

Student Perceptions and Expectations of Library Services Quality and User Satisfaction
at Walters State Community College

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ABSTRACT

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The purpose of this study was to explore students' perceptions of library services offered at Walters State Community College. This research involved LibQUAL+™, a nationally known academic library assessment instrument that measures three dimensions on a scale of approximately 22 aspects of service, divided into 6 groups (Heath, Kyrillidou, & Askew, 2004, p.264). These 3 dimensions are the following: Affect of Service (AS), Information Control (IC), and Library as a Place (LP). Responses of 666 students at Walters State Community College, Morristown, Tennessee, indicated the students' perceptions of acceptable minimum level of service, perceived levels of service, and desired levels of service. Each dimension was assessed by mean scores and p values to determine students' level of satisfaction with the library.

Independent samples t tests were conducted to analyze the association between perceived means of the 3 service quality dimensions for the following: (1) Walters State Community College compared to 4 other community colleges, (2) male and female students at Walters State Community College, (3) traditional students 22 years old and younger and nontraditional students over age 22 at Walters State Community College. Pearson's correlation was conducted to analyze the relationship between library budgets and library services.

Based on the findings of this study, Walters State Community College Library's mean scores were higher than the other 4 community college's in the 3 service quality dimensions. However, Walters State Community College's results indicated substantial room for improvement in the Affect of Service dimension. The mean scores between male and female students at Walters State College showed no differences among the 3 service quality dimensions. The findings also indicated that nontraditional students over age 22 rated Affect of Service and Information Control higher than did traditional students age 22 and younger. In addition, findings indicated a fairly strong relationship between library budget and the Information Control dimension for the 5 community colleges studied.

The data offered in this study provided useful information for library self-study and ideas for improving the college's library services.

DEDICATION

This study is dedicated to the people who mean the most to me – my children. They are the essence of who I am and the drive behind all that I want to become. Each of them shares in the joy of completing this task, and each is a part of this accomplishment.

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CHAPTER 1

INTRODUCTION AND GENERAL INFORMATION

For more than a decade, academic library leaders have increasingly recognized the significance of assessing their library services. Nitecki (1996) noted, “A measure of library quality based solely on collections has become obsolete” (p. 181). As a result, the traditional measure of library quality has shifted from collection size to “availability and accessibility of adequate learning resources, such as library and information technology support services” (“Characteristics of Excellence,” 2006, p. 43). This shift in assessment has transformed academic libraries from a library-centric view that focuses on processes, functions, and services to a customer-centric view. In fact, according to Zeithaml, Parasuraman, and Berry (1990), “The only criteria that count in evaluating service quality are defined by customers. Only customers judge quality; all other judgments are essentially irrelevant” (p. 16). Emphasis on this type of assessment has “libraries turning to customer surveys to determine the extent to which the library is or is not meeting the customer’s expectations” (Matthews, 2007, p. 6). One such survey is the LibQUAL+™, which differentiates between customers’ perceptions of what services should be delivered and how well those services have met idealized expectations (Hernon & Nitecki, 2001).

Assessment is essential as academic libraries face many challenges: rapid changes in technology, escalating costs of printed materials, distance education, reduced funding, and the emergence of the Internet. These challenges have led academic library leaders to analyze the role of the academic library and to demonstrate impact. Cullen (2001) stated,

Focusing more energy on meeting ... customers' expectations is critical in the contemporary environment, in part because the emergence of the virtual university, supported by the virtual library, calls into question many of our basic assumptions about the role of the academic library, and the security of its future" (as cited in Cook, Health, & Thompson, 2003b, p. 113).

Furthermore, to survive the serious threat of the Internet, academic libraries have undergone a paradigmatic shift, improving the quality of services they offer in an attempt to compete with such Internet web tools as Google Scholar. In 1996, reference transactions peaked and since then have declined as Internet information gateways have become increasingly popular (Thompson, Kyriallidou, & Cook, 2007, p. 456). These for-profit companies are trying to replace libraries as the primary means of academic research. Often students are selecting the Internet's convenience over the quality of information that academic libraries offer (Massey-Burzio, 2002, p. 774). The Internet era has changed students' expectations concerning academic libraries in several ways. For example, according to the University of California Libraries, "Students expect simplicity and immediate reward and Amazon, Google, and iTunes are the standards against which libraries are being judged" ("Characteristics of Excellence," 2006, p. 7). Academic libraries, however, have ignored the Internet's convenience and instead emphasized providing high-quality information and instructing students on how to use the library.

Students' increased use of electronic resources, however, has resulted in academic librarians' concern that students will no longer visit libraries. Jones (2002) noted that "...[N]early three-quarters (73%) of college students said they use the Internet more than the library, while only 9% said they use the library more than the Internet for information searching" (p. 3). Library users' information-seeking behaviors—based on "convenience over quality"—are

alarming librarians. For example, at the University of Idaho at Moscow, “door counts and book circulation have decreased by more than 20% since 1997, and reserve loans have plummeted by more than 60%, but since 1999, the number of electronic articles that Idaho students retrieved increased by about 350%” (Frade & Washburn, 2006, p. 328). This trend has increased with more and more academic libraries adopting the internet-centered model for delivering information to users. With the change to providing Internet access as a library’s core function, academic libraries struggle in justifying the library as a building. To attract students to the deserted library facilities, some academic libraries are emulating the Barnes & Noble approach, selling Starbucks lattes and Krispy Kreme doughnuts to students in study areas. In addition, reading rooms with background music have been furnished with couches and plush chairs. This approach is becoming increasingly popular among college students (Marchionini & Pomerantz, 2007, p. 505).

As Brunsdale (2000, p. 331) noted, for academic libraries to succeed in the information age, which emphasizes consumer convenience and competition, academic libraries must develop successful marketing plans to reach customers. These libraries must implement a private-sector approach, intending to get customers to buy a firm’s products (Dilevko & Gottlieb, 2002, p. 381). Libraries, like businesses, offer customers products such as books, electronic sources, a place to study, and a staff to assist. While librarians have argued that the library has never been just a place to store books but a place to provide access to information, the role of the librarian has changed from information specialist to customer-service provider. In an electronic age, information seekers are accustomed to instant access, increasing the need for quality library service. Quality service is defined as delivering service in a timely manner;

excellent service means delivering more than what the user requests (Nitecki, 1996, p. 181). In other words, service must provide the expected product at the expected time (Pritchard, 2001, p. 87). Thus, to be successful in the information age, the academic library must focus on quality customer service.

Background of the Problem

In a rapidly changing technological environment, the traditional roles of academic libraries have been called into question at many community colleges and universities. As a result, it has become increasingly important for academic libraries and their staff to demonstrate that they are not only essential but also effective. In turn, library-service quality has emerged in need of investigation in higher education. As Cullen (2001) observed,

Academic libraries are currently facing their greatest challenge since the explosion in tertiary and academic publishing which began after World War II ... [T]he emergence of the virtual university, supported by the virtual library, calls into question many of our basic assumptions about the role of the academic library, and the security of its future. Retaining and growing their customer base, and focusing more energy on meeting their customers' expectations is the only way for academic libraries to survive in this volatile environment. (pp. 662-663)

Tennant (2006) stated, "Libraries are also no longer the sole gateway to information and knowledge they once were. As more information becomes freely available on the Internet, a librarian's gate keeping role is lessened for a significant portion of our users" (p. 34). To meet these challenges, library leaders must evaluate services offered to more efficiently allocate resources.

Research Problem

The purpose of this study was to examine perceived effectiveness of the Walters State Community College library in meeting the expectations of students. Results of the LibQUAL+™, a nationally known academic library assessment instrument, provided data based on library users' responses to determine satisfaction with current library services

Research Questions

The following research questions were addressed in the study:

1. Are there differences in the mean scores of the three dimensions (Affect Service, Library as Place, and Information Control) of the LibQUAL+™ survey between Walters State Community College and the other four community colleges' mean scores?

2. Are there differences in the mean scores of the three dimensions (Affect Service, Library as Place, and Information Control) between male and female students at Walters State Community College?

3. Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between traditional students aged 22 years old and younger and nontraditional students over age 22 at Walters State Community College?

4. Is there a relationship between community colleges' survey instrument dimensions (Affect of Service, Library as Place, and Information Control) and total library budgets? For this analysis, the unit of analysis was the community college ($N = 5$).

Significance of the Study

The study provided the Walters State Community College library with an analysis of expected library services and defined the strengths and weaknesses that positively or negatively impact quality library services. The study also identified library-use patterns, on-premise and off-premise, and then compared Walters State Community College's results with peer institutions'.

Limitations and Delimitations of the Study

The following limitations and delimitations existed for this study:

1. Participants were at various levels of computer literacy.
2. Participants were at various levels of library-service literacy.
3. Some participants were given the survey after a library orientation.
4. The survey instrument consisted of 39 questions, which a student had to answer completely before the survey responses were accepted.
5. Because the survey was administrated as a Web-base instrument, students not willing to answer questions by way of the Internet were excluded.
6. Because of prize incentives, students may randomly answer the survey questions.

Assumptions

The following assumptions were made about this study:

1. Participants were knowledgeable about library services.
2. Participants were knowledgeable about electronic resources.
3. Participants were knowledgeable about off-campus access to the library.

4. Participants had used library services while enrolled as students at Walters State Community College.
5. All participants were Walters State Community College students.

Definitions of Terms

The following terms are defined for the purpose of this study:

1. *Academic Library*: a library in an academic setting that offers scholarly books, journals, and electronic resources for user learning
2. *Affect of Service (AS)*: the attention library employees provide the user, as well as their attitude, willingness to help, and ability to provide service (Heinrichs, Sharkey, & Lim, 2006, p. 184)
3. *Customer Service*: the service that an organization offers its customers
4. *Desire2Learn (D2L)*: a web-based suite of easy-to-use teaching and learning tools for course development, delivery, and management (Desire2Learn, 2008)
5. *Desired Service Level*: the number representing the level of service the user would personally want (Xi & Levy, 2005, p. 6)
6. *Distance Education*: all arrangements for providing instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of the instructor or instructors (Ruess & West, 1995, p. 57)
7. *Electronic Resources*: resources delivered electronically over the Internet
8. *Information Control*: the user's ability to obtain information independently with conveniently accessible tools (Heinrichs et al., 2006, p. 184)
9. *Internet*: a computer network providing electronic information and communication to be transferred among users (Malhan & Rao, 2006, p. 75)
10. *Library*: a building or room containing a collection of books, journals and computers for access to electronic information

11. *Library as Place*: the reflective nature of the physical library facilities as they fill the requirements for studying, for meeting, and for contemplative research work (Heinrichs et al., 2006, p. 184)
12. *Library Services*: services that are offered to users through the library
13. *Library Users*: individuals who come to the library to access information
14. *LibQUAL+TM*: a service that libraries use to solicit, track, understand, and act upon users' opinions of service quality (Association of Research Libraries, 2005)
15. *Minimum Service Level*: the number that represents the minimum level of service one would find acceptable (Xi & Levy, p. 6)
16. *Nontraditional student*: older than 23, does not live in a campus residence, or is a part-time student, or some combination of these three factors (Metzner & Bean, 1987, p. 18)
17. *Perceived Service Level*: the number that represents the minimum level of service the user believes Walters State Community College library currently provides (Xi & Levy, p. 6)
18. *Service Quality*: defined in terms of reducing the gap between customer expectations and the actual service provided (Calvert & Herson, 1997, p. 408)
19. *Traditional student*: 22 years old or younger, may live in a campus residence, or is a full-time student, or some combination of these three factors (Metzner & Bean, p. 18)
20. *Virtual Library*: a web-based library of electronic resources that users can access remotely from the Internet
21. *Web-based Survey*: a survey conducted through the Internet
22. *WSCC*: Walters State Community College

Organization of the Study

The study is organized in the following manner:

Chapter 1 includes the introduction, statement of the problem, research questions, significance of the study, limitations and delimitations of the study, assumptions, definitions of terms, and organization of the study.

Chapter 2 reviews related literature and research.

Chapter 3 describes the methodology and procedures used to gather data for the study.

Chapter 4 presents the data, results, and findings.

Chapter 5 includes summary, conclusions, implications for practice, and recommendations for future practice and recommendations for practice.

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

With librarians answering questions and assisting library users in the research process, reference service has been a key asset of academic libraries for over 100 years. In an academic library, reference service can occur in person, by telephone, by e-mail, through instant messages, or through an “ask-a-librarian” link. Whitlatch (1990) stated, “Librarian courtesy, interest, and helpfulness are crucial in providing successful reference service. Libraries must select and retain staff who have these service orientations towards users” (p. 205). Simmonds and Andaleen (1998) identified several factors that influenced user satisfaction, including responsiveness, competence and assurance, tangibles, and resources (p. 629). Heron and McClure (2001) used the “unobtrusive methods” in testing the librarians’ accuracy to answer factual questions with predetermined answers. The findings revealed that librarians generally answered 50% to 60% of the questions correctly. In 2002, Richardson challenged Heron and McClure’s research and conducted a study using a representative field sample to raise the accuracy level to 90% by including the correct resource or strategy in getting the correct answer. According to Gremmels and Lehmann (2007), “Reference assistance is not just correct answers or effective communication but is a teaching and learning activity” (p. 489). With the emergence of electronic resources, many students need more consultation on what sources to use and how to start, rather than on just finding the right answer. Durrance stressed that a “...good measure for customer satisfaction is not only if the person receives the right answer, but also the willingness of the inquirer to return to the staff member at a later time” (as cited in Norlin, 2000, p. 547). Library users often judge their experiences not only on whether they received what they were

seeking, but also on the staff's attitude, interest, and enthusiasm. In fact, Jacoby and O'Brien (2005) found that "...[F]riendliness of the reference staff was one of the best predictors of students' confidence in their ability to find information on their own" (as cited in Gremmels & Lehmann, p. 490).

Background of Library Assessment

Heath, Kyrillidou, and Askew (2004) noted the increasing importance of making the case for library funding by demonstrating that librarians were not only essential but also effective. With very tight and diminishing higher-education budgets, even essential services were not immune from the budget ax (p. 14). The same is true today. Historically, academic libraries have used various measures attempting to determine effectiveness and quality of services: "The beginning of library service assessment can be traced to irregular collections of statistics, such as daily circulation counts, reference questions answered, books ordered and cataloged by day, month or year" (Xi & Levy, 2005, p. 267). For decades, such irregular approaches represented how a library evaluated its performance, with no analysis or follow-up. Xi and Levy suggested that such one-way applications involving irregular statistical collections focused only on the perceptions of the service providers. Academic library leaders recognized that such statistics were valuable but insufficient for assessing library performance: "What managers knew about patron needs was a consequence of casual conversations, rumor, and the squeaky wheel. Occasionally libraries would try a patron survey, but was the exception, not the rule" (Saunders, 2007, p. 21). Ultimately, academic library administrators began to recognize that for library assessment to be valid, library users must be involved in evaluating the library services they were receiving.

