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ACCEPTANCE OF TECHNOLOGY, QUALITY, AND CUSTOMER SATISFACTION WITH INFORMATION TECHNOLOGY DEPARTMENT IN A COMMUNITY COLLEGE: A CASE STUDY

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ACCEPTANCE OF TECHNOLOGY, QUALITY, AND CUSTOMER SATISFACTION WITH INFORMATION TECHNOLOGY DEPARTMENT IN A COMMUNITY COLLEGE: A CASE STUDY

by

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Dedication

I dedicate this dissertation to my family, especially to my wife, Demetria, for her love, support and encouragement; to my parents, Dr. Peter A. Nwankwo and Mrs. Felicia Nwankwo (deceased), for bringing me into this world.

Next, I dedicate this work to Georgie Holbrook, who adopted me 18 years ago, and has been my "big sister" since then; to my brother, Paschal (deceased) and my friend, Charles (deceased); we started this journey together but "sunset" came early for you.

I also dedicate this work to Mr. Val Okon for his positive influence during my formative years; and to Mr. Phil Price, who gave me a scholarship to complete my masters degree program and, hence, to continue on the path.

I further dedicate this work to the memory of my mentor and teacher extraordinaire, Dr. William Moore, for his dignity and quiet demeanor. I am very appreciative of our chats during my study in the CCLP.

Finally, I dedicate this work to all of my teachers and friends who have assisted me throughout my educational career and life experiences. Let this work be a lasting evidence to what can be accomplished if one sets their mind to it and perseveres. I dedicate this dissertation to the Grand Architect of the Universe for the enduring charity and grace.

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Acceptance of Technology, Quality, and Customer Satisfaction with Information Technology Department in a Community College: A Case Study

Publication No._____

Charles Nwankwo, Ph.D.

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Supervisor: John E. Roueche, Jr.

Co-supervisor: Norvell Northcutt

This study attempted to determine the level of customer satisfaction of the fulltime faculty and staff with the Information Technology department of Houston Community College (HCC), using Ziethaml et al., (1990) ten dimensions of quality service and the five dimensions of quality service identified by Bestfield et al., (1995). The study was guided by four research questions and used a mixed method approach: quantitative and qualitative research techniques. An online survey made-up of 27 Likert questions and three open-ended questions was sent to 1654 Houston Community College (HCC) employees (851 staff and 803 faculty). Three hundred and one (18.2%) respondents participated in the survey. For the qualitative piece, the top five and bottom

rated questions by faculty and staff were used to conduct two focus group sessions: Focus Group One [Faculty] and Focus Group Two [Staff]. The researcher looked for similarities/dissimilarities between the faculty and staff.

The results for faculty and staff on both the survey and focus group sessions shared some similarities and dissimilarities on their rating of the dimensions of quality service. For instance, 73.70% of the faculty and 74.90% of the staff were "truly satisfied" with dimension of Courtesy while about twice the percentage of faculty - 13.15% were "truly dissatisfied" with the dimension of Access compared to 7.50% for the staff.

Findings of the study led to some conclusions and recommendations. Although the level of customer satisfaction among HCC's faculty and staff were above average, a deeper consideration of the dimensions reveals that the dimensions of quality service of Leadership, Credibility and Communication are the most dimensions that are in deed of improvements. The recommendations made were: (1) HCC IT department should use this study as a baseline of customer satisfaction with the department and the department's services for which the IT department may measure its customer satisfaction progress. (2) The HCC IT department should cultivate a strong professional development tract for its staff. This professional development should focus on the aspects of IT services that are unique to the HCC environment. (3) To add congruency and improve customer satisfaction, the various IT groups throughout HCC should be brought under the purview of the Vice Chancellor (VC) of Information Technology. (4) The IT department should improve communication within and without the department; the department should be

committed to use board based communication means to improve the exchange and flow of information. (5) The IT department should create a group or team within the department that has the sole job of providing technology training and documentation to the user community – faculty and staff.

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CHAPTER ONE

INTRODUCTION

There is no doubt that we are in the age of information technology. As we progress into the 21st century, the use of the computer and its integral technologies in the delivery of academic and administrative information is unquestionable. The Higher Education Information Resources Alliance (1994) noted a decade ago that computers and information technology have become such a critical part of higher education and the workplace that it is increasingly difficult to recall the daily routine of years ago when typewriters and punch cards still clung to their position as a primary medium of communication. This statement still holds true today. Technology is fundamentally changing how higher education operates within conventional classrooms through distance education, with the ubiquity of e-mail, as well as, in research and writing (Phipps and Wellman, 2001).

IMPORTANCE OF IT IN HIGHER EDUCATION

Many experts have written about the vital role Information Technology (IT) plays in education and educational institutions. Keller (1993) writes "that institutions that have powerful information technology and technology capabilities are likely to widen their competitive advantage over the have-nots (p. 12)." Stuckey (1996) and McClure (1996) stated that information resources were not an option, but a necessity in higher education. Institutions that did not

embrace information technology, its maintenance and upgrade could find themselves extinct. Foster and Hollowell (1999) added that by policy and practice, increasing numbers of colleges and universities are mandating the use of information technology to manage, teach, learn, research and reach out to their communities and the world. Duderstadt, et al. (2003) comments that "digital technology is pervasive, affecting every aspect and function of the university, from teaching and scholarship, to organization, financing …" (p. 51). These technologies exert much power and have the capability of shaping the destiny of higher education (Privateer, 1999). For example, Elmore et al. (2004) reports that in the past five years computer ownership at Indiana University is at 96 percent and connectivity in the residence halls is 100 percent. The computer usage for faculty, staff and students for their work averaged 29 hours per week during this period (p. 2).

On the campuses of institutions of higher learning throughout the USA, electronic mail (e-mail) is challenging the telephone and office memorandums as the primary method of communication. As Goldstein et al. (2003) remarked "those who may doubt how intrinsic technology has become to life of a campus should simply observe the paralysis that ensues, when a campus e-mail goes down for the day (p. 29)." Noting the truism of the above statements and observations, Smallen and McCredie (2003) observed that today's students and faculty expect and demand world-class access to electronic information technology. They continue: "At the core of any college IT infrastructure is its communication network and literally

millions of database and servers connected to it on campus and throughout the world, with associated applications, data resources, services and online communities of colleagues (p. 45)." In the instructional arena, information technology has created opportunities for meaningful and authentic work. Green (1999) observes that information technology is now everywhere and that it is not just computers, the internet or the Web, but the aggregate presence of technologies in virtually all facets of daily life that it has had effect.

IT DEPARTMENTS AT HIGHER EDUCATION

Community colleges (and indeed four year colleges and universities) have spent millions of dollars implementing information technology in the campus environment over the decade. Much of the money has focused on improving the computing infrastructure of the campus to better support all aspects of campus operation (Ayers and Doherty, 2003). The IT department of these institutions has been charged with the responsibilities of overseeing these infrastructures and providing a myriad of IT services in support of the students, faculty and staff in universities and colleges. Pitt et al. (1995) noted that the role of IT department within the organization has broadened considerably. At one time the main function of the IT department was to serve the application developers and operators, but today, with increased use of technology in the work place, the IT department is required to service all end-users in the organization. Faculty, staff and administrators on our campuses increasingly perceive Information

Technology to be critical to their work. They want central technology organizations to promptly meet their changing expectations (McClure et al., 1997). The end-users expect and demand that their IT department do more to assist them in their tasks, such as hardware and software selection, installation, problem resolution, connection to LANs, system development and software education (Pitt et al., 1995). It becomes necessary to measure and understand the factors that contribute to successful end-user computing experience or satisfaction, as the end-users' computer skills become more pervasive in organizations (Shayo et al, 1999).

There is an abundance of information and research on the importance of IT in educational management and learning (Leidner and Jarvenpaa, 1995; Alavi, et al. 1997) and also in the measurement of end-user satisfaction of IT in the business world (Ives, Olson, and Baroudi, 1983; Montazemi, 1988). However, there is a deficiency of information regarding customer or end-user satisfaction with information technology departments throughout our colleges and universities. There are studies that were conducted at Indiana University (Peebles et al., 2001), Stanford University (McDonald et al., 2005), Massachusetts Institute of Technology (2005) and The Pennsylvania State University (1995) that attest to the lack of information. The IT end-user satisfaction study is even more difficult to find for community colleges. Eaton and Grant (1996) and Niederriter (1999) undertook these studies at Portland Community College and Pima Community College respectively.

Most literatures dealing with the satisfaction of customers or end-users with IT tend to look at it from the business productivity point of view (Hiltz, 1988; Kraut, Dumais and Koch, 1989), the business effectiveness vantage (Pitt et al., 1995; Khalil and Elkordy, 1999), the business efficiency standpoint (Lee and Barua, 1999) and also, from the organizational structure point of view (Tavakolian, 1989). Therefore, this dissertation will seek to research end-user satisfaction with quality of service offered by the IT department of a community college – institution of higher learning. The study will be modeled after a similar work done by Niederriter (1999). I will also augment the study with a focus group interview, thereby, adding to an existing body of research on end-user satisfaction.

Educational institutions worldwide are undergoing fundamental shifts in how they operate and interact with their "customers": students, alumni, donors, faculty members, and staff members (Grant and Anderson, 2002). In community colleges, this shift in mode of operation is quite pronounced since the movement to introduce business practices into education – Total Quality Management (TQM) in the community colleges' dealing with students as customers (O'Banion, 1999). These changes in institutions of higher education always seem to have a component that leverages some feature of information technology. Educational institutions, just as other organizations, continue to seek a competitive advantage in an increasingly tight market and emerging technology is often considered to be an enabling factor for gaining such an advantage (Ives and Learmonth, 1984).

The need for additional computers, access to web resources, collaboration, faster servers, data integration and security have required information technology departments to work in collaboration with end-users and move from the center of control to the periphery.

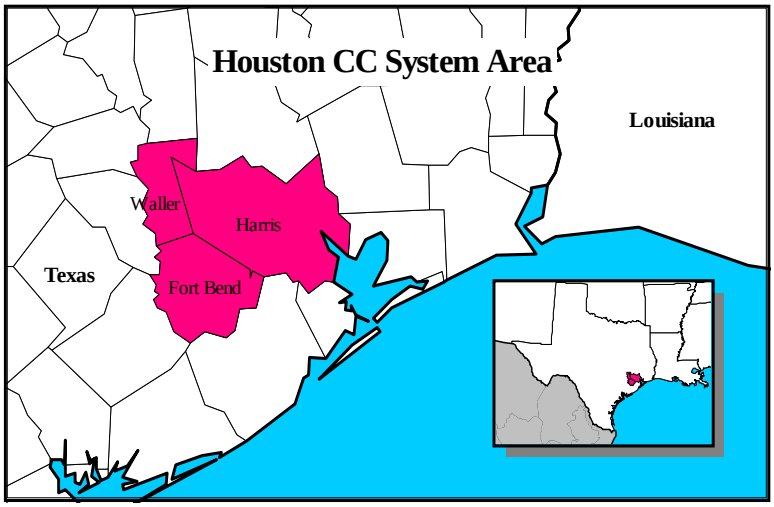
The end-users of information technology are now more savvy and knowledgeable. These savvy end-users expect reliable and quality service from their IT department. No longer can Information Technology (IT) divisions or departments operate in a vacuum or in seclusion from outside intervention, as was the case in the 80s and early 90s. The days of unrestricted funding, black hole mentalities and the ability to baffle decision makers and end-users with mnemonics and technical jargon are over. IT departments must explain and justify the cost and benefits of the expenses associated (Hawkins and Barone, 2003) with providing quality service. End-users have become savvier to their technological needs, over the years, and have started to view technology as more of a basic utility, similar to water, roads and electricity. When technology is made available, it must be efficient, fast and user friendly, with excellent customer service. IT departments that do not heed early signs of deficiencies in these areas will spend most of their time being reactive, fighting fires and communicating information after the fact to their peers and end-users. The need for IT departments to constantly communicate their requirements, limitations, problems and solutions, both internally and externally, is imperative to their success as active participants in the higher education setting.

AN OVERVIEW OF HOUSTON COMMUNITY COLLEGE

Houston Community College (HCC) is an open admission, two year public institution. HCC awards associate degrees and certificates in academic studies and workforce programs. Since its inception as part of Houston Independent School District in 1971, HCC has educated and trained more than 1.3 million students (HCC' 2004 -2005 Fact Book). According to the HCC' 2003-2004 Fact Book, the institution is the fourth largest community college in the United States, serving over 55,000 students each semester.

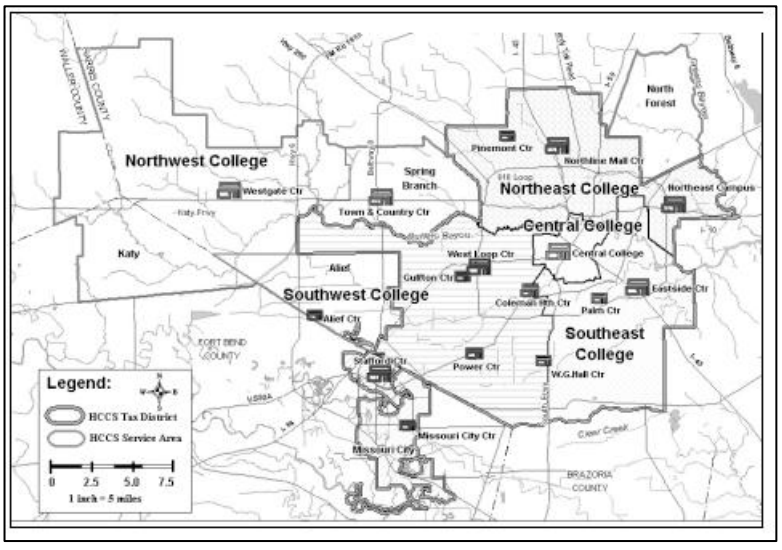
HCC is a single accredited institution, comprising of a system administrative office and six area colleges, (Central, Northeast, Northwest, Southeast, Southwest and Coleman College for Health Sciences), that function under a single accreditation. These colleges are responsible for serving parts of three counties (Harris, Fort Bend, and Waller) in 23 different locations or centers. The organizational structure of HCC has a chancellor reporting to an elected nine-member board of trustees. A president leads each college within the system (Texas School Performance Review, 2003). HCC employs 803 fulltime faculty, 939 support staff and 127 administrators; in addition, HCC also employs 2,385 part-time faculty (HCC Fact book, 2005-2006)

Figure 1 HCC Service Area Map



HCC website, 2004

Figure 2 Some of HCC Locations



HCC' 2004 -2005 Fact Book

Table 1 HCC Colleges and Campuses

College	Campus	Location
Central	Central Campus	1300 Holman, Houston, Texas 77004
	Hobby Airport Center/Westwood College of Aviation	8880 Telephone Road, Houston, Texas 77061
	Palm Center	5400 Griggs Road, Houston, Texas 77021
Northwest	Town & Country Center	1010 W. Sam Houston Parkway N., Houston, Texas 77043
	Westgate Center	1550 Fox Lake Drive, Houston, Texas 77084
Southwest	Alief Center	13803 Bissonnet, Houston, Texas 77083
	Gulfton Center	5407 Gulfton, Houston, Texas 77081
	Missouri City Center	1681 Cartwright Road, Missouri City, Texas 77489
	West Loop Campus	5601 West Loop South, Houston, Texas 77081
	Power Center	12401 South Post Oak Road Houston, Texas 77045
	Stafford Campus	9910 Cash Road, Stafford, Texas 77477
Northeast	Automotive Technology Training Center	4638 Airline Road, Houston, Texas 77022
	Northeast Campus	555 Community College Drive, Houston, Texas 77013
	Northline Mall Center	401 Northline Mall, Houston, Texas 77022
	Pinemont Center	1265 Pinemont, Houston, Texas 77018
Southeast	Eastside Campus	6815 Rustic Houston, Texas 77087
Coleman for Health Science Center	Coleman Center	1900 Pressler Ave, Houston, Texas 77030

Texas School Performance Review, 2003

INFORMATION TECHNOLOGY DEPARTMENT AT HCC

Until 1991, HCC outsourced their computer and other IT services to Systems Computer Technology, Inc. (SCT). The HCC board of trustees authorized the establishment of an in house information technology department in 1992 (Odom, 2004).

Presently, HCC has two major technology departments: the Information Technology Department (IT) and the Instructional Computing Resources Center (ICRC) (Texas School Performance Review, 2003). The IT Department has three functional areas that support HCC. The divisions within the IT Department are Application Development, Infrastructure & Systems Support, and Enterprise Services. The IT Department reports to the vice chancellor for Institutional Development and the ICRC Department reports to the vice chancellor for Educational Development until April 2006. Currently, plans are in the works to hire a vice chancellor for the IT department that will report directly to the chancellor of the system.

Each college within HCC also maintains some technicians that are responsible for the instructional labs, instructional software and hardware support. These college technicians report to administrators at the respective colleges. Each college also has a Curriculum Innovation Center to provide instructional technology training for its faculty members.

The HCC IT department is basically an internal service organization whose goal is to support the core mission of the HCC, that of educating students.

Information Technology Infrastructure Library (ITIL) defines an IT service as "a set of related functions provided by an IT department in [support] of one or more business areas perceived by the customers as a coherent and a self contained entity (Stern, 2001). Services provided by the HCC IT department include but are not limited to the following: Help Desk, End-user Desktop support, hardware and software installations, LAN and Wireless network services, staff and students' e-mail systems, Nortel Meridian telephone services, Wintel and UNIX servers Administration, and PeopleSoft Enterprise Resource Planning (ERP) on student, finance and human resource components (Table 1). Service calls or requests that come to the HCC IT groups are logged into a customer relationship management (CRM) database called MAGIC Service Desk®.

A critical issue for the Information Technology department at HCC has been with its leadership. The department has maintained, while three of the executive directors (CIO) have left in the past six years and the fourth executive director is interim. The HCC board of trustees elevated the position of IT executive director to a vice chancellor position. This action will elevate the profile of the CIO and will allow the CIO to be a part of the highest decision making table of HCC. Until the vice chancellor for IT is hired, the board of trustees also brought in Campus Works Inc., an IT Management/ co-sourcing firm to give leadership and direction to HCC IT.

Table 2 IT services provided or supported by HCC IT department

Services	Components
ERP	PeopleSoft Students PeopleSoft HR PeopleSoft Finance
Network	Internet WAN LAN Wi-Fi Remote Access – VPN
Desktop Support	Hardware and Software installation; Desktop maintenance, Virus and Spyware Protection and Removal Help Desk Support
Server Support –UNIX and Windows	UNIX Administration Windows NT, XP, 2000 & 2003
e-mail – staff and faculty	Oracle e-mail and Calendar
Database	Oracle Sybase Microsoft SQL Server
Asset technology	Inventory
Security	SSL Technology Sniffer services Antivirus
Telephony	Telephone Services E-911
Data Center	24x7 data center services
Help Desk	Customer Support

THEORETICAL BACKGROUND

The concept of customer satisfaction occupies a central position in [service] thought and practice (Churchill, and Surprenant, 1982). According to Bearden and Teel (1983), satisfaction is important to the individual customer because it reflects a positive outcome from the outlay of scarce resources and/or the fulfillment of unmet needs. To a manager, an accurate measurement of customer satisfaction is a prerequisite for developing effective management strategies. Only with reliable customer feedback, gathered through an adequate and appropriate assessment framework, can managers be in possession of facts that will allow them to implement satisfaction improvement programs (Yüksel and Yüksel, 2001).

Given the significance of the construct of satisfaction, it is surprising that no coherent theory has been advanced for the explanation of the satisfaction process (Truly, 1990; Swan & Trawick, 1981). Although many useful and important findings have been documented, little if any consensus has been reached regarding the appropriate description of the satisfaction process. The primary points of agreement in most definitions of the construct are that satisfaction implies the existence of an appraisal of perceived performance, and that it is an active comparative process between varied process components such as expectations and perceptions of service (Kotler and Andreasen, 1996). The level of satisfaction experienced by the customer can be directly related to the

extent to which the customer expectations are realized. This process has since been labeled the disconfirmation paradigm (Festinger, 1957), also known as expectancy-disconfirmation paradigm (Yüksel and Yüksel, 2001). Researchers generally agree (Cronin and Taylor, 1992) that the current measurement of satisfaction or customer perception of service quality closely conforms to the disconfirmation paradigm.

DISCONFIRMATION PARADIGM

Disconfirmation paradigm, sometimes referred to as Expectation Disconfirmation Paradigm (EDP) is a prominent theory from marketing that can predict and explain customers' satisfaction with services or products (Spreng and Page, 2003; Patterson et al, 1997; and Oliver, 1980). Recently, EDP has been used to explain users' information technology satisfaction (Bhattacherjee and Premkumar, 2004; Hsu et al. 2004; and Khalifa and Liu, 2003).

Four constructs of the disconfirmation paradigm are expectation, performance, disconfirmation and satisfaction (Churchill, and Surprenant, 1982). Customers employ pre-existing expectation as a frame of reference against which they compare actual performance levels. This process results in three possible outcomes: positive disconfirmation, negative disconfirmation, or confirmation. The customer than transforms the level of discrepancy into some subjecting rating of satisfaction. The disconfirmation paradigm has been the foundation of works on satisfaction leading to theory developments and empirical studies.

Expectance, the first construct of the disconfirmation paradigm, can be defined as physiological perceptions of rights. There are four levels of expectations that relate to three levels of satisfaction. The levels of expectations are: minimum tolerable, expected, desirable and ideal. The corresponding satisfaction levels are highly satisfied, satisfied or dissatisfied or frustrated. If a customer perception of service (example IT services) exceeds expectations, the result is high customer satisfaction; if customer perception of IT service matches expectations, the result is customer satisfaction. On the other hand, if a customer perception of IT service falls short of expectation, the result is customer frustration or dissatisfaction.

Parasuraman et al. (1985) observed that measuring customer satisfaction with good's quality is different from measuring customer satisfaction with service's quality. In goods, the quality can easily be tired to tangible cues such as style, hardness, color, label, feel, and package and fit (Parasuraman et al., 1985, p.42). But with service, tangible evidence is limited. Therefore, measuring customer satisfaction with service quality is more difficult for customer than to evaluate goods quality. Again, service quality perceptions result from a comparison of customer expectations with actual perception.

MEASURING INFORMATION TECHNOLOGY/SYSTEM SERVICE QUALITY

Information Technology researchers have developed two prominent streams of research that investigate the factors and processes that intervene in end-user satisfaction with information technology/systems. Commonly, researchers tie these factors and processes to user perception about IT and how it impacts their work (Wixom and Todd, 2005). These two streams or approaches are: **End-User Involvement** (EUI) and **Technology Acceptance Model** (TAM) (Wixom and Todd, 2005).

END-USER INVOLVEMENT CONSTRUCT

End-user involvement research is typically based on the assumptions that end-user involvement in the design of an information system leads to increased system usage, more favorable perceptions of system quality or greater user satisfaction (Baroudi, et al., 1986). Generally, this constructs are assumed to be indirect indicators of improved decision-making performance, which is the ultimate, but usually un-measurable goal of information technology implementation. In end-user computing environment, user involvement is thought to contribute particularly important in determining user satisfaction and improving decision making (Doll and Torkzadeh, 1989).

End-user satisfaction is an important area in of information systems (IS) and information technology (IT) research because it is considered a significant factor in measuring IS/IT success and use (Ives and Olson, 1984; Doll and

Torkzadeh, 1988; Delone and McClean, 1992; Doll et al, 1994; Seddon, 1997). These studies attempt to capture the overall post hoc evaluation a users have regarding the use of an IS along with the most immediate antecedent factors that form this satisfaction. Although many studies in end-user satisfaction do not explicitly separate information and system features when identifying the structure and dimensionality of user-satisfaction construct, Delone and McClean (1992) made a distinction between information aspects and system features as determinants of satisfaction. Based on IS success literature, Delone and McClean's highly cited model (1992) identified information quality and system quality as antecedents of customer or end-user satisfaction.

TECHNOLOGY ACCEPTANCE MODEL

The Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use technology. This model was developed by Bagozzi et al. (1992) and Davis et al. (1989). The model suggests that when users are presented with a new IT service, a number of factors influence their decision about how and when they use it, notably:

- Perceived usefulness (PU) – This is defined by Davis et al. (1989) as "the degree to which a person believes that using a particular system would enhance his or her job performance".

- Perceived ease-of-use (PEOU) - Davis et al. (1989) defined this as “the degree to which a person believes that using a particular system would be of effort, i.e. the ease of use.

SERVQUAL

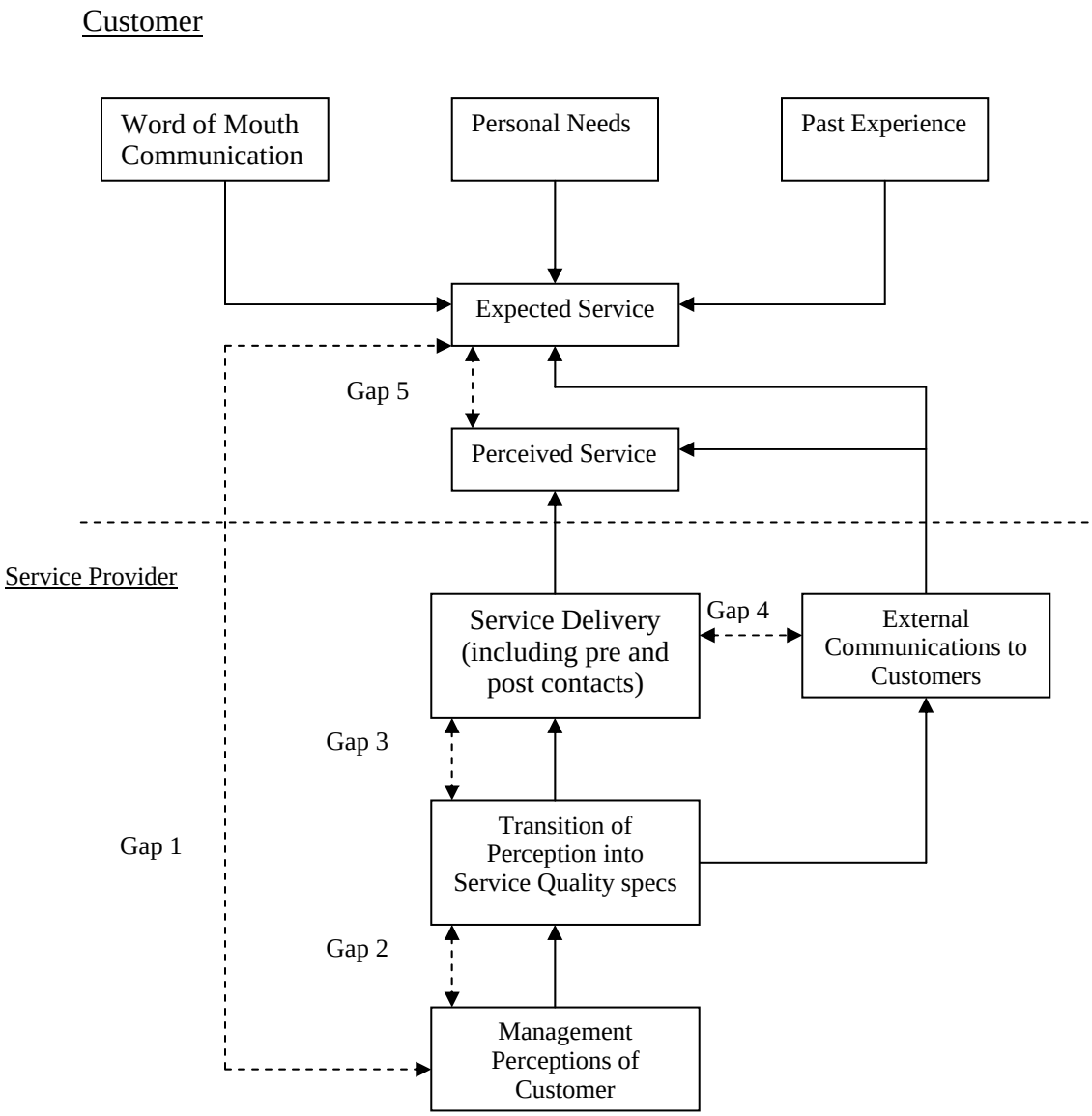
Jiang et al. (2003) observed that efforts IT/IS service quality yield a plethora of problems, including: what indicators yield an appropriate value for measuring the quality of a service? Which stakeholders should provide analysis and moreover, measurement of the quality of service may require effective judgment. A combination of measurements regarding expectations for service and perception of that service provision allows for examination of a gap in service delivery. Such a gap measure is a function of existing differences in expectation and performance reported by stakeholders. One measure of service quality that some IS researchers support is SERVQUAL (Ziethaml et al. 1990), an instrument designed to assess both service expectations and perceptions of deliverables – hence the gap in service (Figure 3).

