**A STUDY OF THE EFFECTS OF EMPLOYEE DEVELOPMENT ON CUSTOMER SATISFACTION AND FINANCIAL PERFORMANCE AS PART OF THE SERVICE STRATEGY IN A HIGH CONTACT SERVICE ENVIRONMENT IN PUERTO RICO**

By

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# ABSTRACT

The management of operations in the service sector presents different challenges than the manufacturing environment. Research in operations management needs to focus more on service than ever before. Guidelines should be developed to improve the work design, competitiveness, efficiency and effectiveness of organizations in the service sector. The study explores the idea that employee development may positively affect customer satisfaction and financial performance. It is based on previous studies and presents the Customer Contact Model and the Service Profit Chain as the theoretical background; which define the service environment and the relationship that results from the employees, customer satisfaction and financial performance respectively. The study was conducted in the commercial banking services area in Puerto Rico, specifically the Credit Unions and no significant linkage was found between the factors studied.

# RESUMEN

El manejo de las operaciones en el sector de servicio presenta retos distintos al manejo de la manufactura. Es necesario el estudio del manejo de la eficiencia en organizaciones de este sector.

Una de las diferencias más significativas entre la manufactura y el servicio es que el rol del consumidor es más activo. El estudio exploró la idea de que el *desarrollo del empleado* afecta positivamente la satisfacción del consumidor y el desempeño financiero.

La investigación se basa en el estudio realizado anteriormente. Se utilizan dos modelos teóricos: *Modelo de contacto con el consumidor* y la *Cadena de Valor de Servicio*. Uno define el ambiente en el que ocurre el servicio y otro relaciona factores como empleados con la satisfacción del consumidor y el desempeño financiero. El estudio se realizó en Cooperativas de Ahorro y Crédito en Puerto Rico. No se encontró una relación fuerte entre los factores estudiados.

To my son Antonio, the light of my life, my husband Rafael, for always believing in me, to my

parents Carmen and Roberto, my support system and my brother Juan, for always being there.

# ACKNOWLEDGEMENTS

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**COSSEC:** Corporación para la Supervisión y Seguro de Cooperativas de Puerto Rico (Corporation for the Supervision and Insurance of Credit Unions in Puerto Rico)

**HC:** High Contact Environment

**LC:** Low Contact Environment

# 1  Introduction

Currently, the service industry employs approximately 70% percent of the labor force in developed countries like the United States and Japan. (Metters & Marucheck, 2007) This number only grows as time progresses. The management of operations in the service sector presents different challenges than the manufacturing environment, which has been the traditional focus of the operations management literature. After evaluating these facts, it can be concluded that research in operations management needs to focus more on service than ever before. Guidelines should be developed to improve the work design, competitiveness, efficiency and effectiveness of organizations in the service sector. This is a natural consequence of the increased competition in this sector.

One of the main differences between the manufacturing and service industries is that the customer plays a much more active role in the service process. In order to achieve efficiency and effectiveness, controls in the variability of the customer satisfaction should be established according to modern Quality Management Theory. Schneider and Bowen (1985) reported in their studies a close link between customer and employee satisfaction levels in the branches of a banking organization. After further study, they concluded that "the degree to which the employees believe their work is facilitated yields the most consistent information about customer satisfaction" (Heskett and Sasser , 1997).  The purpose of this research effort is to explore the idea of employee development as a mean to control the variability in customer satisfaction. In this case, the focus will be in the high contact service environment as defined by the Customer Contact Model developed by Richard Chase and David Tansik (1983). In a high contact environment the labor element is a critical component of the service delivery. Chase and Tansik

argue that greater employee knowledge and skills are needed in high contact services because uncertainty during the service delivery encounter creates a need for employees who can make continuous and multiple non-programmed decisions. (Meyer, 2003)

High contact service industries typically involve activities in which service employees and customers have a close and direct interaction for a prolonged period. (Chase, 1981) A high contact environment of services is characterized by longer communication time, intimacy of communication, and richness of the information exchanged (Kellog and Chase , 1995). Through close contact, service employees and customers have ample opportunities to build up their ties and exchange information about purchase. This enhances the ability of service employees to deliver a high level of service quality and influence their customers' purchase decision, thus contributing to sales performance. (Yee , Yeung and Cheng , 2008)

## 1.1 Objectives

The study was conducted in the commercial banking services area in Puerto Rico, specifically the Credit Unions. There are 126 Credit Unions under the Puerto Rican regulatory corporation COSSEC. They maintain a tradition of close contact relationship with their customers. The study is based on the research done by Susan Meyer Goldstein and published on the article "Employee development: An examination of service strategy in a high contact service environment". Her research was conducted on hospitals in the United States. As conjecture by Meyer, her findings may be generalized in other services areas, such as commercial banking. The banking industry, although not considered purely high contact, presents similar combinations of levels of contact. The presentation of this study in the service sector in Puerto Rico aims to do the following:

- Further contribute to the development and creation of tools to effectively evaluate the investments in employee development and other critical factors in the service areas.

- Develop a profile of the current practices of employee development using as reference the following factors: *Employee development* as described by three underlying factors *Work systems, Staff Training and Development , Staff Well Being; employee outcomes* and *customer satisfaction*. The service profit chain is the framework for the design.

- Compare the practices of the credit unions that have had an increase in their revenues against those that have had a decrease in revenues in the period from 2004 to 2007, by exploring the relationships between the factors.

## 1.2 Justification

Services in the Western World are a crucial slice of the economic pie. It is an unavoidable reality that has been neglected for many years. Since the industrial revolution, the main focus of research and teaching in the operation area has been manufacturing, when in fact, the manufacturing sector has never constituted a greater proportion of the US and other developed countries economies than the service sector (Table 1). Manufacturing's share of Gross Domestic Product (GDP) peaked in 1953 near 30% and manufacturing employment as a share of nonfarm employment peaked near 35%. Now, the decline of manufacturing and the rise of services is a worldwide issue.

| Country | | Services | Manufacturing |
|---|---|---|---|
| USA | | 79.2 | 19.6 |
| | Puerto Rico | 54 | 45 |
| Asia | | | |
| | China | 40.2 | 49.2 |
| | Japan | 72.1 | 26.4 |
| S. America | | | |
| | Brazil | 66 | 28.5 |
| | Chile | 44.7 | 50.7 |
| | Peru | 66 | 25.6 |
| | | | |
| Russia | | 54.8 | 41.1 |

Table 1Percentage of services and manufacturing in Gross Domestic Product for selected countries

Source : World Fact Book (2008)


The service sector is dominant in the West. In the early 1970s just over 60 % of the US labor force was employed in services. ( Metters & Marucheck, 2007) Today the service sector accounts for more than 80% of US nonagricultural employment. That number is expected to jump to 86%, while manufacturing is expected to drop below 10% of the total Workforce by 2014. (Bureau of Labor Statistics, 2007).

Beyond employment numbers, the prestige and power of the manufacturing sector has also suffered. Service firms were not even listed in the Fortune 500 until the mid 1990s. Fortune magazine currently lists 242 service firms among the Fortune 500. (Metters and Marucheck 2007).

In the academic level, studies on service operations are still limited. There are no formal textbooks on this subject. It is a fertile ground in which tools and theories can be created and developed for a better understanding and evaluation of the service encounter.

**1.3 Limitations**

The limitations that our research had to face were as follows:

- When researching in services, probably the biggest challenge when starting is that there is no consensus on a general categorization or classification of services. There is a conflict as to whether to define services by industry or process. Governmental statistics traditionally define services by industry: Whatever is not manufacturing or extraction of natural resources is considered services. This is the basis for the GDP figures (Metters and Marucheck , 2007).  This limited the possible areas of study. Recent studies have been directed toward specific service industries like healthcare, financial services and call centers.

Other limitations include:

- Research and theory about the service sector is limited and fairly recent. There is no significant body of knowledge. After reviewing what was available for me to work with I realized that the options were very few. At first the focus was on professional services, but the lack of research and the unavailability of statistical data limited the scope of the investigation.

- Lack of verifiable and trustworthy statistical data in Puerto Rico limited the possible subjects. The populations considered were the health care industry (hospitals), professional services (accounting, human resources, and law firms), and the commercial banking industry.

- In the commercial banking industry, banks were not considered, because the financial data available to the public is of the consolidated performance of the

bank holding company and not specifically of the commercial banking service (deposits and loans).

- All 126 (COSSEC , Statistics, September 2008) active members of COSSEC, the regulatory agency of credit unions in Puerto Rico, were contacted either by phone or personal visit in multiple occasions from October 2008 until June 2009. Few responded and many were unwilling to participate in the study.

- The study was a conducted with a small sample. This resulted in a change in the statistical method originally intended to be used, which limits the scope of the results and its comparability with previous studies.

## 1.4 Thesis Outline

The thesis is comprised of six chapters. The first one introduces the study by emphasizing the prevalence of services in the economy and also presents the justifications and limitations. The second chapter includes the literature review, starting with an introduction of the cumulative theory in service operations. The theoretical basis of the study is presented including the following topics: *Customer Contact Model, Service Profit Chain* and the *Employee Development Construct.* The third chapter presents the methodology used and the changes from the initial proposal. Chapter four and five include the analysis and discussion of the results and conclusions respectively. The thesis' last chapter presents recommendations and possible future research areas.