These findings prompted many academic libraries to adopt a new form of assessment, the LibQUAL+™ survey, which evolved from a conceptual model based on the SERVQUAL instrument introduced in 1988 by Parasuraman and Zeithaml and Berry (1988, 1991). SERVQUAL “...has been described in over 100 articles and at least 20 doctoral dissertations and used in replication studies in a wide range of service industries, such as, advertising, health care, telephone, banking, and laundry” (Nitecki, 1996, p. 181). In the late 1980s and throughout the 1990s,” ...[O]perational level, research in service quality was dominated by the SERVQUAL instrument, based on the so-called gaps model” (Drake 2005).

Parasuraman et al. (1988, 1991) developed SERVQUAL to provide a basic template underlying service quality that could be adjusted and supplemented to fit specific needs. Thompson, Cook, and Heath (2001) stated, “SERVQUAL ostensibly measures perceptions and expectations of five dimensions of the general construct of service quality: tangibles, reliability, responsiveness, assurance, and empathy” (p. 130). The model behind the development of LibQUAL+™, based primarily on the work of Parasuraman et al. (1985, 1988, 1990), is the Expectation Confirmation-Disconfirmation Theory. According to this theory, customers have some standard(s) or expectation(s) before making a purchase. After purchase, the performance of the product or service is compared to the prepurchase concept(s). As noted by Roszkowski, Baky, and Jones (2005), if “...performance exceeds the prepurchase standard, a positive disconfirmation occurs, which in turn leads to satisfaction. If performance falls below the prepurchase standard, it results in a negative disconfirmation, which creates dissatisfaction” (p. 426). According to Parasuraman (2002) “...[T]he structure of LibQUAL+™ mirrors that of the refined version of SERVQUAL” (as cited in Roszkowski, Baky, & Jones, 2005, p. 38).

However, SERVQUAL is well established and has been used in many diverse settings, unlike LibQUAL+™, which is still in the developmental stage.

Heath, in an interview with Snyder (2002), described LibQUAL+™ as “[A] joint research and development project of Texas A&M University and American Research Libraries whose purpose is to define and measure service quality across research libraries initially and all post-secondary libraries eventually” (p. 4). Texas A&M University Libraries and other libraries had used modified versions of SERVQUAL for several years; those applications revealed the need for an adapted tool that would serve particular library requirements. The SERVQUAL protocol’s yields were not consistent with the original five dimensions when administered within library settings. Furthermore, because SERVQUAL was used mainly in for-profit service sectors, conceivably some dimensions of library service that library users deemed important were not measured by SERVQUAL.

LibQUAL+™ Survey

In 2004, Heath et al. suggested, "There has never been a better and more necessary time than now for the creation, development, and ongoing use of the LibQUAL+™ survey" (p. 14). As shown in Table 1, the LibQUAL+™ survey has three primary dimensions: Service Affect, Library as Place, and Information Control. *Service Affect* is measured by responses to nine questions evaluating users’ perceptions of the interaction between library employees and users. *Library as Place* is evaluated by five questions examining users’ perceptions of the library’s physical assets and spaces for study. *Information Control* is assessed by eight questions focusing on users’ perceptions about access to resources, modern equipment, completeness of electronic journal titles and print collections, and hours of operation (Heinrichs et al., 2006).

Table 1

LibQUAL+™ Dimensions and their Core Items

Dimensions	Core Items
Service Affect	<ol style="list-style-type: none"> 1. Employees who instill confidence in users 2. Giving users individual attention 3. Employees who are consistently courteous 4. Readiness to respond to users' questions 5. Employees who have the knowledge to answer user questions 6. Employees who deal with users in a caring fashion 7. Employees who understand the needs of their users 8. Willingness to help users 9. Dependability in handling users' service problems
Library as Place	<ol style="list-style-type: none"> 1. Library space that inspires study and learning 2. Quiet space for individual activities 3. A comfortable and inviting location 4. A gateway for study, learning or research 5. Community space for group learning and group study
Information Control	<ol style="list-style-type: none"> 1. Making electronic resources accessible from my home or office 2. A library Web site enabling me to locate information on my own 3. The printed library materials I need for my work 4. The electronic information resources I need 5. Modern equipment that lets me easily access needed information 6. Easy-to-use access tools that allow me to find things on my own 7. Making information easily accessible for independent use 8. Printed and/or electronic journal collections I require for my work

Each core item is rated with respect to minimally acceptable service expectations, desired service expectations, and perceived level of actual service quality” (Thompson et al., 2007, p. 464). LibQUAL+™ is unique in that it can use three interpretations: (a) benchmarking against peer institutions, (b) location of perception within zones of tolerance, and (c) longitudinal studies at a given institution. Using these three interpretations, framework data can be interpreted and informed decisions can then be made. First, libraries can interpret perception rating by benchmarking the ratings against peer institutions. Each year LibQUAL+™ creates tables of

norms converting raw scores into “percentile ranks” and “T scores” containing results from all participating institutions. LibQUAL+™ provides access to other institutions’ completed survey data and an interactive environment for data analysis of peer comparisons using LibQUAL+™ Analytics. This assessment allows library directors to evaluate local services compared to over 1,000 libraries worldwide that have completed the LibQUAL+™ survey during the last 6 years. These libraries are at colleges and universities, community colleges, academic health sciences organizations, academic law institutions, and research centers with approximately 254 libraries participants While previously only local surveys were used, this benchmarking tool has raised some concerns as noted by Crocker and Algina (1986):

[N]ormative scores provide information about an examinee’s performance in comparison to the scores distribution of some norm sample or reference group....[T]he meaningfulness of these scores depends on (1) the extent to which the test user is interested in comparing the examinee to the normative population and (2) the adequacy of the norming sample in representing that population. (p. 431)

Later, Calvert and Herson (1997) stated, “It is not possible to develop a generic instrument applicable to all libraries in all circumstances, and it was never our intention to do so. Rather service quality is a local issue, with benchmarking taking place within the institutions, and the ability to make comparisons with peer institutions is limited” (p. 388). However, in a study they conducted the following year, their position changed in recommending their derived instrument for university libraries. Calvert and Herson (1997) anticipated that libraries would use the tool to determine priorities, evaluate satisfaction of customer expectations, and reassess resource allocation (p. 408). These researchers further noted that “[T]he tool has been designed only for the production of local benchmarks, it is possible for university libraries to compare their

benchmarks with those of similar libraries – one sharing similar priorities” (Calvert & Herson, p. 408).

A second way of interpreting LibQUAL+™ data is by the concept “zone of tolerance.” LibQUAL+™ participants rate each question on a scale of low (1) to high (9) regarding minimal, perceived, and desired levels of service. The “zone of tolerance” is the distance between users’ minimally acceptable perceived level of service and the desired service. Ideally, “...perceived ratings will fall near the desired level. Perceived service quality should not be below minimally acceptable levels of service. In other words, usually it is hoped that perceptions fall within the zones of tolerance” (Cook et al., 2003b, p. 116). Feedback from LibQUAL+™ participants has been inconsistent when referring to gap scores. Hitchingham and Kenney (2002) stated, “The most intuitively helpful scores one derives from the responses of our users are the scores created by subtracting the scores for the level of service that users view us as delivering now from where they would like us to be” (p. 53). In contrast, “[S]ome respondents stated they could not readily discern the difference among the three service levels, minimum, desired, and perceived, upon which gap the model is based” (Roszkowski et al., 2005, p. 427).

The third method of interpretation is longitudinal comparison by which libraries can compare their perception ratings across time. This type of interpretation can only be made if a given institution has completed the LibQUAL+™ survey more than once. Because no two libraries are exactly alike, many library directors have said that this is the ultimate form of benchmarking. In 2002 and 2003, OHIOLINK (a consortium of 84 Ohio universities, colleges, community colleges, and the State Library of Ohio) participated in the LibQUAL+™ survey.

According to Gatten (2004), “The OhioLINK community's objective for using the LibQUAL+™ instrument was to measure both perceptions of an individual library's service quality and the service quality provided through the OhioLINK program” (p. 222). In the case of OHIOLINK, significant improvement was seen from 2002 to 2003. Cook, as cited by Gatten (2004), provided two plausible explanations for why scores improved with each administration of the survey: “First, library managers may use the survey results to make immediate service improvements. Second, improvement scores may result from an effect similar to the Heisenberg uncertainty principle, in which the act of measurement may affect results” (p. 224). By conducting the survey more than once, library staff can see areas of need and identify best practices in library science.

In addition to these three types of interpretation, “the LibQUAL+™ protocol solicits open-ended comments from users regarding library service quality. In Thompson, Kyrillidou, and Cook’s (2007) experience examining survey results, consistently about 40% of the LibQUAL+™ respondents provide open-ended comments (p. 464). From these comments, library administrators can obtain not only information regarding strengths and weaknesses of library services but also suggestions for improving those services. Plus, “libraries using LibQUAL+™ have the option of selecting five additional items from a supplementary pool of 100+ items to augment the 22 core items to focus on issues of local interest” (Thompson, Kyrillidou, & Cook, p. 464). Examples of local-interest questions are “How often do you visit the library to use resources on campus?” and “How often do you use non-library gateways as your primary way for research?” Participants respond daily, weekly, monthly, quarterly, or

never. Finally, the LibQUAL+™ survey collects users' demographic data, including gender, age, academic discipline, and academic group.

LibQUAL+™ is a “total-market survey” designed to be administered by libraries to understand user perception of library services. Berry noted the benefit of such surveys:

When well designed and executed, total market surveys provide a range of information unmatched by any other method. A critical facet of total market surveys (and the reason for using the word ‘total’) is the measurement of competitors' service quality. This [also] requires using noncustomers in the sample to rate the service of the suppliers (1995, p. 37).

Today, “LibQUAL+™ has been used to collect data from roughly 1,000,000 users at approximately 1,000 institutions. Since its inception in 2000, four institutions in the United States have completed the protocol every year for all seven years” (Thompson, Kyrillidou, & Cook, 2007, p. 463). In addition, LibQUAL+™ has been completed for libraries in over 17 countries, and the project supports over 12 language translations. As shown in Table 2, 2007 LibQUAL+™ Session I participants represented 218 institutions from 11 different countries.

Table 2

2007 LibQUAL+TM Session I: January - June 1

	Institutions
Total	218
<u>Institution Type:</u>	
Academic Health Science	8
Academic Law	2
Academic Military	1
Canadian Government	6
College or University	177
Community College	18
Public	2
Research Center	1
State	2
University/TAFE(Australia)	1
<u>Country:</u>	
Australia	1
Canada	63
Egypt	1
France	1
Ireland	1
Mexico	1
New Zealand	1
South Africa	2
Sweden	2
United Kingdom	14
USA	131

Despite its success, questions have been raised concerning LibQUAL+TM's ability to determine effectiveness. These questions arise from LibQUAL+TM itself, as well as from other services attempting to evaluate libraries. Answering these questions reveals weaknesses inherent in LibQUAL+TM (Edgar, 2006). These questions focus on the tool's survey instrument and its design. More specifically, in the SERVQUAL research design, "service quality is the gap between customers' expectations and their perceived service experience. The argument for relying upon customer expectations is that a service's adequacy is very difficult for a customer

to evaluate either during or after the service” (Edgar, p. 446). Using the “gap” concept as a measure of satisfaction has raised many concerns. Among the more compelling criticisms of the “gap” concept are the following:

- A logical incongruity can arise when satisfaction is measured as the difference score between an actual (perceived) and a desired (expected) level of service.
- When expectations are assessed after an experience has occurred, as is the case with the SERVQUAL and the LibQUAL+™, they are subject to contamination by the experience itself.
- People often have a difficult time formulating their expectations if they are novices to the given experience and may thus assign an arbitrary rating.

(Roszkowski et al., 2005, p. 427)

Despite these concerns, according to Kryllidou (2004), Director of American Research Libraries’ Statistics and Service Quality Programs, LibQUAL+™ has been extensively documented in the literature as a viable, “well-researched and robust assessment mechanism for measuring perceived library service quality from the user’s perspective based on three dimensions: Affect of Service, Information Control, and Library as Place” (p. 2). The LibQUAL+™ survey is a reliable data source with the instrumentation designed for a random sample, and the sample size has no perceived effect on outcome. LibQUAL+™ “researchers use 10 percent guideline and assume that the 10 percent response of the sample represents the demographical pattern of the population (age, gender, discipline)” (Xi and Levy, 2005, p. 273). In addition to demographical representation, sample bias may include the respondents' usage patterns of library services, such as on-campus versus off-campus users.

At the end of the LibQUAL+™ survey are five local questions. Although the purpose of the questions is not identified, “... given their location at the end of the survey near the questions

dealing with respondent demographics, it is suspected that their purpose is to check the validity of the core section of LibQUAL+™” (Roszkowski et al., 2005, p. 429). To ensure validity, LibQUAL+™ uses a statistical analysis called factor analysis, which, according to Nunnally (1978), “... is intimately involved with questions of validity. . . . [and] is at the heart of the measurement of psychological constructs” (p. 112). Factor analysis includes such questions as the following: “(1) Do the relationships among responses indicate the presence of the expected number of items groupings or factors (e.g., for LibQUAL+™ three)? (2) Do items measure the intended factors, and only the intended factors?” (Thompson, 2006, p. 13).

Numerous studies have been conducted to test the validity and reliability of LibQUAL+™ scores. Thompson, Cook, and Kryillidou (2005) conducted a study containing 88,664 participants who completed either the English or British version. The results indicated that “LibQUAL+™ yields scores of roughly equivalent validity across these cultures and across these three respondent groups” (p. 520). Heath, Cook, Kyrillidou, and Thompson (2002) conducted a study that addressed how well LibQUAL +™ subscale (i.e., Service Affect, Library as Place, and Information Control) and total scores correlate with external validity scores (e.g., user ratings of service and satisfaction) using data provided by 20,416 participants from 34 universities in the spring of 2001. The results “found that LibQUAL +™ subscale and total scores were highly correlated with satisfaction scores in two independent subsamples” (p. 29). Additionally, Thompson and Cook (2002) conducted a study on reliability of subscale and total scale scores on the Web-administered LibQUAL +™ survey using data provided by 18,161 participants from 43 universities. The resulting data “indicated that score reliabilities were remarkably invariant across campuses and different user groups” (Thompson & Cook, p. 735).

In a related study in the spring of 2001, Thompson, Cook, and Thompson (2002) addressed the reliability of LibQUAL+™ scores using data provided by 20,416 participants from 34 universities. The results for the four dimensions using Cronbach's alpha coefficients average was .948. The researchers noted, "These coefficients indicate a statistically conservative estimate of the proportion of true or meaningful score variance, and are increasingly favorable as they approach 1.0" (Thompson, Cook, and Thompson, 2002, p. 7). Therefore, LibQUAL+™ scores tend to have exceptionally high reliability coefficients.

That the popularity of LibQUAL+™ is becoming more evident was indicated with a recent GOOGLE search in which LibQUAL+™ yielded more hits than SERVQUAL, perhaps reflecting the widespread use of LibQUAL+™ at so many libraries around the world. Clearly, the LibQUAL+™ survey has become a valuable tool for academic libraries to measure effectiveness and to determine areas needing improvements.