SERVQUAL is an empirically derived method that may be used by a services organization to improve service quality. The method involves the development of an understanding of the perceived service needs of target customers. These measured perceptions of service quality for the organization in question, are then compared against an organization that is "excellent". The resulting gap analysis may then be used as a driver for service quality

improvement. SERVQUAL originally had five service quality dimensions of **Tangibles, Reliability, Responsiveness, Assurance and Empathy**. SERVQUAL was later modified and adapted to cover ten dimensions of quality service: **Tangibles**, **Reliability, Responsiveness, Competence, Courtesy, Credibility, Security, Access, Communication and Understanding the customer**. These dimensions are discussed in Chapter Four of this study.

SERVQUAL takes into account the perceptions of customers of the relative importance of service attributes. This allows an organization to prioritize. And to use its resources to improve the most critical service attributes. The data are collected via surveys of a sample of customers. In these surveys, these customers respond to a series of questions based around a number of key service dimensions. It is with the acceptability of the SERVQUAL construct that this researcher is using this instrument for the proposed study of customer satisfaction of IT department at a Community College.

Figure 3 GAP Service Quality Model



Service Quality Model (Parasuraman et al., 1985)

STATEMENT OF THE PROBLEM

The Information Technology service departments of American colleges and universities are experiencing an era in which meeting the needs of their customers or clients is becoming more difficult and demanding (Niederriter, 1999). The obligations of the customer and/or end-user support are proliferating, resulting directly from the integration of cutting edge technologies into the academic and administrative functions of these institutions. The IT budgets continue to grow faster than any other part of the institutional budget and crowds other strategic objectives at every institution (Smallen and Leach, 2002). Therefore, the IT departments are increasingly pressured by a combination of internal and marketplace developments (Conant, 2004). IT departments are challenged, on a daily basis, to provide adequate support services to campus technology end-users.

The Administrators, CIOs and managers of IT must know the level of performance of their IT department. The importance of IT services to higher education, as well as, justification of its' cost of operations and share of the budget, hinges on the performance of the IT service department (Davis, 1992).

Another important reason for this study is that the researcher has worked in the IT department of higher education for over eleven years and has a vested interest in analyzing the satisfaction level of the end-users, as well as, the level of service provided by an IT service department.

RESEARCH QUESTIONS

This research was guided by four strategic questions:

1. What is the level of satisfaction with the quality of services offered by the Information Technology Department to the faculty and staff of the Houston Community College (HCC) in the following dimensions of quality service as identified by Zeithaml, et al. 1990):

    a. Access
    b. Communication
    c. Competence
    d. Courtesy
    e. Credibility
    f. Reliability
    g. Responsiveness
    h. Security
    i. Tangibles
    j. Understanding The Customer

2. What is the level of satisfaction with the quality of services offered by the Information Technology Department to the faculty and staff of the Houston Community College (HCC) in the following dimensions of quality service as identified by Besterfield, et al. (1990):

    a. Organization
    b. Expectation
    c. Communication
    d. Frontline People
    e. Leadership

3. Are there significant differences between staff and faculty on the dimensions of quality service listed above and how do staff and faculty rate in the overall satisfaction with the IT department?

4. What reasons do the staff and faculty give for their evaluation of the services offered by the IT department in the dimensions of quality in the listed in Research Questions One and Two?

SIGNIFICANCE OF THE STUDY

College CIOs are under increasing pressure from their constituents to justify the cost of their IT budget. Many colleges are considering outsourcing of their IT departments as a cost cutting measure and to improve their IT services to their end-users. Therefore, findings from this study will provide college administrators and CIOs data on satisfaction or dissatisfaction of their end-users. The data will be used to assist information technology decision makers in coordinating, planning, and providing support and services to constituents.

ASSUMPTIONS

The customer satisfaction of almost any IT department anywhere will rate low because of end-users' bias or difficulty with technology, software or other technology component that is not being measured but is assumed by the end-users to be IT department's responsibility. And moreover, it is highly unlikely that any

campus IT organization can really satisfy all constituents. On the faculty side, IT is still viewed by some within the academy community as causing undesirable change, measures of satisfaction with technology-related services could, in fact be reporting levels of dissatisfaction with long held prejudices (Hawkins and Barone, 2003)

LIMITATIONS

Satisfaction study and data must be understood in context of the study, because during the past two decades, the end-user population of campus has changed from a relatively small, fairly homogeneous and sophisticated group of users to virtually every faculty member, staff member and student (Hawkins and Barone, 2003). Therefore the limitations I anticipate are:

1. Since System IT Department does not deal directly with students and student labs at HCC, students are not included in this study.
2. Adjunct faculty, temporary staff/part staff, administrator and IT staff are not included in this study.
3. The study is limited to the six colleges and system office of HCC, there the result may applicable only to HCC context.

DEFINITION OF TERMS

Chief Information Officer (CIO) - The individual in an organization that is responsible for the strategic use and management of information, information systems, and information technology within that organization. The CIO is a senior management position that oversees the information technology department (Gottschalk, 2004).

Customer Relationship Management (CRM) in information technology is a software solution that helps enterprise businesses manages customer relationships in an organized way. CRM would have a database containing detailed customer information that management and analysts can reference in order to match customer needs with appropriate service need.

Co-sourcing is the business practice where a business function is performed by both internal staff and external resources, such as consultants or outsourcing vendors, with specialized knowledge of the business function (http://www.offshorexperts.com)

The broadest definition of an **end-user** is the one offered by Merriam Webster Dictionary (2000) as "the ultimate consumer of service or finished product." End-user is the final or ultimate user of a computer system. End-users can be doctors, payroll clerks, financial analysts and scientists, especially in this era when every business transaction begins and ends with a computer operated by

end-user (Igbaria and Guthrie, 1999). The term end-user is often used interchanging with customer or user.

End-user satisfaction has become an important proxy for measuring the success and performance of an information technology service department (Mohamed and Lin, 2004; Zviran and Erlich, 2003), and a widely accepted indicator of IT service success (Mahmood et al., 2000). Chin and Lee (2000) definition of end-user satisfaction as the overall affective evaluation an end-user has regarding his or her experience related with the information system (p. 554).

Information Technology (IT) is the technology of computers, telecommunications, networks and other devices that integrate data, equipment, personnel, and problem-solving methods in planning and controlling business activities. Information technology provides the means for collecting, storing, encoding, processing, analyzing, transmitting, receiving, and printing text, audio, or video information, sometimes referred to as Information Systems (IS) (http://scrc.ncsu.edu/public/definitions).

Podcasting is delivering audio content or media file to portable media players and personal computers on demand, so that it can be listened to at the user's convenience; podcast can mean both the content and the method of syndication (http://www.podcastingnews.com/articles).

DISSERTATION OVERVIEW

Chapter One served as an introduction to the study, provided the historical context for information technology, and offered a foundational explanation for the importance of Information Technology in higher education. Chapter One also provided a brief overview of the research-site - HCC and its multi-campus and theoretical background of the study. It concluded with the statement of the problem, the purpose of the study, research questions, and the significance of the study.

Chapter Two, through an extensive literature review, identified and addressed three prominent areas: Information Technology Departments in colleges and universities, measuring end-user or customer satisfaction and issues dealing with quality of service.

Chapter Three discussed the design and organization of the study; by detailing the methodological procedures for selecting subjects, the design of the survey questionnaire, the framework for the focus groups, and the treatment of the data.

Chapter Four presented the findings of the study. The researcher employed two methods quantitative and qualitative. The quantitative data were from the online survey while the qualitative data were obtained from two groups of staff and faculty. These results were presented with tables and graphs and by way of narratives.

Chapter Five included a summary, conclusions, implications, and recommendations for improvement.

CHAPTER TWO

REVIEW OF LITERATURE

INTRODUCTION

The formal organizational unit or function responsible for technology services is often called the information technology department. The IT department is responsible for installing and maintaining the hardware, software, network infrastructure, data storage and application development (Gottschalk, 2004). The IT department often is made of sub units such as the help desk unit, network unit, application development and systems support unit. The IT department also consists of information technology professionals such as desktop technicians/analysts, programmers, application developers, project leaders, IT managers, and network and systems administrators (Baschab and Piot, 2003). The department is overseen or led by a CIO (chief information officer). In HCC, the IT department is typical in that it follows the above described organizational, functional and staff framework.

The literature review in this chapter will seek to provide focus on the following: (1) IT departments in American colleges and universities, (2) Organization of Information Technology Departments, (3) IT departments as Internal Service model, (4) end-user or customer satisfaction of IT, all these with the underlying theme of quality service, and (5) a review of some of end-users/clients/customers satisfactions studies at other colleges and universities.

IT DEPARTMENTS IN AMERICAN COLLEGES AND UNIVERSITIES

An IT department in our society today is essentially a customer service organization (Dugger, 1997; Peebles and Antolovic, 1999) whose mandate is to provide quality computer service to their customers/end-users. This fact is even more so for higher education information technology departments. As service organizations, they face significant challenges to the traditional models of providing services to their constituency of students, faculty and staff (Grant, 2001; Conant, 2003). Two decades ago, fewer than 20% of faculty, staff and students were active consumers of technology service support (McClure et al., 1997) but, that is no longer the case. Providing adequate user support and upgrading administrative systems are two of the critical issues facing the delivery of administrative information systems (Green, 2001). The Information technology departments are in an era in which meeting the needs of their customers is becoming more difficult (Niederriter, 1999). Before the pervasiveness of information technologies, faculty, staff and students were able to call their IT departments and receive help at moment's notice, but the increasing complexity of technology and the number of systems that IT departments are responsible for overseeing has grown too large (Heinze, 2005). Increasingly, the IT departments are pressured by a combination of internal institutional changes and workplace developments that come from integration of technology into academic and administrative missions, strategies and functions of the colleges and universities (Conant, 2003). There are also the challenges or convergence of

rising IT costs, declining overall higher education budgets (Albrecht et al, 2004); and the accelerated rate of evolving technology, both in hardware and software, and, as noted by Conant (2003). IT service departments in universities face the increased expectations of incoming students along with the administrative challenges to do more with less, while operational costs continue to rise (p. 2). Hardware and software that is state of the art today can be outdated and obsolete within a few months. Similarly, technological practices and procedures can also be short-lived and quickly outdated.

IT departments in academic institutions also confront a broad range of policy issues and legislative mandates, such as managing the privacy and security of data, managing the increased cost of technology, developing new funding strategies and structure and helping faculty leverage technology in their teaching (Conant, 2003). These issues have led IT departments to be seen as both a commodity and a strategic asset for colleges and universities (Elmore et al. 2004).

At institutions where the IT department is not properly integrated into the strategic vision of that institution, other business units of the institution outside of the IT organization can begin to make their own decisions and allocate resources for IT-related purchases, often without input from the IT organization. This decentralized and uncoordinated decision-making process often leads to situations where the IT organizations are unable to adequately support or maintain the institutions' technology investment. This is a growing concern on the part of institutional leadership about IT expenditures and initiatives. Information

technology management has undergone several phases in its development. The data processing center personnel made most of the decisions regarding information technology, in the days of mainframe computing. During this period, the selection of a specific hardware vendor dictated, in many ways, the software, processes, standards and procedures that would be used within the institution. As technology has changed, and as computing power has moved out of the central data center to the desktops of end users, decisions regarding IT resources, allocations and prioritization of IT initiatives have become more complex. Therefore, the undertaking of these complexities has given rise to IT governance.

INFORMATION TECHNOLOGY GOVERNANCE

IT Governance structure is important because of the magnitude and significance of the colleges and universities IT resources. According to Edutech Report (2006) IT governance has been one of the most consternating issues for colleges and universities today. Dewey et al. (2006) reports IT governance to be among the "10-Top" issues facing higher education IT departments for a fourth year. Gayle et al. (2004) considering governance from general educational institutions' point of view, governance is defined as "the structure and process of authoritative decision making across issues that are significant for external, as well as, internal stakeholders within a university." Moving the concept of governance to the realm of IT, is defined in its simplest terms as the locus of IT decision making authority (Brown, 1997; Sambamurthy and Zmud, 1999).

Although IT governance may differ widely across institutions, an encompassing definition of IT governance is the one offered in Albrecht (2004) as: "IT governance involves assigning shared responsibility, authority, and/or accountability to broad-based, cross-functional set of stakeholders, addressing numerous IT related areas (p. 58)" as well as set direction for the IT department of the institution. In constituting an IT governance committee, Edutech Report (2006) advised that such advisory committee be placed at "high level" and report directly to the president of the institution and that the IT governance committee should not be chaired by CIO or IT staff (CIO should be a member of the committee), is a key resource for good IT decision making. This sort of arrangement will ensure that major IT decisions have the involvement and contributions of stakeholders.

ORGANIZATION OF INFORMATION TECHNOLOGY DEPARTMENTS

Traditionally there have been two configurations for organizing an IT department – the Centralized IT department and the Decentralized IT department (Gordon and Gordon, 2000; King, 1983; Ulrich, 2004). Peterson et al. (2000) observed that IT organization has drifted between centralization to decentralization and back to recentralization. Managers of IT departments at institutions of higher learning have confronted decisions about centralizing or decentralizing computer services at one time or another. Ulrich (2004) observes

that this trend of centralizing, decentralizing and re-centralizing IT department is an attempt to fix a more systemic problem in managing information technology infrastructure. In other words, the goal underlying centralization and/or decentralization efforts have been to determine an appropriate arrangement for providing information technology resources in organizations, given end-users needs (King, 1983) for quality service.

In the early years, the expense and expertise required to acquire and run an IT department necessitated centralization of an IT unit (Bauer, 2003). In higher education, the acceleration of client/serve computing and explosion of the internet in the 1990s gave rise to disparate departments that were merged together and budget centralized, and IT support, from the desktop to the enterprise system, was shifted centrally (Roberts, 2005). As the cost of computing technology decreased and trained IT personnel became readily available, individual business units within an organization began creating their IT units (Bauer, 2003). However, the pendulum is swinging back to the centralized model. The main reason for the pendulum swing back to the centralized model can be traced to the work on Y2K systems conversions and by business units that came to appreciate the challenges of cost effective IT procurements and operations (Bauer, 2003). A third IT configuration is now emerging. The Hybrid or Federated IT department organization is a cross between centralized and decentralized IT organization (Peterson et al. 2000).

CENTRALIZED IT ORGANIZATION

Centralization refers to the allocation of all IT resources to one particular business unit that provides IT services and infrastructure to the whole firm (Gordon & Gordon, 2000). As observed by Bauer (2003), in the centralized model, all IT functions — strategy and planning, application development and maintenance, and operations — report directly to a senior executive, such as the chief information officer (CIO). In short, the IT organization controls all IT functions in the institution. The main characteristics of a centralized approach include control, efficiency and economy. Centralized approaches are effective in gaining or regaining control over an organization's information system (Robson, 1997). A centralized IT may have always been centralized or it may be a cost saving regrouping of an organization's IT to one particular location. As stated earlier, in higher education, the trend to centralize IT reaches its zenith in the 1990s, when all academic and administrative computing organizations were consolidated (McClure et al. 1997, p. 5).

Tavakolian (1989) found a correlation between how an organization structures its IT department with the organization's competitive strategy. An organization with conservative competitive strategy possesses a more centralized IT department than an organization with an aggressive competitive strategy. This means that end-users in a conservative organization have less control over their information technology than end-users in an aggressive organization (Tavakolian,

1989). This finding corresponds with conclusions reached by some proponents of organizational fit that maintains that the Information Technology structure tends to reflect the organizational decision-making structure (Ein-Dor and Segev, 1982; Poppel, 1980; Wheellock, 1982).

There are some drawbacks to the centralization of an IT department. These drawbacks manifest in the cost (Bauer, 2003); in loss of autonomy on IT decisions by other business units and also inability of the IT department to understand and fulfill the business requirements of these units (Ulrich, 2004).

DECENTRALIZED IT ORGANIZATION

Decentralization gives individual business units autonomy over their own IT resources without any major considerations over other units unless it is essential to the overall organization policy (Gordon & Gordon, 2000). The main traits of a decentralized approach include flexibility, empowerment of individual business units and service orientation. Decentralized approaches tend to be just as efficient as centralized ones in regard to meeting an individual's needs. The proximity to and accessibility of IT personnel and resources is an important factor in decentralized IT organizations (Michalak et al., 1999). In many colleges, particularly large ones, decentralized IT functions are the norm, as individual schools or academy departments may control some specific IT services (Michalak et al., 1999).

HYBRID OR FEDERATED IT ORGANIZATION

In large institutions, there is a trend towards coexistence of centralized and decentralized IT resources; this as resulted in institutions developing IT department structures that keep selected elements of both the centralized and decentralized models (Bauer, 2003; Ulrich, 2004). Many advocates of centralization have agreed that there is a need for other business units to play in some application management of IT resources. This fact is correlated by the statistics reported by Ulrich (2004) showing that 48% of IT executives surveyed combined elements of decentralization and centralization.

INTERNAL SERVICE MODEL

The IT service departments in colleges and universities are organized along the internal service model – a service providing arm or agency within an organization (Kang and Bradley, 1999); where every employee and department within an institution is a user or customer of service and participates in a producer/customer relationship (McDermott and Emerson, 1991). Pitt, et al. (1995) observed that IT departments have always had a service role because they assist end-users in converting data into information (p. 173). The role of the internal service department in organization has been discussed in literatures (Albrecht, 1990; Berry and Parasuraman, 1991). The consensus is that satisfaction of these internal customers (i.e. employees) is important to the success of the organization. Boshoff and Mels (1995) observed that poor service

quality from an internal service department of an institution to internal customers can exert negative influence on the quality of service offered to the external customer (McDermott and Emerson, 1991; Walshak, 1991) such as students or alumni, in higher education settings.

The IT department, as an internal service organization, has especially gained attention due to its enormous size of expenditure (Kang and Bradley, 1999) and its integration and importance to organizations. Information technology is today one of the most critical tools in higher education. It permeates every aspect of the educational institution, from the first contact a student has with an institution's web site, through the myriad of systems that IT manages to the access of information. The IT department budgets continue to grow faster than other parts of the institutional budget and crowd other strategic objectives at almost every institution (Smallen and Leach, 2002). For example, in the U.S., IT expenditure has been estimated at **2.2%** of all revenue for corporations (Kang and Bradley, 1999) and for higher education, average total computing and information technology spending as a percentage of total campus spending stands at **7.3%** of which 33% is devoted to academic computing expenditure (Tully, 2004). The internal and external stakeholders call IT service departments to justify their budgets, as competition for scarce resources stiffen (Toutkoushian, 2001 McClenney and Mingle, 1992). Hence, colleges' and universities' IT departments are looked upon to develop cost effective approaches to the delivery of services to their end-users. These services must be high quality

to its end-users or customers; this is an important mandate from their stakeholders (Bucher, 2001; Dugger, 1997). Therefore, quality customer services have emerged as a strategic imperative (Gautam, Muhanna and Barney, 2005) and also of special interest to the managers of the IT departments. Quality service has also become a surrogate for measuring IT performance and as a means of aligning IT expenditure with overall organization's strategic plan. Therefore, it is not uncommon to read in the mission statements of IT service departments of colleges and universities the mantra of maintaining and providing quality customer services to their constituents.

IT DEPARTMENT END-USERS OR CUSTOMERS

The broadest definition of an end-user is the one offered by Merriam Webster Dictionary (2000) as "the ultimate consumer of service or finished product." Rockart and Flannery (1983) observe that in an end-user computing environment (IT service department), it is important to know who the end-users are, where they are located in the organization and what these end-users do. In other words, what services do these end-users require from an IT services department? Jones (1996) agrees with proceeding sentiments by adding "internal business functions have customers", i.e. the users of their outputs which may be services or information. Jones (1996) continues "computer users know that they are customers and, in many organizations, they know that they have the right to shop around for the best value for money in obtaining IT services." The

sentiment of shopping around for the best value in IT services is of a particular interest to colleges and universities in this era of outsourcing with an eye to conserving scarce resources (Das et al., 1999).

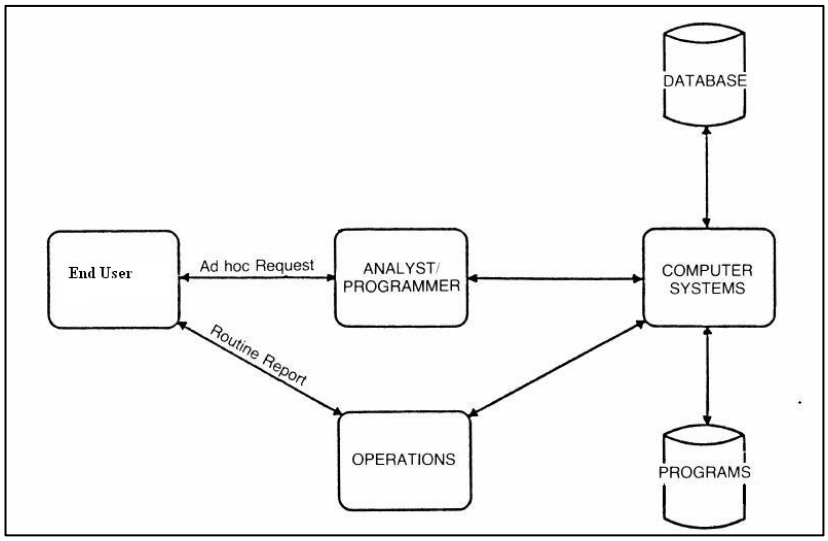
Rockart and Flannery (1983) cite the CODASYL's (**Conference on Data Systems Languages, 1979**) end-user committee that place end-users into three categories. These categories are: indirect end-users, intermediate end-users and direct end-users. Igbaria and Guthrie (1999) define end-users as "those people who have trouble fixing tables in word processors; end-users also program their own applications, manage networks and develop web sites. End-users can be doctors, payroll clerks, financial analysts and scientists, especially in this era when every business transaction begins and ends with a computer operated by end-user (Igbaria and Guthrie, 1999).

Some literature on IT end-users seeks to make a distinction on whether the users of IT services are customers or clients. Glen (2003) observes that IT end-users are not really customers in the traditional sense but, rather, are clients, since the IT end-users are involved long-term relationship with a group of highly skilled IT professionals.

Prior to the pervasiveness of the personal computers, in the era of mainframe computing and data processing centers, the end-user interacted indirectly with the computer through an analyst/programmer or operations (Doll and Torkzadeh, 1988). In this environment, routine reports were requested through operations personnel and with a non-routine request; the

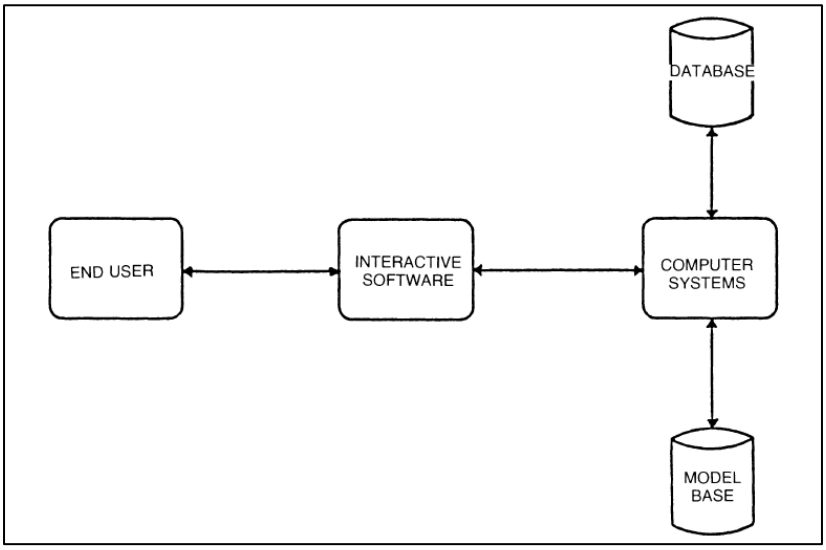
programmer/analyst assisted the end-user (see figure 3) (Doll and Torkzadeh, 1988). The end-user in this situation might be unaware of what specific programs or how the report is generated. In the current end-user computing environment (see figure 4), end-users interact directly with applications or software to generate the desired reports (Doll and Torkzadeh, 1988). In this present end-user computing environment, an end-user may require the service of an IT department in the course of performing routine or non routine activities.

Figure 4 End-user/data center interactions in mainframe environment



Doll & Torkzadeh, (1988)

Figure 5 End-user/personal computer interactions



Doll & Torkzadeh, (1988)

In colleges and universities settings, all users of Information Technology associated with the college are considered customers of the Information Technology department. These are students, faculty, staff, and others as defined by their association with the college, such as alumni. Two decades ago, fewer than **20%** of faculty, staff and students were active consumers of technology services and support (McClure, Smith and Sitko, 1997), but today, there is almost no one in our institutions of higher learning that does not have a need for support from IT service department. Faculty and administrators on our campuses increasingly perceive IT to be critical to their work, and they want a central

organization, i.e. IT department to promptly meet their changing IT needs (McClure, Smith and Sitko, 1997).

End-users today are knowledgeable, compared to just a decade or two ago and when all their computer know-how failed them, they need quick, reliable and quality service from their IT department. In short, the end-users demand customer satisfaction in their dealing with their IT department.