# 2 LITERATURE REVIEW

## 2.1 Introduction

To introduce the basic concepts in service operations management, it is necessary to present a brief history of the research in service operations. Richard B. Chase and Uday M. Apte (2007) have identified the trends and milestones throughout history that have proven to be significant. There are no formal texts which describe the progress made in service management. A summary of their findings is presented as follows:

- **During the 1900-1950s**

Trends in service operations include the application of Taylor's Principles of scientific management around 1917 to the activities of service industries such as banks, insurance companies, accounting firms and mail order firms. During the 1950s, Walt Disney is known for industrializing service and experience after he opened his parks.

- **Mc Donald's production line approach to services**

Application of scientific management to every aspect of restaurant operation was the key factor underlying McDonald's success. The main principles embodied in McDonald's operation include: (1) standardizing and reducing the variety of products; (2) simplification, standardization and automation of processes so the workers with limited skills and training can reliably produce quality products and deliver quality service; (3) monitoring and control of process performance. McDonald's arguably exhibits the correct application of Industrial Engineering principles to a greater degree than do many manufacturers (Chase and Apte, 2007)

- **Industrialization of services and match supply and demand**

Here Chase and Apte present the views of T. Levitt and Earl Sasser. Arguments in favor of transforming services from servitude and personal ministration to a product-line approach started during the early 1970's . Although the balance between demand and supply in the service operation occurs simultaneously and can be difficult to control, Sasser suggests the two basic strategies: "*chase demand*" and "*level capacity*".

- **The customer contact model**

Introduced by Chase in 1978 the customer contact model of services is one of the most widely cited theoretical constructs in service operations research literature. The customer contact model holds that the potential efficiency of a service system is a function of the degree of customer interaction in the creation of the service. The model will be presented in more detail later in the review.

- **Data envelopment analysis (DEA)**

Charnes (1970) developed an effective approach of measuring "decision-making efficiency" in public programs named "data envelopment analysis (DEA)". It involves the application of linear programming techniques to the analysis of the inputs and outputs of the decision-making process.

- **The 1980s**

During this decade, efforts were made in the categorization of services, one of the biggest challenges in service management. In 1983 Lovelock proposed five schemes for

classifying services in ways that transcend narrow industry boundaries. These schemes revolved around the nature of service act and the recipient of service, the relationship with customer and nature of service delivery, the degrees of service customization and judgment exercised by service personnel, the nature of demand and supply, and the method of service delivery.

Models of service and product quality were developed in the 1980s. The *Gap Model* of service quality in which the customer assesses service quality based on the gap between expected service and perceived service delivery. SERVQUAL, a 22 items questionnaire, was developed as an instrument to measure quality in service.

- **The service profit chain**

Another milestone in service theory, the service profit chain, was presented in 1997 by James Heskett and W. Earl Sasser. It links profitability and revenue growth of a service enterprise with the satisfaction and loyalty of its employees. The model is the basis for the research done here and will be presented in more detail.

- **Recent findings**

Recent findings include the use of "poka-yoke", Japanese for fool- proof, as a method to prevent human error, integrating Total Quality Management theory into services. The effects of Globalization and information technology are also mentioned as trends.

## 2.2    Theoretical Background

### 2.2.1    Customer Contact Model

The Customer Contact Model is used as a tool to categorize service environments. To understand the model, it is important to have an understanding of its extent and structure. This model has been extensively used in service operations research because it is based on the characteristics of the service encounter, regardless of industry.

The customer contact model is used in the research to describe the environment in which the service process takes place. The model, a structural one, intends to specify how to decouple and regroup organizational subunits in services in light of the unique influence that the physical presence of the customer has on the operation of the organization. Service systems should be viewed as falling along a continuum from high customer contact to low customer contact with the system during the creation of the service product. The presence of the customer is the dominant constraint on the efficiency of the system (Chase, 1983).

An important element of the model is its applicability in job design. Job Design is a concept that is integral to the service value chain; the customer contact model offers a framework to define job design in the service process. The model was formulated using three general concepts of organization design: protection of the technical core, organizational disaggregation, and selective decoupling of organizational units.

**Technical core** refers to the production processes component of the business. These processes are isolated to guarantee a level of quality and performance. **Disaggregation** is an idea that relates to the recognition that process occurs in different terms and that those different components should be evaluated and designed separately. (Chase, 1983)The disaggregation

perspective leads into **decoupling**, which is the actual physical or organizational separation of activities. Some of the potential benefits of decoupling include: Matching each organizational unit to the task at hand, ease in objective setting, enhanced adaptation to localized changes, more effective use of productive facilities, and limiting the effects of disruptions or breakdowns to the unit of the organization where they occur (Chase, 1983)

The model holds that a service system potential operating efficiency is a function of the degree to which the customer is in direct contact with the service facility relative to the total service creation time for the customer:

$$Potential\ Operating\ Efficiency = f\left(1 - \frac{customer\ contact\ time}{service\ creation\ time}\right)$$

Efficiency is seen here as the ratio of outputs to inputs for a given service facility; it does not account for the customer utility functions or for organization wide production or marketing performance. Service facilities characterized by high customer contact (HC) are perceived as being inherently limited in their production efficiency because of the uncertainty that the client introduces to the service creation process (Chase & Tansik, 1983).

The common service systems can be grouped according to decreasing contact under three broad headings: pure services, mixed services and quasi-manufacturing. Pure services include those organizations whose production is carried on in the presence of the customers; mixed services commonly involve a mix of face to face contact and variously coupled with back-office work; and quasi-manufacturing entails virtually no face to face contact. (Chase & Tansik, 1983)

Chase presents various propositions to illustrate the number of organizational issues related to design and operation of services. Each will be used to describe the service environment in the credit unions (financial services organizations).

In terms of operating and control systems, Chase and Tansik present six propositions.

- *The first is that in high contact systems, capacity must be set to match peak demand; in low contact systems, storable output permits setting capacity at some average demand level.* In financial services, there is no such thing as inventory. Service production and delivery occur simultaneously; peak demand is defined by biweekly and monthly paydays, social security monthly paydays and period closings.

- *In high contact systems, production planning is inherently inexact*, which means that in low contact systems, production planning can exactly match planned production to resource availability but, in high contact systems, it is almost impossible to predict demand. These differences lead to uncertainty in the capacity determination and production planning. Although financial services have a set of products, the variability that results from the customer makes it difficult to design service specifications. When a customer asks for a loan, the employee or service provider takes into consideration many elements that vary from case to case and the success is not only determined by the resulting service product, but by the inherent characteristics of the customer.

- *In high contact systems, the service facility must be located near the customer; in low contact systems, the service facility may be located near the resources.* In

financial institutions, the client and the service provider are located in close proximity.

- *In high contact systems, the service facility must be laid out to accommodate the customer's physical and psychological needs and expectations while, in low contact systems, the facility should be designed to maximize production.* The physical facilities of financial institutions are designed to accommodate the customer needs. Great effort is invested in making him or her comfortable. Attention is put into the colors, sitting area and overall design of where the service encounter occurs.

Related to the work design and workforce characteristics, there are two propositions.

- *High and low-contact jobs call for different sets of tasks, present the distinction drawn from the model between work done in the front office and work done in the back office.* In the front of the office we have the following three- way interaction among the primary elements of a work system (Figure 1):
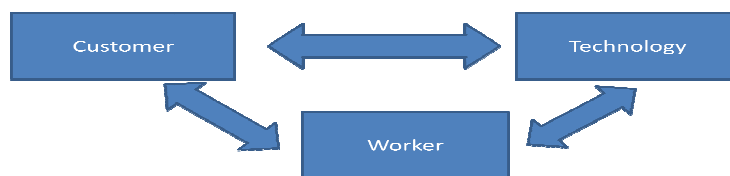


Figure 1 Diagram of High Contact environment interaction

Source: Richard B., Chase, D. A. (Sep 1983). The customer contact model for organization design. *Management Science*, 1037-1051.

The interaction described above in the diagram is the one found in the facilities of the financial institutions.

In the back office we have two-way interactions:



Figure 2 Diagram of Low Contact environment interaction ( Back Office)

From a work design standpoint, task uncertainty in the front office is greater than in the back office since in the latter there is only one sentient component – the worker, while in the former there are two – the worker and the customer. Such task uncertainty, in turn, suggests that skills required on the part of the worker are substantially different in high and low contact work and that it therefore makes sense to consider contact as a major contingency variable in the design of jobs.( Chase & Tansik, 1983)

- *Because they directly represent the organization, high contact workers need interpersonal skills and knowledge of policies under which the firm operates.* Low contact workers generally deal with customer surrogates (e.g., invoices) and must have production skills. Thus a job specialization strategy takes place. People-oriented workers should be matched to people dominated tasks and thing-oriented workers to thing dominated tasks.

The following table summarizes some of the effects of these traits on control system features:

| Control System Features | High Contact | Low Contact |
|---|---|---|
| Performance Standards | Subjective | Objective |
| Measurement of Deviations | Imprecise | Precise |
| Feedback Loop | Ill- Defined | Well-Defined |
| Corrective Action | Instantaneous | Deferred |

Table 2 Summary of HC and LC traits

### 2.2.2 Service Profit Chain

The Service Profit Chain is a model of firm performance that helps managers focus on quantifiable factors that lead to customer satisfaction and financial performance. (Meyer , 2003) The service profit chain recognizes three key elements: customers or clients, employees and investors. It stresses the importance of the interrelationship of these.