Affect of Service

Academic libraries are confronting escalating pressure to demonstrate quality and efficiency. As Cullen stated, "Focusing more energy on meeting ... customers' expectations is critical in the contemporary environment" (cited in Cook et al., 2003b, p. 113). Lakos and Phipps noted, "Libraries must develop internal organizational systems that enable successful assessment and evaluation of their services and processes to achieve positive outcomes for customers" (as cited in Wei, Thompson, & Cook, 2005, p. 93). Accordingly, the fundamental assumption of LibQUAL+™ is that "only customers judge quality; all other judgments are essentially irrelevant" (Zeithaml, Parasuraman, & Berry, 1990, p. 16). By considering users as customers,

LibQUAL+™ explicitly applies the customer concept from business to academic libraries.

Hoadley (1999) commented on this business orientation:

To say that a library is run like a business almost always carries a negative connotation in the academic world. This should not be the case because there are business principles that can benefit how libraries are run. Better accounting and money management are benefits to libraries. Another is the accountability characteristic of business operations that requires self-examination to determine if what is being done is what really benefits the organization and those it serves. (as cited in Hernon & Nitecki, 2001, p. 689)

Additional pressures from state legislatures and trustee boards have affected the way many institutions evaluate quality and have shifted the focus to students. Higher education administrators are trying to ensure academic success by providing students with services that will enhance their overall college experience. By providing quality tutoring, food services, dormitories, student advising, and other services, administrators are hoping to improve student retention and to convince both students and their parents that the educational programs provide good value for the money spent (Hernon, Nitecki, & Altman, 1999). Hirshon noted a significant challenge: “we [librarians] must create educational experiences that students want to participate in rather than merely endure” (as cited in Hernon et al., p. 10). Edgar (2006) explained that if the academic library does not deliver quality services such as convenient customer access, reference assistance, library instruction, and extensive collections, students will often act on their perceptions to abandon the services quickly, even if the services’ essence is there. If these essential services are not provided, the students will gradually perceive this underlying reality and abandon the library (p. 448).

Browne, Kaldenberg, Browne, and Browne(1998) hypothesized that three dependent measures of satisfaction would correlate with a performance rating of specific programs and services: extent of satisfaction with the education received, willingness to recommend the

college or university to a friend or relative, and whether the student considered the money for tuition and fees to be well spent. According to Roszkowski et al., (2005), “Customer satisfaction, generally defined as the post-consumption evaluation of a product or a service, is essential to successful marketing, because satisfied customers are more likely to show loyalty and to spread positive word-of-mouth recommendations” (p. 424). The recent shift of academic libraries to evaluate customer satisfaction as a relevant measure of quality has raised the question of whether a difference exists between service quality and customer satisfaction. Hernon and Nitecki (2001) noted that “...in some evaluations of libraries, the concepts of quality and satisfaction are used interchangeably, even though the two are not necessarily the same” (as cited in Roszkowski et al., p. 425). LibQUAL+™’s Web page explains the difference between service quality and customer satisfaction:

Customer service can be defined as comprising all programs, activities, facilities, etc. of an organization, which have a bearing on customers' experiences during and as a result of their interactions with the organization. Customer service focuses on the customers' personal and emotional reaction to service. Service quality is the customers' assessment of how good/bad, or pleasant/unpleasant their experiences are. "Service quality" is the customers' subjective evaluation of "customer service." The LibQUAL+™ instrument Service quality "measurements" are snapshots or discrete summaries of customers' evaluation of their experiences. (LibQUAL+™ webpage)

By administering the LibQUAL+™ survey, an academic library can gather information about its customers' perceptions to use for improving services. While academic libraries want to hear from library users who are happy with services received, LibQUAL+™ more importantly identifies deficiencies.

Pritchard (2001) commented on quality customer service: “...the provision of an expected product at the expected time. Unfortunately for librarians in this electronic age, the expected time is right now” (p. 86). The emergence of the Internet has changed the way library

users access information and is moving their expectations beyond what can be filled. Library users have an unlimited amount of information at their fingertips without even visiting the library. Thus, the role of the librarian is shifting from keepers of the book to tour guides on the information highway” (Pritchard, 2001, p.86).

Another widely used instrument is the Wisconsin-Ohio Reference Evaluation Program, which assesses the library user and reference transaction. Green and Peach (2003) explained, “The Wisconsin-Ohio Reference Evaluation Program uses a two-part evaluation form for each reference transaction, with part one being answered by the patron and part two by the librarian, to allow for such variables as number of sources used and how busy the librarian was” (p. 257). The University of Brookens Library Reference Department at UIS used this instrument in February and March of 2000 as a pilot project that produced these results:

- 93% of the respondents agreed that the librarian had adequate knowledge and communication skills to teach research,
- 91% of the respondents agreed that they felt more comfortable using the library after the reference instruction class, and
- 98% of the respondents would definitely ask the librarian for help again. (p. 258)

Information Control

The academic library has evolved at exponentially increasing rates because library users can access information from any location with the emergence of the virtual library. Obviously, the Internet age has changed the way an academic library operates. The Internet is no longer a novelty to libraries, and the growth of home broadband access is tremendous. As of 2007, “84

million households had broadband in their homes, or 42 percent of all American adults, of which, nearly half of the broadband users had posted content to the web” (Oberlander, p. 33). The Association of Research Libraries (1995) identified common elements of the virtual library: (1) the digital library is not a single entity; (2) the digital library requires technology to link the resources of many; (3) the linkages between the many digital libraries and information services are transparent to the end users. Bertrand (2002) explained that the tremendous growth of broadband access had resulted in libraries’ offering databases delivered via the Internet with the technology of the EZ Proxy server, a standard piece of equipment in the library IT arsenal (p. 134). An EZ Proxy server is a program that allows facilitated remote access to restricted sites. For example, if a student tries to access directly a database such as InfoTrac, access is denied because his or her IP address is not recognized as a subscription. However, if a student uses his or her library’s EZ Proxy server, the program will act as the go-between to validate the IP address and grant access to the database.

To continuously improve services, library administrators must understand the priorities and preferences of their users. The 2004 LibQUAL+™ norm data indicated that having access to the library’s electronic resources from home was one of the most important library services for students and faculty. The mean desired level of service was 8.39 on a scale of 1 to 9, with 9 being the highest (Lippincott & Kyriallidou, 2004, p 7). Those results were also supported by the University of Maryland University College, where a survey was conducted in 2001 to examine trends in library use. Again, the greatest percentage of respondents indicated that off-campus access to electronic resources was the most useful service (Kelley & Orr, 2003, p 180). Currently, most academic libraries’ web sites are the primary way for library users to gain access

to electronic databases, online catalogs, and library instruction. Academic libraries' web sites serve as an information gateway supporting library users' research and educational needs.

Competitors to the academic library are everywhere because information has become ubiquitous. Such competition was identified when in 2005, OCLC surveyed more than 3,300 respondents on their information-seeking behaviors and patterns. OCLC reported the following findings:

- Of college students' electronic information searches, 89% began with a search engine, while 2% begin with the library website.
- Of the students replying to the survey, 50% were not aware of their library's e-book collection, and only 62% were sure that the library offered off-campus access to electronic resources.
- Students surveyed considered search engines faster, more convenient, and easier to use than library resources. (Sadeh, 2007, p. 309)

Sadeh noted three reasons why users flock to other informational sources besides their libraries:

- Users value the ease of use and access as well as the speed of the Internet.
- Integrated search environments are available for searching catalogs, abstracts and indexing databases, full-text journal sites and institutional repositories.
- Internet tools and services are built around the users. (p.13)

On the other hand, today's library systems are inherently librarian-centric; their design is built around the traditional library user and limits the ease of use desired by most users. To facilitate ease of use, Fisk, Grove, and John (2000) recommended that librarians design their web sites as if they were using their computer screens to gaze into cyberspace like audience members at a theatrical performance (p. 26). This concept was reinforced by Jeff Bezos, founder of

Amazon.com: “In the offline world 30% of a company’s resources are spent providing a good customer experience and 70% goes to marketing. But online 70% should be devoted to creating a great customer experience and 30% should be spent on ‘shout’ about it” (as cited in Zeithaml, Parasuraman, & Malhotra, 2002, p. 362). In the virtual library’s emerging days, Web presence, convenience and timeliness were considered the success drivers. However, Web presence alone cannot make up for service-quality issues that become all too prevalent: library users cannot gain access to off-campus to scholarly journals, e-mails are not answered, and desired information cannot be accessed. Therefore, to encourage repeat visits and to build customer loyalty, libraries need to shift their focus to delivering superior service quality by researching how library users perceive and evaluate online library services. For example, access to information outside the library provides users convenience but can be annoying if the design makes navigation cumbersome and if expectations are not met. When library users struggle with the library Web page, user satisfaction and sense of service quality are lowered. Today, library users have little patience in searching complex electronic databases or using the library catalog to find books. Liu (2008) stated, “...[L]ibraries are facing a new generation of online users who are technologically savvy and integrate information access and use in all spheres of their lives to an unprecedented degree” (p. 6). In 2002, Penn State University officials surveyed their World Campus students in an effort to assess how well distance-education users were served. Approximately 65% of the respondents rated the library as providing adequate support and assistance to distance-education students. However, 21.3% rated the library as not providing adequate support. Of those students, 14.7% wanted more instructional tutorials, 13.3% wanted more reference help, and 12% wanted better home delivery of library materials (Mayo & Cahoy, 2006, p. 347). In another survey

conducted at the University of Arkansas, 162 faculty members were questioned about their satisfaction with access to electronic versus print materials. The faculty overwhelmingly preferred accessing electronic information as opposed to print: “. . . 12 percent of the respondents infrequently or never browse or used journals online or on the web, while 88 percent use them at least once monthly” (Salisbury, Vaughn, & Bajawa 2004, p. 37). Some reasons given for that preference were speed of access, ease of use, and convenience of accessing electronic journals 24/7 from offices or home. Heterick found that “the reliance on the library is not about the library as a ‘place’; in fact, many faculty can foresee a future in which they will never actually go to the library” (as cited in Salisbury et al., p. 40).

Furthermore, academic libraries are providing a wealth of informational access to library users. In fact, “with the advent of online indexes and full-text databases, as well as access to nearly every library and Internet site in the world, students and faculty are more often plagued with too much access, rather than not enough” (Stahley & Platt, 2002, p. 359). With this information overload, users need the skills to recognize the difference between good and bad information, but many users are lacking information-literacy skills necessary to distinguish a biased Web page and refereed journal. Byrnes and Rosenthal (2005) conducted a survey of nontraditional students’ success and satisfaction with remote access to library resources. This study’s purpose was to determine how the library could better assist users by asking “them how the library could better serve their needs. ‘Search from home,’ ‘24/7’ availability of resources, and ‘full-text online,’ were the most recurrent responses” (p. 217). The survey also focused on problems students encountered while assessing library resources. Problems included being uncertain about where to start, having difficulty formulating search strategies, being snagged by

terminology, and assessing the relevancy of the searchers. Most of the students were computer savvy but were accustomed to “googling” for information. Many students were “surprised they required assistance, having assumed they would login and easily search their topics” (p. 218). According to Cook (2001), library users strongly desire self-reliance, and this independence usually involves one of two behavior strategies. One strategy is interacting with librarians to build information-gathering skills. Once users have acquired these skills, they venture off on their own to find what they need as quickly as possible. The other strategy is seeking out a librarian to establish a point of contact for assistance. Through this strategy, users develop a relationship with a librarian from whom they are confident they will receive assistance when needed (p. 153). Unfortunately, the result of self-directed remote-access systems is that the librarian is often bypassed.

Library as Place

Four decades ago, “Chauncey Tinker asserted that the three distinguishing marks of a university were—a group of students, a corps of instructors, and a collection of books; and, of these three, the most important was the collection of books” (Frade & Washburn, 2006, p. 327). Simmonds and Andaleeb (2001) “described the academic library as the ‘heart’ of the learning community, providing a place for students and faculty to do their research and advance their knowledge” (p. 626). The academic library has provided countless services to library users. Over the past decade, however, the high cost of printed materials and the increased access to electronic resources have eliminated much of the need for printed materials. In response, administrators have raised questions about the role of the academic library. In turn, these

questions have launched assessments and cost analyses, important determinants in justifying the academic library's existence.

Shill and Tonner (2003) stated, "Academic libraries have been debating the future of 'the Library as Place for more than twenty years" (p. 431). Wisner claimed that "we must accept that the historic mission of libraries is finished, that our buildings will disappear gradually over the next 100 years, and the portable e-book, once perfected, will drive the nail into our collective coffins" (as cited in Antell & Engel, 2006, p. 536). As a growing number of students are assessing full-text materials such as scholarly journals, newspapers, and electronic books from home via the library's EZ Proxy server, many administrators have been left wondering if the Internet will replace the library. With this new paradigm comes the fear that the library will be deserted and funding will be reduced. Many librarians worry that students will only come to the library to check e-mail, chat, and play games. Others wonder if the library staff will be forced to become computer police and if the library will morph into an expensive game room (Burke, 2004, p. 75). Carlson's (2001) controversial article, "The Deserted Library," in *Chronicle of Higher Education* has strengthened a growing perception, fueled by expanding Internet use, that physical libraries are becoming less essential in students' educational experience. For example, a junior-level English major at Augusta State University "... managed to get through two years of college—and onto the honor roll—without ever borrowing a book from the library" (p. 35). This absence of library use has become a growing trend throughout the country. At the University of Idaho at Moscow, for example, "door counts and book circulation have decreased by more than 20 percent since 1997. But between 1999 and 2001, the number of electronic articles that Idaho students retrieved went up by about 350 percent, and periodical database

searches shot up by almost 800 percent” (Carlson, p. 36). Therefore, the academic library environment is undergoing a transformation, guided by emerging technologies and library users’ patterns.

In the mid-1990s, “a college administrator announced that the new California State University-Monterey Bay campus would open without a physical library and then retracted the statement following adverse reactions from faculty” (Shill & Tonner, 2003, p. 432). In the previous decade, over 400 academic library facility projects— including construction of new libraries, additions to existing buildings, and renovations—were completed (Shill & Tonner). According to Dilevko and Gottlieb (2002), “Librarians and administrators, following the lead of museums, are increasingly adopting so-called ‘Post-object’ strategies in the hope of attracting students to the library” (p. 381). In 1998, Texas Christian University allowed Starbucks and Krispy Kreme to set up shop in the main entrance of the library. Since these changes, “library traffic has doubled from about 8,500 visits during a typical week in 1997 to more than 17,000 visits per week in the past year” (Carlson, 2001, p. 38). Such data were supported by a survey conducted at 354 academic libraries between 1995 and 2002 by the “Library Administration and Management Association (LAMA) Facility Planning Discussion Group estimated usage in new buildings typically increases 30 to 70 percent” (Shill & Tonner, 2003, p. 433). Valdosta State University in Georgia has over 600,000 people pass through its library’s doors annually (Bernstein, 2007). Through surveys and questionnaires, students were asked by library administrators to rate the library. Repeatedly, the same type of comments were provided: “The library is fun. The library is a cool place to hang out. I enjoy being in the library. It’s a comfortable place. I can study here. I can relax here. I visit my friends here. Essentially, the

library has become a hub on campus for many students” (p. 12). To accommodate students visiting the Odum Library at Valdosta State University, the library provides computer labs; over 2,000 current journals; numerous study tables, soft, comfortable chairs; and wireless access. However, Shill surveyed 357 academic libraries that had completed building projects between 1995 and 2002 concerning the impact on circulation. The results were mixed; of the 103 libraries responding, 56 reported declines after completion of the project, whereas 47 reported increases (Martell, 2007).