WHAT IS END-USER OR CUSTOMER SATISFACTION?

The concept of customer satisfaction occupies a central position in marketing thought and practice. Satisfaction is important to the individual [customer] because it reflects a positive outcome from the outlay of scarce resources and/or the fulfillment of unmet needs (Bearden, W. O. & Teel, J. E. 1983). Hence, the researchers have focused on discussions of the determinants of customer satisfaction. In the realm of information systems research, satisfaction has been of interest to both practitioners and scholars alike. The literature, by and large, agreed that satisfaction in a given situation is the sum of one's feelings or attitudes toward a variety of factors affecting that situation (Bailey and Pearson, 1983). CIOs and IT managers consistently rank end-user satisfaction or increase end-user satisfaction as a primary goal of their departments. So, what is end-user satisfaction?

Mohamed and Lin (2004) posit that satisfaction has been on the information systems research agenda for years, because it appeals to both scholars

and parishioners with its practical and theoretical significance. Early Information Systems researchers, such as Ives et al. (1983) and Bailey and Pearson (1983) examined end-user satisfaction as a function of system characteristics. Satisfaction was frequently used as a surrogate for IS success as it is linked to the successful construction in a number of conceptual and empirical aspects (Bailey and Pearson, 1983). Therefore, end-user satisfaction has become an important proxy for measuring the success and performance of an information technology service department (Mohamed and Lin, 2004; Zviran and Erlich, 2003), and a widely accepted indicator of IT service success (Mahmood et al., 2000). It follows then, that the Chin and Lee (2000) definition of end-user satisfaction as the overall affective evaluation an end-user has regarding his or her experience related with the information system (p. 554) is very appropriate.

Researchers traced the concept of end-user study to the work and "Behavioral Theory of the Firm" of Cyert and March (1963), that proposed that an information system which met the needs of its users would reinforce satisfaction with the system and if the users needs are not met, the users will look elsewhere for satisfaction (Zviran and Erlich, 2003; Ives et al., 1983). Since then, the study of satisfaction in the larger sense lays in the domain of the psychologists (Churchill et al. 1974; Cross 1973; Schwab and Cummings 1973). There are as many definitions of customer satisfaction as there are researchers. Below are some of the typical definitions of satisfaction that takes into account human behavior:

Satisfaction is the state felt by a person who has experience a performance or outcome that has fulfilled his or her expectations. Satisfaction is thus a function of relative levels of expectations and perceived performance…Expectations are formed on the basis of past experiences with the same or similar situations, statements made by friends and other associates, and statement made by [service] organization (Kotler and Clarke, 1987).

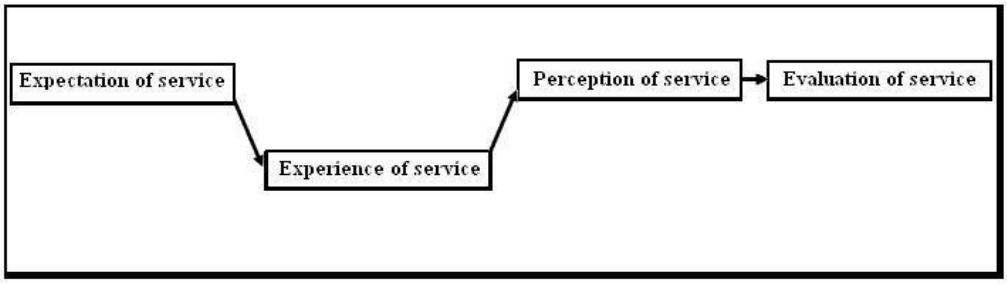
Satisfaction or dissatisfaction is more than a reaction to actual performance quality of a product or service. It is influenced by prior expectations regarding the level of quality. According to expectancy disconfirmation model, consumers often form beliefs about product performance based upon prior experience with the product and/or upon communications about the product that imply a certain level of quality. When something performs the way we thought it would, we may not think much about it. If, on the other hand, something fails to live up to expectations, a negative effect may result. And, if performance happens to exceed our expectations, we are satisfied and pleased (Solomon, 1996).

Satisfaction is the consumer's fulfillment response. It is a judgment that a product or service feature, or the product or service

itself, provided or is providing a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment (Oliver, 1997).

Hom (2002) commenting about the various definitions of satisfaction, noted that both the historical and current definitions of customer satisfaction center on the concepts of expectations, experience, perceived service and resulting evaluation, thus the Basis Model for Customer Satisfaction Theory (CST) (see Figure 5). The CST model requires only the use or experience of a product or service and the purchase of services or product, therefore, the terminology of consumer satisfaction rather customer satisfaction is preferred by some theorists (Hom, 2002).

Figure 6 Basic Model for Customer Satisfaction or Dissatisfaction



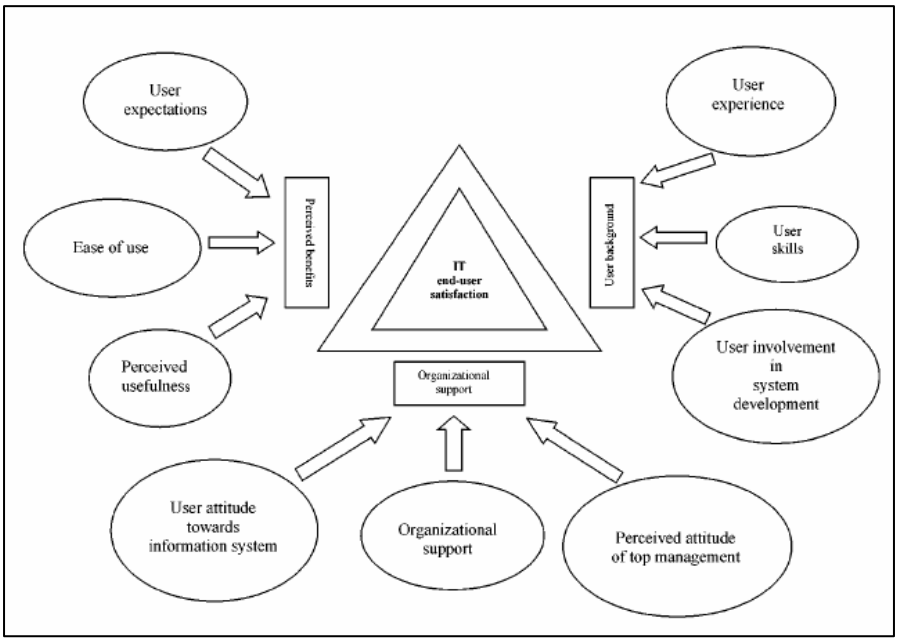
Hom (2002)

In the early 1970's, Powers and Dickenson (1973) studied factors affecting the success of information systems and, by extension, the success associated with the IT service department. They identified end-user satisfaction as one of the key factors affecting the success of an IT service department. It follows suit then that, if end-users perceive IT department services as satisfactory, the end-users will have a feeling of contentment with their information systems and improve their productivity. According to Delone and McLean (1992) there are three reasons satisfaction is a widely used surrogate in IT research. These are as follows: end-user satisfaction has high face validity in research; the available instruments used to measure other success dimensions are not well defined, and many instruments exist to measure user satisfaction. Mohamed and Lin (2004) are in agreement with the preceding remarks, and add satisfaction is a good measure or indication of IT department success. In their opinion, end-user satisfaction enjoys a higher degree of face value and convergent validity than other commonly used gauges of success, such as, usage and perceived usefulness. Usage is not an appropriate measure when it is mandatory. On the other hand, perceived usefulness fails to capture the concerns of end-users.

Lastly, Mahmood et al. (2000) pointed out that user satisfaction definitions tended to be wide and varied. In an attempt to reduce some of the confusions associated with these different user satisfaction definitions, Mahmood et al. (2000) gathered some of the previous research and examined the empirical results

of 45 information system user satisfaction studies carried out between 1986 and 1998 and proposed the theoretical model of factors affecting IT end-user satisfaction (Figure 7).

Figure 7 Research model of factors affecting IT end-user satisfaction



Mahmood et al., (2000)

The model is made up of three major factors, each of which consists of three variables:

- Perceived benefits and convenience: User expectation, ease of use and perceived usefulness.

- User background and involvement: User experience, User skills, and user involvement in the system development.
- Organizational support and encouragement: User attitude towards information system, organizational support and perceived attitude of top management.

MEASURING CUSTOMER SATISFACTION

Delivering effective customer service is a goal shared by virtually every successful service organization, be it a corner grocery store, a public company or multi-million dollar financial company (Huffman and Moormann, 2002). Customer satisfaction assessment is a way or a process of understanding the customers and their needs. According to Chin and Lee (2000) the measurement of satisfaction has had a long history in information systems discipline and in the area of in end-user computing. As stated above, measuring and analyzing computer user satisfaction is motivated by chief information officers' (CIOs) and management's desire to improve the productivity of information systems (Bailey and Pearson, 1983). In the area of end-user computing, there have been several studies attempting to capture the overall post hoc evaluation customer's dealing with a service provider in terms of satisfaction of the end users are have regarding the use of an IS system or service, as well as the factors that forms this satisfaction (Doll, et al. 1995; Doll and Torkzadeh, 1988; Henry and Stone, 1994; Torkzadeh and Doll, 1991).

Customer satisfaction, in its most basic form, seeks only to meet customer expectations and avoid disappointment. The lower the expectations, the easier it is to satisfy customers. The problem is that as customers lower their expectations, they get further away from what they actually want. Exceeding customer expectations may not provide them with everything they want, but it is necessary for moving to the stages beyond customer satisfaction.

WHY MEASURE SATISFACTION?

It has well been documented in private and for-profit organizations, the greater the satisfaction of the customers, the greater the profits (Huffman and Moormann, 2002) but, for the public and the not-for-profit organizations, this is not necessarily true. These organizations can realize other tangible effects from delivery of service satisfaction. Haskett et al. (1997) documents a strong relationship between employee and customer loyalty and satisfaction. Huffman and Moormann (2002) observed that simply measuring customer satisfaction does not create customer satisfaction; however, it provides a necessary method to understand factors that contribute and drive customer satisfaction. Furthermore, measurement of satisfaction also provides focus on how factors or drivers that contribute to satisfaction can be attained and maintained for a continuous high level of customer satisfaction. For all organizations, particularly public organizations such colleges and universities, the importance of delivering customer satisfaction is the keystone in satisfying their stakeholders – students,

faculty, staff, alumni and community; and this is a widely recognized and respected model for business excellence, rewarded with the Malcolm Baldridge National Quality Award (Jones, 1996).

QUALITY SERVICE

Assessment of customer satisfaction has direct bearing on the service quality. Most research on service quality spurred by the original by work of Parasuraman et al. (1985). They suggest that service quality is based on comparison between what the customer feels should be offered and what is provided. The difference between expected and perceived service is called the Gap 5 (Zeithaml et al., 1990). According to Watson et al. (1998) the customer-perceived service quality shortcoming, Gap 5, results from four service provider's shortfalls (Gaps 1 through Gap 4). Watson et al. (1993) translated the shortcomings- Gap 1 through Gap 4, to information systems terminology thusly: Gap 1 results from misunderstanding by IT department of what end-user wants; Gap 2 occurs when IT department has not established appropriate service standards; Gap 3 is the distance between established service quality standard and what IT department actually delivers; and Gap 4 occurs when IT department creates expectations beyond what it actually delivers.

The customer-perceived service quality shortcoming has been named the disconfirmation paradigm and represented mathematical as follows (Parasuraman et al., 1988): Service Quality (Q) = Perception (P) – Expectation (E) or G = P – E.

The measurement of Gap 5 or service quality shortcoming has been operationalized in the quality service survey called SERVQUAL (Parasuraman et al., 1988). The SERVQUAL instrument has two parts. The first part, consisting of 22 questions for measuring expectations, is benchmarked in terms of performance of an excellent provider of the service being studied. These questions are framed to ask respondents to compare their organization to an excellent service provider. The second part, consisting of 22 questions designed to measure perceptions of actual service delivered (Zeithaml et al., 1990, p. 180). Service quality is then measured by calculating the difference in scores between the customer's expected level of service and level of service delivered. Underlying SERVQUAL are five dimensions that are used by customers when evaluating service quality and there are:

1. Tangibles - Physical facilities, equipment, and appearance of personnel.
2. Reliability - Ability to perform the promised service dependably and accurately.
3. Responsiveness – Willingness to help customers and provide prompt service.
4. Assurance - Knowledge and courtesy of employees and their ability to inspire trust and confidence.
5. Empathy - Caring, individualized attention the service provider gives its customers (Parasuraman et al., 1988).

The above attributes of service quality are distilled from the ten original attributes proposed by Parasuraman et al. (1985). These original attributes are: tangibles,

reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding and access.

Understanding the attributes of service customers use to evaluate and characterize quality can help organizations develop more effective ways of improving services (Rowley, 1998). Parasuraman et al. (1988) have referred to these attributes as determinants of quality.

CHAPTER THREE

METHODOLOGY

Chapter three will be used to present the researcher's roles and responsibilities. It will also detail the research site, the research subjects or participants and restate the objectives of this research. The research methodologies and the rationale for these methodologies will also be presented. Finally, the data collection process will also be detailed.

RATIONALE FOR THE STUDY

The researcher has both a personal and a professional interest in the functioning and quality of service offered by an IT service department of an institution of higher education. Having worked in the IT field for the past thirteen years and eleven of those years in a higher education setting at the Houston Community College System. During this period, the researcher has had a first hand experience of the increase in the amount and range of services provided by IT department to their end-users. Often, the IT staff does not always know how well they are doing; what areas might need improving or what should be done to effect the greatest improvement in service (Grant, 2001). The measurement of customer satisfaction of IT services at HCC will help the IT department to improve their services and also set benchmark – a criterion for excellence.

When the conceptual framework for this was first envisioned, HCC was the first research site that came to the researcher's mind. With the HCC IT budget

being substantial, in respect to the entire institution, and with the leadership issues affecting the IT department, this researcher weighed these challenges and deemed the study of customer satisfaction will benefit the department and, indeed, the entire institution. The study will let the IT department know how well they are doing and where improvements are needed. It was with this in mind, that I approached Ms. Irene Porcarello, the vice chancellor currently in charge of IT department. Understanding the value this study will have in either selling the IT department to the rest of the institution or improving IT department services, she agreed to the study.

RESEARCH DESIGN

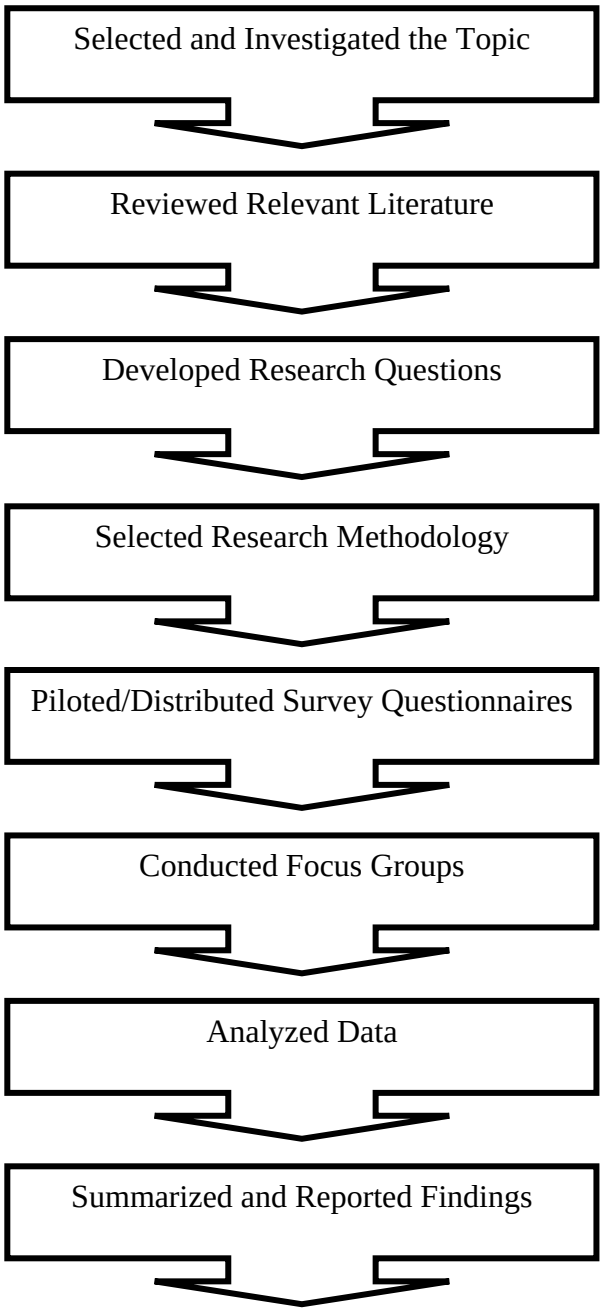
This research has four goals:

1. To determine if there are differences in customer satisfaction between staff and faculty in the dimensions of service quality offered by HCC IT department.
2. To determine if there is significance differences in the overall customer satisfaction between staff and faculty with HCC IT department.
3. How do staff and faculty compare in their satisfaction of the HCC IT department.
4. What are the reasons staff and faculty give for their evaluation of the HCC IT services.

To accomplish these goals, the researcher will use a case study method that has the elements of both quantitative and qualitative research methods. This design is planned so as to allow for interpretative results form the qualitative side and for the descriptive statistics from the quantitative portion. In order words, it is my hope that the qualitative side of the research will give greater understanding of the data generated from the quantitative statistics. The case study is the most relevant methodology for this work because of its power to describe phenomenon or social unit such as group, institution, or community using either statistical or qualitative techniques (Merriam & Associates, 2002, p.8).

The theoretical perspective of this case study is interpretivism. Unlike natural science research that purports to test for causality, interpretivist research allows the researcher to be the instrument for the overall study. As a result, the researcher's interpretation of the data is used to explain the social phenomena. Hence, social science is concerned with researching the idiographic, which in this case, will be the study of the HCC employees' unique perspectives (Crotty, 1998).

Figure 8: Research Design and Organization



SITE OF STUDY AND SUBJECTS

The site of the study is Houston Community College's six colleges plus the HCC system on 3100 Main Street, Houston, TX. The subjects are fulltime employees of HCC, excluding fulltime staff of HCC IT department, part-time staff and part-time faculty of the entire institution. Also excluded are the administrative personnel as defined by the EEOC. HCC employs 803 fulltime faculty, 939 support staff (HCC Fact Book, 2006). The part-time staff and faculty are excluded from the study because they are likely not to have e-mail account, thus making contacting them problematic and moreover, the HCC employees included in this study are heavy users of technology. The IT staffs are excluded from the study so as to not bias the study.

On September 6, 2006, I requested e-mail list of all HCC fulltime employees from Mr. Willie Williams, associate vice chancellor for HCC Human Resources Department. On September 8, 2006, I received the e-mail list for all fulltime faculty and staff of HCC. I examined the e-mail list for duplicates, executives and administrative ranked employees.

Table 3 HCC Fulltime Employees by category & college

College	Administrator	Faculty	Staff	Total
Central	11	131	120	262
Coleman	3	92	32	127
Northeast	13	167	98	278
Northwest	11	134	65	210
Southeast	11	70	54	135
Southwest	9	190	90	289
System	69	19	480	568
Total	127	803	939	1869

Table 4 HCC employees that received the online survey

College	Faculty	Staff	Total
Central	131	120	251
Coleman	92	32	124
Northeast	167	98	265
Northwest	134	65	199
Southeast	70	54	124
Southwest	190	90	280
System	19	392	411
Total	803	851	1654

COLLECTION OF DATA

Researchers have long debated which methodology is best for social science studies – qualitative or quantitative (Patton, 1990). To add rigor and validity, case study approach that employs both the elements of qualitative research and quantitative research will be used to collect data.

DESIGN OF QUANTITATIVE DATA COLLECTION

Patten (2002) defines quantitative research as a systematic attempt to define, measure, and report on the relationships between various variables/factors and produce numerical data that can be statistically analyzed. Hopkins (2000) is in agreement with above definition of quantitative research and adds, the aim of this type of research is to determine the relationship between an independent variable and dependent variable. He further noted that quantitative research can be descriptive (subject measured only once) or experimental (subject measured before and after treatment). A descriptive study establishes only associations between variables. In the social research method, questionnaires and scales are effective approach to gathering quantitative data, especially from large groups (Fraenkel, and Wallen, 1996).

For the quantitative portion of this study, the researcher reviewed several customer satisfaction survey instruments (Niederriter, 1999), Indiana University IT Department (2005) for an appropriate survey instrument. I used a modified customer satisfaction survey instruments used by Niederriter (1999) in her study

of Pima Community College. This customer satisfaction survey questions consist of 27 Likert-scale questions, Appendix A. The survey instrument was published on an online survey hosting site www.SurveyMonkey.com. The online survey was opened to targeted population on September 13, 2006 and taken down on October 13, 2006. The 27 Likert-scale online survey was estimated not take the respondent more than thirty minutes to complete. On the evening of September 13, 2006, the researcher sent a mass e-mail message (see Appendix B) to 1654 fulltime faculty and staff of Houston Community College explaining the study and inviting them to take part in the online customer satisfaction survey. To ensure high participation, the researcher contacted the HCC faculty senate to encourage faculty participation. The researcher also attended the meeting of the College Office Professional Association (COPA) – HCC staff organization to urge the participation on the online survey. After 10 days of the online survey, an e-mail remainder sent, asking those who have not taken the survey yet to do so (see Appendix C).

SURVEY INSTRUMENT

The survey instrument consists of two parts. The first section of the survey instrument aimed to collect demographic information regarding the respondents' gender, college, and years of service and employment category. The second section of the survey instrument consist 27 Likert scale questions. The survey instrument is based on service quality dimensions of Zeithmal et al. (1990)

and on the work of TQM expert Besterfield et al. (1995) with further modifications by Niederriter (1999) for Pima Community College, Arizona. The Ziethaml et al's section is designed with the inclusion of the ten service quality dimensions in mind.

These survey questions seek to determine if there is any statistically significant difference between faculty and staff in the dimensions of quality service in addition to their overall customer satisfaction with IT department of HCC. Again the breakdown of the twenty-six likert scale questions are as follow: 20 questions (two questions each) from the service quality dimensions by Ziethmal, et al. (1990) and one questions each from five areas of service quality offered by Besterfield et al. (1995). There is also one general question accessing respondents' overall satisfaction of with HCC IT department. The survey instrument is attached Appendix A.

Finally, the answers to survey instrument questions, were modified from five choices ranging from "Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree" to "Strongly disagree, Disagree, Somewhat Disagree, Somewhat Agree, Agree, Strongly Agree" to minimized the contraction bias and "Satisficing" tendency. Tourangeau (2002) defines contraction bias – as the tendency to avoid the end points of rating scales. Contraction bias is a common phenomenon in survey instruments. This typically results in clustered responses towards the middle of a scale and consequently makes it particularly problematic to detect changes over time, and identify differences across questions within the

same survey. The concept of satisficing was forwarded by Krosnick and Alan (1987) as a particular type of response bias in which there is a tendency for survey respondents to often use the path of least cognitive work to minimally comply with survey obligations. Therefore, changing of the survey instrument scale is intended to reduce these problematic effects.

THE STRUCTURE OF THE INSTRUMENT

General Section

- Questions 1 & 2 addressed demographic information, work category.
- Questions 3 & 4 addressed work location and lengthen of service.

Customer Satisfaction – Quality service Dimensions identified by Ziethmal, et al. (1990)

- Questions 8 & 18 addressed **Access**
- Questions 10 & 19 addressed **Communication**
- Questions 17 & 24 addressed **Competence**
- Questions 6 & 25 addressed **Courtesy**
- Questions 12 & 26 addressed **Credibility.**
- Questions 7 & 27 addressed **Reliability.**
- Questions 9 & 16 addressed **Responsiveness**
- Questions 20 & 28 addressed **Security**
- Question 13, 14 & 29 addressed **Tangibles**
- Questions 11 & 15 addressed **Understanding the Customer**

Customer Satisfaction – Quality service Dimensions identified by Besterfield, et al. (1990)

- Question 21 addressed **Organization**
- Question 5 addressed **Expectation**
- Question 30 addressed **Communication**
- Question 22 addressed **Frontline People**
- Question 23 addressed **Leadership**

THE DESCRIPTION OF THE PILOT TEST

Pilot tests of the survey questionnaire should be conducted as a means of improving the understandability of the questionnaire. Tuckman (1999) stated that "most studies benefit substantially from the precaution of running test on their questionnaires, leading to revisions based on the results of the tests (p. 256)". The customer satisfaction questionnaires was pilot tested following committee approval of the dissertation proposal and approval of the IRB from the University of Texas at Austin Office of Research Support and Compliance.

The survey instrument in its "original" form was placed online on September 7, 2006 and pilot tested by 10 HCC IT staff on September 11 and 12, 2006. The pilot testers requested rewording changes to questions: 5, 20, 21, and 28 for clarity. These subsequent changes were made to the questionnaire without further communication with the study's pilot group. The researcher then sent out mass e-mail message to the staff and faculty of HCC on September 13, inviting them to participate in the studies.

ANALYSIS OF QUANTITATIVE DATA

The statistical procedures for descriptive statistics and frequency of distribution will be used to present the findings from the questionnaires. Gall, Borg, and Gall (1996) declared descriptive studies are primarily concerned with describing, "what is" - natural or man-made phenomena – at one point in time or

over time. This study is seeking to identify describe two groups (staff and faculty) perception of customer satisfaction as it relates to quality dimension of IT department. Data from the online questionnaire will be analyzed using either SPSS (Statistical Package for the Social Sciences). Comparison will be between the staff data and the faculty data. Results were presented in Chapter Four through a series of narratives, graphs, charts, and tables.

Furthermore, results from this study may also be compared to other institutions results. For over 20 years, Indiana University's IT department has conducted annual customer satisfaction surveys and has pioneered the benchmarking of IT customer satisfaction and service quality (Peebles & Antolovic, 1999). Hence the researcher will have the opportunity to compare the HCC situation against others.

DESIGN OF QUALITATIVE DATA COLLECTION

In addition to using a numerically based quantitative online questionnaire, the researcher thought a human-centered qualitative focus group approach would add additional personal perspectives, insight, and balance to the study. For the qualitative data collection, the researcher proposes to use a focus group method. Focus group originated in American marketing (Fern, 2001) and for more than half a century, researchers have been using focus group as a tool for qualitative research (Rezabek, 2000). Scheurich (1997) implied the qualitative approach, such as focus group has been very useful in social science research and can be

especially useful in educational research. The qualitative approach is a free form of investigation that uses human insight to gain and identify underlying individual feelings, beliefs, and issues of similar research problems.