In the mid 1980s, James Heskett set forth a set of relationships, based on a number of observations, called strategic service vision. The vision comprised four important elements: (1) markets targeted on the basis of psychographic (how people think and act) as well as demographic factors, (2) service concepts, products , and entire businesses defined in terms of results produced for customers, all positioned in relation to the needs expressed by targeted customers and offerings of competitors, (3) operating strategies comprising organizations, controls, operating policies, and processes that "leverage" value to customers over costs to the

offering organization, and (4) service delivery systems comprising bricks and mortar, information systems, and equipment that complement associated operating strategies. (Heskett, 1997)

The strategic service vision embraces the idea that value is achieved by leveraging results for customers over costs, something that is integral to other concepts that would follow. As helpful as the strategic service vision might be in facilitating the development of strategy, practicing managers continued to express the need for a set of concepts that would assist them in implementing strategies, not formulating them.

The PIMS (Profit Impact of Market Share) reinforced the notion that for years managers believed: market share is the primary driver of profitability. In his studies, Earl Sasser concluded that based on the collection of factual experience of a number of organizations, customer loyalty was more associated with high profits and rapid growth. His work up to that point led to the exploration of determinants of customer loyalty such as customer satisfaction, and more basically the value of goods and services delivered to the customer. It laid the groundwork in what would later come to be known as the service profit chain.

Heskett developed what is called the "cycle of capabilities", which is an integral concept in the service profit chain. The philosophy behind the cycle of capability is that satisfied employees are loyal and productive employees. Their satisfaction stems, at least among best frontline employees, from their desire to deliver results to customers. In order to deliver results to customers, they must have the ability to relate to customers, the latitude (within well-specified limits) to use their judgment in doing so, the training and technological support needed to do so, and recognition and rewards for doing so. (Heskett, 1997)

The service profit chain thinking maintains that there are direct and strong relationships between profits; growth; customer loyalty; customer satisfaction; the value of goods and services delivered to customers; and employee capability, satisfaction loyalty and productivity.
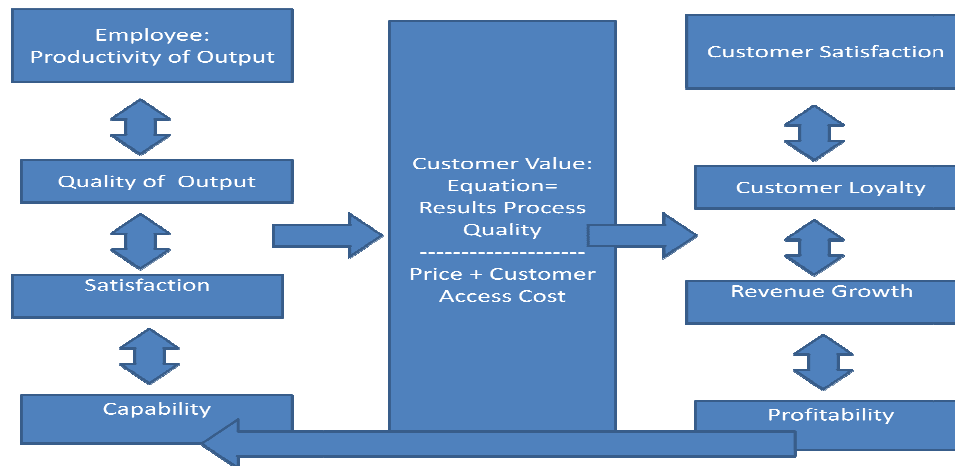


Figure 3 Diagram of theorize relations

Source: Heskett, 1997

According to Heskett, his studies suggested that the strongest relationships were those between: (1) profit and customer loyalty, (2) employee loyalty and customer loyalty, and (3) employee satisfaction and customer satisfaction. It was suggested that the relationships were self-reinforcing. That is, satisfied customers contributed to employee satisfaction and vice versa. These relationships are presented with a diagram ( Figure 3).

The Service Profit Chain diagram (Figure 4) shows the direct links between drivers of profit growth. While the strength of several of these links in the chain may differ from one organization to the next, the pattern is undeniably significant.
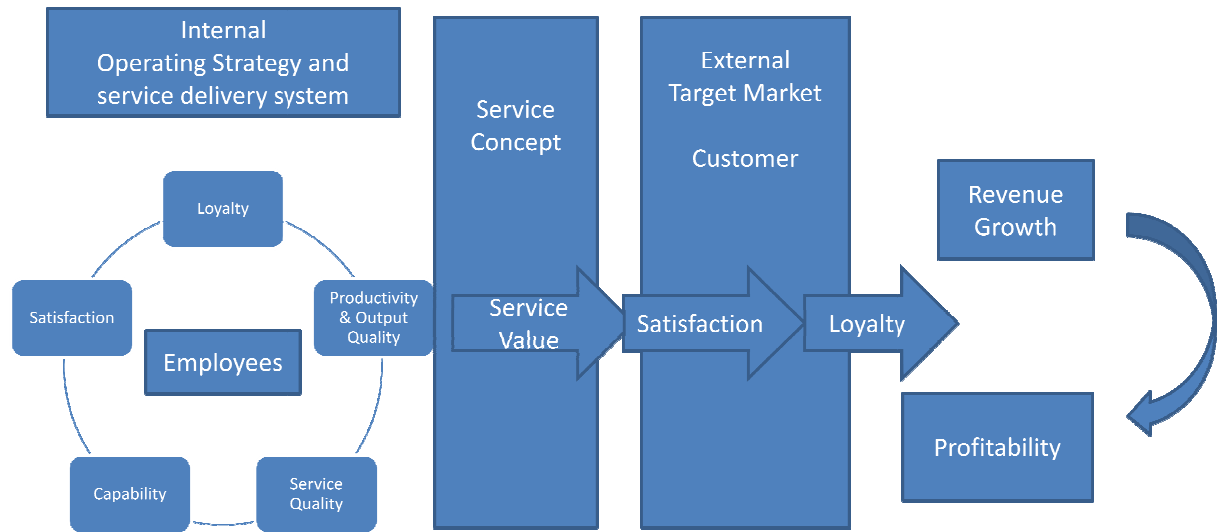
Figure 4 The Service Profit Chain

Source : Heskett, 1997

Authors suggest that, provided service profit chain concepts are carefully interpreted and adapted to an organization's specific situation, they are capable of delivering remarkable results. (Gelade, 2005)

### 2.2.3 Employee Development

Because this thesis is based on the published work of Meyer Goldstein, for research purposes the construct developed by her will be presented here. The Employee Development construct is multidimensional as defined by Schlesinger and Heskett's internal service quality. Since there are no published metrics for internal service quality, its domain is used to formulate measurement of the Employee Development construct used here.  It represents a bundle of employee management issues and practices.  The dimensions of this construct are similar to

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those in the Malcolm Baldrige National Quality Award Criteria category for Human Resource Development and Management which provides a useful framework for definition and measurement of the Employee Development construct. The Baldrige category includes three dimensions which mirror those addressed by Schlesinger and Heskett: (1) Work systems; (2) Staff education, training, and development; and (3) Staff well-being and satisfaction .Each dimension is described briefly below.

- *Work Systems* are the work and job designs that organizations establish for their employees. Jobs should be designed and managed to support organizational strategy and staff plans. Increasing worker flexibility and enhancing decision-making authority for employees help organizations improve their work systems. Compensation and recognition programs for employees are part of the work system.

- *Staff Training and Development* includes how these efforts are focused on accomplishing key organizational plans and addressing organizational needs. Building knowledge, skills, and capabilities are the focus of these efforts.

- *Staff Well-Being* is how the organization maintains an environment and climate that support the well-being and motivation of employees. Work environment includes employee safety and health, and work climate includes providing useful benefits to employees. Organizations should have systems in place to measure and evaluate staff satisfaction and turnover

Measurement items for the three dimensions of Employee Development are shown in the appendix. A complete discussion of validation and reliability for these items is reported in Goldstein and Schweikhart (2001).

Metrics for the Employee Outcomes construct focus on key desirable results of employee development practices and include employee satisfaction, employee turnover, labor/management relationships, and workforce productivity and efficiency. Measures of the Customer Satisfaction construct include measures of satisfaction and comparisons against competitors. These items are also shown in the appendix.

# 3 Methodology

## 3.1 Data Analysis

The proposed method of analysis, structural equation modeling (SEM), was changed due to the lack of response of the subjects. In order for the SEM to be a viable model for analysis, more than 100 respondents were needed, which were not available for this research despite our best efforts. Collected data will thus be analyzed using the Z test for differences in two sample proportions.

## 3.2 Frame and Sampling

The research for this thesis is focused on deposit–type financial institutions. These are the most recognized intermediaries because most people use their services on a daily basis. Typically, deposit institutions issue a variety of checking and/or savings accounts and time deposits, and they use the funds to make consumer, business and real estate loans. (Kidwell, 2000) There are three types of deposit–type financial institutions: Commercial Banks, Thrift Institutions and Credit Unions. There are 15 commercial banks (FDIC insured) and 126 credit unions regulated and insured by the Public Corporation for the Supervision and Insurance of Credit Unions in Puerto Rico (COSSEC) in Puerto Rico (COSSEC, Statistics September 2008). Our study focused on credit unions because they are non-profit organizations incorporated in Puerto Rico. Their financial information is available in the archives of the Department of State. Banks were eliminated from the study because the publicly available financial information of the banks consolidates all transactions from the various branches under the bank holding company. We need to be able to access financial information of individual institutions. Furthermore, bank

holding companies report other services, beside those considered here, as commercial banking services. Therefore we proceeded to exclude them from the study. For our purposes, our population for sampling is the set of all Credit Unions currently operating in Puerto Rico. As a consequence, our Frame is the set of deposit type Credit Unions currently registered with COSSEC. Since these organizations are required by law to register with COSSEC, both the population and frame should be the same.