The 2004 LibQUAL+™ norm data indicated a “generation gap” between students and faculty. Interestingly, “the generation gap is the opposite of what you might expect: Survey data show that the physical library is more important to undergraduates than it is to graduate students and faculty” (Antell & Engel, 2006, p. 537). Undergraduates were twice as likely as faculty to visit the library on a daily basis, and undergraduates consistently gave a higher rating than faculty for desired level of service in the “Library as Place” dimension. Those data were also supported by Brown University where focus groups indicated that faculty spent less time in the library and depend less on the library for research. However, the study indicated the opposite concerning graduate students’ use (Heinrichs, Sharkey, & Lim, 2006). As Divelko noted,

It may well be the case that those students who take the time to consult print sources physically available at the library instead of settling for easily accessible on line sources are the students who get the most out of their university careers, receive better grades, and truly enhance their long-term store of information. (as cited in Divelko & Gottlieb, 2002, p. 383)

Kracker and Pollio (2003) conducted a phenomenological analysis of 118 undergraduate students and asked them to list three personally memorable incidents concerning library use. The number one theme was atmosphere. Students listed experiences involving sight, sound, smell,

and temperature combined with the more psychology-oriented experiences captured in such terms as “beautiful,” “relaxing,” “peaceful,” and “spacious” (p. 1109). The academic library has been described as a comfortable and inviting location that inspires study and learning. Cook (2001) characterized the role of the academic library as “serving as a home away from home for the length of the academic day” because such libraries are located in urban, metropolitan universities, where lengthy commutes by largely adult learners are impractical (p. 144).

Library Users

Academic libraries historically have strived to provide excellent library services to their constituencies of students, faculty, and staff. In the past, library administrators had a good understanding of their library users’ populations. This understanding was developed through library users’ on-site interaction with the library staff. Yet the basis for such understanding has shifted: “With the increasing use of electronic resources, a change pattern of usage is evident. The ability to connect to library services through the Internet, and to access information services from other sources has reduced the capacity to characterize and categorize users” (Debowski, 2000, p. 175). Lincoln (2002) stated that academic libraries “act like culture stockbrokers, acquiring and redistributing the commodities known as scholarly work and knowledge, sometimes like E*TRADE™, without ever having any face-to-face contact with their major users” (p. 5). As the number of library users electing to use off-campus resources instead of coming to the physical building increases, the number of library users entering the library is diminishing. Thus, “information services are faced with the reality of hidden users, those who are no longer physically evident, but who still rely on the information services” (p. 176). Librarians face a big challenge: “With this group is the high number of customers who simply

disappear, never to return. Students working on the Internet, like all on-line users, expect to receive results quickly and they are not interested in instruction” (Thompson, 2003, p. 36). These remote users expect to be able to log on to electronic resources at any time of day from any location to access information.

In an academic setting, remote users can be identified in three categories: “on-campus remote users, off-campus remote users, and distance education users” (Graham & Grodzinski, 2001, p. 290). On-campus remote users include those accessing library resources from faculty offices, student dorm rooms, or computer labs. The off-campus remote users are students, faculty, and staff who access library resources from home or other locations off campus. The distance-education users accesses library resources from a greater distance than the other classes. Central Michigan University administered an online survey to assess the characteristics of its remote population concerning who used online resources, access location and frequency of use of online resources. Of the respondents, 71.6% were undergraduates, 15.1% were graduates, and 6.3% were faculty. The location of access data indicate that 55.7% of the users were accessing within the CMU library, 24.9% were accessing from on-campus locations, and 18.4% of the users were accessing from off-campus. The frequency-of-use results were that undergraduates accessed library resources from on-campus more often than from off-campus, whereas graduate students accessed library resources from on-campus and off-campus an equal amount of time (p. 293).

Another survey, The Colorado Academic Library Impact Study (2005) concerning academic library usage and outcomes, included 3,222 undergraduates and faculty members at nine participating Colorado colleges and universities. Undergraduates were found to spend

roughly equal amounts of time accessing library resources on campus (53%) and off campus (47%). The four most popular reasons for students using the library was quiet space for study, availability of computers, availability of specific materials, and convenient location. The most used library services were computer access, electronic database, traditional print resources, and study space. Placing printed materials on reserve was a popular practice among 50% of faculty respondents. Nearly two out of five faculty members said they frequently used electronic reserve services through their university library. A majority of faculty reported that they recommend to their students print resources available at their institution's library (Dickenson, 2006).

Finally, in a study at the University of California-Berkeley, undergraduates were asked to assess their information literacy. Over the study's 5-year span, 70% to 77% of the respondents assessed their skills as either "Excellent" or "Pretty good" while 14% of graduating respondents ranked their skills as "Pretty poor" (Maughan, 2001). Knapp in 1966 and Snider in 1965 "both found that students most exposed to library skills programs report lower attrition rates, greater academic performance, higher standardized test scores, and greater success as they progress through college than do their peers not participating in such programs" (as cited in Watson, 2001, p. 366).

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

In the fall of 2008, The Walters State Community College Library administrated the LibQUAL+™ survey along with 214 libraries in the United States, Canada, and Europe. LibQUAL+™ is part of the Association of Research Libraries' (ARL) New Measures Initiatives, which focus primarily on outcome measures such as assessments of expectations and perceptions of library service quality and user satisfaction (Heath et al., 2002, p. 27). ARL collaborated with Texas A&M University Libraries to develop, test, and refine the survey. LibQUAL+™ uses a rigorously tested web-based survey that helps libraries identify areas needing improvement. A not-for-profit operation, LibQUAL+™, charges a nominal institutional fee to cover operational cost. The LibQUAL+™ survey is a “suite of services that libraries use to solicit, tract, understand, and act upon users’ opinions of service quality” (Davis, Groves, & Kyrillidou 2006).

Research Design

LibQUAL+™ is a web-based survey (Appendix C) that hosts the URL, collects and stores all the data on servers, analyzes the results, and provides an Excel data file. The survey includes 22 standard questions associated with library-service quality in three survey dimensions—information control (IC), affect of service (AS), and library as a place (LP)—as well as the option to select five local service-quality questions. For each question, the respondents rated their minimum, desired and perceived levels of service quality by using a nine-point scale to measure the perceived degree of service from a low level of service (1) to a high

level of service (9). From the results of the three survey dimensions (IC, AS, and LP), LibQUAL+™ calculates the perceived level of service, adequacy gap, and superiority gap. Open-ended comment boxes were also provided at the end of the survey for respondents to elaborate on library resources and services. In addition, LibQUAL+™ can be used to obtain additional data analysis through an interactive analytics page to create institution-specific tables, charts for different subgroups, and longitudinal comparisons. The LibQUAL+™ Analytics tool has two sections:

1. The Institution Explorer includes a summary of all questions and dimension means for any combination of user groups and disciplines.
2. The Longitudinal Analysis allows participants to perform longitudinal comparisons of their data across survey years. (LibQUAL+™ webpage)

With permission from the community college president, Walters State Community College Library conducted the LibQUAL+™ online survey in the fall of 2008. The library staff was involved in customizing the local questions, obtaining email addresses from the registrar, and receiving permission to email the survey to the sample population. The library worked with the Instructional Technology Department to obtain an email-address list of students who have accessed their D2L accounts during the current semester. To be included in the selection, a student had to be enrolled with at least six registered credit hours in the 2008 fall semester. In hopes of increasing survey participation, the library offered a drawing for prizes. The survey, also publicized through fliers and alerts on the library's web page, was conducted over a period of 4 weeks. Instructors were notified by both e-mail (Appendix C) and a survey-invitation memo (Appendix D) and were asked to encourage students to participate in the survey. An additional

follow-up survey-invitation e-mail and memo was distributed the last week of the survey period as a reminder for students to complete the survey accessible through a URL that was in student e-mails and D2L accounts.

Population

Walters State Community College administered the LibQUAL+™ survey to a sample of students at the main campus and at three off-campus sites. The target group consisted of approximately 3,000 students selected by the Registrar's Office using e-mail addresses accessed during the previous week.

Data Collection

The LibQUAL+™ team should be committed to the highest ethical behavior and use the ethical standards of the American Psychological Association to ensure that each respondent's privacy is protected (Davis et al., 2006). After respondents completed the survey form, their data were sent to a central database located at Texas A&M University. The software monitored the users taking the survey to ensure that all questions had been answered. For the survey to be submitted successfully, users had to provide a rating of (a) minimally acceptable service, (b) desired level of service, and (c) perceived level of service or "not applicable" (NA). If these conditions were not met, when the user attempted to leave the survey, the software requested the user to complete the omitted questions. The software also eliminated records containing more than 11 "NA" responses and more than nine logical inconsistencies because some institutions provide incentive lottery drawings for completing the survey. The LibQUAL+™ survey

collected respondents' characteristics, including gender, academic discipline, and the frequency of use of the on-campus library and library resources. Although some information such as e-mail addresses was captured from respondents while submitting the survey, respondents' privacy was protected. First, only indirect information, such as academic discipline or gender, that was extremely difficult to trace was captured. Second, measures were taken to separate identifiable information from surveys. For example, e-mail addresses were collected for lottery drawings but were not saved with responses. Once the survey was collected, an individual could not be linked to a particular response (Davis et al.).

Research Questions

The following research questions mentioned in Chapter 1 were used to develop the study's hypotheses:

1. Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) of the LibQUAL+™ survey between Walters State Community College and the other four community colleges' mean scores?
2. Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between male and female students at Walters State Community College?
3. Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between traditional students aged 22 years old and younger and nontraditional students over 22 years old at Walters State Community College?

4. Is there a relationship between community colleges' survey instrument dimensions (Affect of Service, Library as Place, and Information Control) and total library budgets? For this analysis, the unit of analysis was the community college ($N = 5$).

Associated Null Hypotheses

The hypotheses were as follows:

Hol₁: There are no differences in the survey dimensions Affect of Service between Walters State Community College's mean scores and the other four community colleges' mean scores.

Hol₂: There are no differences in the survey dimensions Library as Place between Walters State Community College's mean scores and the other four community colleges' mean scores.

Hol₃: There are no differences in the survey dimensions Information Control between Walters State Community College's mean scores and the other four community colleges' mean scores.

Ho2₁: There is no difference in the Affect of Service means between males and females at Walters State Community College.

Ho2₂: There are no differences in the survey dimension Library as Place between male and female students at Walters State Community College.

Ho2₃: There are no differences in the survey dimension Information Control between male and female students at Walters State Community College.

Ho3₁: There are no differences in the survey dimension Affect of Service between students

aged 22 years old and younger and nontraditional students over 22 years old at Walters State Community College.

Ho3₂: There are no differences in the survey dimension Library as Place between students aged 22 years old and younger and nontraditional students over 22 years old at Walters State Community College.

Ho3₃: There are no differences in the survey dimension Information Control between students aged 22 years old and younger and nontraditional students over 22 years old at Walters State Community College.

Ho4₁: There is no relationship between library budget and the Affect of Service dimension.

Ho4₂: There is no relationship between library budget and the Library as Place dimension.

Ho4₃: There is no relationship between library budget and the Information Control dimension.

Data Analysis

To analyze the hypotheses, the Statistical Package for the Social Sciences (SPSS), version 14, was used. An independent samples t test was conducted to analyze the three null hypotheses associated with each of the following:

- Research question 1 to compare the perceived means of Walters State Community College to the perceived means of four other community colleges
- Research question 2 to compare the perceived means between male and female students at Walters State Community College

- Research question 3 to compare traditional students 22 years old and younger and nontraditional students over age 22 at Walters State Community College.

Pearson's correlation coefficient was used in analyzing the three null hypotheses associated with research question 4 to discover whether a relationship exists between library budgets and library services. All reported findings were based on an alpha level of .05 level of significance.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Chapter 4 presents the results of the data analysis conducted in the current study, whose purpose was to examine Walters State Community College library's effectiveness in meeting the expectations and perceptions of students. Five community colleges participated in the study. Data was compiled from surveys completed during LibQUAL +TM Sessions I and II of 2008. As shown in Table 3, 3,383 respondents' information was usable.

Table 3

Respondents by Community College

Community College	Respondents N	Respondents %
Library 1	675	20
Library 2	1,155	34
Library 3	95	03
Library 4	792	23
Library 5	<u>666</u>	<u>20</u>
Total	3,383	100

Using results regarding the three dimensions (Affect of Service, Library as Place, and Information Control) gathered from these five community colleges, the researcher compared Walters State Community College's mean scores with the other four community colleges' mean scores. The researcher also compared the three dimensions (Affect of Service, Library as Place, and Information Control) between gender and age groups of Walters State Community College

students. In addition, the researcher examined the relationship between the three dimensions (Affect of Service, Library as Place, and Information Control) and total library budgets. The results of this study are presented in the following sections: *Section one* provides demographic information collected to determine representativeness of survey responses. *Section two* presents inferential statistical analysis of each hypothesis. *Section three* includes data from answers to three questions concerning overall satisfaction with Walters State library services.

Demographic Data

The researcher asked Walters State Community College students to answer four demographic questions regarding their gender, age, discipline, and library use. As shown in Table 4, 62.34% of the respondents were female and 37.66% were male; 82.38% of the respondents were traditional students 22 years old and younger, and 17.62% were nontraditional students over 22 years old.

Table 4
Respondent Profile for Student by Sex and Age

	Respondents N	Respondents %
Sex		
Male	234	37.66
Female	<u>389</u>	<u>62.34</u>
Total	623	100
Age		
Traditional Students		
Nontraditional Students	513	82.38
Total	<u>110</u>	<u>17.62</u>
	623	100

Table 5 shows a profile of survey respondents by discipline, based on user responses to the demographic questions and the demographic data provided by institutions in the online representativeness section. This section shows survey respondents based on the LibQUAL+™ standard discipline categories. Table 5 shows the number and percentage for each discipline for survey respondents (n).