The use of focus group in education research is rather new but increasing (Whitney, 2005). Focus groups as a qualitative tool straddles two long time qualitative tools: participant observation and in depth interviews (Morgan, 1997). Focus group is basically group interviews, where people are asked about their attitude towards a product, concept or a service. The interview is often conducted in a semi-structured approach, relying on the responses of the participants to move the interview or conversation along. Hence, the questions are open-ended and may open up pathways to new topics during the discussion, where the researcher is free to probe and explore some of the responses made by the participant(s) (Rezabek, 2000). Another important aspect of conducting focus group research is that the participants must be homogenous i.e. participants must share some commonalities (Northcutt and McCoy, 2004). A traditional size of a focus group is usually six to eight (Morgan, 1997). The questions given to focus groups are very important (Morgan, 1997; Kruegar, 1998; Northcutt and McCoy, 2004) and must be planned in advance.

At the conclusion of the online survey, the researcher computed and determined the means of dimensions of service quality for both the staff and the faculty. These top five mean values of the dimensions of service quality and the bottom five mean values of the dimension of service quality as identified by the

fulltime staff and faculty were used to conduct two focus groups sessions; one focus group session with fulltime staff and another focus group session with fulltime faculty.

Given the above rationale, the researcher employed the focus group approach to examine the level of customer service satisfaction at HCC. There were two focus groups (Focus Group One and Focus Group Two) consisting of 12 participants each. Focus Group One was made of HCC fulltime faculty from six colleges that comprise HCC. Focus Group Two was made up of full time staff from six colleges and the system office that comprise HCC. Some members of the focus groups were selected randomly; and to balance the groups, other members were selected by the researcher via invitation. Focus Group One consisted of seven females and five males. Two members of Focus Group One are Liberians, three members are counselors and the remaining seven members are classroom faculty. For Focus Group Two, membership consisted of eight females and four males. Composition of Focus Group Two by location is as follows: three members from the System Office, two members from Central College, two members from Southeast College, two members from Southwest College, two members from Northeast and one member from Northwest College. Coleman College (which is an Allied Health Institution) were unable to send a representative due to schedule conflict.

Focus Group One and Focus Group Two met on the same day – November 8, 2006, at the same location (HCC System Office at 3100 Main, room

4A03), but the two groups met at different times. The duration of each focus group session or interviews was for one hour and fifteen minutes. Focus Group One met at 10:15 – 11:30 am and Focus Group Two met from 12: 00 – 1:15 pm. Lunch was provided to each group courtesy of the Vice Chancellor for HCC Information Technology. The researcher served as the moderator for both groups; two colleagues from HCC IT department assisted as note takers in the collection of data for both groups. Focus Group One has in common the following: members are all support staff and they all use IT services. Focus Group Two members are full time faculty and also use IT services. Group One and Group Two have in common being fulltime employees of HCC.

ANALYSIS OF FOCUS GROUP DATA

Unlike the questionnaires, which yield numerical or "hard data," focus group data tend not to be as straightforward or easy to analyze. This is not to imply these data are not useful, quite the contrary. The analysis of the customer satisfaction with IT department focus groups will be a "controlled" process whereby the researcher converted the staff's and the faculty's conversations into "rich" and meaningful data (Krueger, 1998b). The strategy for data analysis is going to be largely based on finding viable answers to the study's predetermined research questions. The researcher conducted the primary analysis *during* the focus groups by listening to the comments and concerns upon which groups mutually agreed and disagreed. To ensure accuracy, the researcher reviewed each

focus group's audiotape recording, audiotape transcriptions and the notes taken during each session.

PROTECTION OF THE SUBJECTS

In accordance with Fraenkel and Wallen (1996) before beginning this research project, the researcher considered, "Would any physical or psychological harm come to anyone as a result of the research" (p. 37)? In the design of this study, precautionary steps were taken to protect all the faculty and staff from any deliberate deception, serious discomfort, or harm. Prior consent was obtained from The University of Texas [IRB #: 2006-08-0031], Houston Community College, and the subjects themselves. Safeguards were employed to ensure confidentiality.

Regarding the collection of data, the Internet-based questionnaires were only distributed to HCC fulltime faculty and staff email addresses with permission from the Human Resources department. This procedure helped to ensure that only the fulltime faculty and staff received and completed the survey. Further, the Internet-based questionnaires did not contain any program specific identifying information of the respondents to ensure confidentiality.

Regarding the collection of focus group data, each group was informed [in advanced] that the focus session would be taped-recorded. The researcher asked both groups to limit (as much as possible) the use of individual's names, colleges, and other identifiable characteristics. Additionally, the researcher edited the focus

group transcripts to protect the confidentiality of group members as well as other HCC employees.

CHAPTER FOUR

RESEARCH FINDINGS

The purpose of this study was to determine the level of customer satisfaction of the fulltime faculty and staff with the Information Technology department of Houston Community College (HCC), using Zeithaml, et al. (1990) ten dimensions of quality service and the five dimensions of quality service identified by Besterfield, et al. (1995). The ten dimensions of quality service by Zeithaml et al. (1990) are listed below:

Access – Easy contact and approachability.

Communication - Listens to its customers and acknowledges their comments; keep customers informed in a language which they can understand.

Competence - Possession of required skill and knowledge to perform service

Courtesy - Politeness, respect, consideration and friendliness of contact personnel

Credibility - Trustworthiness, believability, honesty of the service provider

Reliability - Ability to perform the promised service dependably and accurately

Responsiveness - Willingness to help customers and provide prompt service

Security - Freedom from danger, risk, or doubt

Tangibles - Appearance of physical facilities, equipment, personnel, and communication

Understanding the Customer - Making an effort to know customers and their needs.

Besterfield et al., (1995) categorized customer service into five quality areas and these areas are organization, customer care, communication, frontline people and leadership. These service qualities are briefly described below:

Organization – the goal of organization is for all customers to receive the same level of quality service. To accomplish this, standards of performance for all services are established. Employees are made aware of these standards by use of a service quality handbook with a thorough description of each service's quality standard. Service quality standards can also be instilled to all employees by formal trainings.

Customer care – reinforces the conviction that customer is number one. Customer care includes these essential elements: (1) meeting the customer's expectation, (2) getting the customer's point of view, (3) delivering what is promised, (4) making the customer feel valued, (5) responding positively to all complaints, (6) going the extra mile for the customer, (7) and providing a clean and comfortable work area. In summation, the common theme of treating customers with respect and as valued individuals prevails in customer care.

Communication – both verbal and nonverbal communication must be consistent with the level of service quality. It is vital that the customer receive the service as promised by the organization. For example, if a customer is promised "same day" or fast service then that service must be accomplished by the time and date the customer has been promised. Communication also includes the customer's expectation that employees are courteous, knowledgeable, enthusiastic, and there is a minimal number of contact points necessary to obtain services.

Frontline People – pertains to employees who have direct contact with customers. Management must support its frontline people by providing them with adequate training, and granting them authority to do whatever it takes (within reason) to resolve a customer's problems. Management must reward ingenious frontline people that go the extra mile in resolving customers' problems.

Leadership – management must provide meaning, purpose, direction and visionary leadership for their organization. This is accomplished by leading by example, listening to frontline people, and striving for continuous improvement (Besterfield et al., 1995).

The fulltime faculty and staff of Houston Community College contributed immensely to this study through their participation in an online survey on www.SurveyMonkey.com. The online survey had four general informational questions about the participants and 27 survey questions using the Likert scale of 1(*very dissatisfied*) – 6 (*very satisfied*) designed to assess the participants' level of satisfaction with respect to the previously named dimensions of quality service. Three open-ended questions were also included in the survey.

The data from the online survey was collected voluntarily and anonymously from participants who were invited via a college wide e-mail message to fulltime staff and fulltime faculty. The fulltime staff and faculty that participated in the online survey accessed the survey by clicking the following

URL "http://www.surveymonkey.com/s.asp?u=41502569969" contained in the invitation e-mail message. The e-mail invitation was sent to a total of 1654 faculty and staff (803 fulltime faculty and 851 fulltime staff). The online survey started on September 13, 2006 and ended on October 13, 2006. There were 301 total respondents representing 18.20% of the targeted population. The results of the online survey were analyzed using the Statistical Package for the Social Sciences (SPSS® v. 15) software for frequencies, means, percentages and one t-statistics.

Two focus group sessions were conducted with staff and faculty based on the top and bottom five mean values of the dimensions of service quality as identified by the results of the online survey. Tables 5 and 6 below show the relationships between the survey questions and the Ziethmal's 10 dimensions of quality service and the Besterfield's 5 dimensions of quality services. The survey questions and the items are in the Appendix A.

Table 5 Dimensions and Survey Questions crosswalk

Dimensions	**Survey Questions**
Access	Questions 8 & 18
Communication	Questions 10 & 19
Competence	Questions 17 & 24
Courtesy	Questions 6 &25
Credibility	Questions 12 & 26
Reliability	Questions 7 & 27
Responsive	Questions 9 & 16
Security	Questions 20 & 28
Tangibles	Questions 13, 14 & 29
Understanding the Customer	Questions 11 & 15

Table 6 Dimensions and Survey Question crosswalk

Dimensions	**Survey Questions**
Organization	Question 21
Expectation	Question 5
Communication	Question 30
Frontline People	Question 22
Leadership	Question 23

Question 31 **Overall Satisfaction of the staff and faculty of HCC**

Questions 32, 33, 34 Open-ended **Qualitative questions**

ORGANIZATION AND PRESENTATION OF THE FINDINGS

This chapter presents the analysis of the data received from the quantitative data from the online survey, qualitative data from the open-ended questions on the survey and qualitative data from the two focus group sessions. Tables and figures created from the analysis and findings were used for illustrative purposes. For the sake of order and simplicity, the quantitative data will be presented first in the following order:

- Demographic information from the online survey
- Research Questions One and Two answered with the results of the twenty-six Likert-scale questions.
- Independent samples T-test will be used to respond to Research Question Three, to determine if there are significant differences between staff and faculty on the dimensions of quality service listed in Research Question One and Research Question Two. Likert-scale question 31 of the survey will supply the answer to the second part of Research Question Three.

Then the qualitative data obtained from the two Focus Group sessions and the open-ended questions (32, 33 and 34) on the survey will be used to answer Research Question Four. The data will be presented in the order listed below:

- Open-ended questions from the online survey Findings – Staff
- Open-ended questions from the online survey Findings - Faculty
- Focus Group Findings – Staff
- Focus Group Findings - Faculty

RESEARCH QUESTIONS

This research has four research questions. Research Questions One and Two are from the quantitative survey, the survey explores the 10 dimensions of quality service according to Ziethmal et al. (1990) and five dimensions of quality service identified by Besterfield et al. (1995); by seeking to know the level of satisfaction of the staff and faculty of HCC with the Information Technology Department of HCC. The third Research Question, also a quantitative one, compares the difference between the faculty and staff. The fourth Research Question is a qualitative one and pursues the implications of the items or services with which the staff and faculty are more satisfied and least satisfied in a qualitative way using the three end-opened questions of the survey and focus groups.

Comparative Analysis with Pima Community College

Whenever possible, the results of this study will be compared with a similar study conducted at Pima Community College (PCC) in Tucson, Arizona by Niederriter (1999). In 1999, PCC comprised four comprehensive campuses and employed 674 staff, 359 faculty and 44 administrators (Niederriter, 1999). The PCC study sample consisted of 52 fulltime faculty and 52 fulltime staff. The results presented the means satisfaction (dissatisfaction) of both the faculty and the staff. The PCC study used the scale of 1(*very dissatisfied*) – 5 (*very satisfied*).

Research Question One:

What is the level of satisfaction with the quality of services offered by the Information Technology Department to the faculty and staff of the Houston Community College (HCC) in the following dimensions of quality service as identified by Zeithaml, et al. (1990):

a. Access
b. Communication
c. Competence
d. Courtesy
e. Credibility
f. Reliability
g. Responsiveness
h. Security
i. Tangibles
j. Understanding The Customer

Research Question Two:

What is the level of satisfaction with the quality of services offered by the Information Technology Department to the faculty and staff of the Houston Community College (HCC) in the following dimensions of quality service as identified by Besterfield, et al. (1990):

a. Organization
b. Expectation
c. Communication
d. Frontline People
e. Leadership

Research Question Three:

Are there significant differences between staff and faculty on the dimensions of quality service listed above and how do staff and faculty rate in the overall satisfaction with the IT department?

Research Question Four:

What reasons do the staff and faculty give for their evaluation of the services offered by the IT department in the dimensions of quality listed in Research Questions One and Two?

ONLINE SURVEY RESPONSE RATE

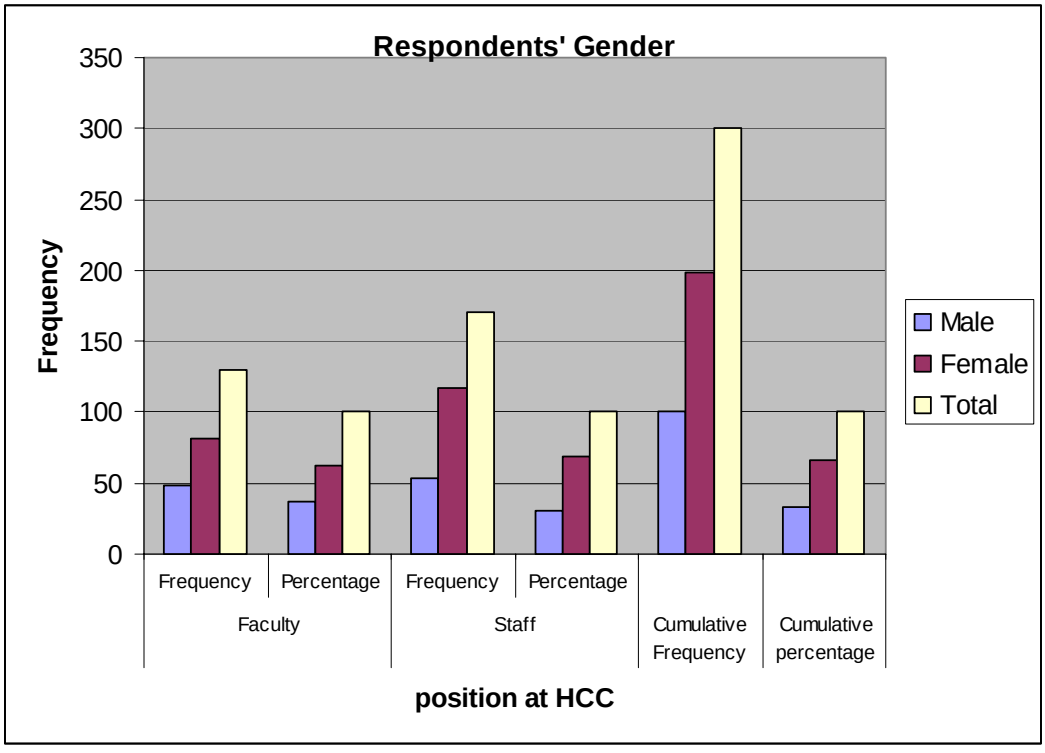
On September 14, 2006, the first full day of the online survey, a total of 69 respondents took the survey. At the end of first week, a total of 117 respondents had taken the survey. An e-mail reminder was sent on September 25, 2006. The number of respondents reached 234 by the following day. A total of 301 respondents had taken the survey by October 6, 2006. The survey did not record any more respondents from October 7 to October 13, 2006 when the survey was closed.

Sample Distribution – demographic information from the online survey

Table 7 Question 1: What is your Gender?

	Faculty		Staff		Study Cumulative		HCC #	
Gender	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Male	48	37%	53	31%	101	33.7%	647	39.1%
Female	82	63%	117	69%	199	66.3%	1007	60.9%
Total	130	100%	170	100%	300	100%	1654	100%

Figure 9 Bar Graph of the respondents' gender

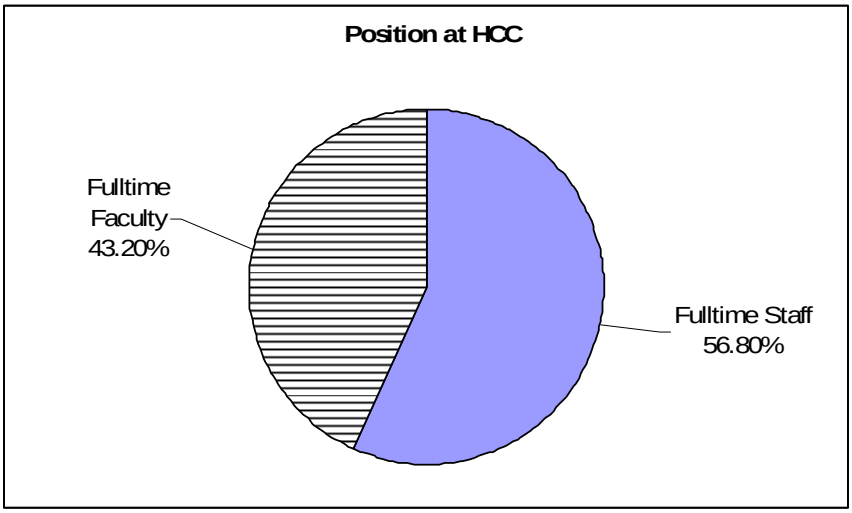


Three hundred and one respondents participated in the online survey, but one respondent did not answer the gender question. The examination of the 300 respondents that answered this question shows that 101, (33.7%) were male while 199 (66.3%) were female. Further analysis revealed that for faculty, there were 48 male respondents and this equated to 37% and there were 82 females, which represented 63% of the faculty. For the staff, 53 (31%) were male and 117 (69%) were female. The population of the respondents mirrors the HCC gender population of 647 (51.45%) males and 1007 (48.54%) female (Table 7 and Figure 9).

Table 8 Question 2: What is your current position at HCC

Position	Online Respondents	Percentage of Respondents	HCC Population	Percentage
Fulltime Staff	171	56.8%	851	51.45%
Fulltime Faculty	130	43.2%	803	48.54%
Total	301	100%	1654	100%

Figure 10 The respondents by position at HCC



The study focused on two groups within HCC, the fulltime faculty and fulltime staff. The analysis of the data shows that 171 or (56.8%) of the respondents to the online survey were fulltime staff while 130 or (43.2%) of the respondents were fulltime faculty (Table 8 and Figure 10). The HCC population figures are staff 851 (51.45%) and faculty 803 (48.54%).

Table 9 Question 3: Primary work Location

Work Location	Respondents	Percentage of respondents	Population of staff & faculty by location	Percentage of staff & faculty by location
Central College	50	16.8%	251	15.17%
Coleman College	34	11.4%	124	7.50%
Northeast College	32	10.8%	265	16.02%
Northwest College	44	14.8%	199	12.03%
Southeast College	19	6.4%	124	7.50%
Southwest College	36	12.1%	280	16.93%
System	82	27.6%	411*	24.85%
Total	297	100%	1654**	100%

* excluding the Information Technology Staff
** Administration or executives not included.

Figure 11 Respondents by primary work location

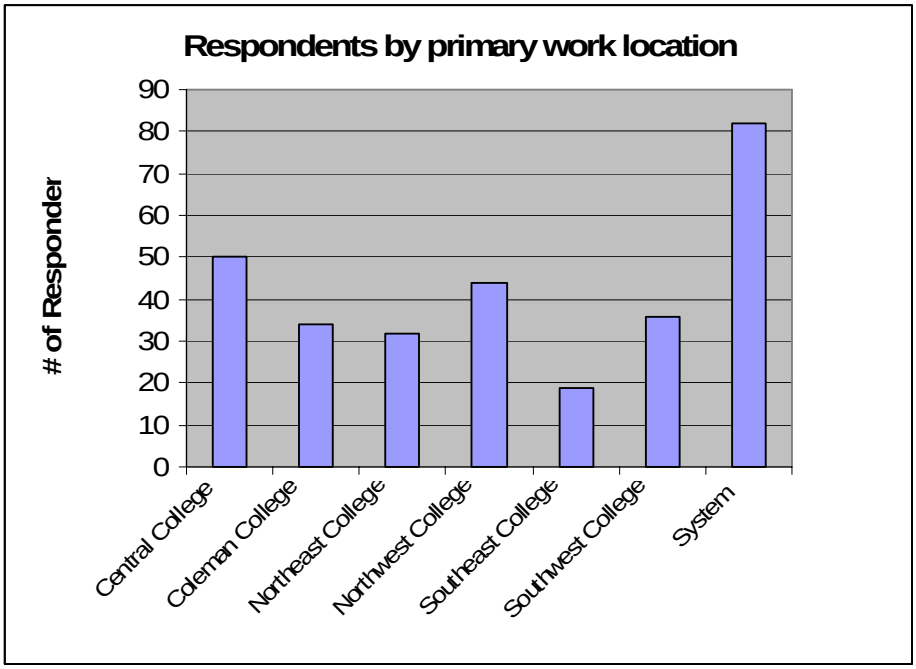
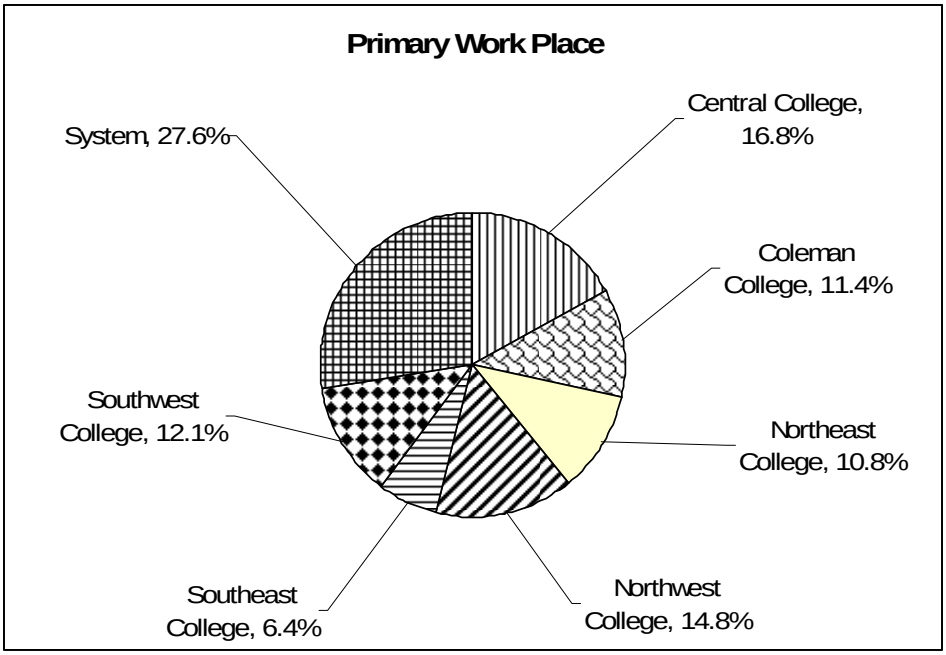


Figure 12 Respondents by work location

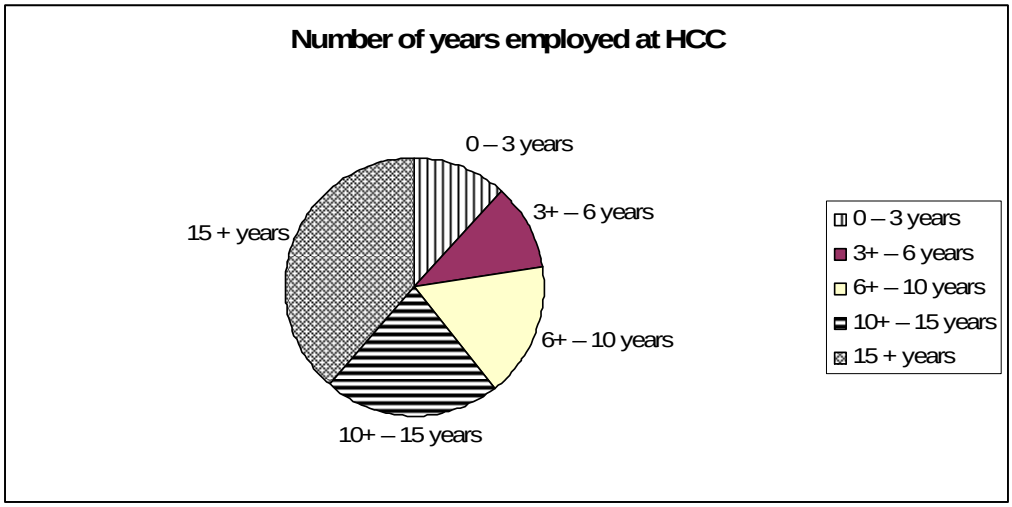


The majority of the respondents to the online survey came from the HCC System Office with 27.60%, followed by the Central College and Northwest College with 16.80% and 14.80%, respectively. The colleges of Southwest, Coleman, and Northeast had the following respondents 12.10%, 11.40%, 10.80%, respectively. The Southeast College had the lowest respondent rate of 6.40% (Table 9, Figures 11 and 12).

Table 10 Question 4: Number of years employed at HCC

Number of years employed at HCC	Respondents	Percentage
0 – 3 years	35	11.7%
3+ – 6 years	32	10.7%
6+ – 10 years	51	17%
10+ – 15 years	66	22%
15 + years	116	38.7%
Total	300	100%

Figure 13 Years employed at HCC



The majority of the respondents to the online survey had fifteen or more years of employment at HCC, this group accounted for 38.70% of the total respondents. The 10+ to 15 years group accounted for 22.0% of the respondents, followed by the group with 6+ -10 years of employment. The HCC employees with 0-3 years of service accounted for 11.7% of the respondents and the respondents with 3+ -6 years of service accounted for 10.7% (Table 10 and Figure 13).

RESULTS OF THE SURVEY

Table 11 Summary of the 10 dimensions of quality service (Zeithaml et al, 1990)

Dimension	Survey Questions	Means for HCC Staff	Means for HCC Faculty
Access	HCC IT Dept has a central contact point for requesting service	5.00	4.80
	HCC IT Dept staff is available a sufficient number of hours each day to meet my computing needs.	4.27	4.16
Communication	HCC IT staff updates me on the progress.	3.89	3.92
	HCC IT Dept staff explains what action they will take to resolve my computer problems.	4.04	4.06
Competence	HCC IT Dept staff is knowledgeable.	4.33	4.47
	HCC IT Dept staff offers effective one-on-one training.	3.35	3.56
Courtesy	HCC IT Department Staff is Courteous	4.81	4.85
	HCC IT Department Staff treats me with Respect	4.81	4.77
Credibility	HCC IT Dept delivers what it promises.	4.09	4.08
	HCC IT Dept has a credible reputation.	3.85	3.82
Reliability	HCC IT Department provides dependable service	4.19	4.27
	HCC IT Dept is generally consistent in their delivery of services.	4.12	4.18
Responsiveness	HCC IT Dept personnel promptly contacts me after I request service.	4.25	4.19
	HCC IT Dept provides prompt service	4.01	4.13

Table 11 Summary of the 10 dimensions of quality service (Zeithaml et al, 1990)			
Security	I trust the HCC IT staff to work on my office computer in my office whether I am there or not.	4.11	4.47
	I am confident about the service I receive from HCC IT Dept.	4.16	4.22
Tangibles	HCC IT personnel have a designated area on my campus	4.68	4.51
	HCC IT Dept employs a sufficient number of staff to meet my computing needs.	3.73	3.57
	HCC IT Dept has a well published phone number to report problem or request help.	4.78	4.86
Understanding the Customer	HCC IT Staff gives me personal attention.	4.10	4.11
	HCC IT Dept staff shows an understanding of my support needs.	4.20	4.31

Tables 11 shows the mean values for the staff and faculty for the different survey questions representing the ten dimensions of quality service identified by Zeithaml et al. (1990). These mean values are above median on the scale of 1 (very dissatisfied) to 6 (very satisfied). The means are also very close in range for each respective question and in most cases are separated by only hundredth of a point.