The study was conducted using the metrics presented in Meyer's research. They are intended to define the following variables: work system, staff training and development, staff well being, employee development, employee outcomes and customer satisfaction. Minor changes were made; basically substituting the term patient for client. The scales were compiled in a questionnaire that was distributed in English. Efforts were made to maintain the previously validated questionnaire intact, because the variables of study were tested in a similar service system (High Contact/ Combination) or environment. A pilot study could not be done with a new questionnaire, because the size of the population was small (126).

After reviewing the organizational structure of the credit unions, it was originally concluded that the best person to respond to the questions was the executive president. Efforts were made to contact the executive president, who in time reached for the assessment of the human resources managers, operational and/or services officers. When efforts to contact the presidents failed, the human resources managers and operations officers were contacted. It is assumed that each institution has standardized procedures and policies for employee development and evaluating employee and customer satisfaction. The questionnaires were distributed via electronic mail, personal visit, fax and/ or regular mail. Of the 126 credit unions

contacted only 48 (39% response factor) responded. This resulted in a change in the design and objectives of the study.

When it comes to our sampling plan, every institution belonging to the frame was approached for the interview, thus there is no randomness issue with sampling in the study. After collecting the data, the sample size was checked as adequate. Specifically, we need to ensure that we have at least five successes and five failures in each comparison group or that

$$\min[n_1 p_1 (1 - p_1), n_2 p_2 n_2 (1 - p_2)] \geq 5. \text{ (Sullivan, 2008)}$$

Success has been defined as a score of six or seven (out of seven) in the Likert scale on the questions related to each factor.

Financial information was collected by visits to the archives of the Department of State in San Juan. The reports that were unavailable were obtained from the websites of the credit unions or by contacting the subjects, which later sent the reports either by fax, regular mail or electronic mail. Additional data was obtained by accessing the COSSEC website. Financial information gathered for four consecutive years, is used to determine the revenues' growth. Revenue growth is calculated as follows:

$$\left(\frac{2007 \; operating \; revenue - 2004 \; operating \; revenues}{2004 \; operating \; revenues}\right)$$

These years were selected because they were from which the most recent financial information was available.

### 3.3 Hypotheses

The hypotheses developed in Meyer's research were tested in the commercial banking services area, specifically in credit unions, in Puerto Rico. The service profit chain has been used as the foundation of the study. The following hypotheses were tested:

$H_1$:    Employee Development is positively related to Employee Outcomes.

$H_2$:    Employee Outcomes is positively related to Customer Satisfaction.

$H_3$:    Customer Satisfaction is positively related to Revenue Growth.

$H_4$:    Employee Development is positively related to Customer Satisfaction.

$H_5$:    Employee Outcomes is positively related to Revenue Growth.

### 3.4 Summary

The sample obtained from the population was classified in to two groups: institutions with an increase in revenues and those with a decrease in revenue. This permitted testing on the relations to revenue. The Z test for differences in two sample proportions was used to test the hypotheses.  The samples were of 34 subjects for increasing and 14 for decreasing revenues. Each proportion sample was tested for adequacy to ensure the validity of the test.

# 4  Results

## 4.1  Collected Data

Information was collected on 48 of the 126 credit unions members of COSSEC. The distribution of the frequencies as a percentage for each question is presented below. The data is presented under each of the factors studied. For testing purposes, each one of the 48 respondents was classified by their revenue's trend for the past four years. Thirty four presented an upward trend and fourteen showed declining revenues for 2004-2007.

### 4.1.1  Employee Development

#### *4.1.1.2  Work Systems*

The practices related to Work Systems were researched using the questions presented below (Table 3). Each inquiry aims to describe the practices that define work systems.  The key words for each question appear in bold.

Table 3 Questions for Work Systems

| |
|---|
| 1.  Employees are given a **broad range of tasks.** |
| 2.  Employees are given **decision-making responsibilities**. |
| 3.  We tie **compensation and recognition** to our strategic goals. |
| 4.  Employees are **rewarded** for learning new skills. |
| 5.  We motivate employees by **improved job design** |

The following chart (Figure 5) presents the data collected for Work Systems. The data will be presented for each factor of study. The chart contains the information based on the percentage of the companies that answered seven to the questionnaire questions. It compares the companies that showed an increase in revenues to those with a decrease in revenues for the period of study. For example

Figure 5 Chart of the results on Work Systems presented as a comparison of the percentages for the answer seven for the companies with decreasing and increasing revenues.

## Question Number

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Increase | 35.29 | 23.53 | 47.06 | 44.12 | 41.18 |
| Decrease | 14.29 | 7.14 | 28.57 | 14.29 | 21.43 |

a 47.06 % of the companies with increasing revenues answered that they **always** (that is with a 7 in the Likert scale) *tied compensations to their strategic goals* and those with decreasing revenues showed a 28.57 % for the same question. A 44.12 % of the companies with increasing revenues stated that they always *rewarded their employees for learning new skills* compared to a 14.29% of those with falling revenues.

The results for questions one to five are summarized in the tables below, one for each sample (increasing vs. decreasing revenues). Furthermore, the results are presented in proportions to the sample size (i.e. in percentages) to better be able to compare the results of both tables.

Table 4 Distribution of Work Systems per question in percentage for institutions with increasing revenues

| Increase Total 34 | Work Systems Question Numbers | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 1* | 0.00 | 2.94 | 0.00 | 2.94 | 0.00 |
| 2 | 0.00 | 0.00 | 2.94 | 2.94 | 2.94 |
| 3 | 0.00 | 5.88 | 2.94 | 2.94 | 2.94 |
| 4 | 17.65 | 29.41 | 14.71 | 17.65 | 20.59 |
| 5 | 11.76 | 2.94 | 8.82 | 11.76 | 14.71 |
| 6 | 35.29 | 35.29 | 23.53 | 17.65 | 17.65 |
| 7 | 35.29 | 23.53 | 47.06 | 44.12 | 41.18 |

**\*1: Not at all 4: Sometimes 7: Always**

Table 5Distribution of Work Systems per question in percentage for institutions with decreasing revenues

| Decrease Total 14 | Work Systems Question Numbers | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 1* | 0.00 | 7.14 | 0.00 | 0.00 | 7.14 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 14.29 | 7.14 | 14.29 | 0.00 |
| 4 | 42.86 | 42.86 | 14.29 | 42.86 | 21.43 |
| 5 | 21.43 | 14.29 | 28.57 | 7.14 | 21.43 |
| 6 | 21.43 | 14.29 | 21.43 | 21.43 | 28.57 |
| 7 | 14.29 | 7.14 | 28.57 | 14.29 | 21.43 |

**\*1: Not at all 4: Sometimes 7: Always**

As the reader can observe, *Employees are rewarded for learning new skills (Question 4)* was answered with **always** (that is with a 7 in the Likert scale) in 44.12% of the companies with growth in revenue and 14.29% of the companies with decrease in revenue. *Employees were motivated by improving job design(Question 5)* in 41.17% of the credit unions with revenue growth **always** and 21.43% in the credit unions with declining revenues; 7.14 % of the organizations with decreasing revenues answered **never** (i.e. answered with a one in the Likert scale).

### *4.1.1.3 Staff Training*

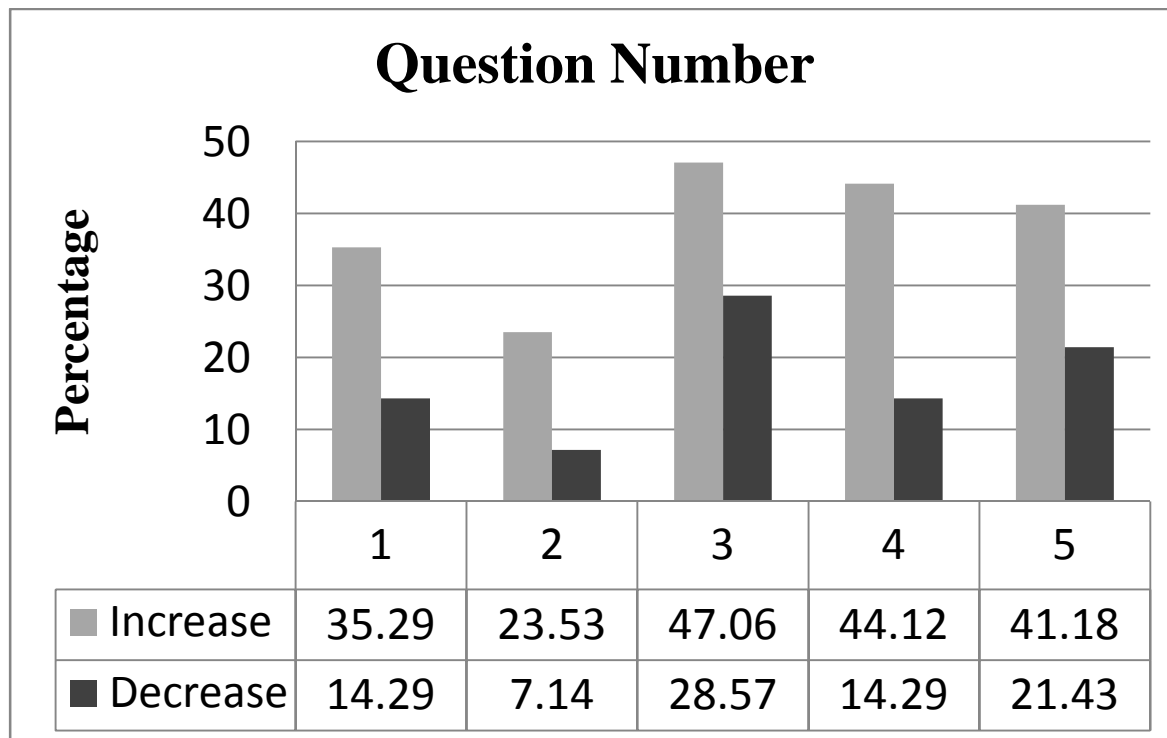In order to obtain information on the institution's Staff Training, questions six through nine were administered in the survey. The practices related to Work Systems were researched using the questions presented below (Table 4.4). Each inquiry aims to describe the practices that define Staff Training.  The key words for each question appear in bold.