Table 5
Respondent Profiles for Student by Discipline

Discipline	Respondents N	Respondents %
Agriculture-Environmental	6	.96
Applied Technologies & Trades	6	.96
Business	43	6.89
Communications-Journalism	11	1.76
Education	87	13.94
Engineering-Computer Science	45	7.21
General Studies	25	4.01
Health Sciences	191	30.61
Law	21	3.37
Other	92	13.92
Performing & Fine Arts	11	1.76
Science-Math	19	3.04
Social Sciences-Psychology	36	5.77
Undecided	<u>73</u>	<u>11.70</u>
Total	666	100

Survey respondents were asked how frequently (Daily, Weekly, Monthly, Quarterly, or Never) they use not only the library (on and off the premises) but also nonlibrary information gateways, such as Yahoo™ and Google™. Figure 1 shows the number and percentage of respondents who selected each option.

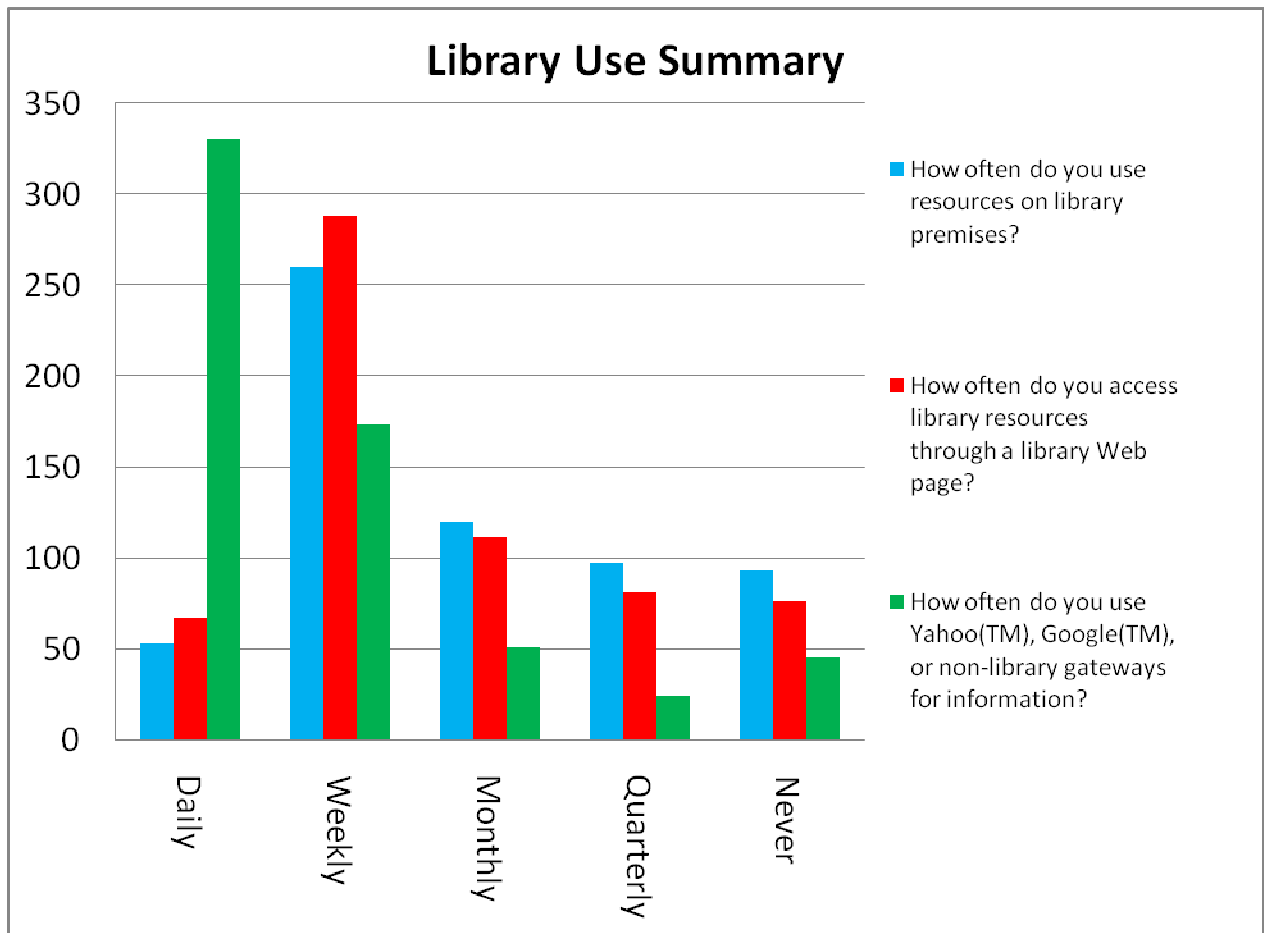


Figure 1. Bar Graph for Library use Summary

Overall Satisfaction

The researcher also asked respondents to answer three questions regarding their satisfaction with Walters State Community College library services. Table 6 displays the mean

score and standard deviation for questions related to the following areas of Satisfaction: Treatment, Support, and Overall Quality of Service, where n is the number of respondents for each question. These scores were calculated from responses to the general satisfaction questions on the LibQUAL+™ survey; respondents rated levels of general satisfaction on a scale of 1 to 9.

Table 6
General Satisfaction Questions Summary for Student

Satisfaction Question	Mean	SD	N
In general, I am satisfied with the way in which I am treated at the library.	7.68	1.38	624
In general, I am satisfied with library support for my learning, research, and/or teaching needs.	7.60	1.39	624
How would you rate the overall quality of the service provided by the library?	7.77	1.30	624

Note. 9 point scale

Analysis of Research Questions

The following is an analysis of the research questions:

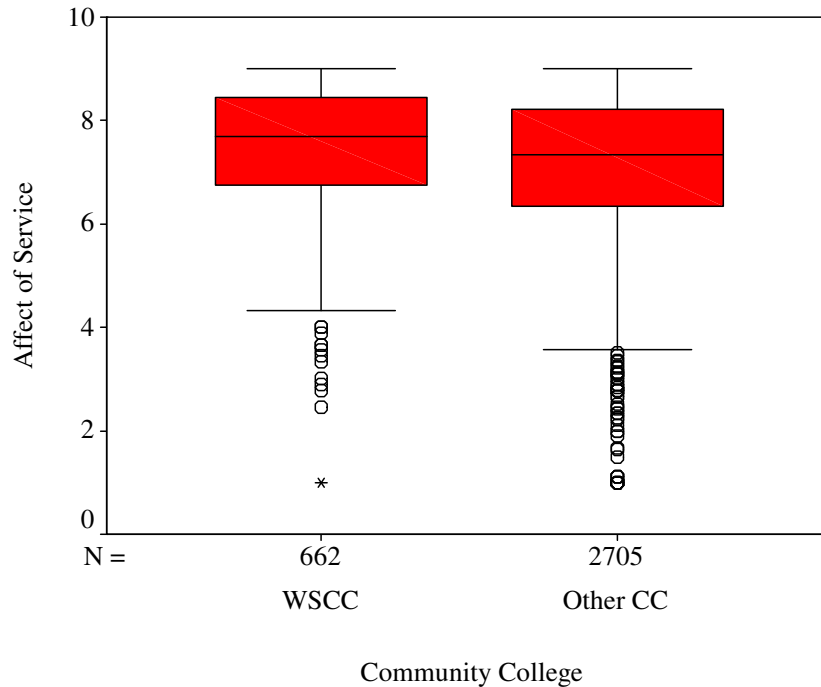
Research Question #1

1. Are there differences in the mean scores of the 3 dimensions (Affect of Service, Library as Place, and Information Control) of the LibQUAL+™ survey between Walters State Community College and the other four community colleges' mean scores? For this analysis, Walters State Community College mean scores were compared to the combined mean scores of the other four community colleges'. The data for the three dimensions were extracted from the

excel file provided by LibQUAL+™ for each community college. All not applicable responses were calculated as missing data.

Hol₁: There are no differences in the survey dimension Affect of Service between Walters State Community College's and the other four community colleges' mean scores.

An independent samples t-test was used to evaluate the difference in Affect of Service means between Walters State Community College and four other community colleges'. The test variable was Affect of Service. The grouping variable, community college, had two levels: Walters State Community College and other community colleges. Because Levene's test for equality of variances showed equal variances could not be assumed ($F(1, 3365) = 8.38, p = .01$), a t test that does not assume equal variances were used. There was a significant difference in the Affect of Service means between Walters State Community College and the other four community colleges', $t(1104) = 5.67, p < .01$. Therefore, the null hypothesis was rejected. However, the effect size as measured by η^2 was small (.01). The Affect of Service mean for Walters State Community College ($M = 7.46, SD = 1.28$) was almost a half point higher on a nine-point scale than was the overall mean for the other four community colleges' ($M = 7.14, SD = 1.43$). The 95% confidence interval for the difference in means was .21 to .43. Figure 2 shows the boxplot for Walters State Community College's Affect of Service Dimension versus other community colleges'.



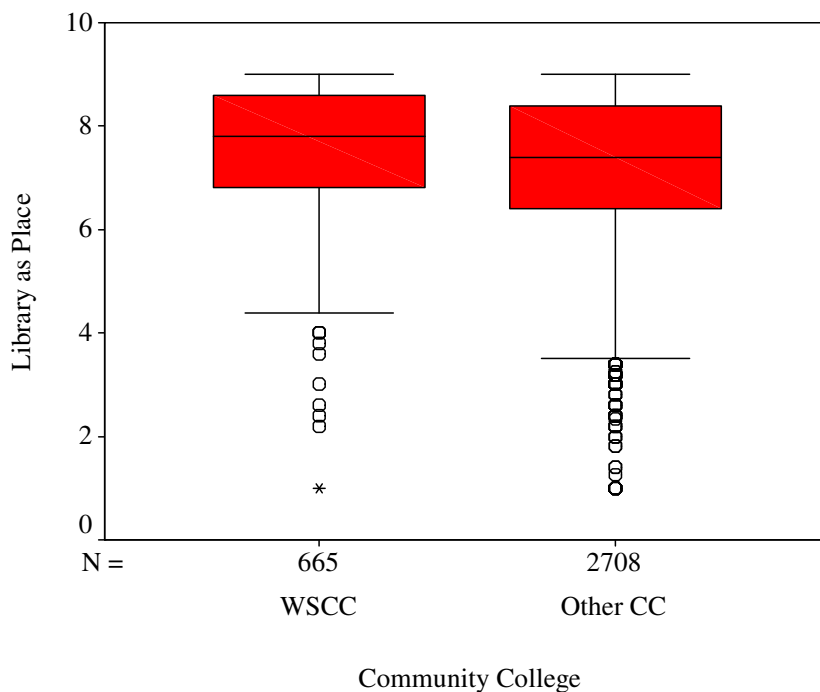
Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 2. Boxplot for Walters State Community College’s Affect of Service Dimension Versus Other Community Colleges’

Hol₂: There are no differences in the survey dimension Library as Place between Walters State Community College’s and the other four community colleges’ mean scores.

An independent samples t test was used to evaluate the difference in Library as Place means between Walters State Community College and four other community colleges’. The test variable was Library as Place. The grouping variable, community college, had two levels: Walters State Community College and other community colleges. Because the Levene’s test for equality of variances showed equal variances could not be assumed ($F(1, 3371) = 22.08, p = .01$), a t test that does not assume equal variances was used. There was a significant difference in

Library as Place means between Walters State Community College and the other four community colleges', $t(1173) = 6.58, p < .01$. Therefore, the null hypothesis was rejected. However, the effect size as measured by η^2 was small (.01). The Library as Place mean for Walters State Community College ($M = 7.54, SD = 1.28$) was almost a half point higher on a nine-point scale than the overall mean for the other four community colleges' ($M = 7.17, SD = 1.51$). The 95% confidence interval for the difference in means was .27 to .49. Figure 3 shows the boxplot for the Library as Place Dimension by Walters State Community College versus other community colleges.

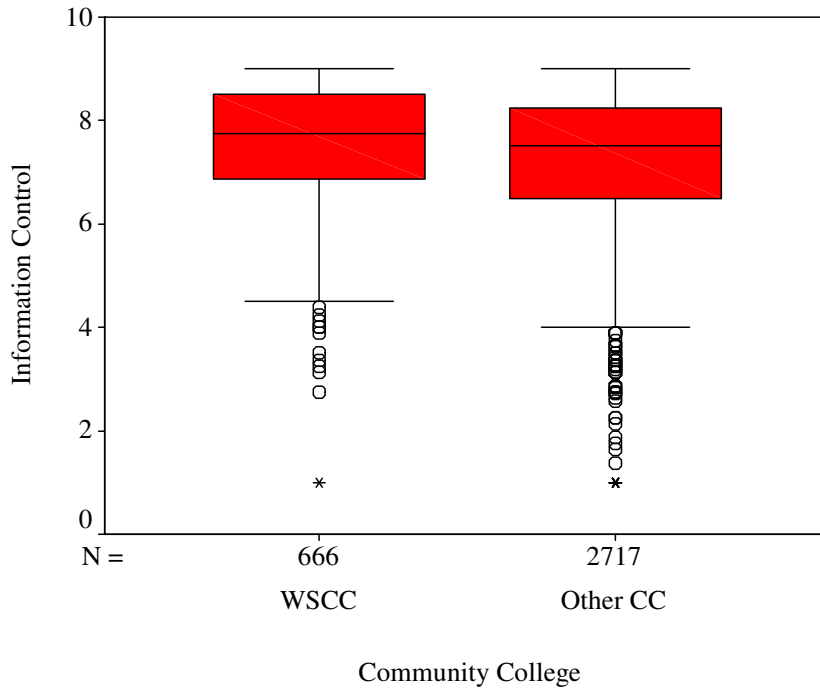


Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 3. Boxplot for the Library as Place Dimension by Walters State Community College Versus Other Community Colleges

Hol₃: There are no differences in the survey dimension information control between Walters State Community College's and the other four community colleges' mean scores.

An independent samples t test was used to evaluate the difference in information control means between Walters State Community College and four other community colleges'. The test variable was information control. The grouping variable, community college, had two levels: Walters State Community College and other community colleges. Because the Levene's test for equality of variances showed equal variances could be assumed ($F(1, 3381) = 3.44, p = .06$), a t test that assumes equal variances was used. There was a significant difference in the Library as Place mean score between Walters State Community College and the other four community colleges', $t(3381) = 4.69, p < .01$. Therefore, the null hypothesis was rejected. However, the effect size as measured by η^2 was small (.01). The Information control mean for Walters State Community College ($M = 7.52, SD = 1.25$) was almost a quarter point higher on a nine-point scale than was the overall mean for the other four community colleges' ($M = 7.25, SD = 1.35$). The 95% confidence interval for the difference in means was .16 to .38. Figure 4 shows the boxplot for the Information Control Dimension by Walters State Community College Versus Other Community Colleges.



Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 4. Boxplot for the Information Control Dimension by Walters State Community College Versus Other Community Colleges

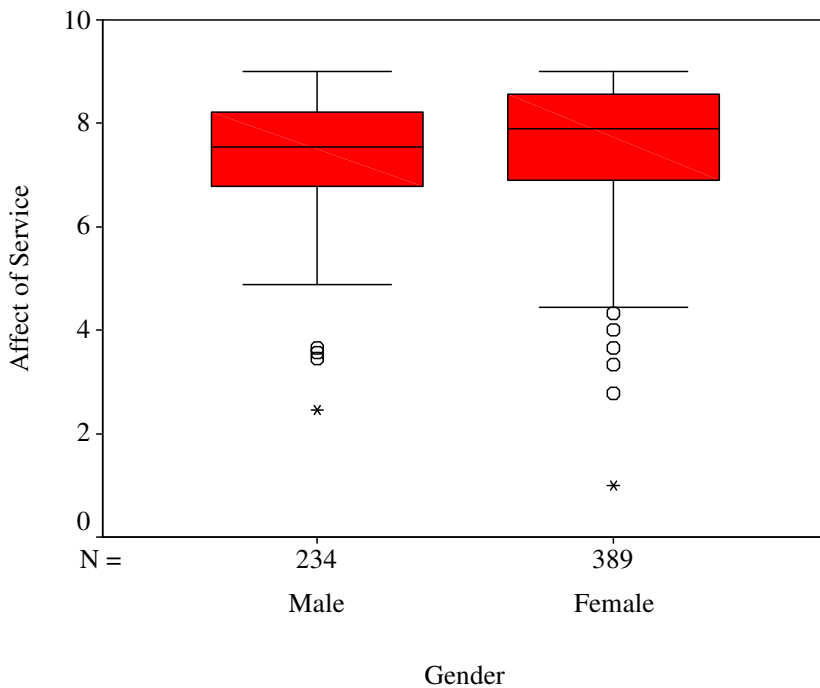
Research Question #2

2. Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between male and female students at Walters State Community College?

Ho₂₁: There is no difference in the survey dimension Affect of Service means between males and females at Walters State Community College.

An independent samples *t* test was used to evaluate the difference in Affect of Service means between males and females. Affect of Service was the dependent (test) variable while

gender was the grouping variable. Because Levene’s test for equality of variances showed that equal variances could be assumed ($F(1, 621) = 1.71, p = .19$), the t test that assumes equal variances was used. There was no difference in the affect of service means between males and females, $t(621) = 1.56, p = .12$. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small ($<.01$). The Affect of Service mean for females ($M = 7.59, SD = 1.25$) was only slightly higher than the mean for males ($M = 7.44, SD = 1.17$). The 95% confidence interval for the difference in means had an upper lower bound of $-.36$ and an upper bound of $.04$. Figure 5 shows the distribution of the affect of service scores by gender.

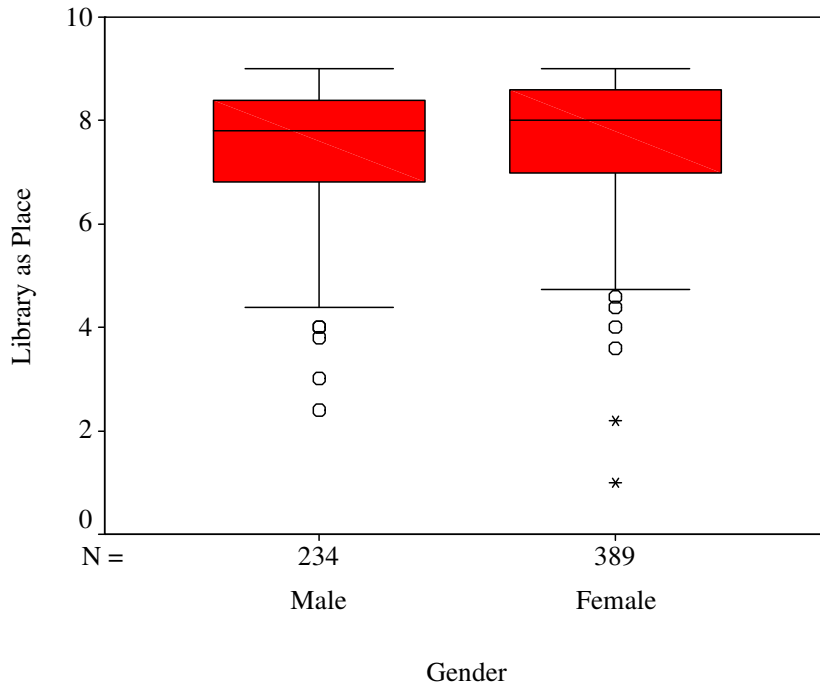


Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 5. Boxplot for the Affect of Service Dimension by Gender

Ho₂: There is no difference in the survey dimension Library as Place means between males and females at Walters State Community College.

An independent samples *t* test was used to evaluate the difference in Library as Place means between males and females. Library as Place was the dependent (test) variable while gender was the grouping variable. Because Levene's test for equality of variances showed that equal variances could be assumed ($F(1, 621) = 1.09, p = .30$), the *t* test that assumes equal variances was used. There was no difference in the Library as Place means between males and females, $t(621) = 1.09, p = .28$. Therefore, the null hypothesis was retained. The effect size as measured by η^2 was small ($<.01$). The Library as Place mean for females ($M = 7.64, SD = 1.26$) was only slightly higher than the mean for males ($M = 7.53, SD = 1.20$). The 95% confidence interval for the difference in means had an upper lower bound of $-.31$ and an upper bound of $.09$. Figure 6 shows the distribution of Library as Place scores by gender.



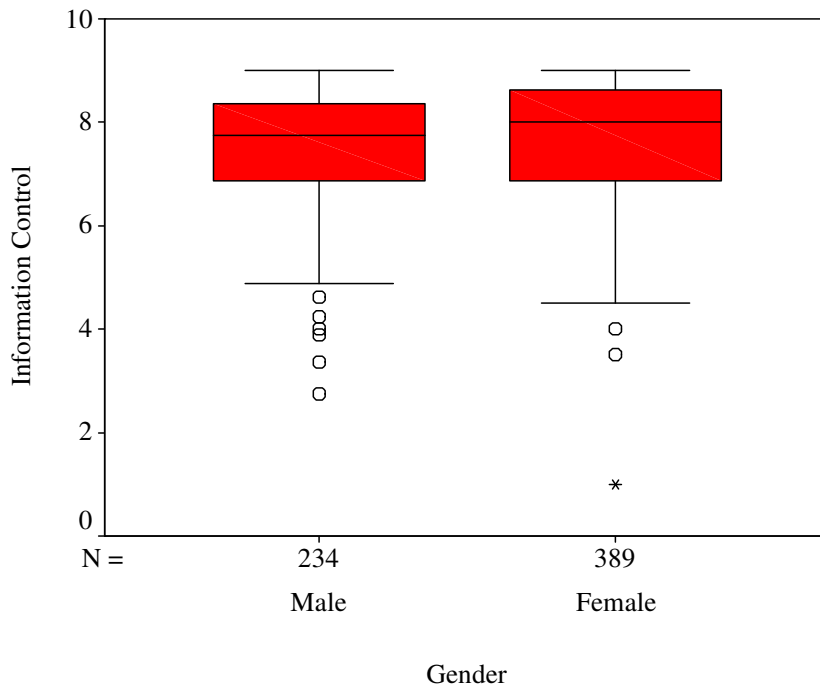
Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 6. Boxplot for Library as Place Dimension by Gender

Ho₂₃: There is no difference in the survey dimension Information Control means between males and females at Walters State Community College.

An independent samples *t* test was used to evaluate the difference in the Information Control means between males and females. Information Control was the dependent (test) variable while gender was the grouping variable. Because Levene's test for equality of variances showed that equal variances could be assumed ($F(1, 621) = .84, p = .36$), the *t* test that assumes equal variances was used. There was no difference in the information control means between males and females, $t(621) = 1.19, p = .23$. Therefore, the null hypothesis was retained. The

effect size as measured by η^2 was small ($<.01$). The affect of service mean for females ($M = 7.63, SD = 1.22$) was only slightly higher than the mean for males ($M = 7.51, SD = 1.18$). The 95% confidence interval for the difference in means had an upper lower bound of $-.31$ and an upper bound of $.08$. Figure 7 shows the distribution of the information control scores by gender.



Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

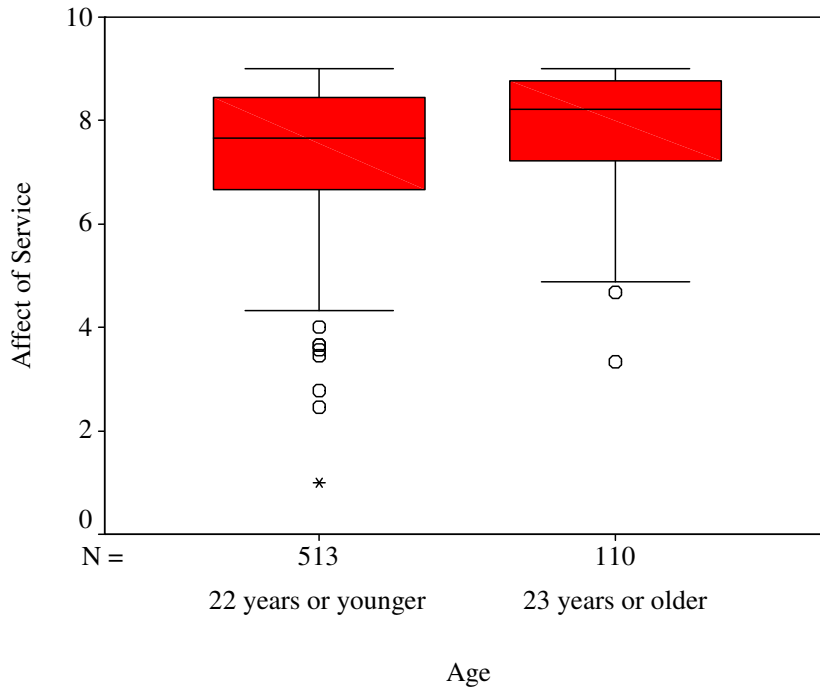
Figure 7. Boxplot for the Information Control Dimension by Gender

Research Question #3

3. Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between traditional students aged 22 years old and younger and nontraditional students over 22 years old at Walters State Community College?

Ho3₁: There is no difference in the Affect of Service means between students aged 22 years old and younger and nontraditional students over 22 years old.

An independent samples *t* test was used to evaluate the difference in affect of service means between traditional students aged 22 years old and younger and nontraditional students aged 23 and older. The test variable was affect of service. The grouping variable, age, had two levels: traditional students aged 22 and younger and nontraditional students aged 23 and older. Because the Levene's test for equality of variances showed equal variances could be assumed ($F(1, 621) = 1.30, p = .26$), a *t* test that assumes equal variances was used. There was a significant difference in the Affect of Service means between traditional students aged 22 and younger and nontraditional students aged 23 and older, $t(621) = 3.24, p < .01$. Therefore, the null hypothesis was rejected. However, the effect size as measured by η^2 was small (.02). The Affect of Service mean for nontraditional students aged 23 and older ($M = 7.88, SD = 1.14$) was almost a half point higher on a nine-point scale than the mean for traditional students aged 22 and younger ($M = 7.46, SD = 1.23$). The 95% confidence interval for the difference in means was -.66 to -.16. Figure 8 shows the boxplot for Affect of Service scores by age.



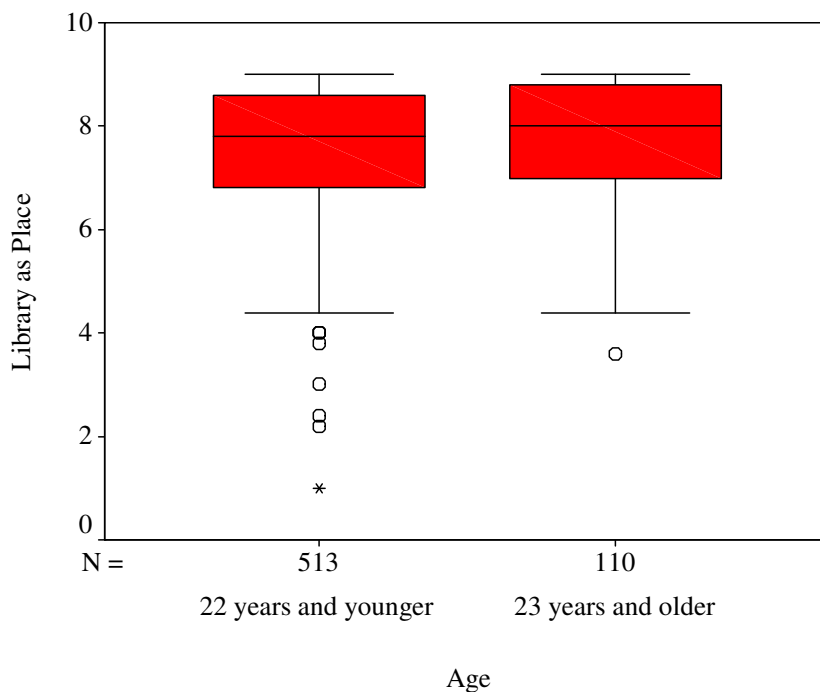
Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 8. Boxplot for Affect of Service by Age.

Ho3₂: There is no difference in the Library as Place means between students aged 22 years old and younger and nontraditional students over 22 years old.

An independent samples t test was used to evaluate the difference in Library as Place means between traditional students aged 22 years old and younger and nontraditional students aged 23 and older. The test variable was Affect of Service. The grouping variable, age, had two levels: traditional students aged 22 and younger and nontraditional students aged 23 and older. Because the Levene's test for equality of variances showed equal variances could be assumed ($F(1, 621) = .57, p = .45$), a t test that assumes equal variances was used. There was not a significant difference in the Library as Place means between traditional students aged 22 and

younger and nontraditional students aged 23 and older, $t(621) = 1.78, p < .08$. Therefore, the null hypothesis was retained. However, the effect size as measured by η^2 was small (.01). The Library as Place mean for nontraditional students aged 23 and older ($M = 7.79, SD = 1.18$) was only slightly higher on a nine-point scale than the mean for traditional students aged 22 and younger ($M = 7.56, SD = 1.25$). The 95% confidence interval for the difference in means was $-.49$ to $-.02$. Figure 9 shows the boxplot for Affect of Service scores by age.

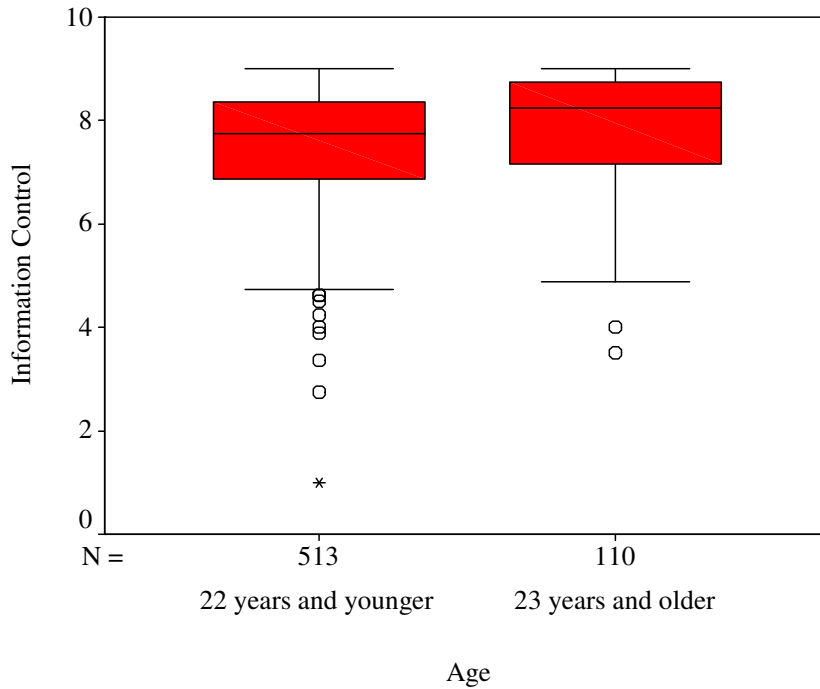


Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 9. Boxplot for Library as Place by Age.