Table 12 Summary of the 5 dimensions of quality service (Besterfield et al, 1995)

Dimension	Survey Questions	Means for Staff	Means for Faculty
Organization	HCC IT Dept. satisfies my computing expectations	4.14	4.18
Customer Care	HCC IT Dept. provides the same level of services to all of its users	4.18	4.18
Communication	HCC IT Dept. staff is patient when listening to my computing questions	4.59	4.57
Frontline People	HCC IT staff are approachable	4.42	4.69
Leadership	HCC IT Dept. provides direction for technology advancement on my campus	3.67	3.60

Tables 12 shows the mean values for the staff and faculty for the different dimensions of quality service identified by Besterfield et al. (1995). These mean values are above median on the scale of 1 (very dissatisfied) to 6 (very satisfied). The means are also very close in range and in one case – "Customer Care" the mean value for the staff and faculty are identical at 4.18.

Table 13 Comparison of HCC & PCC of 10 dimensions by Zeithaml et al. (1990)

Dimension	Mean for HCC staff	Mean for HCC faculty	Mean for PCC staff	Mean for PCC faculty
Access	4.64	4.48	2.29	2.26
Communication	3.97	3.99	2.74	2.54
Competence	3.84	4.02	2.46	2.48
Courtesy	4.81	4.81	1.81	1.71
Credibility	3.97	3.95	2.25	2.41
Reliability	4.16	4.23	2.20	2.27
Responsiveness	4.13	4.16	2.25	2.39
Security	4.14	4.35	1.84	2.02
Tangibles	4.40	4.31	3.19	2.93
Understanding the customer	4.15	4.21	2.73	2.76

Table 14 Comparison of HCC & PCC of 5 dimensions by Besterfield et al (1995)

Dimension	Means for HCC Staff	Means for HCC Faculty	Mean for PCC staff	Mean for PCC faculty
Organization	4.14	4.18	2.68	2.72
Customer Care	4.18	4.18	2.21	2.38
Communication	4.59	4.57	2.15	1.83
Frontline People	4.42	4.69	2.11	1.90
Leadership	3.67	3.60	2.61	2.46

Tables 13 and 14 compare the means results of the various dimensions of quality service of Houston Community College (HCC) and that of Pima Community College (PCC). The PCC results were compiled by Niederriter (1999). The PCC study used the scale of 1(*very dissatisfied*) – 5 (*very satisfied*). According to these means, HCC staff and faculty are pretty much satisfied with HCC IT department.

RESEARCH QUESTION ONE

Research question one seeks to determine "How satisfied are the faculty and staff of HCC with the Information Technology Department of Houston Community College using the dimensions of quality service as identified by (Zeithaml, et al., 1990). To answer this research question, the researcher used the twenty one online Likert-scale survey questions. Each question had six choices of "*Strongly disagree, Disagree, Somewhat disagree, Somewhat agree, Agree and Strongly agree*." The preceding choices were assigned numerical values of 1, 2, 3, 4, 5, and 6 respectively. Listed below are the results corresponding to a respective dimension of quality service and its associated questions.

ACCESS

Table 15 Question 8 HCC IT Dept has a central contact point for requesting service

	Staff N= 167		Faculty N = 127	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	1	0.6%	5	3.9%
Disagree	3	1.8%	8	6.3%
Somewhat disagree	7	4.2%	3	2.4%
Somewhat agree	17	10.2%	13	10.2%
Agree	95	56.9%	60	47.2%
Strongly agree	44	26.3%	38	29.9%

Table 16 Question18 HCC IT Dept staff is available a sufficient number of hours each day to meet my computing needs.

	Staff N = 166		Faculty N = 124	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	7	4.2%	7	5.6%
Disagree	14	8.4%	13	10.5%
Somewhat disagree	17	10.2%	15	12.1%
Somewhat agree	36	21.7%	25	20.2%
Agree	74	44.6%	46	37.1%
Strongly agree	18	10.8%	18	14.5%

Access – Questions 8 and 18 addressed the satisfaction of the staff and faculty with the accessibility of HCC IT Department. Relative to Question 8, both the staff (83.2%) and the faculty (77.1%) that took the survey, "Agreed" or "Strongly agreed" that "a central contact point for requesting service resulted in an increased accessibility to the IT Department (Table 15). On a scale of 1 – 6, the mean value for staff is 5.0 while the mean value for faculty is 4.80 (Table 11).

For Question 18, the mean response from both the staff and faculty were 4.27 and 4.16 respectively (Table 11). When the question was asked "if the IT Department staff was available a sufficient number of hours each day to meet the computing needs of faculty and staff, 55.4% of staff respondents and 51.6% of faculty respondents either "Agreed" or "Strongly agreed" that IT staff availability met their needs (Table 16).

COMMUNICATION

Table 17 Question 10 HCC IT staff updates me on the progress.

	Staff N = 169		Faculty N = 127	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	11	6.5%	8	6.3%
Disagree	27	16.0%	22	17.3%
Somewhat disagree	13	7.7%	14	11.0%
Somewhat agree	48	28.4%	25	19.7%
Agree	59	34.9%	44	34.6%
Strongly agree	11	6.5%	14	11.0%

Table 18 Question19 HCC IT Dept staff explains what action they will take to resolve my computer problems.

	Staff N = 167		Faculty N = 126	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	8	4.8%	8	6.3%
Disagree	22	13.2%	15	11.9%
Somewhat disagree	20	12.0%	14	11.1%
Somewhat agree	36	21.6%	30	23.8%
Agree	67	40.1%	43	34.1%
Strongly agree	14	8.4%	16	12.7%

Communication – Questions 10 and 19 were tailored to assess the quality service dimension of communication. The means for the staff and faculty on

Question 10 were 3.89 and 3.92 respectively; and on Question 19, the mean was 4.04 for the staff and 4.06 for the faculty (Table 11). The satisfaction rate of the respondents to Question 10 was positive to the tune of 28.4% (Somewhat agreed), 34.9% (Agreed), and 6.5% (Strongly agreed) for the staff while the satisfaction rate for the faculty on Question 10 was positive to the tune of 11% (Somewhat agreed), 19.7% (Agreed) and 34.6% (Strongly agreed) (Table 17).

For Question 19, the majority of the respondents were satisfied that the IT staff explained what action would be taken in order to resolve the customers' computing problems. The rates were as follows: for the staff, 21.6% (Somewhat agree), 40.1% (Agree) and 8.4% (Strongly agree) and for the faculty, 23.8% (Somewhat agree), 34.1% (Agree) and 12.7% (strongly agree) (Table 18).

COMPETENCE

Table 19 Question 17 HCC IT Dept staff is knowledgeable.

	Staff N= 165		Faculty N = 126	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	7	4.2%	5	4.0%
Disagree	9	5.5%	11	8.7%
Somewhat disagree	19	11.5%	12	9.5%
Somewhat agree	42	25.5%	21	16.7%
Agree	63	38.2%	46	36.5%
Strongly agree	25	15.2%	31	24.6%

Table 20 Question 24 HCC IT Dept staff offers effective one-on-one training.

	Staff N = 158		Faculty N = 116	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	16	10.1%	11	9.5%
Disagree	39	24.7%	24	20.7%
Somewhat disagree	21	13.3%	14	12.1%
Somewhat agree	44	27.8%	32	27.6%
Agree	32	20.3%	26	22.4%
Strongly agree	6	3.8%	9	7.8%

Competence – The third dimension of quality service used to gauge customer satisfaction of the staff and faculty was Competence. Question 17, "HCC IT Dept staff is knowledgeable" and Question 24, "HCC IT Dept staff offers effective one-on-one training" addressed the Competence of the IT staff. For Question 17, among the staff respondents, 15.2% "Strongly agreed", 38.2% "Agreed" and 25.5% "Somewhat agreed" while for the faculty, 24.6% "Strongly agreed", 36.5% "Agreed" and 16.7% "Somewhat agreed" (Table 19). The means for the respondents to Question 17 was 4.33 for the staff and 4.47 for the faculty (Table 11).

Question 24, "HCC IT Dept staff offers effective one-on-one training", was rated by the staff as "Strongly agreed" by 3.8%, "Agreed" by 20.3% and "Somewhat agreed" by 27.8% of the staff respondents while the faculty, the rates were 7.8% "Strongly agreed", 22.4% "Agreed" and 27.6% "Somewhat agreed"

(Table 20). The means for the respondents to Question 24 was 3.35 for the staff and 3.56 for the faculty (Table 11).

COURTESY

Table 21 Question 6 HCC IT Department Staff is COURTEOUS

	Staff N = 170		Faculty N = 129	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	4	2.4%	3	2.3%
Disagree	5	2.9%	8	6.2%
Somewhat disagree	7	4.1%	3	2.3%
Somewhat agree	27	15.9%	15	11.6%
Agree	88	51.8%	62	48.1%
Strongly agree	39	22.9%	38	29.5%

Table 22 Question 25 HCC IT Department Staff treats me with RESPECT

	Staff N = 165		Faculty N = 126	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	4	2.4%	5	4.0%
Disagree	5	3.0%	5	4.0%
Somewhat disagree	5	3.0%	6	4.8%
Somewhat agree	27	16.4%	22	17.5%
Agree	88	53.3%	48	38.1%
Strongly agree	36	21.8%	40	31.7%

Courtesy – the two questions to measure the courteousness of IT service staff were Questions 6 and 25. The means for the groups on Question 6 were 4.81 (staff) and 4.85 (faculty); and the means for Question 25 were 4.81 (staff) and 4.77 (faculty) (Table 11).

"HCC IT Department staff is Courteous" was rated by staff as "Strongly agreed" by 22.9%, "Agreed" by 51.8% and "Somewhat agreed" by 15.9% of the staff respondents while the faculty, the rates were 29.5% "Strongly agreed", 48.1% "Agreed" and 11.6% "Somewhat agreed" (Table 21).

For Question 25, among the staff respondents, 21.8% "Strongly agreed", 53.3% "Agreed" and 16.4% "Somewhat agreed" while for the faculty respondents, the rates were as follows: 31.7% "Strongly agreed", 38.1% "Agreed" and 17.5% "Somewhat agreed" (Table 22).

CREDIBILTY

Table 23 Question 12 HCC IT Dept delivers what it promises.

	Staff N = 169		Faculty N = 127	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	7	4.1%	5	3.9%
Disagree	17	10.1%	15	11.8%
Somewhat disagree	18	10.7%	16	12.6%
Somewhat agree	55	32.5%	36	28.3%
Agree	56	33.1%	39	30.7%
Strongly agree	16	9.5%	16	12.6%

Table 24 Question 26 HCC IT Dept has a credible reputation.

	Staff N =164		Faculty N = 124	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	15	9.1%	12	9.7%
Disagree	16	9.8%	17	13.7%
Somewhat disagree	21	12.8%	19	15.3%
Somewhat agree	48	29.3%	23	18.5%
Agree	54	32.9%	39	31.5%
Strongly agree	10	6.1%	14	11.3%

Credibility – this quality service dimension was evaluated using Questions 12 and 26. Question 12 asked if "HCC IT Department delivers what it promises". The staff respondents rated this question as follows: 9.5% "Strongly agreed", 33.1% "Agreed", and 32.5% "Somewhat agreed" while the faculty respondents rated the question as follows: 12.6% "Strongly agreed", 30.7% "Agreed" and 28.3% "Somewhat agreed" (Table 23).

"HCC IT Dept has a credible reputation" (Question 26) was rated 6.1% "Strongly agreed", 32.9% "Agreed" and 29.3% "Somewhat agreed" by the staff ; and rated 11.3% "Strongly agreed", 31.5% "Agreed" and 18.5% "Somewhat agreed" by the faculty (Table 24.). The means for Question 12 were 4.09 (staff) and 4.08 (faculty). The means for Question 26 were 3.85 and 3.82 for staff and faculty respectively (Table 11).

RELIABILITY

Table 25 Question 7 HCC IT Department provides dependable service

	Staff N = 171		Faculty N = 126	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	6	3.5%	8	6.3%
Disagree	21	12.3%	8	6.3%
Somewhat disagree	14	8.2%	14	11.1%
Somewhat agree	43	25.1%	33	26.2%
Agree	68	39.8%	46	36.5%
Strongly agree	19	11.1%	17	13.5%

Table 26 Question 27 HCC IT Dept is generally consistent in their delivery of services.

	Staff N = 166		Faculty N = 125	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	9	5.4%	6	4.8%
Disagree	11	6.6%	15	12.0%
Somewhat disagree	19	11.4%	13	10.4%
Somewhat agree	51	30.7%	25	20.0%
Agree	64	38.6%	48	38.4%
Strongly agree	12	7.2%	18	14.4%

Reliability – the pair of questions used to assess the reliability of the IT department services were Questions 7 and 27. For Question 7, the mean scores

for the group were as follows: staff 4.19 and faculty 4.27. Question 27 recorded the following means: staff 4.12 and faculty 4.18 (Table 11).

When the question was asked if the "IT Department provided a dependable service", 76% of staff respondents and 76.2% of faculty respondents either "Somewhat agreed, or "Agreed" or "Strongly agreed" (Table 25) that the IT department provided dependable services.

Question 27 showed a similar trend as Question 7; where 76.50% of the staff respondents and 72.80% of the faculty respondents either "Somewhat agreed", or "Agreed", or "Strongly agreed" that the IT department is consistent in the delivery of services (Table 26).

RESPONSIVENESS

Table 27 Question 9 HCC IT Dept personnel promptly contact me after I request service

	Staff N = 169		Faculty N = 128	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	9	5.3%	7	5.5%
Disagree	23	13.6%	15	11.7%
Somewhat disagree	11	6.5%	9	7.0%
Somewhat agree	31	18.3%	33	25.8%
Agree	64	37.9%	44	34.4%
Strongly agree	31	18.3%	20	15.6%

Table 28 Question 16 HCC IT Dept provides prompt service

	Staff N = 168		Faculty N = 127	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	11	6.5%	6	4.7%
Disagree	18	10.7%	14	11.0%
Somewhat disagree	17	10.1%	12	9.4%
Somewhat agree	49	29.2%	39	30.7%
Agree	58	34.5%	38	29.9%
Strongly agree	15	8.9%	18	14.2%

Responsiveness – Questions 9 and 16 were used to assess the satisfaction of the faculty and staff with the IT department in providing prompt services. The staff respondents rated Question 9 as follows: 8.9% "Strongly agreed", 34.5% "Agreed" and 29.2% "Somewhat agreed"; while the faculty respondents rated the same question as follows: 14.2% "Strongly agreed", 29.9% "Agreed" and 30.7% "Somewhat agreed" (Table 27).

The mean scores for Question 9 were 4.25 for staff respondents and 4.19 for faculty respondents; and the mean scores for Question 16 were 4.01 for staff respondents and 4.13 for faculty respondents (Table 11). Examining the satisfaction rating for Question 16 shows that for staff respondents, 8.9% "Strongly agreed", 34.5% "Agreed" and 29.2% "Somewhat agreed"; and for

faculty respondents, 14.2% “Strongly agreed”, 29.9% “Agreed” and 30.7% “Somewhat agreed” that the IT department provided prompt services (Table 28).

SECURITY

Table 29 Question 20 I trust the HCC IT staff to work on my office computer in my office whether I am there or not

	Staff N = 166		Faculty N = 125	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	12	7.2%	11	8.8%
Disagree	21	12.7%	9	7.2%
Somewhat disagree	15	9.0%	6	4.8%
Somewhat agree	30	18.1%	17	13.6%
Agree	65	39.2%	48	38.4%
Strongly agree	23	13.9%	34	27.2%

Table 30 Question 28 I am confident about the service I receive from HCC IT Dept

	Staff N = 166		Faculty N = 124	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	8	4.8%	6	4.8%
Disagree	15	9.0%	13	10.5%
Somewhat disagree	18	10.8%	13	10.5%
Somewhat agree	44	26.5%	29	23.4%
Agree	63	38.0%	42	33.9%
Strongly agree	18	10.8%	21	16.9%

Security – the two questions used to evaluate security were 20 and 28. The mean for Question 20 was 4.11 for staff respondents and 4.47 for faculty respondents. The mean for Question 28 was 4.16 for staff respondents and 4.22 for faculty respondents (Table 11).

When the survey respondents were asked "if they trusted IT staff to work on their office computer whether they are in the office or not", 71.20% of the staff respondents either "Strongly agreed", or "Agreed" or "Somewhat agreed" (13.9%, 39.2% and 18.1% respectively) while 79.20% of the faculty respondents either "Strongly agreed", or "Agreed" or "Somewhat agreed" (27.2%, 38.4% and 13.6 respectively) (Table 29).

The staff and faculty respondents rated Question 28 "I am confident about the service I receive from the HCC IT Department" as follows: for staff, 10.8% "Strongly agreed", 38.0% "Agreed" and 26.5%"Somewhat agreed" and for faculty, 16.9% "Strongly agreed", 33.9% "Agreed" and 23.4%"Somewhat agreed" (Table 30).

TANGIBLES

Table 31 Question 13 HCC IT personnel have a designated area on my campus

	Staff N =168		Faculty N = 124	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	2	1.2%	3	2.4%
Disagree	11	6.5%	16	12.9%
Somewhat disagree	12	7.1%	5	4.0%
Somewhat agree	22	13.1%	20	16.1%
Agree	88	52.4%	51	41.1%
Strongly agree	33	19.6%	29	23.4%

Table 32 Question 14 HCC IT Dept has a well published phone number to report problems or request help.

	Staff N = 170		Faculty N = 129	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	5	2.9%	2	1.6%
Disagree	7	4.1%	5	3.8%
Somewhat disagree	8	4.7%	8	6.2%
Somewhat agree	25	14.7%	15	11.6%
Agree	80	47.1%	63	48.8%
Strongly agree	45	26.5%	36	27.9%

Table 33 Question 29 HCC IT Dept employs a sufficient number of staff to meet my computing needs

	Staff N = 167		Faculty N = 121	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	14	8.4%	13	10.7%
Disagree	25	15.0%	23	19.0%
Somewhat disagree	24	14.4%	15	12.4%
Somewhat agree	42	25.1%	33	27.3%
Agree	53	31.7%	26	21.5%
Strongly agree	9	5.4%	11	9.1%

Tangibles – was the only one of the dimension service quality measured by three survey questions – Questions 13, 14 and 29. The means for the staff and faculty respondents for above questions were as follows: Question 13, staff was 4.68, faculty was 4.51; for Question 14, staff was 4.78, faculty was 4.86 and Question 29, staff was 3.73, faculty was 3.57 (Table 11).

The staff respondents rated Question 13 as follows: 19.6% “Strongly agreed”, 52.4% “Agreed” and 13.1% “Somewhat agreed”; and the faculty respondents rate Question 13 as follows: 23.4% “Strongly agreed”, 41.1% “Agreed”, and 16.1% “Somewhat agreed” (Table 31).

Question 14 asked whether the IT Dept has a well published phone number for users to report problems or request help. The respondents rated this question very high; for the staff respondents, 26.5% “Strongly agreed”, 47.1% “Agreed” and 14.7% “Somewhat agreed”, while of the faculty respondents,

27.9% “Strongly agreed”, 48.8% “Agreed” and 11.6% “Somewhat agreed” (Table 32).

The respondents to Question 29, “IT Dept employs a sufficient number of staff to meet my computing needs”, rated it as follows: 5.4% “Strongly agreed”, 31.7% “Agreed”, and 25.1% “Somewhat agreed” for the staff and 9.1% “Strongly agreed”, 21.5% “Agreed” and 27.3% “Somewhat agreed” for the faculty (Table 33).

UNDERSTANDING THE CUSTOMER

Table 34 Question 11 HCC IT Staff gives me personal attention.

	Staff		Faculty	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	8	4.8%	6	4.7%
Disagree	21	12.5%	17	13.4%
Somewhat disagree	15	8.9%	9	7.1%
Somewhat agree	43	25.6%	36	28.3%
Agree	64	38.1%	43	33.9%
Strongly agree	17	10.1%	16	12.6%

Table 35 Question 15 HCC IT Dept staff shows an understanding of my support needs.

	Staff		Faculty	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	9	5.4%	5	3.9%
Disagree	14	8.3%	13	10.2%
Somewhat disagree	14	8.3%	9	7.0%
Somewhat agree	48	28.6%	32	25.0%
Agree	64	38.1%	48	37.5%
Strongly agree	19	11.3%	21	16.4%

Tables 34 and 35 looked at the quality of service dimension of "Understanding the Customer" using Questions 11 and 15. For this dimension, the staff respondents answered Question 11 and Question 15 in the affirmative at the rate of 73.8% (10.1% "strongly agreed", 38.1% "Agreed", 25.6% "Somewhat agreed") and 78% (11.3% "strongly agreed", 38.1% "Agreed", 28.6% "Somewhat agreed) respectively. The faculty respondents answered Question 11 and Question 15 in affirmative at the rate of 74.8% (12.6% "strongly agreed", 33.9% "Agreed", 28.3% "Somewhat agreed") and 78.9% (16.4% "strongly agreed", 37.5% "Agreed", 25.0% "Somewhat agreed) respectively (Table x). The means for the staff and faculty groups were as follows: 4.10 and 4.11 for Question 11 and 4.20 and 4.31 for Question 15 (Table 11).

SUMMARY OF RESERCH QUESTION ONE

Table 36 Summary of the faculty and staff satisfaction and dissatisfaction

	Faculty		**Staff**	
Dimensions	**Truly Satisfied**	**Truly Dissatisfied**	**Truly Satisfied**	**Truly Dissatisfied**
Courtesy	73.70%	8.25%	74.90%	5.35%
Access	64.35%	13.15%*	69.30%	7.50%*
Security	58.20%**	15.65%	50.95%**	16.85%
Tangibles	57.23%	16.80%	60.90%	12.70%
Reliability	51.40%	14.70%	48.35%	13.90%
Understanding Customer	50.20%	16.10%	48.80%	15.50%
Responsiveness	47.05%	16.45%	49.85%	18.05%
Communication	46.20%	20.90%	44.95%	20.25%
Competence	45.65%	21.45%	38.75%	22.25%
Credibility	38.05%	19.55%	40.80%	16.55%

Figure 14 Truly Satisfied – Faculty and Staff (Zeithaml's)

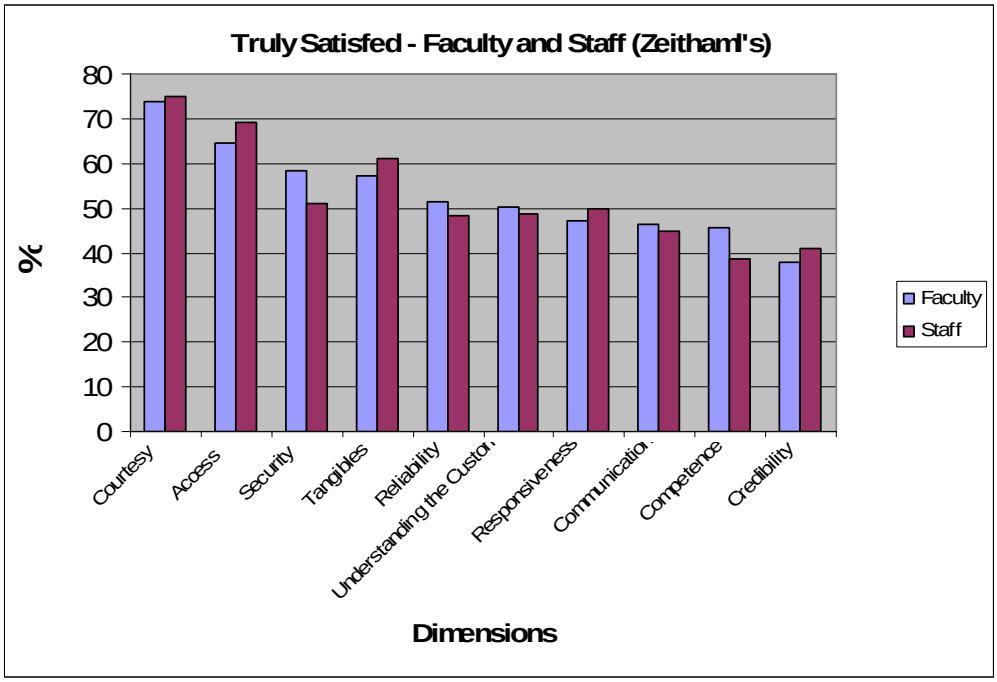
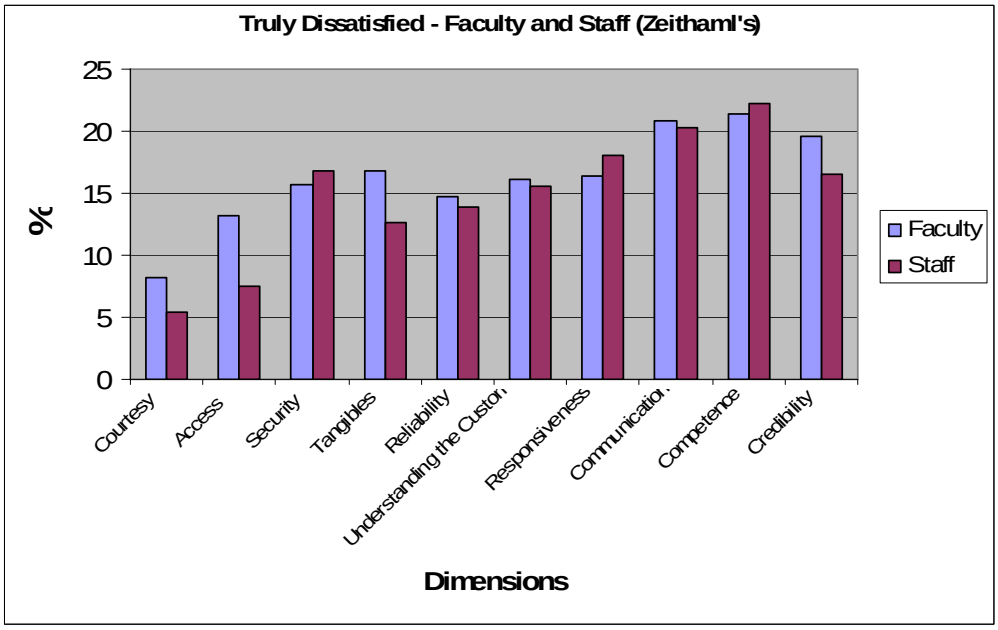


Figure 15 Truly Dissatisfied – Faculty and Staff



Summary of the faculty and staff satisfaction and dissatisfaction of Zeithmal's dimensions of quality service

Table 36 was generated by averaging the two extreme opposites of the range of choices given in response to the survey. In this instance, very satisfied and satisfied percentages were averaged together for the truly satisfied category while the very dissatisfied and dissatisfied were averaged together for the truly dissatisfied category; this averaging was done for the ten Zeithaml's dimensions of quality service.