Table 6 Questions for Staff Training

| |
|---|
| 6. We use **training** to build the capabilities of our staff. |
| 7. Frontline employees are trained on how to **handle service failures** (long waiting times, etc.) |
| 8. Employees are trained with **problem-solving skills.** |
| 9. We evaluate the benefits of staff training by **measuring changes** in skills or behavior. |

The following chart (Figure 4.2) presents the data collected for Staff Training. The chart contains the information based on the percentage of the companies that answered seven to the questionnaire questions. It compares the companies that showed an increase in revenues to those with a decrease in revenues for the period of study. For example 47.06 % of the companies with

Figure 6Chart of the results on Staff Training  presented as a comparison of the percentages for the answer seven for the companies with decreasing and increasing revenues.

## Question Numbers

| | 6 | 7 | 8 | 9 |
|---|---|---|---|---|
| ▨ Increase | 79.41 | 47.06 | 47.06 | 41.18 |
| ■ Decrease | 50 | 42.83 | 21.43 | 21.43 |

increasing revenues stated that they **always** *trained their employees in problem solving skills* compare to a 21.43 % of the other group.

As in the preceding section, the results for questions six to nine are summarized in the tables below, one for each sample (increasing vs. decreasing revenues). Furthermore, the results are presented in proportions to the sample size (i.e. in percentages) to better be able to compare the results of both tables.

Table 7 Distribution of Staff Training per question in percentage for institutions with increasing revenues

| Increase Total 34 | Staff Training Question Numbers | | | |
|---|---|---|---|---|
| | 6 | 7 | 8 | 9 |
| 1* | 0.00 | 2.94 | 2.94 | 5.88 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 2.94 | 2.94 | 0.00 |
| 4 | 5.88 | 8.82 | 14.71 | 8.82 |
| 5 | 2.94 | 20.59 | 20.59 | 20.59 |
| 6 | 11.76 | 17.65 | 11.76 | 23.53 |
| 7 | 79.41 | 47.06 | 47.06 | 41.18 |

**\*1: Not at all 4: Sometimes 7: Always**

Table 8 Distribution of Staff Training per question in percentage for institutions with decreasing revenues

| Decrease Total 14 | Staff Training Question Numbers | | | |
|---|---|---|---|---|
| | 6 | 7 | 8 | 9 |
| 1* | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 7.14 | 7.14 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 28.57 | 21.43 |
| 5 | 35.71 | 28.57 | 7.14 | 21.43 |
| 6 | 14.29 | 21.43 | 35.71 | 35.71 |
| 7 | 50.00 | 42.86 | 21.43 | 21.43 |

**\*1: Not at all 4: Sometimes 7: Always**

Of the data collected 79.41 % of the credit unions with revenue growth stated that they always *used training to build the capabilities of their staff (Question 6).* Of the companies with decreasing revenues 50 % also used training always. Of the growing companies 47.06% **always** *train their frontline employees on how to handle service failures (Question 7)* and 42.86% of the credit unions which presented decreasing revenues share this practice. A 5.88% of growing organizations stated that they **never** evaluated the benefits of staff training compared to 0 % of companies with declining revenues.
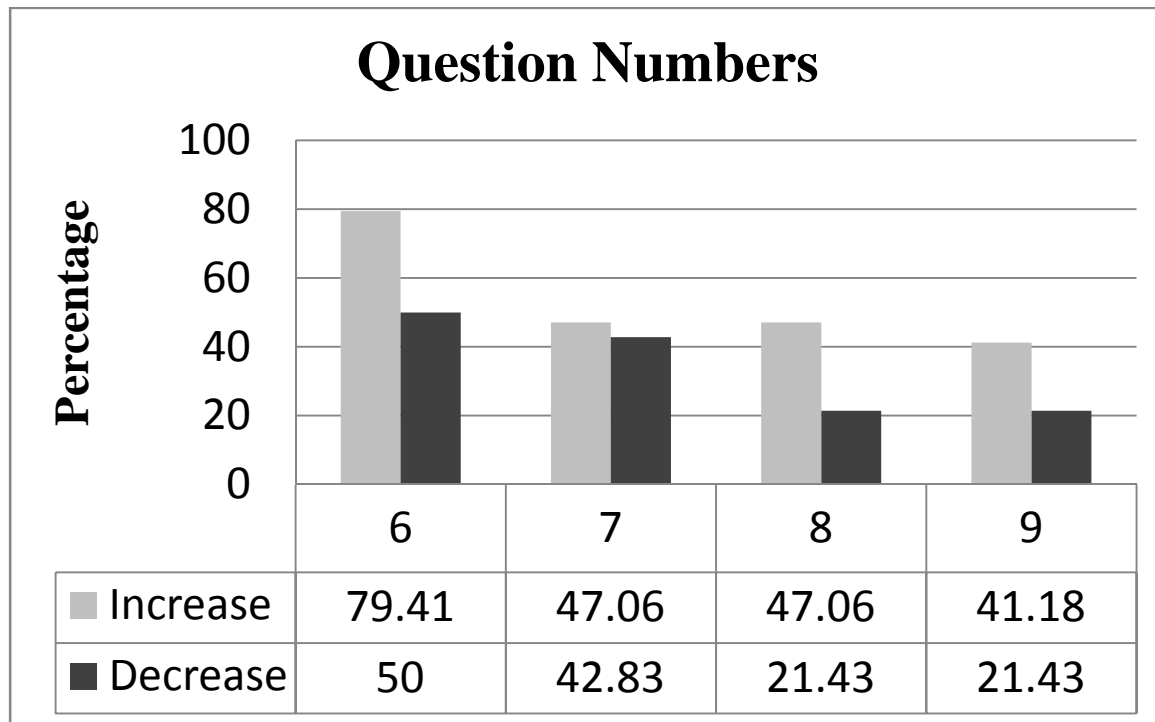
### 4.1.1.4   *Staff Well Being*

In order to obtain information on the institution's Staff Well Being, questions ten through fourteen were administered in the survey. The practices related to Staff Well Being were researched using the questions presented below (Table 4.7). Each inquiry aims to describe the practices that define staff well being.  The key words for each question appear in bold.

Table 9 Questions for Staff Well Being

| |
|---|
| 10. Our work environment **supports** the well-being and development of all employees. |
| 11. We use a variety of methods to **measure employee satisfaction**. |
| 12. We work to **improve employee health and safety** (such as ergonomic training ) |
| 13. Employees receive **career development services**. |
| 14. **Employee turnover** is evaluated in each department. |

The following chart (Figure 7) presents the data collected for Staff Well Being. The chart contains the information based on the percentage of the companies that answered seven to the questionnaire questions. It compares the companies that showed an increase in revenues to those with a decrease in revenues for the period of study.

Figure 7 Chart of the results on Staff Well Being presented as a comparison of the percentages for the answer seven for the companies with decreasing and increasing revenues.

