	0.62	4.83	0.38	5.05	1.36	4.75	1.69	4.72	0.50	3.21	0.89
Com - 12	3.29	1.33	4.26	0.91	4.06	1.14	2.76	1.08	3.15	0.66	4.72	0.50	5.00	1.34	3.14	1.30	4.53	0.58	3.57	0.76
Com - 13	3.18	1.39	4.15	1.00	3.96	1.14	2.78	0.89	3.13	0.71	4.76	0.42	5.08	1.49	4.76	1.33	4.49	0.66	3.50	0.94
Com - 14	3.16	1.47	4.28	0.87	3.94	1.10	2.86	1.06	3.04	0.72	4.78	0.47	5.24	1.34	4.50	1.71	4.62	0.64	3.43	1.28
Res - 15	3.83	1.39	3.98	0.84	4.11	1.10	2.91	0.89	2.86	0.36	4.93	0.25	5.07	1.31	4.83	1.37	4.88	0.52	3.29	0.99
Res - 16	3.32	1.40	3.86	0.90	3.79	1.24	2.68	0.87	2.79	0.66	4.78	0.42	4.98	1.16	4.61	1.34	4.48	0.59	3.36	1.01
Res - 17	3.68	1.21	4.00	0.90	3.92	1.03	2.72	0.79	2.89	0.60	4.70	0.47	4.98	1.41	4.76	1.12	4.51	0.55	3.23	1.17
Res - 18	3.63	1.31	4.08	0.55	4.54	1.18	2.70	0.97	2.96	0.78	4.80	0.31	5.05	1.24	4.88	1.63	4.49	0.66	3.36	1.22
Res - 19	3.22	1.35	3.94	1.12	3.88	0.97	2.57	0.76	3.00	0.78	4.43	0.34	4.98	1.46	4.43	1.33	4.02	0.53	3.48	1.20
Res - 20	3.03	1.46	3.86	1.06	3.81	1.40	2.14	1.19	3.06	0.84	4.63	0.48	4.98	1.46	4.86	1.62	4.40	0.61	3.71	1.54
Res - 21	3.11	1.43	3.98	1.07	3.76	1.22	2.22	0.87	3.11	0.56	4.50	0.31	4.80	1.39	4.36	1.45	4.11	0.60	3.43	1.22
Lib - 22	3.78	1.51	4.88	1.23	4.39	1.15	2.81	0.98	3.09	0.73	4.91	0.29	5.35	1.37	4.57	1.64	4.64	0.67	3.14	1.29
Lib - 23	3.60	1.62	4.53	1.16	4.55	1.20	2.65	1.04	3.17	0.79	4.96	0.47	5.30	1.15	4.41	1.30	4.64	0.57	3.23	1.09
Lib - 24	3.55	1.47	4.28	1.02	4.21	0.86	2.53	0.94	3.19	0.65	4.80	0.45	5.29	1.54	5.03	1.66	4.79	0.51	3.36	1.01
Lib - 25	2.99	1.52	4.22	0.96	3.82	1.14	2.49	0.69	3.21	0.69	4.37	0.37	5.21	1.41	4.89	1.47	4.40	0.56	3.00	1.52
Lib - 26	4.32	1.61	4.53	1.02	4.60	1.10	2.96	0.99	3.36	0.64	4.72	0.50	5.48	1.44	5.38	1.37	4.43	0.54	3.00	1.11

[Note]: X = Mean; σ = Standard deviation;