Findings from the staff and faculty revealed that both groups shared similarities and dissimilarities. However, when taken as a whole, there appeared to be few differences between the two groups in their true satisfaction with the ten Zeithaml's dimensions of quality service. The security dimension was the only one that showed a wider range in the level of truly satisfied faculty and staff. This point is shown in Table 36 and Figure 14; 58.20% of the faculty was truly satisfied with the Security of the IT department while 50.95% of the staff held the same view of the IT department. Another difference between the faculty and the staff was at the rate of dissatisfaction with Access to the IT department. About twice as many faculty (13.15%) in the study was truly dissatisfied with Access to IT department while only 7.5% of the staff in the study felt the same way (Figure 15).

RESEARCH QUESTION TWO

Measures the satisfaction of the faculty and staff of HCC with the quality of services offered by the Information Technology Department of the Houston Community College System in the following quality service dimensions as identified by Besterfield, et al. (1990):

a. Organization
b. Expectation
c. Communication
d. Frontline People
e. Leadership

The Likert-scale questions addressing question two of the research were 5, 21, 22, 23 and 30. The responses of the staff and faculty were compared using the frequency, percentage and means from the questions dealing with the dimensions listed above.

EXPECTATION

Table 37 Question 5 HCC IT Dept. satisfies my computing expectations

	Staff N = 171		Faculty N = 129	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	8	4.7%	9	7.0%
Disagree	12	7.0%	11	8.5%
Somewhat disagree	21	12.3%	13	10.1%
Somewhat agree	49	28.7%	27	20.9%
Agree	63	36.8%	53	41.1%
Strongly agree	18	10.5%	16	12.4%

A majority of the respondents (both staff and faculty) have a positive opinion with the IT department's ability to satisfy their computing expectations. The breakdown of the survey respondents are as follows: for the staff, 10.5% "Strongly agreed", 36.8% "Agreed", 28.7% "somewhat agreed" and for the faculty, 12.4% "Strongly agreed", 41.1% "Agreed", 20.9% "somewhat agreed" (Table 37). The means for the respondents were faculty 4.18 and staff 4.14 (Table 11).

ORGANIZATION

Table 38 Question 21 HCC IT Dept. provides the same level of services to all of its users

	Staff N = 159		Faculty N = 114	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	7	4.1%	7	6.1%
Disagree	20	11.7%	11	9.6%
Somewhat disagree	15	8.8%	14	12.3%
Somewhat agree	31	18.1%	23	20.2%
Agree	74	43.3%	41	36.0%
Strongly agree	12	7.0%	18	15.8%

Question 21 asked if "HCC IT department provided the same level of services to all of its users". The majority of the respondents were satisfied that the HCC IT department provided the same level of service to all of their users, regardless of their position as staff or faculty. The percentage in the affirmative

are as follows: for the staff, 7.0% “Strongly agreed”, 43.3% “Agreed” and 18.1% “Somewhat agreed”; for the faculty, 15.8% “Strongly agreed”, 36,0% “Agreed” and 20.2% “Somewhat agreed” (Table 38). To underscore the above findings from the online survey, the means for both the staff and faculty are identical at 4.18 (Table 11).

COMMUNICATION

Table 39 Question 30 HCC IT Dept. staff is patient when listening to my computing questions

	Staff N = 165		Faculty N = 124	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	4	2.4%	5	4.0%
Disagree	5	3.0%	9	7.3%
Somewhat disagree	5	3.0%	5	4.0%
Somewhat agree	27	16.4%	27	21.8%
Agree	88	53.3%	47	37.9%
Strongly agree	36	21.8	31	25.0%

A substantial aspect of customer service is the ability to listen to the customer and Question 30 tests this aspect of customer satisfaction. A vast majority of the staff and faculty that responded to this question answered positively, 21.8% and 25.0% of both the staff and the faculty “Strongly agreed” that HCC IT Staff is patient when listening to their computing questions. The remaining percentages are as follows: 53.3% of the staff and 37.9% of the faculty “Agreed”, while 16.4% of the staff and 21.8% of the faculty “Somewhat agreed”

(Table 39). The means of the respondent groups were 4.59 and 4.57 for staff and faculty respectively (Table 11).

FRONTLINE PEOPLE

Table 40 Question 22 HCC IT staff is approachable

	Staff N = 168		Faculty N = 127	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	7	4.2%	3	2.4%
Disagree	8	4.8%	13	10.2%
Somewhat disagree	16	9.5%	4	3.1%
Somewhat agree	36	21.4%	14	11.0%
Agree	79	47.0%	59	46.5%
Strongly agree	22	13.1%	34	26.8%

Question 22 seeks to determine if HCC IT staff or the "frontline people" are approachable and if so, how satisfied are the staff and faculty. When asked if "HCC IT staff were approachable", the respondents that answered in the affirmative were: staff 13.1% "Strongly agreed", 47.0% "Agreed", 21.4% "Somewhat agreed" and faculty 26.8% "Strongly agreed", 46.5% "Agreed" 11.0% "Somewhat agreed" (Table 40). The means for the respondents were 4.42 and 4.69 for the staff and faculty respectively (Table 11).

LEADERSHIP

Table 41 Question 23 HCC IT dept. provides direction for technology advancement on my campus

	Staff N =158		Faculty N = 116	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	9	5.7%	13	11.2%
Disagree	32	20.3%	24	20.7%
Somewhat disagree	19	12.0%	16	13.8%
Somewhat agree	47	29.7%	19	16.4%
Agree	44	27.8%	31	26.7%
Strongly agree	7	4.4%	13	11.2%

Question 23 was designed to assess whether the staff and faculty are satisfied with the level of leadership in respect to technology offered by HCC IT staff at their colleges. The respondents to this question did not rate it as high as they rated the other questions. The staff answered this question as follows: 4.4% "Strongly agreed", 27.8% "Agreed", 29.7% "Somewhat agreed", 12.0% "Somewhat disagreed", 20.3% "Disagreed" and 5.7% "Strongly disagreed"; the faculty answered the question as follows: 11.2% "Strongly agreed", 26.7% "Agreed", 16.4% "Somewhat agreed", 13.8% "Somewhat disagreed", 20.7% "Disagreed" and 11.2% "Strongly disagreed (Table 41).

The means of 3.67 and 3.60 of the respondents show that the staff and the faculty are less satisfied with leadership role or the direction of the HCC IT staff at the various colleges of Houston Community College (Table 11).

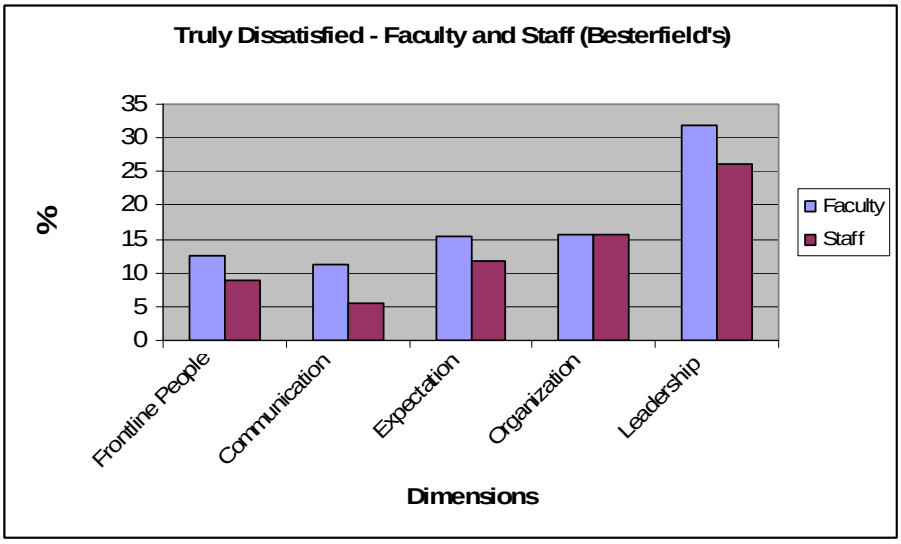
SUMMARY OF RESERCH QUESTION TWO

Table 42 Summary of the faculty and staff satisfaction and dissatisfaction

	Question	**Faculty**		**Staff**	
Dimension		**Truly Satisfied**	**Truly Dissatisfied**	**Truly Satisfied**	**Truly Dissatisfied**
Frontline People	22	73.30%**	12.60%	60.10%**	9.00%
Communication	30	72.90%	11.30%*	75.10%	5.40%*
Expectation	5	53.50%	15.50%	47.30%	11.70%
Organization	21	51.80%	15.70%	50.30%	15.80%
Leadership	23	37.90%	31.90%	32.20%	26.00%

Figure 16 Truly Satisfied – Faculty and Staff (Besterfield's)

Figure 17 Truly Dissatisfied – Faculty and Staff (Besterfield's)



Summary of the faculty and staff satisfaction and dissatisfaction of Besterfield's dimensions of quality service

With the Besterfield's dimensions of quality service, both the faculty and the staff hold similar views of satisfaction and dissatisfaction on all the dimensions of quality service except for Communication and Frontline People (Table 42). With the dimension of Communication, approximately twice the percentage of faculty (11.30%) was truly dissatisfied while 5.4% of the staff was truly dissatisfied (Figure 16). On the dimension of Frontline People, the results also show a slight differing of opinions on the satisfaction and dissatisfaction rates of both the faculty and the staff; 73.30% of the faculty and 60.10% of the staff rated IT department Frontline representatives as truly satisfactory while 12.60% of the faculty and 9.00% of the staff rated IT department Frontline representatives as truly dissatisfactory (Figure 15).

RESEARCH QUESTION THREE

Research Question Three has two parts, first, "Are there significant differences between the staff and faculty on the quality service of dimensions listed in Research Questions 1 and 2; and second, how do the staff and faculty compare with their overall customer satisfaction with the IT department?

The first part of Research Question three was determined using Independent Samples T-test. Out of the 27 questions dealing with 15 dimensions of quality service, only one question showed a significant difference between faculty and staff; and this is Question 20, a question dealing with the dimension of quality service associated with security. The staff and faculty were compared on their responsiveness using independent sample T-test. There was no significant difference between staff and faculty in their responsiveness, $t = 0.043$, $p = 0.179$. Therefore, the conclusion is that the level of satisfaction was quite similar for both staff and faculty (Table 44).

The second part of Research Question Three seeks to determine the overall satisfaction of the staff and faculty with the IT department. Quantitative data gathered from response to Question 31 of the online survey is used to answer this question. Coincidently, the majority of the staff and faculty respondents (73.8%) answered affirmatively that they are satisfied with overall services offered by the IT department. The breakdown of the numbers follows: for the staff, 14.0% "Strongly agreed", 37.2% "Agreed" and 22.6% "Somewhat agreed"; and for the faculty, 11.9% "Strongly agreed", 42.9% "Agreed" and 19.0%

"Somewhat agreed" (Table 43). Further analysis of the data recorded the mean values of 4.20 and 4.17 for the staff and faculty respondents respectively (Table 43).

Table 43 Overall Satisfaction

SERVICE DIMENSION	MEAN OF FACULTY N = 126	MEAN OF STAFF N = 164
Overall Satisfaction	4.17	4.20

The result from Question 31 in essence confirms the result about the satisfaction level for both the faculty and staff being quite similar and virtual no significant difference between them.

Table 44 Q31 Overall, I am satisfied with the quality of service provided by HCC IT Department.

	Staff N = 164		Faculty N = 126	
	Frequency	Percentage	Frequency	Percentage
Strongly disagree	8	4.9%	7	5.6%
Disagree	16	9.8%	16	12.7%
Somewhat disagree	19	11.6%	10	7.9%
Somewhat agree	37	22.6%	24	19.0%
Agree	61	37.2%	54	42.9%
Strongly agree	23	14.0%	15	11.9%

Table 45 Independent Samples T-test for survey questions

Questions	t	Sig. (2-tailed)	Mean Diff	Std. Error Difference	95% C I Lower	upper
HCC IT Dept satisfies my computing expectations	-.019	.985	.00	.154	-.306	.301
HCC IT Dept staff is courteous	-.355	.723	-.05	.132	-.306	.213
HCC IT Dept provides dependable service.	-.124	.902	-.02	.155	-.325	.287
HCC IT Dept has a central contact point for requesting service.	1.545	.123	.20	.127	-.054	.448
HCC IT Dept personnel promptly contact me after requesting service.	.361	.718	.06	.169	-.271	.393
HCC IT staff updates me on the progress.	-.202	.840	-.03	.167	-.362	.295
HCC IT Staff gives me personal attention.	-.057	.955	-.01	.159	-.323	.304
HCC IT Dept delivers what it promises.	.066	.947	.01	.152	-.289	.309
HCC IT personnel has a designated area on my campus.	1.159	.247	.17	.147	-.119	.460
HCC IT Dept has a well published phone number to report problems or request help.	-.580	.562	-.08	.135	-.343	.187
HCC IT Dept staff shows an understanding of my support needs.	-.751	.453	-.12	.155	-.420	.188
HCC IT Dept provides prompt service.	-.717	.474	-.11	.159	-.427	.199
HCC IT Dept staff is knowledgeable.	-.862	.390	-.13	.157	-.443	.173
HCC IT Dept staff is available a sufficient number of hours each day to meet my computing needs.	.654	.514	.10	.159	-.209	.416
HCC IT Dept staff explains what action they will take to resolve my computer problems.	-.084	.933	-.01	.163	-.334	.307

Table 45 Independent Samples T-test for survey questions

I trust the HCC IT staff to work on my office computer in my office whether I am there or not.	**-2.03**	**.043***	**-.36**	**.179**	**-.716**	**-.012**
HCC IT Dept provides the same level of service to all its users	-.221	.825	-.04	.168	-.368	.294
HCC IT staff are approachable.	-1.86	.063	-.28	.148	-.568	.016
HCC IT Dept provides direction for technology advancement on my campus	.379	.705	.07	.178	-.283	.418
HCC IT Dept staff offers effective one-on-one training.	-1.21	.227	-.21	.175	-.557	.133
HCC IT Dept staff treats me with respect.	.263	.792	.04	.137	-.234	.307
HCC IT Dept has a credible reputation.	.181	.857	.03	.172	-.307	.369
HCC IT Dept is generally consistent in their delivery of services.	-.409	.683	-.06	.155	-.369	.242
I am confident about the service I receive from HCC IT Dept.	-.346	.730	-.06	.159	-.369	.259
HCC IT Dept employs a sufficient number of staff to meet my computing needs.	.928	.354	.16	.173	-.180	.500
HCC IT Dept staff is patient when listening to my computing questions.	.140	.888	.02	.143	-.261	.301
Overall, I am satisfied with quality of service provided by HCC IT Dept.	*.174*	*.862*	*.03*	*.164*	*-.294*	*.350*

SUMMARY OF RESERCH QUESTION THREE

The data analysis revealed that there was no statistically significant difference between staff and faculty in their overall customer satisfaction of the quality of services offered by the HCC Information Technology department.

RESEARCH QUESTION FOUR

Research question four asked, "What reasons do the staff and faculty give for their evaluation of the services offered by the IT department in Research Questions One and Two? The fourth research question was meant to extract the perceptions of the survey respondents and focus group participants as applied to the level of services provided by the IT department.

The open-ended questions used on the online survey are listed as follows:

- Please list specific areas of the services provided by the Information Technology Department that you find satisfying (Question 32).
- Please list specific areas of the services provided by the Information Technology Department that are in need of improvement (Question 33).
- Please list any comments you wish to make regarding the Information Technology Department (Question 34).

This question will be answered in the following order: first, the findings of the staff for open-ended questions 32, 33 and 34 will be presented. Second, the findings of the faculty for open-ended questions 32, 33 and 34 will presented. The researcher will then present the findings of the focus group sessions for the staff and faculty respectively. Lastly, a summary of research question four will be presented.

OPEN-ENDED QUESTION 32 FROM THE ONLINE SURVEY FINDINGS – STAFF

Of the 171 respondents that identified themselves as staff on the online survey, only 81 (47.37%) of them responded to Question 32 while 89 (52.05%) did not respond, or left the space blank and one answer was unusable. After coding and identifying the affinities (a group or cluster of common thoughts) among the staff responses to "specific areas of the services provided by IT Department they found satisfying", two broad categories emerged – ***Perception of IT service*** and ***Perception of IT personnel.***

Perception of IT Services - Satisfaction with Services

Sixty (72.23%) of the staff respondents that answered Question 32 cited the manner in which services provided were handled as the reason of their satisfaction with the IT department; this includes ***knowledgeable staff***, ***courtesy***, ***promptness and quick response***.

Promptness seems to be the dominant reason for staff satisfaction with IT Department. Here are some statements from the staff respondents that referenced promptness: "Information Technology's quick response to alleviate problem especially during peak periods such as registration" is satisfying said one respondent, yet another staff respondent added "I can't think of anything specific except of their promptness to my computing needs", and still another respondent added "I really appreciate the promptness of response…. usually very quick and overall I think service is quite good, and much improved over where it was, say,

five years ago". Continuing with the theme of promptness, a respondent writes "they do respond to my problems in a timely manner and assures me that they will be on campus to fix it".

Courtesy was cited as a second reason the staff of HCC was satisfied with the IT department in respect to Question 32. Here are some responses reflecting this view:

> A staff respondent said "[IT] staff is courteous [and] dependable" and another respondent added "I am satisfied with the overall courtesy, speed of response to my computer problems, approachability, knowledge of technical issues, and dependability of the I.T. Department".

Another respondent observed that "IT personnel are very reliable, courteous and respectful… they handle equipment problems in an expedient manner and resolve them to my satisfaction".

Knowledgeable IT staff was also cited as reason for the positive responses to Question 32. A few responses to illustrate this satisfaction: are noted as follows: [IT] "customer service knowledge of troubleshooting problems" satisfies me. Another respondent asserts "they [IT staff] are knowledgeable and want to do a good job" and still another respondent added "the IT staff is very knowledgeable".

Perception of IT Services - Dissatisfaction with Service

Eleven (13.25%) of the staff respondents that answered the "Please list specific areas of the services provided by the Information Technology Department that you find dissatisfying", attributed their dissatisfaction to a specific services such as *Network slowness* or *e-mail system* not being robust enough or *inability to reach IT staff promptly*. Here are examples of this dissatisfaction; one respondent observed that "sometimes you cannot reach "these IT people" ; and something simple may take [IT staff] days just to come and fix the problem". Other respondents noted their dissatisfaction with computer networking by simply saying "Networking issues in our departments are atrocious; network is slower than molasses, even my home DSL runs faster"; and another user just say "Oracle e-mail problems…it is too old".

Perception of IT Personnel – Satisfaction of IT Personnel

The second area of the service the staff respondents were satisfied with is the IT personnel. In this instance, staff generally seems to be satisfied the with the IT personnel they worked with or the IT personnel that help them in one form or another, in other words the proximity of the IT staff to the user seems to denote satisfaction. Twelve of the staff respondents (14.46%) are under this category. Examples: one of the staff respondent noted "I only really get help from IT student side [on my campus], when the administrative IT staff side helps [me], I end up with more problems than I started with". Another respondent added "when I get a personal contact, that works [for me]. _____ (name omitted)

and _____ (name omitted) seem to be the ones who know what they're doing". Another example of responses in this mode follows: "_____ (name omitted) helps me with Mac mail system", and another respondent added "PeopleSoft Administration/Finance support [are] doing the best they can given the amount of resources they have'.

Dissatisfaction with IT Personnel

On the flip side, some staff responding to Question 32 expressed dissatisfaction with some IT personnel. Some the examples of the responses expressing dissatisfaction with the IT personnel are as follows: "_____ (name omitted) is rude and ignorant"; "overall, everything is satisfying….except the person that serves the _____ campus computers, you need to change the person or give us someone knowledgeable in this area". One respondent observed that IT staff needs "customer service knowledge and knowledge of troubleshooting problems".

OPEN-ENDED QUESTION 33 FROM THE ONLINE SURVEY FINDINGS – STAFF

When asked to list specific areas of the services provided by the Information Technology Department that are in need of improvement (Question 33), 85 of the 171 staff respondents answered this question while 86 staff respondents left this question blank. The respondents that answered this question had a lot say about how to improve IT services, but most of the comments can be

put into three categories of: *Training of the IT staff to Technical skills and Customer Service skills, Providing Prompt Service and Improving Communication with users.*

Training of the IT staff

Fifty-five of the staff respondents to Question 33 indicated that IT staff needed some formal training to improve their technical skills as well as their customer service skills. Here are some of the responses that indicated that IT staff needed technical training: one respondent said "Hardware/Software technicians are not adequately trained to handle problems with equipment". Another respondent added, "IT staff needs to be updated on the latest computer issues and software". One interesting response was the one that stated "they [IT staff] need to be trained to work on newer computers and trained in customer service and perhaps not to lie". The last portion of that response "perhaps not to lie" has several implications, perhaps IT did not deliver on what was promised to this user. Some responses indicated that IT staff tended to lock down or secure computers systems entirely too much, example of such sentiment is as follows: "IT Staff [put] too much emphasis on making the computer unusable so that the techs don't have to fix it".

Another theme on the training axis is pertaining to the IT tier one support – the helpdesk or the customer service representatives. Here, the responses were along the lines of giving these more training so that "they can easily diagnose and

fix simple computer issues over the phone instead of sending field technicians which may take 2 to 3 days before resolving the computer issues". A respondent suggested the tier one customer support team should be "trained on software such as Timbuktu® or Microsoft SMS®, so that they can easily take over a user computer and diagnose and fix the problem". Finally, some responses alluded to the whole IT department needing "customer service skills" and particularly those IT staff that interface with users' community. And the departments in HCC that uses only Apple Macintosh computers suggested that IT techs should be trained on Macintosh computers so that techs can service their computer needs, "Our department is basically Macintosh and there isn't enough techs that are familiar with Macintosh". Finally, a respondent said training may improve service quality "because there are certain members of the IT staff that you cringe whenever you see them because they never accomplish anything and nothing ever is correctly fixed".

Providing Prompt Service

Twenty staff respondents answering Question 33 indicated that the area of the IT department that is in need of improvement is in its response to service requests from users. A sampling of the comments alluding to improving response time for services follow: "on the spot service is needed, instead of having to wait 24 to 48 hours or even later for service"; "when job tickets are assigned to techs, the techs should contact users ASAP to give an estimated time of service --

especially if it will be several days before the issue can be addressed, this would provide a more pleasant transaction for all".

Another suggestion voiced by several respondents was that having technicians stationed at every building on all campuses or colleges would greatly improve prompt service to the user community. Another respondent noted that although "the techs are assigned to campuses, most of the time, they are not [t]here when they are needed; they (techs) are unavailable to be part of the overall mission of each college; this arrangement needs a major overhaul" in order to readily provide service.

Improving Communication with Users

Ten staff respondents reacting to Question 33 thought that the IT's department communication with the HCC community needs improvement. The lack of communication seems to be an issue that blankets the entire IT department including individual staff. A respondent said, "Communication, communication, and communication…, I am never notified once a problem has been resolved and that a work order has been closed". Another observed that "IT arbitrarily turns off the ports to networks, printers and computers in the department without notification". A suggestion made by one respondent to address the communication gap between service providers and the user community was to have an explanation of the problem, what would be done to solve it and when the problem would be resolved.

OPEN-ENDED QUESTION 34 FROM THE ONLINE SURVEY FINDINGS – STAFF

Question 34 asked the respondents to list any comments they wish to make regarding the Information Technology Department. In asking this question, the researcher meant to afford the survey participants a final opportunity for them to voice their views about the IT department on any subject. Few staff respondents (58 people) answered this question. The majority of the responses were similar to answers given in Questions 32 and 33; i.e. these responses mirrored or amplified the answers already given in 32 and 33.

Fifteen of the staff respondents that answered this question reiterated how ***satisfied*** they were with the IT department. The staffing level of the IT department was also a source of concern for some respondents. Nine of the staff respondents to this question thought that members of IT department are ***understaffed and overworked***. Eight staff respondents said that IT department staff needed more training to keep up with the ever changing technology.

There were also seven responses about the ***leadership of IT department.*** Some respondents in this category noted that decisions about technologies were being made by leaders that were not a part of IT and were not knowledgeable in the areas encompassed by IT. Still other respondents in the category of leadership commented on the poor leadership of IT department. One such comment observed "you are in desperate need of new leadership and I hope you get it because we are all dying out in the field with what appears to be IT administrators

that are asleep on the wheel". The remaining respondents to this question mentioned the need for improvement of ***communication*** from the IT department to user community and also for "***geeks***" [IT staff] to communicate in "***non geek***" language to the users.

OPEN-ENDED QUESTION 32 FROM THE ONLINE SURVEY FINDINGS – FACULTY

Of the 130 respondents that identified themselves as faculty on the online survey, 53.85% (70) of them responded to Question 32, and the remaining 46.15% respondents left the space blank. Three of the seventy respondents of this question answered "none".

Coding and categorizing the affinities (a group or cluster of common thoughts) among the responses, showed that most of the respondents to this question were all over the map on "listing of specific areas of services provided by IT department the respondents found satisfying"; but most responses can be classified into three groups: (1) ***satisfaction with services***, (2) ***satisfaction with personnel*** and (3) ***satisfaction with the manner in which services are provided***.

Satisfaction with Services

Nine faculty respondents in this group cited satisfaction with the Oracle e-mail system, the Meridian voicemail system, and the telephone number to reach customer support to report a problem, request services and PeopleSoft Students and PeopleSoft Financial. Here are few examples of responses indicating satisfaction with IT services: one respondent said "the services I find satisfying

are e-mail and voice mail systems"; another respondent said "having a telephone listing you can call most of the day is good,…..convenient ways to report problems and request help"; and another respondent added "PeopleSoft Students and PeopleSoft Financial...in general PeopleSoft assistance".

Satisfaction with Personnel

In this aspect, the faculty respondents were satisfied with the technology person(s) that helped them with their technology related issues. The number of faculty responses falling in this category was sixteen. In most instances, these technology persons were mentioned by name. The following are a few instances of responses buttressing the idea of the faculty satisfaction with technology personnel: "_____'s demeanor, attitude and knowledge of computer language, applications and just general questions is impeccable"; another respondent added "the folks who work in the open labs are terrific, they are very helpful and patient…_____ and _____ are the BEST!!!"; a third respondent continued "_____ at _____ college is very knowledgeable in technology and very helpful and courteous, _____, _____, and _____ are just superb".