## Question Number

| | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|
| Increase | 61.76 | 35.29 | 55.88 | 44.12 | 50 |
| Decrease | 42.86 | 21.43 | 42.86 | 35.71 | 50 |
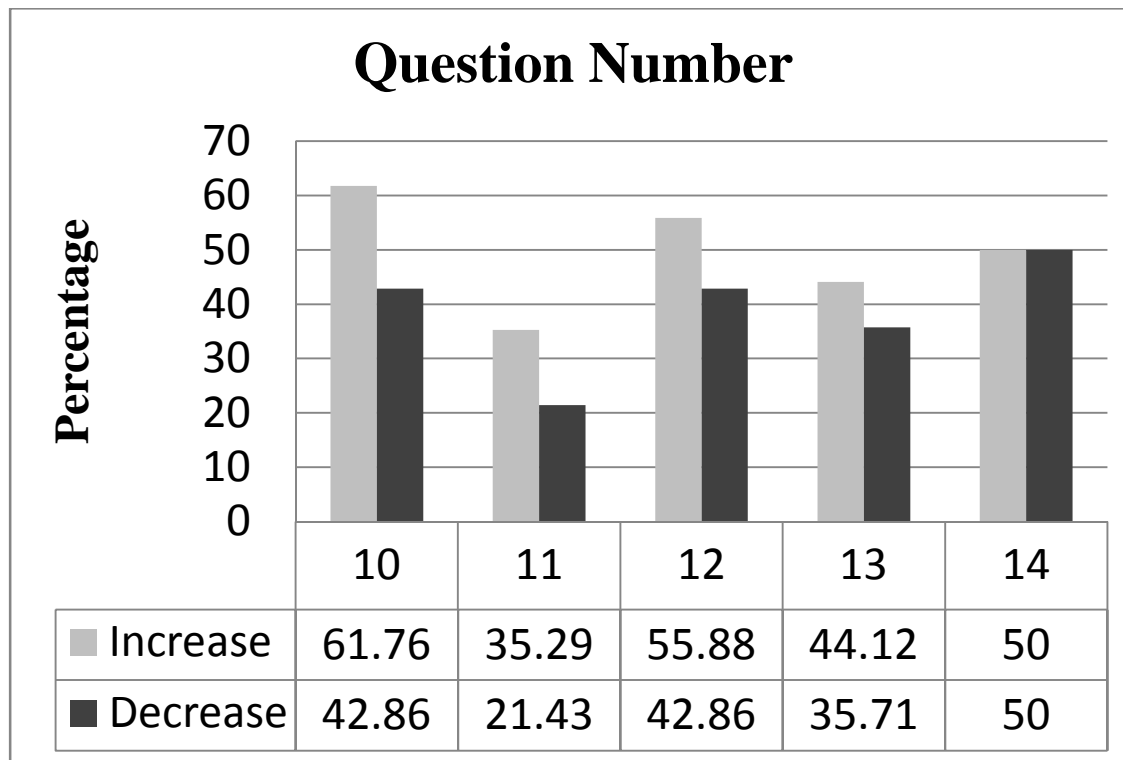
As before, the results for questions ten to fourteen are summarized in the tables below, one for each sample (increasing vs. decreasing revenues). Furthermore, the results are presented in proportions to the sample size (i.e. in percentages) to better be able to compare the results of both tables.

Table 10 Distribution of Staff Well Being per question in percentage for institutions with increasing revenues

| Increase Total 34 | Staff Well Being Question Numbers | | | | |
|---|---|---|---|---|---|
| | 10 | 11 | 12 | 13 | 14 |
| 1* | 0.00 | 0.00 | 2.94 | 0.00 | 5.88 |
| 2 | 0.00 | 5.88 | 0.00 | 5.88 | 2.94 |
| 3 | 0.00 | 5.88 | 2.94 | 2.94 | 2.94 |
| 4 | 8.82 | 26.47 | 8.82 | 11.76 | 14.71 |
| 5 | 8.82 | 11.76 | 8.82 | 11.76 | 11.76 |
| 6 | 20.59 | 14.71 | 20.59 | 23.53 | 11.76 |
| 7 | 61.76 | 35.29 | 55.88 | 44.12 | 50.00 |

 **\*1: Not at all 4: Sometimes 7: Always**

Table 11 Distribution of Staff Well Being per question in percentage for institutions with decreasing revenues

| Decrease Total 14 | Staff Well Being Question Numbers | | | | |
|---|---|---|---|---|---|
| | 10 | 11 | 12 | 13 | 14 |
| 1* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 7.14 | 7.14 |
| 3 | 0.00 | 7.14 | 7.14 | 0.00 | 0.00 |
| 4 | 14.29 | 42.86 | 0.00 | 35.71 | 14.29 |
| 5 | 14.29 | 7.14 | 14.29 | 14.29 | 7.14 |
| 6 | 28.57 | 21.43 | 35.71 | 7.14 | 21.43 |
| 7 | 42.86 | 21.43 | 42.86 | 35.71 | 50.00 |

 **\*1: Not at all 4: Sometimes 7: Always**

A 42.86 % and 26.47 % of growing and declining companies respectively stated that they **sometimes** used the variety of methods in measuring employee satisfaction. For the companies with growing revenues 44.12% stated that they **always** made sure that their *employees received career development services;* 35.71% for declining revenues credit unions.

### 4.1.2 Employee Outcomes

In order to obtain information on the institution's Employee Outcomes, questions fifteen through nineteen were administered in the survey. The information related to Employee Outcomes or the desirable results of employee development practices was researched using the questions presented below (Table 12). The key words for each question appear in bold.

Table 12 Questions for Staff Well Being

| |
|---|
| 15. **Worker turnover** (low turnover = better; high turnover = worse) |
| 16. **Efficiency** (costs, timeliness) of services |
| 17. **Employee productivity** |
| 18. Overall **satisfaction of employees** |
| 19. **Labor/management relationships** |

The following chart (Figure 8) presents the data collected for Employee Outcomes. The chart contains the information based on the percentage of the companies that answered seven to the questionnaire questions. It compares the companies that showed an increase in revenues to those with a decrease in revenues for the period of study.

Figure 8 Chart of the results on Employee Outcomes presented as a comparison of the percentages for the answer seven for the companies with decreasing and increasing revenues.

## Question Number

| | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|
| Increase | 52.94 | 47.06 | 50 | 41.18 | 55.88 |
| Decrease | 42.86 | 28.57 | 42.86 | 35.71 | 21.43 |
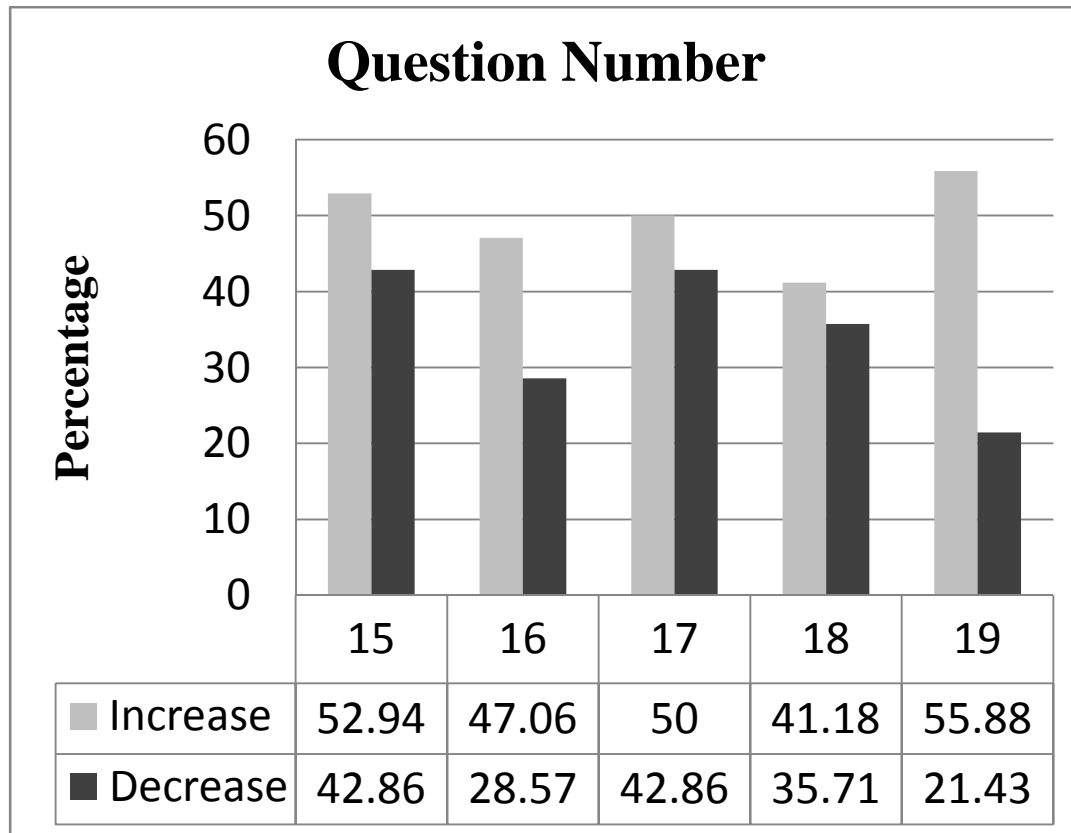
As before, the results for questions fifteen to nineteen are summarized in the tables below, one for each sample (increasing vs. decreasing revenues). Furthermore, the results are presented in proportions to the sample size (i.e. in percentages) to better be able to compare the results of both tables.

Table 13 Distribution of Employee Outcomes per question in percentage for institutions with increasing revenues

| Increase Total 34 | Employee Outcomes Question Numbers | | | | |
|---|---|---|---|---|---|
| | 15 | 16 | 17 | 18 | 19 |
| 1* | 2.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 2.94 | 2.94 | 0.00 | 0.00 |
| 4 | 11.76 | 14.71 | 14.71 | 14.71 | 2.94 |
| 5 | 5.88 | 8.82 | 11.76 | 17.65 | 14.71 |
| 6 | 26.47 | 26.47 | 20.59 | 26.47 | 26.47 |
| 7 | 52.94 | 47.06 | 50.00 | 41.18 | 55.88 |

**\*1: Not at all 4: Sometimes  7: Always**


Table 14 Distribution of Employee Outcomes per question in percentage for institutions with decreasing revenues

| Decrease Total 14 | Employee Outcomes Question Numbers | | | | |
|---|---|---|---|---|---|
| | 15 | 16 | 17 | 18 | 19 |
| 1* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 14.29 | 7.14 | 0.00 | 14.29 | 7.14 |
| 5 | 7.14 | 14.29 | 35.71 | 0.00 | 21.43 |
| 6 | 35.71 | 50.00 | 21.43 | 50.00 | 50.00 |
| 7 | 42.86 | 28.57 | 42.86 | 35.71 | 21.43 |

**\*1: Not at all 4: Sometimes  7: Always**

### 4.1.3 Customer Satisfaction

In order to obtain information on the institution's Customer Satisfaction, questions twenty through twenty three were administered in the survey. The information related to Customer Satisfaction was researched using the questions presented below (Table 15). The key words for each question appear in bold.