Ho3₃: There is no difference in the Information Control means between students aged 22 years old and younger and nontraditional students over 22 years old.

An independent samples t test was used to evaluate the difference in Information Control means between traditional students aged 22 years old and younger and nontraditional students aged 23 and older. The test variable was Information Control. The grouping variable, age, had two levels: traditional students aged 22 and younger and nontraditional students aged 23 and older. Because the Levene's test for equality of variances showed equal variances could be assumed ($F(1, 621) = 9.2, p = .01$), a t test that assumes equal variances was used. There was a significant difference in the Information Control means between traditional students aged 22 and younger and nontraditional students aged 23 and older, $t(621) = 2.83, p < .01$. Therefore, the null hypothesis was rejected. However, the effect size as measured by η^2 was small (.01). The Information Control mean for nontraditional students aged 23 and older ($M = 7.88, SD = 1.20$) was almost a half point higher on a nine-point scale than the mean for traditional students aged 22 and younger ($M = 7.52, SD = 1.20$). The 95% confidence interval for the difference in means was -.60 to -.11. Figure 10 shows the boxplot for Affect of Service scores by age.



Note. o = an observation between 1.5 times to 3.0 times the interquartile range
 * = an observation more than 3.0 times the interquartile range

Figure 10. Boxplot for Information Control by Age.

Research Question #4

4. Is there a relationship between community colleges' survey instrument dimensions (Affect of Service, Library as Place, and Information Control) and total library budgets? For this analysis, the unit of analysis was the community college ($N = 5$).

Ho4₁: There is no relationship between library budget and the Affect of Service dimension.

Pearson's correlation was used to evaluate the relationship between library budget and the Affect of Service dimension for five community colleges. However, because of the inverse relationship between sample size and the magnitude of the probability, the relationship between

library budget and Affect of Service was not statistically significant ($p = .35$). That is, the small sample size ($N = 5$) for this research question resulted in the failure to reject the null hypothesis. However, the Pearson's correlation coefficient showed a moderate, positive relationship between library budget and the Affect of Service dimension ($r = .54$). The coefficient of determination ($r^2 = .29$) indicated that 29% of the variance in Affect of Service scores was accounted for by library budget. Therefore, while the relationship was not statistically significant, it was substantively important. Figure 11 shows the scatterplot for Affect of Service dimension and library budget.

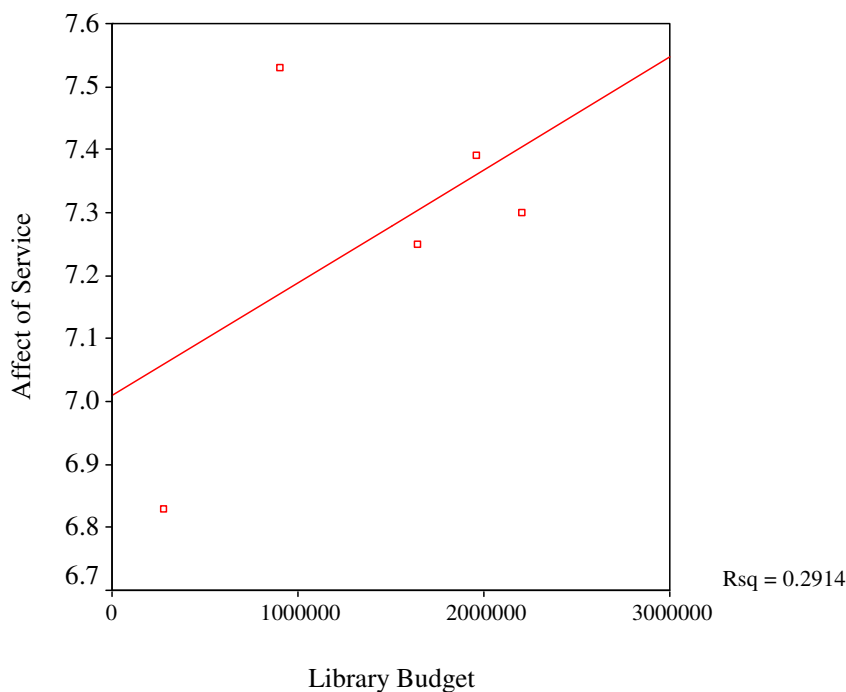


Figure 11. Scatterplot of Affect of Service Dimension and Library Budget

Ho₄₂: There is no relationship between library budget and the Library as Place dimension.

The Pearson's correlation coefficient showed a weak, positive relationship ($r = .13$) between library budgets and the Library as Place dimension. The relationship was not significant ($p = .84$). Therefore, the null hypothesis was retained. The coefficient of determination ($r^2 = .02$) indicated that only 2% of the variance in Library as Place scores was accounted for by library budgets. Figure 12 shows the scatterplot for the Library as Place dimension and library budget.

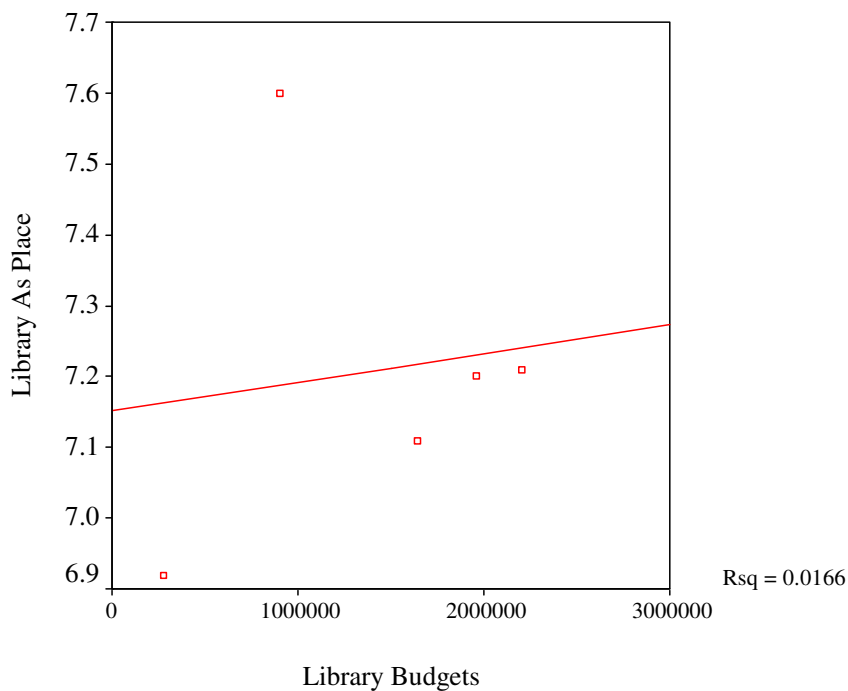


Figure 12. Scatterplot for Library as Place Dimension and Library Budgets.

Ho4₃: There is no relationship between library budget and the Information Control dimension.

Pearson's correlation was used to evaluate the relationship between library budget and the Information Control dimension for five community colleges. However, because of the inverse relationship between sample size and the magnitude of the probability, the relationship

between library budget and Information Control was not statistically significant ($p = .35$). That is, the small sample size ($N = 5$) for this research question resulted in the failure to reject the null hypothesis. However, the Pearson's correlation coefficient showed a fairly strong positive relationship between library budget and the Information Control dimension ($r = .68$). The coefficient of determination ($r^2 = .46$) indicated that 46% of the variance in Information Control scores was accounted for by library budget. Therefore, while the relationship was not statistically significant, it was substantively important. Figure 13 shows the scatterplot for Information Control dimension and library budget.

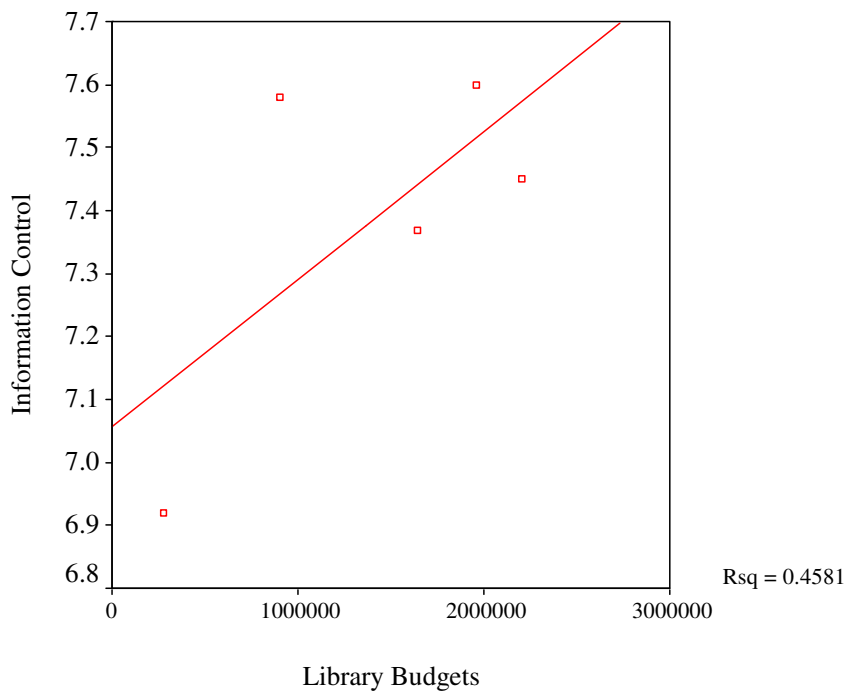


Figure 13. Scatterplot of Information Control Dimension and Library Budgets.

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS FOR PRACTICE, RECOMMENDATIONS FOR FUTURE PRACTICE, AND RECOMMENDATIONS FOR PRACTICE

Summary

Like many other community colleges, Walters State Community College faces challenges resulting from reduced funding, emerging technologies, and Internet competition. These factors led to a review of the library's role in providing quality library services to users. Walters State Community College realized that users' perceptions played a key role in defining overall satisfaction with library services offered. Recognizing the value of users' feedback, Walters State Community College Library was one of five community college libraries that participated in the Fall 2008 LibQUAL+™ survey. From those five community colleges, 3,383 students responded to 22 survey items, measuring three dimensions (Affect Service, Library as Place, and Information Control). The analysis enabled the library to identify areas of service needing improvement to better meet users' expectations. Additionally, Walters State Community College Library compared its scores with the other four community colleges'. From these findings, library administration will consider service improvements.

Conclusions

In this study, data were collected and analyzed to determine students' degrees of satisfaction with the library services offered at Walters State Community College. In addition, the relationship between the library's institutional characteristics such as total budgets and the

perceived scores on the three LibQUAL+™ service quality dimensions (Affect Service, Library as Place, and Information Control) were analyzed across a group of five community colleges that participated in the 2008 LibQUAL+™ survey. Subgroups at Walters State Community College were also compared using the service quality dimensions (Affect of Service, Library as Place, and Information Control). The researcher used the perceived mean scores for the three service quality dimensions; that is, “each survey question was part of a broader category and scores within those categories [were] analyzed in order to derive more general information about library users’ perceptions of services” (Heath et al., 2004, p. 161).

While the Walters State Community College Library’s mean scores for the three dimensions (Affect of Service, Library as Place, and Information Control) were better than those of the other four community colleges, data indicate substantial room for improvement. The following information is an analysis based on each of the research questions:

Research Question #1

Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) of the LibQUAL+™ survey between Walters State Community College and the other four community colleges’ mean scores?

The results of this study showed a significant difference in Affect of Service mean scores between Walters State and the other four community colleges. Research indicates that the library service quality dimension Affect of Service as measured by the qualities of empathy, reliability and warmth of library staff may be easier to achieve in small settings (Heath et al. 2004, p. 5). This research was not supported, however, by the findings at Walters State Community College, where the lowest perceived scores were in the Affect of Service dimension, indicating that users

were not pleased with the quality of library services provided. Employees who instill confidence in users (survey question 1) received the lowest perceived mean score of 7.14. Giving users individual attention (survey question 2) received the second-lowest perceived mean score of 7.26. Therefore, the data in the Affect of Service dimension (with the perceived mean score of 7.46, the lowest in the service-quality dimension) indicates substantial room for improvement at Walters State Community College Library.

Furthermore, the results of this study showed a significant difference in Library as Place mean scores between Walters State and the other four community colleges. In the Library as Place dimension, students responded to questions concerning how satisfied they were with the library as a place for studying, working, and using resources and as a space for general use. With the students' perceiving the library to be very friendly, welcoming, or comfortable it appears to be strong in this area of service. The perceived mean score for Walters State Community College Library of 7.54 for Library as Place was the highest in the service-quality dimension. Respondents deemed the library a comfortable and inviting location (survey question 15) with this item having the highest perceived level of service in the survey (receiving the highest mean score of 7.77 in the dimension). The lowest perceived mean score of 7.45 was on library space that inspires study and learning (survey question 3).

The results of this study also showed a significant difference in Information Control dimension's mean scores between Walters State and the other four community colleges. This dimension focuses on items related to students' ability to find information easily, independently, and remotely; the hours of operation; and the collection's breadth and scope. Therefore, Information Control is another service area in which the library is strong. Receiving the highest

perceived mean score of 7.74 was “modern equipment that lets me easily access needed information” (survey question 17). For community colleges, “access to information” items are generally higher. This tendency may be due to a higher expectation of convenience among these libraries’ users (Heath et al., 2004, p. 40). Patron-satisfaction data across institutions revealed one of the areas of greatest user dissatisfaction was complete runs of titles, both serials and monographs. Such was the case at Walters State Community College with print and electronic journal collections required for work (survey question 24) receiving the lowest mean score of 7.50 in this dimension. Research shows that with increased availability of electronic resources, smaller institutions are better able to meet and exceed users’ expectations of library service quality (Heath et al., 2004, p. 4). Based on the desired vs. perceived means of survey respondents, Walters State Community College Library failed to meet the respondents’ expectations. As indicated in Table 7, the desired mean for the survey respondents was 7.77; but the perceived mean was 7.57, indicating that survey respondents desired better library service than they were receiving.