Satisfaction with the Manner in which the Services are provided

The faculty respondents that alluded to the manner in which services were provided as satisfying cited the following: ***knowledgeable technology staff*** (14

respondents); ***courteousness of the technology staff*** (13 respondents***)***; and ***promptness of service*** (15 respondents) as the major ingredients for their satisfaction.

Knowledgeable technology staff seems to have a connotation of competence and this was the area 14 of the faculty respondents said they found satisfying. Here are examples of responses portraying this idea of knowledgeable staff: "The persons who assist appear to be knowledgeable about technology"; "our campus IT personnel are very helpful and knowledgeable, quick to analyze and fix the problem".

Courteousness of the technology staff was another satisfying attribute to the 13 faculty respondents. These respondents noted in glorious terms and phrases how courteous the technology personnel who serviced their computers or assisted in their technology needs were. A respondent noted "The technicians are very approachable and very courteous", and another respondent observed "the IT staff are personable employees and show courtesy to the faculty".

Promptness of service was the third reason that faculty respondents stated as a reason for their satisfaction. Three faculty respondents simply said "promptness" in answering question 32.

OPEN-ENDED QUESTION 33 FROM THE ONLINE SURVEY FINDINGS – FACULTY

Question 33 on the survey asks "please list specific areas of services provided by the Information Technology Department that are in need of

improvement?" A total of 75 faculty responded to this question. Seven responses were deemed unusable, two responses thought IT department was doing a great job and no improvement was needed and one respondent thought that IT needed to change everything. The remaining 65 responses thought that IT department needed improvement in six areas: (1) ***Response Time*** (14 respondents); ***Staffing for IT*** (12 respondents); ***Training*** (14 respondents); ***Communication*** (7 respondents); ***Leadership*** (8 respondents); and ***Equipment and Software*** (10 respondents).

Here are few examples of the responses from faculty members that listed "**Improvement in Response Time"** by IT staff to service requests as one way of improving service quality; "there have been occasions that no one called to let me know when they might come in to work on my problem…I had to keep calling back, IT should try to provide same day service". Another three respondents simply said "promptness to our service calls could be improved". One respondent gave the following suggestion to improve response time,

> "I T needs to seriously consider permanently locating more frontline people at each campus site. Under the current set-up we may not see IT personnel for weeks at a time and they are not always prompt about responding to a work order".

Increase Staffing for IT was another popular sentiment by faculty responding to question 33. Some faculty respondents linked the understaffing of the IT department with slow "response time" to service requests and

"overworking" of the IT staff. One respondent answered this question thusly "current staff is spread too thinly", another added "These people (IT staff) are great and, probably, need more help". Still, another respondent observed "Perhaps more staff are needed because a few days can transpire before they attend to a request…. HCC needs more technicians that can address the needs of faculty and students".

Training category has two aspects: (1) *training of IT personnel* and (2) *training of the user's community*. Faculty respondents suggested training as a means of professional development for the IT personnel both in technological areas and people skills. Examples of responses alluding to this view are as follows: "If it goes outside of basic IT knowledge, the staff seems lost" and said "I think they (IT staff) should be required to take continuing education, to keep up with the rapid changes in technology"; "Don't 'talk down' to us because we are not computer geeks! We are capable of understanding".

Training of user's community by IT department will help users improve their technological skills. A respondent asserted "Providing training opportunities at multiple sites throughout HCC system, especially for 'faculty certification' courses, could encourage faculty to incorporate technology in their classes".

Some faculty respondents view **Communication** as an element the IT department needed to improve. Here, respondents are referring to communication between System IT department with colleges and campuses. As stated by a respondent "I perceive a lack of communication between the IT frontline person

at my campus and instructional lab personnel on my campus" and respondent said "Communication with customers in the field, especially instruction side is important. Often IT takes a decision without telling anyone, and it affects instruction. We at the college need to know about these changes ASAP so that we can make other instructional arrangements to continue our mission of educating".

The responses that pointed to IT **Leadership** as an area that needed improvement were quite straight forward. These responses made connections between the confusion that exists with the current System IT organization with the various technology related groups throughout HCC System and Colleges. Trying to determine which of the various IT entities they should call for help creates frustration for the user community. Here are a few responses illustrating this confusion: "The division of IT in HCC into Admin and Instructional areas has led to inadequacy of local personnel to work on the instructional computing side at the colleges…this is frustrating". Another respondent viewed it from the opposite spectrum. This respondent said "we (at the colleges) have more knowledgeable staff in our campus computer department and yet they are not allowed to service faculty computers, this is totally inefficient".

There were some responses that indicated that IT department as a whole has been in dire need of capable leadership. Responses demonstrating leadership issues of IT department are as follows: "the IT department at HCC doesn't have a good reputation when it comes its leadership"; the department has been hampered

by a lack of a consistent good leader"; IT department and its leadership should support the college's main teaching function".

Some faculty respondents thought that improvement with **Equipment and Software** is the specific area IT department needs to improve. Here, improving the Oracle e-mail system was proposed. Some other faculty respondents wanted new computers rather than the "hand-me-downs".

OPEN-ENDED QUESTION 34 FROM THE ONLINE SURVEY FINDINGS – FACULTY

Question 34 asked the respondents to list any comments they wish to make regarding the Information Technology Department. This question was meant to give the respondents a final opportunity to say anything about the IT department. Just like the staff, only few 56 (43.08%) of faculty respondents answered this question, of which eight responses were unusable. To the researcher's surprise, the majority of the usable faculty responses (21 responses) to Question 34 were very pleased with technology staff they have dealt with or that resolved their technology issues, hence, the responses were overwhelmingly positive. Following, are examples of responses indicating satisfaction with the IT department or the technology staff:

> "They are all GREAT; Overall, I think IT staffs are the greatest strength of the Department. The 'front line' individuals like _____, _____, _____, and others are fantastic to work with. These 'front line' staff members make all of the difference for the user. Overall I've had good

rapport with IT. They seem to be knowledgeable and competent. I especially like the access phone number for the faculty, staff, and students. I appreciate the job IT department does with its limited resources; I hope the technicians and other staff members will continue to provide services in a professional and amiable manner".

Some of the respondents simply answered this question by giving a letter grade to IT department or the technology staff. Below are examples of the responses in this mode: "I think our IT department does a very good job and gets an 'A-' rating from me", and another added "Overall, they get a good grade of an 'A'. Good service and prompt response time".

The leadership issues in the IT department as well as within the entire HCC drew the ire of the faculty responses. There were seven responses in this manner. A respondent observed "The department has been hampered by a lack of a consistent good leadership. The Board of Trustees has not provided adequate funding to allow the IT department the ability to provide good information systems that work"; another respondent added "I have no faith that HCC will improve services. Since the time of John Busby [the first IT director] the leadership has been a charade of ignorance. While there are good people with skills at IT, the concept of supporting instruction and the school itself has been lacking".

There were four responses that expressed confusion about the distinction between System Information Technology department and the various technology

related departments or groupings in the various HCC colleges. A respondent noted “The computers and phones in the faculty area of the _____ building are not maintained well; and when something goes bad or does not work, there is not a convenient way to identify a specific person or someone to fix them”. To resolve this confusion between System Information Technology department and the various technology related departments in the colleges, some respondents suggested the decentralization of IT functions from the system office to the colleges. Here are examples of responses expressing these sentiments:

> “each campus or college should hire their own technology staff, in that way they would be more responsive and more caring of the people on their campus…. system people just don't care and it shows, they are accountable to NO ONE on the campus so they don't respond to our needs”. “HCC should consider outsourcing IT locally in order to improve its expertise and professionalism. Presently, IT staffs operate within the confines of HCC' culture which lacks sophistication and quality. Hire the best talents; keep them away from HCC system”.

Finally, were responses to Question 34 that suggested that IT department could improve the quality of its services by changing the enterprise software such as Oracle e-mail system or the online student management software WebCT; or by offering more in-service training to the user community and professional training to the IT personnel. Here are examples of responses conveying above views: “There have been many promises to clear up the e-mail snafu, but all were

broken promises", "I would like a more capable email system than the one we currently use", "in my humble opinion, WebCT was the wrong choice". In the training area, a respondent said, "They need to train them on Apple Macintosh system". Another respondent added "We need more in-services regarding new technology for use with students in and out of the classroom. We need video conferencing capabilities".

INTRODUCTION OF FOCUS GROUP FINDINGS

As mentioned earlier in chapter three and this chapter, two focus group sessions were conducted with staff and faculty using the top and bottom five survey questions base on their mean values.

The focus group members were asked to think about their experiences on their various encounters or dealings with the IT department. With their experiences fresh on their minds, the focus group members were then asked to consider the top five or bottom five questions and their associated dimensions of quality service as ranked from the online survey. The groups were than asked if they agreed or disagreed with the ranking. In addition, the focus group members were asked to list phrases that come to their mind regarding the survey ranked dimensions of quality services. Essentially, the focus group was led through a brainstorming exercise where each member's thoughts were written on flip charts.

FOCUS RESULTS

The Staff focus group results will be presented first, and then followed by the faculty focus group results. In presenting these focus group results, the top five rated questions are considered first and then followed by the five bottom rated questions for staff and faculty respectively.

Focus Group Results - Staff top rated five questions on the survey

Table 46 Five top rated questions by staff

#	Questions	N	Mean
8	HCC IT Dept has a central contact point for requesting service.	167	5.00
25	HCC IT Dept staff treats me with respect.	165	4.81
6	HCC IT Dept staff is courteous	170	4.81
14	HCC IT Dept has a well published phone number to report problems or request help.	170	4.78
13	HCC IT personnel have a designated area on my campus.	168	4.68

The five top five rated question by the staff on the survey are list in Table 46. These questions are associated with the dimensions of quality service of Access (Question 8), Courtesy (Questions 25 and 6), and Tangibles (Questions 14 and 13). The staff focus group agreed with results or ranking of the questions from the survey. With regards to the Question 10 dealing with Access dimension of quality service and its high ranking in the survey, the staff focus group participants attributed this to the IT department having a known and easy to remember telephone number to request service. They used terms such as "*easy*

number", "*easy to remember*" and "*a single point to report issues – helpdesk telephone number*" in discussing Question 8.

Questions 25 and 6 dealing with the Courtesy dimension of quality service surprisingly were ranked with the same mean value. When this was pointed out to the staff, they were not surprised because according to them respect and courtesy are essential aspect of service. A participant observed "if a service person or IT technician fixes your computer very well but does not show you respect or is not courteous, you will not like to use that service person in future". Some of the phrases the staff used to describe courtesy were: "*friendly IT people, user friendly*"; "*we are not IT people…IT people fix your computer without speaking IT jargon to you*"; "*IT people are respectful and considerate of the customer's need*".

When it came to the dimension of Tangibles (Question 14 and Question 13); in respect to Question 14, the group commented that Tangibles and Access seems to be inextricably linked. They saw the accessibility of IT staff and having a well published number to request service as another element in delivering quality service. The group tended to repeat phrases already mentioned in Access dimension, phrases such as: "*the phone number is easy to remember*", "*the phone number allows for accessibility and quick reaction or faster service*".

Now, considering Question 13, the staff focus group members that primary work at the System Office tended to agree with rating of this question because the system IT department was located in the same building. And these

members said things such as "*in the system office we know where the IT people are*", and "sometimes run into them in the elevators and mentioned our computer issues to them".

On the other hand, the staff members of the group from the colleges had some reservations about the rating of Question 13; they expressed their confusion about the IT personnel assigned to their colleges and the Curriculum Innovation Center (CIC) staffs at the colleges that also deal with classroom technology issues. Some of the statements used in discussing this question were:

> "we have a CIC…curriculum innovation center and two there is the IT people...and these groups are frequently called to service our computers,….sometimes I don't know if you are talking about….an IT person or one person that is assigned to a particular campus or just IT people on various campus"; "IT person should be on all campus and if possible all the buildings in a campus with their name and office listed in the directory".

Focus Group Results - Staff bottom rated five questions on the survey

Table 47 Five Bottoms rated questions by staff

#	Questions	N	Mean
10	HCC IT staff updates me on the progress.	169	3.89
26	HCC IT Dept has a credible reputation.	164	3.85
29	HCC IT Dept employs a sufficient number of staff to meet my computing needs.	167	3.73
23	HCC IT Dept provides direction for technology advancement on my campus	158	3.67
24	HCC IT Dept staff offers effective one-on-one training.	158	3.35

The five bottom rated questions of the survey by the staff are shown on Table 47. These questions and their associated dimensions of quality service are as follows: Communication (Question 10), Credibility (Question 26), Tangibles (29), Leadership (Question 23) and Competence (Question 24).

Starting with the question with the lowest ranked responses, Question 24, "HCC IT Dept staff offers effective one-on-one training" the group agreed with the low rating of this question since it is not "IT frontline people's primary duty to offer training". The group added "if IT starts training one-on-one…there never going to get around to helping everyone because they are training people individually". The group suggested that IT department should have in-service department to train users on various software applications. A member of the group gave the following example: "if I am having a problem with Microsoft Excel spreadsheet, my IT person and helpdesk may not be able to help me

because they are not experts on Excel…., but if there IT department offers in-service training on Excel, then I can take it to improve my skills".

Question 23 dealing with leadership dimension of quality of service was the next low rated question. Pertaining to the issue of leadership, the group was of the same mind. They observed that those making decision about technology on their campus are less knowledgeable about technology than themselves. Here is an example of what participants said, "I don't think IT is involved….because if IT is involved, the get the right equipment for the people that need it….some people get Cadillac, when all they need is a Ford".

Question 29 about HCC IT Dept employing sufficient number of staff to meet the computing needs of users, sparked a lengthy discussion amongst the focus group participants. The bulk of the discussion was that IT department should hire more staff particularly in the frontline area. Here are few samples of the discussion about staffing: "we only have one person to service the whole campus of three large buildings"; "well, quality is going to slow down because IT does not have enough people"; "delay response will occur, but more staff will lead to faster service…especially impact heavy registration".

In discussing Question 26, the group was of the opinion that IT department's credibility can stand a little improvement. They attributed some of the IT department's low credibility rating to "PeopleSoft problems during registration" and "this recurring problem is every semester". "PeopleSoft slows down registration". They continued, "PeopleSoft was suppose to make

registration easy, but it PeopleSoft has made the registration worse". "IT department has not delivered what it promised".

Question 10 deals with communication. The group attributed the low rating of this question to a failure in communication from IT department to users. The group used terms such as "sporadic, sporadic updates, lack of information" in describing the communication from the IT department and users. A participant cited the following example of lack of information or communication from IT:

> "…last year there were team name IT Governance….so we submitted different proposals to them on how to improve IT and the work that we do, but, I really don't think anybody knows the function of IT Governance….and all things that we submitted, how did they use it…how did they determine the priorities of what was submitted….what were they able to accomplish last year, nobody has communicated this to us".

Another participant added, "but there are some areas IT performs well…like broadcast messages".

Focus Group Findings – Faculty bottom rated five questions on the survey

Table 48 Five top rated questions by faculty

#	Questions	N	Mean
14	HCC IT Dept has a well published phone number to report problems or request help.	129	4.86
6	HCC IT Dept staff is courteous	129	4.85
8	HCC IT Dept has a central contact point for requesting service.	127	4.80
25	HCC IT Dept staff treats me with respect.	126	4.77
22	HCC IT staffs are approachable.	127	4.69

The five top five rated question by the faculty on the survey are list in Table 48. These questions are associated with the dimensions of quality service of Tangibles (Question 14), Courtesy (Questions 6 and 25), Access (Question 8) and Frontline People (Question 22). The faculty focus group agreed with results or ranking of the questions from the survey. The faculty focus group participants were very expressive and active. The faculty group was in agreement with the rating of the top five and bottom five questions.

Question 14 was the highest rated question by the faculty. This question deals with dimension of quality service of Tangibles. Among the terms used by faculty to discuss Question 14 were "*Contact, Communication, Availability, Responsiveness,* and *Accessibility*". A faculty participant used the following to show how the IT department Helpline works: "When you call the helpdesk to report a problem…. you get someone and you also get the incident number, in case you problem was not resolved".

Question 6 explored the courteousness of the IT department staff. The group used the following adjectives to describe this question: "*eagerness, passion, enthusiasm* and *interest*". The panel agreed that in general, IT staffs are courteous; but occasionally, you may come in contact with someone having a bad day. A faculty participant offered this example "I have experienced two things….I either get very courteous person or I'll get someone just awakening from a deep sleep…" Other participant added "IT department have improved a lot from where they use to be"; "I wonder whether the change has been due to training whether or not, ….no matter what, they are more courteous…."

Next, the group discussed Question 8, a question dealing with Access. The group used the following terms to describe access: "*convenience, accessibility, openness*, and *customer friendliness.*" The group noted that having the contact point centralized allows for equity of getting work request completed without regard to the individual campus politics of rank.

Question 25 asks "HCC IT department staff treats me with respect?" The group rightly recognized and agreed that respect and courteous is synonymous. So, the group tended to use the same terms or adjectives used in describing Question 6 to describe Question 25. And terms are "*reverence, courteous, values me as customer*, and *they do not talk down to me*". As the discussion continued, a participant said "from my point of view…..I value competence, you may not respect me but as long as you fix my machine right …..I'm happy", but this was a minority view.

The last question rated high by the faculty is Question 22, a question associated with the "Frontline People" in dimension of quality service. The question seeks to find out how approachable are the IT staffs are? According to the faculty group, approachable have the following meaning "*easy to talk to, friendly service, respect, courteous* and *polite*". In short, these are qualities faculty expects from a customer service representative. A majority members of the group were of the opinion that IT department's frontline people they have had contact with are very much approachable.

Focus Group Findings – Faculty top rated five questions on the survey

Table 49 Five bottom rated questions by faculty

#	Questions	N	Mean
10	HCC IT staff updates me on the progress.	127	3.92
26	HCC IT Dept has a credible reputation.	124	3.82
23	HCC IT Dept provides direction for technology advancement on my campus	116	3.60
29	HCC IT Dept employs a sufficient number of staff to meet my computing needs.	121	3.57
24	HCC IT Dept staff offers effective one-on-one training.	116	3.56

The five bottom-rated questions of the survey by the faculty are shown on Table 49. These questions and their associated dimensions of quality service are as follows: Communication (Question 10), Credibility (Question 26), Leadership (Question 23), Tangibles (29), and Competence (Question 24).

Starting with the lowest rated question by the faculty, Question 24, the group agreed that it is not feasible for IT department personnel to go around

giving one-on-one training. But, IT personnel should be knowledgeable enough to direct a user to the right place for training or help. The group suggested for the IT department to conduct "*breakout session, more in-service* at different locations throughout HCC for demonstration of different software applications, so as to train the users' community or informed the user community as what is available. To improve the competence of the IT staff, they must be given opportunity for professional development training, so that IT staffs will be acquainted with the new technologies.

Next, the faculty group tackled Question 29 - IT department employs a sufficient number of staff to meet my computing needs? The group was quite vocal here. They were of one mind and that is the IT department is severely understaffed. The group ascribed most of the IT problems such *credibility, lack of communication, slowness in response to service request* to chronic understaffing at IT department. The group also observed that IT frontline staffing is not consistent with the size of the campus in mind. The result is that large campuses or colleges within the system have the same number of frontline personnel.

Question 23 gauged whether IT department or its personnel is involved in setting course or direction for technology advancement at the campus level. The group was of the opinion that IT department was either not involved or were peripherally involved in making decision on technology on their various campuses. They described technology decision making in the following terms:

"*top-down approach, isolated decision making, poor choice in software* and not *providing adequate software options*". To rectify these problems, the group suggested active IT involvement in technology decision and to standardize technology across the system.

Question 26 dealt with credibility of IT department. The group said that IT department's credibility is poor due to its past history. A faculty participant recalled that when "IT department introduce e-mail for the employees, IT selected Oracle e-mail which did not meet the faculty's needs and had a limited quota". Another participant observed that IT department lost its credibility with him when "IT department decided to limit its software selection to Microsoft Office®", he continued we are educational institution "other software such as Corel WordPerfect®" could have been added.

The faculty focus group thought that the low rating of Question 10 on the survey by the faculty maybe due to the failure of IT department not closing the communication gap or failure to communicate effectively. The faculty used terms the following terms to describe their IT experiences in respect to communication, "*lack of information, no feedback, broadcast announcement, progress report* and *no e-mail*". The group expressed surprise that the department that is supposed to be all about technology is not using technology effectively in communication, technologies such as websites, newsletters Podcasting. A participant observed that "someone will do something to your computer and they will not let you know

what is done and whether the problem has been resolved". IT should provide a means for users to check the status of their work order request online.

SUMMARY OF RESERCH QUESTION FOUR

The respondents to the open-ended questions asked on the online survey and the focus sessions, both staff and faculty, indicated that overall, their evaluations of the IT dept. were based on perceptions that the group had developed during the course of their own personal experiences with staff or services provided by the IT dept. Generally speaking, the more positive an experience with staff or services of IT was for the individual taking the survey, the more positive their evaluation of IT would be. However, if the interaction between IT and the individual had been negative, their evaluation would tend to lean toward the negative side as well.

Overall, the respondents indicated satisfaction or dissatisfaction with the services provided by the IT dept. Some of the respondents were satisfied with the quality of service that was provided by the techs in response to a request for service, as well as, the courtesy, timeliness and follow-up that they received as part of the service request.

The respondents that were dissatisfied felt that the IT dept. staff and service quality needed revamping. The staff needed to be trained to be able to keep up with the needs of the user community. They needed a broader knowledge base to identify and resolve issues with users' computers. They needed to be

exposed to skills that would improve the interaction that they have with the end-users that require their services.

A genuine concern for the respondents was the lack of leadership and direction of the Information Technology dept. Understanding how decisions that related to IT could be made by people that were not involved with IT could not be rationalized by the respondents. The need for more tech staff was expressed because timeliness could not be improved unless more trained and knowledgeable people were available to attend to the needs and requests of the user community. Also suggested, was additional funds to assure that IT could implement all the improvements necessary to become top quality.

Ensure staffs are recognized as internal customers and are properly supported and consulted in regards to service delivery issues."

Sullivan (2001)

CHAPTER FIVE

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter is divided into three sections: the summary of the study, the conclusions made from the findings, implications, and the researcher's recommendations for those constituencies that have a large stake in the customer satisfaction oriented IT department of an institution of higher learning.

SUMMARY OF THE STUDY

Customer satisfaction is the bedrock of any organization. The level of customer satisfaction has been used to measure customer loyalty, productivity and profitability of many businesses (Pothas, De Wet and De Wet, 2001; Loveman, 1998). For public colleges and universities, where profits are not the motive, customer satisfaction becomes a surrogate for measuring how well these institutions are meeting and satisfying their stakeholders (Aldridge and Rowley, 1998). The measurement of internal customer satisfaction is a tool that can be useful for the leadership of colleges and universities to aid service quality to their internal and external stakeholders (Gilbert, 2000).

In order to deliver excellent service to external customers, the services to internal customers of the colleges and universities must be of a similar standard. Sullivan (2001) observed that excellent external and internal customer service that leads to customer satisfaction shared the same qualities (e.g. courtesy, promptness, communication with customer). As documented in Chapter 2 of this dissertation, Information Technology departments of colleges and universities are internal service organizations, and administrators, staff and faculty are the internal customers of IT departments (Kang and Bradley, 1999; Boshoff and Mels, 1995).

The purpose of the study was to determine the level of fulltime staff and faculty customers' satisfaction with the information technology department of a community college - HCC. An online survey and two focus group sessions were the center for the study. The survey was designed to obtain information from both quantitative and qualitative data. The survey was conducted from September 14, 2006 to October 13, 2006. Invitations to take the online survey were sent to 1654 fulltime employees (851 staff and 803 faculty); and 301 (18.20%) respondents (171 staff and 130 faculty) took the survey.

In addition to the online survey, two focus group sessions (Focus Group One and Focus Group Two) were conducted using the top and bottom five ranked questions by mean for the respective faculty and staff focus groups. Both focus groups met on November 8, 2006 each for one hour. Each focus group consisted of twelve members selected from across the HCC community randomly and by invitation for balance.

The researcher conducted a comparative analysis of the survey quantitative and qualitative data and a comparative analysis on the focus group transcripts for both groups. These comparative analyses of the quantitative and qualitative data for faculty and staff yielded some surprising findings. The conclusions will be discussed in the proceeding section.

CONCLUSIONS

The quantitative and qualitative findings presented in Chapter Four formed the basis for the conclusions listed below:

1. There is little to no difference in the level of satisfaction between faculty and staff regarding the quality of services offered by the IT department in the ten dimensions of quality service of: Access, Communication, Competence, Courtesy, Credibility, Reliability, Responsiveness, Security, Tangibles, and Understanding the Customer as enumerated by Zeithaml, et al. (1990);. **Access** and **Competence** were the dimensions that had a pronounced variation. In terms of Competence, 45.65% of faculty was truly satisfied while 38.75% of staff was truly satisfied. With the dimension of Access, about twice as many of the faculty (13.15%) in the study was truly dissatisfied while 7.5% of the staff in the study felt the same way.

2. The measure of the level of satisfaction of both faculty and staff with the five dimensions of quality service of Communication, Expectation, Frontline People, Leadership and Organization developed by Besterfield, et al. (1995) showed that faculty and staff hold similar views of satisfaction and dissatisfaction. The dimensions of **Communication** and **Frontline people** showed the most difference in the levels of satisfaction/ dissatisfaction for both faculty and staff. In regards to the Frontline People, 73.30% of the faculty and 60.10% of the staff were truly satisfied. And with Communication, 11.30% of the faculty and 5.40% of the staff were truly dissatisfied.

3. The were no statistically significant differences between faculty and staff in their customer satisfaction with the Information Technology department in the ten Zeithaml's et al. (1990) and five Besterfield's et al. (1995) dimensions of quality service. The overall satisfaction level of the faculty and staff were quite similar.

4. Qualitatively, faculty and staff expressed similar remarks and observations; mostly that of satisfaction with IT personnel and in manner the IT personnel provided service to the user community. The respondents were satisfied with the quality of service that was provided by the IT technical staff in response to a request for service, as well as, the courtesy,

timeliness and knowledge of the IT staff that they received as a part of the service request. Faculty and staff also expressed the need for improvement in IT department leadership and also for the IT department to offer updated applications, particularly in the e-mail program. They also expressed the need for continuous IT staff professional development.

IMPLICATIONS

In this section, the study's implication will be presented first, followed by the theoretical implications associated with a service organization undertaking the improvement of customer satisfaction.

Study Implications

At the beginning of this project, the researcher admittedly had some "researcher bias – that the user community of HCC IT department was not satisfied with the IT department. The bias had developed from working in the HCC IT department for eleven years, and always hearing the complaints of the user's community. However, after reviewing the findings, the assumption may not be accurate. Particularly when one compares the findings of Houston Community College (HCC) with that of Pima Community College (PCC) conducted by Niederriter (1999). In the PCC study, the mean values for the Overall Satisfaction of faculty and staff (on a five point scale) were 2.36 and 2.21

respectively (p. 104). The values for the HCC faculty and staff were 4.17 and 4.20 respectively on a six point scale. The HCC mean values are well above average in the range. In all of the dimensions of quality service measured in this research, when compared to PCC's result (Niederriter, 1999, p. 101 & 103), HCC results were all above the range of PCC. The implication here is that the HCC user community (faculty and staff) are quite satisfied with the services they receive from IT department and with department as a whole.