Table 15 Questions for Staff Well Being

| |
|---|
| 20. Overall satisfaction of **clients** |
| 21. Number of clients who **return** for future visits |
| 22. Overall **client** satisfaction |
| 23. Number or severity of client **complaints** |

The following chart (Figure 9) presents the data collected for Customer Satisfaction. The chart contains the information based on the percentage of the companies that answered seven to the questionnaire questions. It compares the companies that showed an increase in revenues to those with a decrease in revenues for the period of study.

Figure 9 Chart of the results on Customer Satisfaction presented as a comparison of the percentages for the answer seven for the companies with decreasing and increasing revenues.

## Question Number

| Question Number | 20 | 21 | 22 | 23 |
|---|---|---|---|---|
| Increase | 61.76 | 52.94 | 52.94 | 50 |
| Decrease | 28.57 | 35.71 | 57.14 | 28.57 |
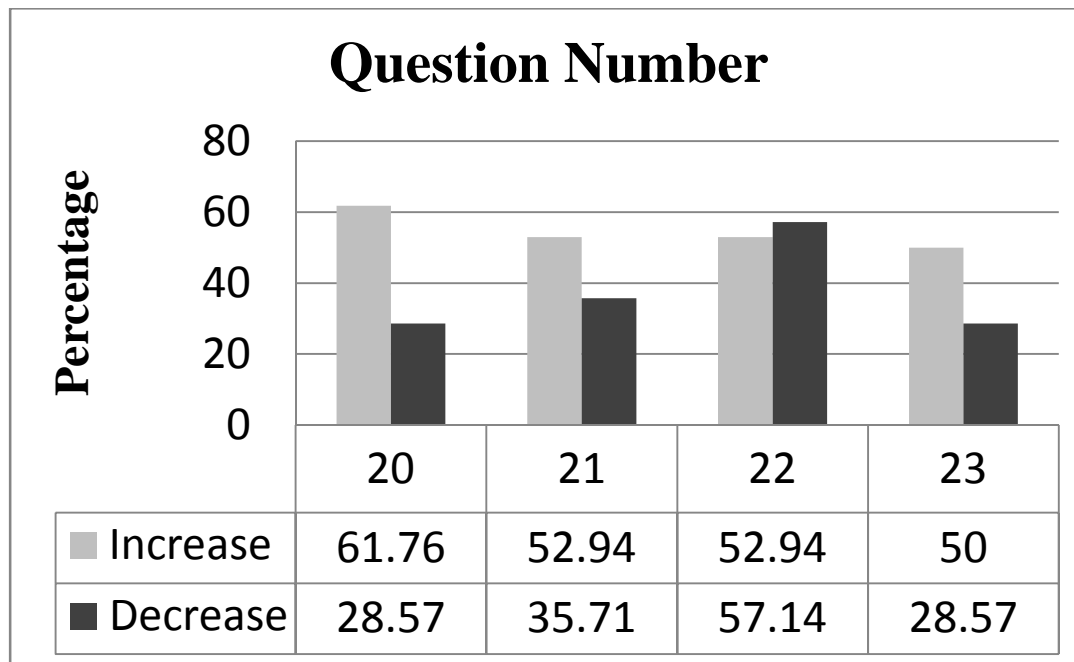
As before, the results are summarized in the tables below, one for each sample (increasing vs. decreasing revenues). Furthermore, the results are presented in proportions to the sample size (i.e. in percentages) to better be able to compare the results of both tables.

Table 16 Distribution of Customer Satisfaction per question in percentage for institutions with increasing revenues

| Increase<br>Total 34 | Customer Satisfaction<br>Question Numbers | | | |
|---|---|---|---|---|
| | 20 | 21 | 22 | 23 |
| 1* | 2.94 | 0.00 | 0.00 | 2.94 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 5.88 |
| 4 | 0.00 | 14.71 | 8.82 | 8.82 |
| 5 | 11.76 | 8.82 | 14.71 | 8.82 |
| 6 | 23.53 | 23.53 | 23.53 | 23.53 |
| 7 | 61.76 | 52.94 | 52.94 | 50.00 |

**\*1: Not at all 4: Sometimes 7: Always**

Table 17 Distribution of Customer Satisfaction per question in percentage for institutions with decreasing revenues

| Decrease Total 14 | Customer Satisfaction Question Numbers | | | |
|---|---|---|---|---|
| | 20 | 21 | 22 | 23 |
| 1* | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 14.29 | 14.29 | 0.00 | 7.14 |
| 5 | 35.71 | 21.43 | 14.29 | 14.29 |
| 6 | 21.43 | 28.57 | 28.57 | 50.00 |
| 7 | 28.57 | 35.71 | 57.14 | 28.57 |

**\*1: Not at all 4: Sometimes 7: Always**

## 4.2 Hypotheses testing

### 4.2.1 Employee Development and Employee outcomes

$H_1$: Employee Development is positively related to Employee Outcomes. Let $p_i$ be the proportion of respondents with an increase in revenue that answered with a 6 or 7 the questions on employee development, while $p_d$ is the proportion of respondents with a decrease in revenue that did the same. Thus, our null and alternate hypotheses are as follows:

$H_0$: $p_{i < p_d}$

$H_1$: $p_{i > p_d}$

There was not enough data to test Hypothesis 1. Our study could not reach the minimum of five successes and five failures for each sample we collected.

### 4.2.2 Employee Outcomes and Customer Satisfaction

$H_2$:    Employee Outcomes is positively related to Customer Satisfaction. Let $p_i$ be the proportion of respondents with an increase in revenue that answered with a 6 or 7 the questions on employee outcomes, while $p_d$ is the proportion of respondents with a decrease in revenue that did the same. Thus, our null and alternate hypotheses are as follows:

$H_0$: $p_i < p_d$

$H_1$: $p_i > p_d$

There was not enough data to test Hypothesis 2. Our study could not reach the minimum of five successes and five failures for each sample we collected, as mentioned in the section on sampling and framing.

### 4.2.3 Customer Satisfaction and Revenue Growth

$H_3$:    Customer Satisfaction is positively related to Revenue Growth. Let $p_i$ be the proportion of respondents with an increase in revenue that answered with a 6 or 7 the questions on customer satisfaction, while $p_d$ is the proportion of respondents with a decrease in revenue that did the same. Thus, our null and alternate hypotheses are as follows:

$H_0$: $p_i < p_d$

$H_1$: $p_i > p_d$

The distribution of frequencies of successes for the samples is summarized in the following table.

Table 18 Frequencies of successes for Customer Satisfaction

| Customer Satisfaction | | Questions | | | |
|---|---|---|---|---|---|
| **Samples** | | **20** | **21** | **22** | **23** |
| **n** | | **Frequencies** | | | |
| **14** | **Decrease** | 7 | 9 | 12 | 11 |
| **34** | **Increase** | 29 | 26 | 26 | 25 |
| | | | | | |

After testing for adequacy on all questions, only number twenty and twenty one were considered for testing. Testing on question twenty, *Overall Satisfaction of Clients,* resulted in a p-value = 0.010 which is less than 0.05, which suggests that there is enough evidence to support the positive effect of customer satisfaction in revenue growth. Testing on question twenty one resulted in a p-value = 0.388, *Number of clients that return for future visits.* The value is higher than 0.05 which suggests that there is no sufficient evidence to support the relationship of the number of clients returning for future visits with revenue growth.

### 4.2.4   Employee Development and Customer Satisfaction

$H_4$:      Employee Development is positively related to Customer Satisfaction. Let $p_i$ be the proportion of respondents with an increase in revenue that answered with a 6 or 7 the questions on employee development, while $p_d$ is the proportion of respondents with a decrease in revenue that did the same. Thus, our null and alternate hypotheses are as follows:

$H_0$: $p_{i < p_d}$

$H_1$: $p_{i > p_d}$

There was not enough data to test Hypothesis 4.

### 4.2.5    Employee Outcomes and Revenue Growth

$H_5$:    Employee Outcomes is positively related to Revenue Growth. Let $p_i$ be the proportion of respondents with an increase in revenue that answered with a 6 or 7 the questions on employee outcomes, while $p_d$ is the proportion of respondents with a decrease in revenue that did the same. Thus, our null and alternate hypotheses are as follows:

$H_0$: $p_{i < p_d}$

$H_1$: $p_{i > p_d}$

The distribution of frequencies of successes for the samples is summarized in the following table.

Table 19 Frequencies of successes for Employee Outcomes

| Employee Outcomes | | Questions | | | | |
|---|---|---|---|---|---|---|
| Samples | | 15 | 16 | 17 | 18 | 19 |
| n | | Frequencies | | | | |
| 14 | Decrease | 11 | 11 | 9 | 12 | 10 |
| 34 | Increase | 27 | 25 | 24 | 23 | 28 |
| | | | | | | |

After testing for adequacy on all questions only number seventeen was considered for testing.  Testing on question seventeen, *Employee productivity*, resulted in a p-value =0.388 which is larger than 0.05, suggesting that there is no sufficient evidence to support an effect of employee productivity in revenue growth.