Table 7
Comparing Desired and Perceived Means

Walters State Community College	Desired Mean	Perceived Mean
<i>Affect of Service</i>		
Employees who instill confidence in users	7.65	7.14
Giving users individual attention	7.62	7.26
Employees who are consistently courteous	7.93	7.65
Readiness to respond to users’ questions	7.70	7.51
Employees who have knowledge to answer users’ questions	7.90	7.72

<i>Affect of Service (continued)</i>		
Employees who deal with users in a caring fashion	7.82	7.67
Employees who understand the needs of their users	7.78	7.68
Willingness to help users	7.76	7.66
Dependability in handling users' service problems	7.73	7.51
 <i>Information Control</i>		
Making electronic resources accessible from my home or office	7.96	7.59
A library web page enabling me to locate information on my own	7.80	7.65
The printed library materials I need for my work	7.68	7.35
The electronic information resources I need	7.73	7.57
Modern equipment that lets me easily access needed information	7.86	7.74
Easy-to-use access tools that allow me to find things on my own	7.87	7.63
Making information easily accessible for impendent use	7.73	7.63
Print and/or electronic journal collections I require for my work	7.66	7.50
 <i>Library as Place</i>		
Library space that inspires study and learning	7.73	7.45
Quite space for individual activities	7.80	7.70
A comfortable and inviting location	7.91	7.77
A gateway for study, learning, or research	7.70	7.53
Community space for group learning and group study	<u>7.58</u>	<u>7.56</u>
Total	7.77	7.57

Research Question #2

Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between male and female students at Walters State Community College?

The results of this study showed that there was no difference in the Affect of Service, Library as Place, or Information Control means between males and females at Walters State Community College. These findings are supported by LibQUAL+™ developers Cook and Thompson, who have reported that the LibQUAL+™ scores do not differ across gender (Heinrichs, Sharkey, & Lim, 2005, p. 248).

Research Question #3

Are there differences in the mean scores of the three dimensions (Affect of Service, Library as Place, and Information Control) between traditional students aged 22 years old and younger and nontraditional students over 22 years old at Walters State Community College?

The results of this study showed that a significant difference in the Affect of Service mean scores between traditional students aged 22 and younger and nontraditional students aged 23 and older. The data indicate that Affect of Service is more important to nontraditional students aged 23 and older. These findings are consistent with research conducted by Cook (2001) that found older age groups scored the library somewhat higher than the younger age groups higher on Affect of Service. The results of this study also showed a significant difference in the Information Control means between traditional students aged 22 and younger and nontraditional students aged 23 and older. The data indicated that Information Control was more important to

nontraditional students aged 23 and older. The Library as Place dimension was equally important to traditional students aged 22 and younger and nontraditional students aged 23 and older.

Research Question #4

Is there a relationship between community colleges' survey instrument dimensions (Affect of Service, Library as Place, and Information Control) and total library budgets?

The unit of analysis was the community college (N = 5).

The results of the study showed a moderate relationship between library budget and the Affect of Service dimension for five community colleges. The results also indicated a fairly strong relationship between library budget and the Information Control dimension for five community colleges. However, because of an inverse relationship between sample size and the magnitude of the probability, the relationship between library budget and Affect of Service and Information Control was not statistically significant. A relationship between library budget and the Information Control dimension was supported by comparing OhioLINK participants, Academic Health Science Libraries, and a third group of libraries. The findings were that a "moderate relationship exists between budgets and the Information Control dimension for those libraries" (Heath et al. 2004, p. 8). The results for the relationship between library budget and the Library as Place dimension for five community colleges showed a weak relationship. Supporting that finding is Miller's (2008) research, examining the Library as Place dimension with relationship to library budgets, that found no significant relationship.

Implications for Practice

All three of the LibQUAL+™ dimensions were impacted by respondent's individual experiences using library services at Walters State Community College. The first implication for Walters State Community College Library to consider is that library users form their expectations prior to using a library service. This insight will be useful in evaluating the LibQUAL+™ results and implementing new techniques in meeting library users' expectations. The second implication of this study is to consider the comment box responses as an important source of qualitative data. The respondent's comments can add detail to answers, confirm concerns, offer suggestions, and elaborate on library services and resources. The third implication, based on this study, library administration should support research and evaluation as a major part of the work of professional library staff and provide time and support for librarians to participate in such activities.

Recommendations for Future Practice

The research findings for this study offer several implications for future practice. A follow-up study is recommended in 3 years to compare Walters State Community College to other community colleges that implemented the LibQUAL+™ survey. A more immediate follow-up study of Walters State Community College students is recommended to clarify issues needing further investigation based on the current study's findings. The follow-up could provide data to assist in implementing new services that could increase library-service quality. Additionally, the respondents' comments should be compared with the overall results to see if they support, contradict, or explicate the current study's scores. Walters State Community

College Library also needs to analyze peer community colleges with substantially higher scores in particular dimensions of the LibQUAL+™ to identify information on “best practices.” Such information could lead to establishing quantitative goals for improving library service quality as a measure of progress in terms of assessment and improvement efforts.

Recommendations for Practice

In reviewing the collected data, I struggled with the findings that were based on respondents’ perceptions of library service quality. Although I disagree with some of the findings based on respondents’ perceptions, I cannot say their perceptions were wrong. As noted in the LibQUAL +™ literature, “The process must begin with a commitment to trust your users’ input as a tool to implement real changes in library services” (Heath et al., 2004, p. 160). The challenge for Walters State Community College Library is to address these perceptions and implement new ways to increase user satisfaction. Based on the study’s findings, the following recommendations are proposed:

1. Increase library staff training focusing on customer service. Based on the findings in the dimension Affect of Service, respondents valued employees that are consistently courteous and competent. The low mean score for the Affect of Service dimension suggests Walters State Community College needs to implement a customer-service training program that is mandatory and offered on a regular basis. The customer-service training program will focus on frontline staff members having direct contact with users. These frontline staff must be empowered with knowledge and authority to address a wide variety of customer needs. In addition, library employees will attend a training program

on customer service as a product. Customer service not only has a tremendous impact on the perceptions about an organization, but it also adds value to users. The development of a customer-service training program requires Walters State Community College to position customer service as a central activity, rather than as a clerical function to handle the occasional customer complaint.

2. Create a library focus group that consists of users and nonusers of the Walters State Community College Library. Using the LibQUAL+™ data, list the six lowest perceived means from the questions in Table 7. These six questions involve areas within the LibQUAL+™ where respondents expressed some significant problems. The responses to these questions would provide Walters State Community College Library with additional information about users' dissatisfaction with services and about areas of weakness.

3. Increase communication between library users and library staff. Walters State Community College needs to implement an online interactive communication service that would allow librarians to instant message those users needing assistance when using library resources. Increase library instruction offered to students at Walters State Community College. The dimension of Information Control was strong for Walters State; however, findings indicated that while respondents knew the library has an enormous number of academic resources, they did not feel equipped to locate information, use the resources effectively, or evaluate the information found.

4. Consider placing part-time librarians at the three off-campus sites to assist library users. This strategy would increase promotion of off-campus services, making users more aware of library services offered via the Web proxy server.

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APPENDICES

APPENDIX A

LIBQUAL+™ SURVEY

WALTERS STATE COMMUNITY COLLEGE

Welcome!

We are committed to improving your library services. Better understanding your expectations will help us tailor those services to your needs.

We are conducting this survey to measure library service quality and identify best practices through the Association of Research Libraries' LibQUAL+® program.

Please answer all items. The survey will take about **10 minutes** to complete. Thank you for your participation!

Please rate the following statements (1 is lowest, 9 is highest) by indicating:

Minimum -- the number that represents the *minimum* level of service that you would find acceptable

Desired -- the number that represents the level of service that *you personally want*

Perceived -- the number that represents the level of service that *you believe* our library currently provides

For each item, you must EITHER rate the item in all three columns OR identify the item as "N/A" (not applicable). Selecting "N/A" will override all other answers for that item.

When it comes to...	My Minimum Service Level Is		My Desired Service Level Is		Perceived Service Performance Is		N/A
	Low	High	Low	High	Low	High	
1) Employees who instill confidence in users	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A
2) Making electronic resources accessible from my home or office	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A
3) Library space that inspires study and learning	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A
4) Giving users individual attention	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A
5) A library Web site enabling me to locate information on my own	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A
6) Ease of use of electronic resources	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A
7) Employees who are consistently courteous	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9		N/A

8)	The printed library materials I need for my work	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
9)	Quiet space for individual activities	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
10)	Readiness to respond to users' questions	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
11)	The electronic information resources I need	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
12)	Collections of online full-text articles sufficient to meet my needs	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
13)	Employees who have the knowledge to answer user questions	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
14)	Librarians teaching me how to effectively use the electronically available databases, journals, and books	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
15)	A comfortable and inviting location	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
16)	Employees who deal with users in a caring fashion	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
17)	Modern equipment that lets me easily access needed information	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
18)	Modern equipment	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
19)	Employees who understand the needs of their users	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
20)	Easy-to-use access tools that allow me to find things on my own	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
21)	A getaway for study, learning, or research	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
22)	Willingness to help users	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
23)	Making information easily accessible for independent use	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
24)	Print and/or electronic journal collections I require for my work	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
25)	Community space for group learning and group study	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
26)	Adequate hours of service	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A
27)	Dependability in handling users' service problems	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	N/A

Please indicate the degree to which you agree with the following statements:

28) The library helps me stay abreast of developments in my field(s) of interest.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
29) The library aids my advancement in my academic discipline or work.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
30) The library enables me to be more efficient in my academic pursuits or work.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
31) The library helps me distinguish between trustworthy and untrustworthy information.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
32) The library provides me with the information skills I need in my work or study.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
33) In general, I am satisfied with the way in which I am treated at the library.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
34) In general, I am satisfied with library support for my learning, research, and/or teaching needs.	1	2	3	4	5	6	7	8	9	
	<i>Strongly Disagree</i>						<i>Strongly Agree</i>			
35) How would you rate the overall quality of the service provided by the library?	1	2	3	4	5	6	7	8	9	
	<i>Extremely Poor</i>						<i>Extremely Good</i>			

Please indicate your library usage patterns:

36) How often do you use resources on library premises?	<input type="checkbox"/> Daily
	<input type="checkbox"/> Weekly
	<input type="checkbox"/> Monthly
	<input type="checkbox"/> Quarterly
	<input type="checkbox"/> Never
37) How often do you access library resources through a library Web page?	<input type="checkbox"/> Daily
	<input type="checkbox"/> Weekly
	<input type="checkbox"/> Monthly
	<input type="checkbox"/> Quarterly
	<input type="checkbox"/> Never
38) How often do you use Yahoo(TM), Google(TM), or non-library gateways for information?	<input type="checkbox"/> Daily
	<input type="checkbox"/> Weekly
	<input type="checkbox"/> Monthly
	<input type="checkbox"/> Quarterly
	<input type="checkbox"/> Never

Please answer a few questions about yourself:

39) Age:	<input type="checkbox"/> Under 18
	<input type="checkbox"/> 18 - 22
	<input type="checkbox"/> 23 - 30
	<input type="checkbox"/> 31 - 45
	<input type="checkbox"/> 46 - 65
	<input type="checkbox"/> Over 65
40) Sex:	<input type="checkbox"/> Male
	<input type="checkbox"/> Female

- 41) Discipline: Agriculture / Environmental Studies
 Applied Technologies & Trades
 Architecture
 Business
 Communications / Journalism
 Education
 Engineering / Computer Science
 General Studies
 Health Sciences
 Humanities
 Law
 Military / Naval Science
 Other
 Performing & Fine Arts
 Personal Improvement / Leisure
 Science / Math
 Social Sciences / Psychology
 Undecided

42) Position:
(Select the ONE option that best describes you.)

- Student:** No definite purpose in mind
 To take a few courses for self-improvement
 To take a few job-related courses
 To take courses necessary for transferring to another 2-year college
 To take courses necessary for transferring to a 4-year college or university
 To complete a vocational/technical program
 To obtain or maintain a certification
 To obtain an Associates degree
 Other

- Faculty:** Part-time
 Full-time

- Library Staff:** Administrator
 Manager, Head of Unit
 Public Services
 Systems
 Technical Services
 Other

- Staff:** Administrator/Manager
 Other staff positions

43) Please enter any comments about library services in the box below:

Thank you for participating in this library service quality survey!

APPENDIX B

SURVEY NOTIFICATION

Sent By: Jamie Posey, Walters State Community College in 2008

September 30

TO: Faculty

FROM: Jamie Posey

SUBJECT: LIBRARY WEB SURVEY

Your opinion counts!

It certainly means a lot to Walters State Community College.

As we plan for the future of Walters State Community College library, it is important that we understand our users' perceptions and expectations so that we can provide the services you need.

In a few days, you will receive an email providing you with a link to a library service quality survey. By responding to the survey, you will provide essential information for us to use in planning for the future. The survey is part of a North American effort led by the Association of Research Libraries to measure library service quality and identify best practices. We would greatly appreciate your help. When you receive this email, please take the time to go to the Web survey and complete it. Thank you for your participation.

APPENDIX C
SURVEY REMINDERS

Sent By: Jamie Posey, Walters State Community College in 2008

October 6

TO: Faculty

FROM: Jamie Posey

SUBJECT: LIBRARY WEB SURVEY

A few days ago you received an e-mail message asking you to assist us in assessing the quality of our library services by filling out a web-based survey.

If you have filled out the survey, thank you! If not, we ask you to take a few minutes to go to the URL below and help us in this important endeavor by taking the survey. Only you can tell us how well we are serving your library needs.

<http://survey.libqual.org/index.cfm?ID=370368>

Please complete the survey no later than October 30th. If you have any difficulties is accessing or taking the survey, please contact Walters State Community College Library at 423-585-6894 or email library@ws.edu.

Thank you for your assistance.

APPENDIX D

SURVEY INVITATION

Your opinion of the Library is important to the Library staff. We are soliciting input from all members of the Walters State community, which includes faculty, staff, and administrators. We will only do this survey every three years and it takes just ten minutes to complete the Library evaluation questionnaire. You can complete the survey by activating the following link:

<http://survey.libqual.org/index.cfm?ID=370368>

Thank you for your assistance,

Doug Cross
Dean of Library Services
Walters State Community College
500 S. Davy Crockett Parkway
Morristown, TN 37813-6899
423.585.6901
Fax 423.585.6959
Doug.Cross@ws.edu

VITA

JAMES A. POSEY

Personal Data: Date of Birth: January 10, 1971
 Place of Birth: Tazewell, Tennessee
 Marital Status: Married

Education: Walters State Community College, Morristown, Tennessee;
 General Education, A.A.;
 1993

 Lincoln Memorial University, Harrogate, Tennessee;
 Elementary Education, B.A.;
 1997

 East Tennessee State University, Johnson City, Tennessee;
 Library Science, M.S.;
 1999

 East Tennessee State University, Johnson City, Tennessee;
 Educational Leadership and Policy Analysis, Ed.D.;
 2008

Professional
Experience: Automation Specialist,
 Walters State Community College, Morristown, Tennessee;
 2000- 2008