Although the level of customer satisfaction among HCC's faculty and staff were above average, a deeper consideration of the dimensions of quality service reveals that there are some dimensions of quality service that the IT department must work on improving. ***Leadership, Credibility*** and ***Communication*** are the dimensions of quality service that are cited for improvement.

The Leadership dimension of quality service scored the lowest mean for both the faculty and staff at 3.60 and 3.67 respectively in the quantitative side of the study. This fact was also picked up in the qualitative portion of the study. The subject of leadership has been of keen interest to academics and practitioners and is a well established area of research. The survey conducted by Katz, et al. (2004) showed that the leadership style that suits the academic IT department is the transformational leadership style. Transformational leaders are good role models; they inspire, empower, and motivate staff and effectively communicate a shared mission and vision for the department (Katz, et al. 2004). The HCC IT department has had difficulty in leadership issues in the past, and that is what was

rightly picked up in this study. At the staff level, IT department personnel must exert leadership in technology issues in the performance of their duties. If HCC is to capitalize on opportunities presented by the growth of the learning industry in today's global market through information technology (Norris and Dolence, 1996), it must do so with the IT department fully represented at the highest leadership level of the institution.

The Credibility dimension also scored low with the faculty and staff with the mean values of 3.97 and 3.95 respectively. Credibility has to do with leadership. In its simplest term it is the "quality of being believable or trustworthy" (Merriam Webster Dictionary, 2000), an essential component of leadership. Commenting on the issue of IT credibility, Lee Higdon (2002) said:

> "First, the institutional leadership must have credibility with IT, and second, IT service levels must have credibility with the users. IT leaders should always be involved in the issues of assessment, just as the technological infrastructure should always meet the requirements of the users. Users need reliable equipment and software, regular system checks and maintenance, adequate training and strong support. IT leaders need consistent interaction with, and support from, the institutional leaders. This is a team effort and the foundation of mutual credibility."

The low rating of the credibility dimension (compared to other dimensions) by faculty and staff maybe due to the history of the IT department being late on

delivery of promised projects. The IT department's delivery of projects or services on time will go a long way toward mending the credibility of the department among the user community.

The faculty and staff rated Communication just a little higher than Credibility at mean values of 3.99 and 3.97 respectively. As Burton (2002) observed, there is a natural gulf between the computer specialists and the computer users, a legacy coming right from the early history of computing where people who understood computers were scientists. This is the gulf that the HCC IT department must work hard to avoid or correct. From the qualitative data, it appears that when the faculty talked about communication as an issue, they were talking about not understanding the computer jargons or technical lingo the IT staff used in communicating with faculty. But, the staff, on the other hand was concerned with the IT staff and IT department as whole not keeping them informed. Communication is the sharing of information or knowledge and in this era of information technology, communication can be done by a number of ways – email, phone, one on one and web pages. IT department must communicate with the user community, for this is the essence of customer service.

Theoretical Implications

Recall in Chapter One the researcher discussed the Technology Acceptance Model (TAM) (Bagozzi et al. 1992) and Expectancy Disconfirmation Paradigm (EDP) (Churchill, and Surprenant, 1982). Some definitions of customer satisfaction were also presented in Chapter Two. The researcher will now consider the theoretical implications of the study with respect to customer satisfaction.

TAM and its subsets of Perceived Usefulness (PU) and Perceived Ease-of-Use (PEOU) (Davis, 1989) have the goal of providing an explanation of the determinants of computer technology acceptance that is general; capable of explaining user behavior across a broad range of end-user computing technologies and user populations (Davis, Bagozzi and Warshaw, 1989). Applying the TAM theoretical construct to the study shows that HCC users community have long accepted the technology and services offered by the IT department as essential and necessary for easy carrying out of their daily job tasks. There are two lines of evidence of this acceptance. First, the majority of HCC employees that participated in this study are long time employees, 182 (60.7%) of the employees averaged over ten years of service. Hence, these employees have institutional memory of performing their duties with little or no computer technology and prefer the present use of technology. Performing their jobs with the services and technologies obtainable from the IT department has impacted their job experiences in a positive way and this may be one of the reasons for the above

average customer satisfaction rating of the HCC IT department in the study. Second, anecdotal evidence from the qualitative portion of the study seems to support the technology acceptance, ease-of-use and usefulness of technology; where 62.1% of staff and 67.3% of faculty respondents indicated in their satisfaction with the IT department to be the importance of technology to their work.

Expectancy Disconfirmation Paradigm (EDP) is a post-usage perception evaluation of a service provider's performance. Customers employ pre-existing expectation as a frame of reference against which they compare actual performance levels. This process results in three possible outcomes: positive disconfirmation, negative disconfirmation, or confirmation. A positive disconfirmation means performance was better than expected, and a negative disconfirmation means performance was worse than expected. According to EDP, the better the performance is, or the more positive the disconfirmation, the greater the satisfaction rate (Yi, 1990).

Recall in Chapter One, the leadership of HCC IT department was discussed; and it was said to be a critical issue facing the department. The department has maintained, while there have been a series of changes at the top. HCC user community is aware of the leadership issues facing IT department and, as such, had a minimal performance expectation of the IT department. With the 'Overall Satisfaction' mean values of 4.17 and 4.20 (out of the range of 1 – 6) for

faculty and staff respectively reveals that the minimal expectation of the IT department was surpassed, thus a positive disconfirmation.

The concept of end-user or customer satisfaction was discussed in Chapter Two of this study. Customer satisfaction was defined as the overall affective evaluation a user has regarding his or her experience related with the information technology service (Chin and Lee, 2000; Oliver, 1997). It was also documented that the study satisfaction as a subject belongs to the realm of psychology (Churchill et al. 1974; Cross 1973; Schwab and Cummings 1973).
What this means is that customer satisfaction is a moving target. With this in mind, a cynic may argue that organizations should not attempt customer satisfaction improvement, because any customer satisfaction measures will increase satisfaction in the short term, and then followed by a period where customer satisfaction is stagnant. This will result in a demand for more customer satisfaction measures. There are two possible implications here:

1. After the initial customer improvement measure, the organization should not attempt further customer service improvement measure to the system, since it ultimately requires or calls for more customer service improvement measures in order to keep the customers satisfied. This option contradicts the natural order which change must occur if the entity is to grow and improve. Therefore this option will ultimately lead to the demise of any organization.

2. The second implication is that of periodical seeking customers' view and embarking on measures to improve customer service and customer satisfaction, for this is the core mission of any service organization. The implication here is that information technology is ever changing and the IT organization dedicated to serving the needs of its customers must continually improve. Other researchers have also found that improvement in the performance of service organization influences customer satisfaction for products and services (Lankton and McKnight, 2006; Yi, 1990 and Churchill and Surprenant, 1982).

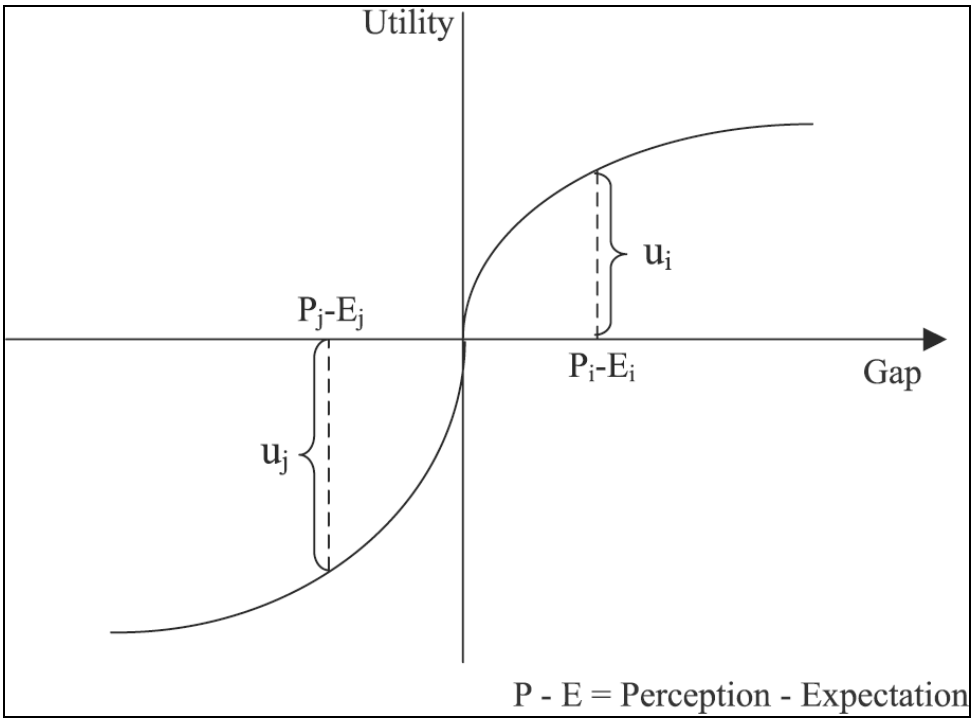
The above implications bring to mind a forgotten economics theory called the Utility Theory. The Utility theory was pioneered by von Neumann and Morgenstern (1953). Utility is a measure of the happiness or satisfaction gained by consuming bundles of good or services. Given this measure, one may speak meaningfully of increasing or decreasing utility, and thereby explain gratification behavior in terms of attempts to increase one's utility. The theoretical unit of measurement for utility is the "Util"; which corresponds to SERVQUAL measurement of satisfaction, util or satisfaction equals perception minus expectation ($U = P - E$).

Most researches dealing with customer satisfaction in information technology field with other theoretical background or lenses such as SERVQUAL have tended to look at satisfaction as a monotonic function, i.e. they have

conceptualized satisfaction as having a linear and symmetric relationship between service quality gaps and overall service quality (Li, Tan and Xie, 2003). But as Li et al (2003) rightly observed, satisfaction is an asymmetric and nonlinear function that naturally lends itself to the use of Utility Theory in satisfaction study in IT services (see figure 18). The utility theory takes into account the irrational behavior of agents (human beings) when faced with two or more options. The fundamental assumption in Utility Theory is that the decision maker will always choose the alternative for which the expected value or payoff is at maximum (Arrow, 1971).

Figure 18 is a graphic representation of risk vs. payoff or in order words, the "deal or no deal" concept. Further explanation of the risk vs. payoff concept is this, for most people, the prospects of gaining a certain amount of money (for instance, $1000.00) has a less positive utility than losing the same amount of money. Rabin (2000) observed that the utility of wealth theory of risk aversion is psychologically intuitive, and helps explains some of our aversion to large-scale risk. Human beings dislike large uncertainty in lifetime wealth because a dollar that helps us avoid poverty is more valuable than a dollar that helps us become very rich (Rabin, 2000).

Figure 18 Asymmetric utility function of performance disconfirmation (Li et al., 2003)



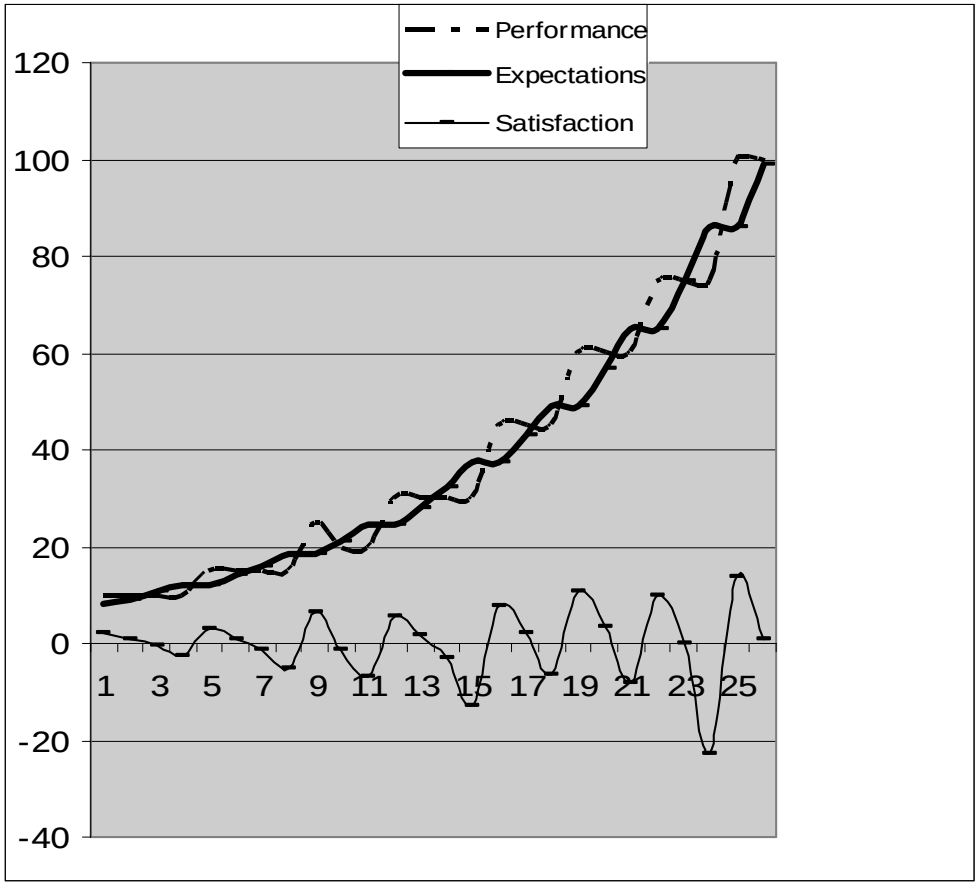
Although customer satisfaction with information technology department is not as dire as being face with a decision of losing ones' savings or becoming rich, but applying or exercising Utility Theory with concept of satisfaction produces some interesting results. The Utility Theory takes into account the prospect of previous performance affecting the current expectation. **Table 50 and Figure 19** present a theoretical situation, in which satisfaction (utility), P-E is measured over a period (Time). Assuming that hypothetical IT department pervious performance measures at a score of 10, this produces corresponding expectations of **8** and satisfaction of **2**. If performance stays at the same level of **10** over a period of

time, the expectations will continue to increase at following rates of **9.2, 10.6**, and **12.2** while satisfaction will have analogous decrease rates of **0.8, -0.5** and **-2.7**. A continually decrease in satisfaction may prompt for measures to increase customer satisfaction level to a score of **15**; necessitating a marching increases in expectations and satisfaction of **12.2** and **2.8** respectively; and over a period of time, the expectation will continue to increase while satisfaction decreases. In a service oriented department or industry, this cycle will be continually repeated. For service organizations such information technology departments, this performance – expectations cycle has a practical implications. That is information technology departments must employ the Japanese practice of Kaizen – continuous improvement.

Table 50 Theoretical Performance, Expectation & Satisfaction (Nwankwo & Northcutt, 2007)

Time	Performance	Expectations	Satisfaction
1	10	8.0	2.0
2	10	9.2	0.8
3	10	10.6	-0.5
4	10	12.2	-2.7
5	15	12.2	2.8
6	15	14.0	1.0
7	15	16.1	-1.1
8	15	18.5	-5.1
9	25	18.5	6.5
10	20	21.3	-1.3
11	20	24.5	-7.0
12	30	24.5	5.5
13	30	28.1	1.9
14	30	32.4	-3.1
15	30	37.2	-13.1
16	45	37.2	7.8

Figure 19 Theoretical representation Performance, Expectation & Satisfaction (Nwankwo & Northcutt, 2007)



RECOMMENDATIONS

As institutions of higher learning are challenged to embrace the extraordinary opportunities that information technology brings to higher education, IT departments are challenged to provide leadership and guidance for strategic investment in IT, as well as providing day-to-day support to the users in a customer oriented approach (Golden, 2005). It is important for IT department leadership to understand the implications of customer satisfaction. College and University IT departments must continuously improve their services to faculty, staff and students. To this end and based on the findings of this study, the following recommendations are made:

1. According to Dougherty, Clebsch and Anderson (2004), benchmarking should be natural occurrence given the culture of higher education. Hence, the findings of this study should be used as a baseline for which an IT department and IT services maybe measured against. HCC IT department should use these results as baseline to improve customer satisfaction to its customers.

2. Information Technology is a dynamic industry, where systems and applications are short lived. With this dynamism, Chabrow (2002) noted that having an IT staff that understands the business and its customers' needs is one key to improving customer satisfaction. The HCC IT department should cultivate a strong professional

development tract for its staff. This professional development should focus on the aspects of the IT services that are unique to the HCC environment.

3. The ownership of some IT functions and responsibilities are sometimes confused between the System IT organization and the various IT grouping in the colleges. Strayhorn (2003) offered this rationale to recommend that HCC's reporting structure be changed, "The organizational structure and lines of authority are difficult for college instructional administrators to follow, especially when goals set at the system office conflict with goals set at the colleges." To add congruency, improve customer satisfaction and reduce the confusion of which IT entity should respond to a particular customer concern; the various IT groups throughout HCC should be brought under the purview of the Vice Chancellor (VC) of Information Technology. This will improve the alignment, accountability and help reduce disconnection of the IT entities that has developed and is currently exhibited at each college within HCC.

4. The HCC IT department as an organization should improve communication within and without the department. The department should be committed to the use of broad-based

electronic communication (such as electronic newsletter, blogging, electronic mail, and websites) to improve the exchange and flow of information flow.

5. The IT department should create a group or team that has the sole job of providing technology training and documentation for faculty and staff. For convenience to the users, the training should be routinely held at the various campuses of HCC. A survey will be used to measure three variables: the pertinence, the effectiveness and the convenience of the training.

RECOMMENDATIONS FOR FUTURE RESEARCH

This study examined the level of customer satisfaction of an IT department in a community college. The results will serve as a baseline for the level of customer satisfaction among the faculty and staff with the IT department. Never before has information technology (IT) been so interwoven with education. With the increasing importance of technology, meeting the technological needs of colleges and universities and, the needs of faculty and staff will become essential to the mission and vision of the information technology departments. Hence, future research maybe made in the following areas:

1. A study to determine how the various components of information technology departments, i.e. helpdesks, application development, Tier one and Tier two supports are meeting the needs of their constituents.
2. An investigation of how the college is meeting the technological needs of students
3. A qualitative study to investigate the information technology staff's views on professional development and its effect on customer satisfaction.
4. A qualitative study to measure customer satisfaction using the Interactive Qualitative Analysis (IQA) Northcutt and McCoy, (2004).

Appendix A

ONLINE SURVEY INSTRUMENT

Customer satisfaction with IT department of HCC

Exit this survey >>

1. Please answer all the questions on this survey.

Section One - Demographic Information

1. Gender

- Male
- Female

2. Position at HCC

- Fulltime Staff
- Fulltime Faculty

3. Primary Work Location - College

- Central College
- Coleman College
- Northeast College
- Northwest College
- Southeast College
- Southwest College
- System

4. Number of years employeed at HCC

- 0 - 3
- 3+ - 6
- 6+ - 10
- 10+ - 15
- 15+

Section Two - Customer Satisfaction with HCC IT Department

5. The Information Technology Department (ITD) of HCC satisfies my computing expectations.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

6. The Information Technology Department staff is courteous.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

7. The Information Technology Department provides dependable service.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

8. The Information Technology Department has a central contact point for requesting service.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

9. The Information Technology Department personnel promptly contact me after requesting service.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

10. If my computing problem cannot be resolved immediately, the IT staff updates me on the progress.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

11. The Information Technology Department always gives me personal attention.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

12. The Information Technology Department delivers what it promises.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

13. The Information Technology Department has personnel a designated area on my campus.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

14. The Information Technology Department has a well published phone number to report problems or request help.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

15. The Information Technology Department staff shows an understanding of my support needs.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

16. The Information Technology Department provides prompt service.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat agree
- Agree
- Strongly agree

17. The Information Technology Department staff is knowledgeable.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

18. The Information Technology Department staff is available a sufficient number of hours each day to meet my computing needs.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

19. The Information Technology Department staff explains what action they will take to resolve my computer problems.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

20. I trust the Information Technology Department staff to work on my office computer in my office whether I am there or not.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

21. The Information Technology Department provides the same level of service to all its users.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

22. The Information Technology Department staff are approachable.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

23. The Information Technology Department provides direction for technology advancement on my campus.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

24. The Information Technology staff offers effective one-on-one training.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

25. The Information Technology Department staff treats me with respect.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

26. The Information Technology Department has a credible reputation.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

27. The Information Technology Department is generally consistent in their delivery of services.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

28. I am confident about the service I receive from Information Technology Department.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

29. The Information Technology Department employs a sufficient number of staff to meet my computing needs.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

30. The Information Technology Department staff is patient when listening to my computing questions.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

31. Overall, I am satisfied with quality of service provided by Information Technology Department.

- Strongly disagree
- Disagree
- Somewhat disagree
- Somewhat Agree
- Agree
- Strongly agree

32. Please list specific areas of services provided by the Information Technology Department that you find satisfying.

33. Please list specific areas of services provided by the Information Technology Department that are in need of improvement.

34. Please list any comments regarding the Information Technology Department you wish to make.

Thank you for participating in this survey.

Your feedback is greatly appreciated and I hope the result will be instrumental in helping IT Department improve support service to you - the user

Done >>

Appendix B

INSTRUMENT COVER LETTER

Dear Faculty/Staff:

I am a doctoral student at the University of Texas at Austin, in the Community College leadership Program. I need your help with a study [2006-08-0031] that attempts to evaluate the customer satisfaction level of both staff and faculty with their Information Technology department at Houston Community College (HCC). You are invited to participate on an online customer survey. The survey will take approximately 30 minutes to complete. My aim is to have about sixty percent of both fulltime staff and fulltime faculty participate in this survey. This study is extremely important because, *as a member of IT staff,* I personally want to know the IT department's customer satisfaction rating among our users and how to improve it. The data may also assist information technology decision makers in coordinating, planning and providing support to IT constituents.

The information you provide will be held in strict confidence and you, as a respondent, will not be identified. All responses are anonymous. I will report the compiled survey results in my dissertation "Evaluating Customer Satisfaction with the Information Technology Department of Houston Community College". Should you decide not to participate with the online survey, this will not affect your current or future relationship with HCC. There is no need to sign this cover letter, responding to the questionnaire indicates a willingness to participate in the study. Should you have any questions or would like to obtain additional information, please do not hesitate to contact me at (713) 718-8831 or by e-mail at charles.nwankwo@hccs.edu.
Sincerely,

Charles Nwankwo, B.S., M.S.
Doctoral Student, The University of Texas at Austin
The Community College Leadership Program

Research Proposal # **2006-08-0031**

Appendix C

REMINDER LETTER

Dear Faculty/Staff:

About a week ago, you received an e-mail invitation to participate in a survey "Customer Satisfaction with the Information Technology Department." The time allocated for completion of this survey is fast approaching. To date few faculty/staff have responded. Although your participation is strictly voluntary, your input is very important and vital for the success of the survey.

If you have already completed the survey, thank you and please disregard this letter. If you have not yet taken the survey, please take time (about 15 minutes) and complete the survey.

To access the survey, simply click on the URL at the bottom of this message or copy the URL to your browser.

Many thanks for your participation! I greatly appreciate your help.

Again should you have any question, please call me at 713-718-8831 or e-mail: it.survey@hccs.edu.

Sincerely,

Charles Nwankwo, B.S., M.S.
Doctoral Candidate, Department of Higher Education Administration
The University of Texas at Austin

Research Proposal # **2006-08-0031**

http://www.surveymonkey.com/s.asp?u=41502569969

Appendix D

SITE LETTER

Houston Community College

Office of the
Vice Chancellor for
Student Success

August 14, 2006

Dr. Lisa Leiden, Ph.D.
Director, Office of Research Support and compliance
P. O. Box 7426 Campus Mail
Austin, TX 78713
Lisa.leiden@mail.utexas.edu

Dear Dr. Leiden:

The purpose of this letter is to grant Charles Nwankwo, a doctoral student at the University of Texas at Austin, permission to conduct research at Houston Community College. The project, "Evaluating customer satisfaction with the Information Technology Department of Houston Community College" entails that staff and faculty will be asked to take part in a short online or paper customer satisfaction survey (not more than 26 questions) and the duration of the survey shall be three weeks. Some staff and faculty will also be asked to participate in a focus group. The focus composition shall be between 8-12 members and last for not more than two hours. Audio tape recording of the focus group may be made. Furthermore, any such audio recording(s) shall be kept confidential by the researcher, Mr. Charles Nwankwo.

When this study is completed, the results may be shared with Houston Community College through the delivery of an approved dissertation.

I, Irene Porcarello, do hereby grant permission to Charles Nwankwo to conduct "Evaluating customer satisfaction with the Information Technology Department of Houston Community College" at Houston Community College.

Sincerely,

Irene Porcarello

Irene Porcarello
Vice Chancellor for Student Success

IP:df

Appendix E

SURVEY QUESTIONS CATEGORIZED BY DIMENSIONS

Survey Questions Categorized by Dimensions

Quality Service Dimensions as identified by Ziethaml et al (1990)

Dimension	Survey Questions
Access	8. HCC IT Dept has a central contact point for requesting service 18. HCC IT Dept staff is available a sufficient number of hours each day to meet my computing needs.
Communication	10. HCC IT staff updates me on the progress. 19. HCC IT Dept staff explains what action they will take to resolve my computer problems.
Competence	17. HCC IT Dept staff is knowledgeable. 24. HCC IT Dept staff offers effective one-on-one training.
Courtesy	6. HCC IT Department Staff is COURTEOUS 25. HCC IT Department Staff treats me with RESPECT
Credibility	12. HCC IT Dept delivers what it promises. 26. HCC IT Dept has a credible reputation.
Reliability	7. HCC IT Department provides dependable service 27. HCC IT Dept is generally consistent in their delivery of services.
Responsiveness	9. HCC IT Dept personnel promptly contact me after requesting service. 16. HCC IT Dept provides prompt service
Security	20. I trust the HCC IT staff to work on my office computer in my office whether I am 28. I am confident about the service I receive from HCC IT Dept.
Tangibles	13. HCC IT personnel has a designated area on my campus 14. HCC IT Dept has a well published phone number to report problem or request help 29. HCC IT Dept employs a sufficient number of staff to meet my computing needs.
Understanding the Customer	11. HCC IT Staff gives me personal attention. 15. HCC IT Dept staff shows an understanding of my support needs.

Quality Service Dimensions as identified by Besterfield et al (1995)

Dimension	Survey Questions
Organization	21. HCC IT Dept provides the same level of service to all its users
Expectations	5. HCC IT Department satisfies my computing expectations
Communication	30. HCC IT Dept staff is patient when listening to my computing questions.
Frontline People	22. HCC IT staff are approachable.
Leadership	23. HCC IT Dept provides direction for technology advancement on my campus

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Vita

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