# 5 Conclusions

One of the objectives of the study was to develop a profile of the current practices in *employee development* of a high contact environment in Puerto Rico. The study shows that a higher percentage of companies that presented growth in revenues have a tendency to focus more on the design of *work systems*. In terms of s*taff training,* companies with rising revenues present more focus in training and building the capabilities of their employees. With these findings it can be concluded that the companies with growth in revenues have a better approach to employee development practices. Regarding *staff well being* the percentage difference was lower between the two groups. It can be concluded that efforts are made to maintain the well being of the employees, at least from a managerial point of view regardless of the resulting financial performance. Thus it is not a determinant factor in the success or failure of the financial institution.

The information available for hypothesis testing was insufficient to explore all the factors considered in the study. However, for those available for testing it is interesting to find that the results suggest that there is evidence to relate customer satisfaction and revenue growth. We can conclude that in fact customer satisfaction translates in to revenue growth; most importantly, that the relationship is positive. Efforts to control customer satisfaction are important to control the variability that comes from the nature of service encounters.

# 6 Recommendations

The theories behind this thesis I find are very rich with information and lend themselves to design a variety of studies. In the process, a lot of questions and suggestions arise. The most important are presented below.

- *Define the population using only the Customer Contact Model regardless of the industry. This maybe a better way of evaluating service operations.*

  Much of the service theory I found criticized the fact that research in service was done using the industry to limit the focus of study. The customer contact model presents a better way of understanding and classifying services based on the nature and environment of the service encounter. To use this model as a way to limit the focus of study may be a better way to develop general tools for service operations.

- *Future studies can be conducted using similar methods, but from the employee's viewpoint.*

  This study presents the view of the managers. We always faced the question whether the employees would answer in the same way. Studies using the Service Profit Chain have been done from the employee's perspective.

- *Develop methods that can be tested with smaller samples.*

  It seems that the lack of response of the subjects is a common denominator in researches done recently here. The reasons may be very complex, including time constraints and

other limitations.  I guess hope for the best and prepare for the worst. Dealing with

smaller samples may be more in sync with the environment here in Puerto Rico.

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# 8 Appendix

## 8.1 Appendix A Letters of Authorization

### 8.1.1 Dr. Meyer Goldstein

# Fwd: Re: Investigation - University of Puerto Rico-Mayaguez

1 message

**Maria Vargas <mva29952@uprm.edu>**      Mon, Aug 18, 2008 at 4:13 PM
Reply-To: mva29952@uprm.edu
To: vargas.mc@gmail.com

-------- Original Message --------
Subject: Fwd: Re: Investigation - University of Puerto Rico- Mayaguez
From: Susan Meyer Goldstein <meyer033@umn.edu>
Date: Mon, 28 Jan 2008 13:31:11 -0800
To:

Hello Maria -

I don't have a pdf version of the actual article, but I am attaching the
final version of the paper and figures in Word format. The scales you
are interested in are at the end of the paper (in appendix).

Good luck with your project. I thought the most interesting part of the
paper was that customer satisfaction is driven by employee-related
outcomes rather than employee-related management systems.

smg

## 8.1.2    Committee for the Protection of Human Beings in Research (CPSHI / IRB)

09-08 MV- 01

30 de septiembre del 2008

Srta. María Vargas Arenas
Toledo # 74
Belmonte
Mayaguez, Puerto Rico 00680

Estimada Srta. Vargas:

El comité revisó su propuesta: A study of the effects on employee development on customer satisfaction y gustosamente la aprobamos.

La aprobación de su propuesta de investigación se extiende desde el 30 de septiembre del  2008 hasta el 30 de septiembre del 2009. Le recuerdo que cualquier modificación de su proyecto necesitaría pasar por una nueva revisión por parte de este Comité.

Le deseo mucho éxito en su trabajo de investigación y quedo a sus órdenes para cualquier pregunta o clarificación ulterior que estimase necesaria.

Cordialmente,

Dafne Javier, D.B.A.
IRB Chair
UPR at Mayagüez

c. Yolanda Ruiz
Directora Escuela Graduada

## 8.2 Appendix B Letter of Consent

**HOJA DE CONSENTIMIENTO**

Reciba un cordial saludo. Mi nombre es María Vargas Arenas y soy estudiante del programa de maestría en el Colegio de Administración de Empresas del Recinto Universitario de Mayagüez. Actualmente, me encuentro realizando una investigación como parte de un requisito para poder obtener el título de Maestro en Administración de Empresas, en el área de Gerencia Industrial. En adición, poder aportar a la investigación académica en el área de operaciones. Intereso evaluar las políticas de adiestramiento y como estas afectan la satisfacción del cliente y el desempeño de la empresa.

Deseo notificarle que su participación en este estudio es completamente voluntaria y que la misma consistirá en completar un cuestionario. La información obtenida mediante su participación será confidencial y la misma no se divulgará individualmente sino en conjunto con todos los cuestionarios recibidos. Sus respuestas se utilizarán únicamente con propósitos de estudio. Estos datos serán guardados por el presidente del Comité Graduado, Dr. Mario Córdova Claudio, por un tiempo máximo de un año luego de finalizada dicha investigación, cuando serán destruidos en su totalidad.

Es importante que usted entienda que no generará <u>ningún beneficio monetario</u> por la participación en esta investigación y no se anticipa que usted sufra daños de ningún tipo.

Su participación es muy valiosa, pues contribuirá a los hallazgos de esta investigación y a futuras investigaciones. Cuento con su cooperación. Si tiene alguna duda o pregunta se puede comunicar con:

María Vargas Arenas, Investigador
Toledo 74, Belmonte
Mayagüez , PR 00680
ó
Universidad de Puerto Rico – Recinto Universitario de Mayagüez
Programa Graduado del Colegio de Administración de Empresas
Correo electrónico: maria.vargas4@upr.edu  Teléfono: (787)833-2703 ó (787)458-7897

*Cláusula de Consentimiento Informado/Ilustrado*

He leído el contenido de esta hoja de consentimiento y mi firma en el mismo certifica que soy mayor de edad, que tengo la capacidad legal para consentir y que consiento participar.

**Gracias por su cooperación.**

Firma del Participante _____          María Vargas Arenas, Investigador
Fecha _____          Firma Investigador_____

Cordialmente,
*María Vargas Arenas*
María Vargas Arenas
Estudiante Graduado
Universidad de Puerto Rico
Recinto Universitario de Mayagüez
Colegio de Administración de Empresas

*Mario Córdova Claudio*
Vo.Bo.  Mario Córdova Claudio
Presidente Comité de Tesis

## 8.3   Appendix C  Metrics

Cooperativa :_____

Presidente Ejecutivo / Gerente: _____

### Employee Development

*Please indicate how often the following occur  (1–not at all; 4–sometimes; 7–always)*

#### Work Systems

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| WS1: Employees are given a broad range of tasks. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WS2: Employees are given decision-making responsibility. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WS3: We tie compensation and recognition to our strategic goals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WS4: Employees are rewarded for learning new skills. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WS5: We motivate employees by improved job design (such as cross-training, job rotation, etc.). | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

#### Staff Training, and Development

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TD1: We use training to build the capabilities of our staff. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| TD2: Frontline employees are trained on how to handle service failures ( long waiting times, etc | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| TD3: Employees are trained with problem-solving skills. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| TD4: We evaluate the benefits of staff training by measuring changes in skills or behavior. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

#### Staff Well-Being

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| WB1: Our work environment supports the well-being and development of all employees. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WB2: We use a variety of methods to measure employee satisfaction. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WB3: We work to improved employee health and safety (such as ergonomic training ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WB4: Employees receive career development services. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| WB5: Employee turnover is evaluated in each department. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

### Employee Outcomes

*Please indicate your position  relative to your competitors on the following: (1=significantly worse; 4=about the same; 7=significantly better)*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ES1: Worker turnover (low turnover = better; high turnover = worse) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| ES2: Efficiency (costs, timeliness) of services | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| ES3: Employee productivity | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

*Please indicate your  current performance on the following: (1=low/poor; 4=average; 7=high/excellent)*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ES4: Overall satisfaction of employees | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

*Please indicate  how often the following occur : (1–not at all; 4–sometimes; 7–always)*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ES5: Labor/management relationships are cooperative. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

### Customer Satisfaction

*Please indicate your  current performance on the following: (1=low/poor; 4=average; 7=high/excellent)*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CS1: Overall satisfaction of clients | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| CS2: Number of clients who return for future visits | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

*Please indicate your position  relative to your competitors on the following:  (1=significantly worse; 4=about the same; 7=significantly better)*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CS3: Overall client satisfaction | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| CS4: Number or severity of client complaints | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Adapted from the scales presented in the article Employee Development : An examination
of service strategy in a high contact service environment" by Susan Meyer Goldstein

## 8.4    Appendix C.  Statistical Output- Minitab

### 17.Test and CI for Two Proportions

Sample   X   N  Sample p
1      9  14  0.642857
2     24  34  0.705882

Difference = p (1) - p (2)
Estimate for difference:  -0.0630252
95% CI for difference:  (-0.357057, 0.231006)
Test for difference = 0 (vs not = 0):  Z = -0.43  P-Value = 0.669

Fisher's exact test: P-Value = 0.738

### 20.Test and CI for Two Proportions

Sample   X   N  Sample p
1      7  14  0.500000
2     29  34  0.852941

Difference = p (1) - p (2)
Estimate for difference:  -0.352941
95% CI for difference:  (-0.640638, -0.0652445)
Test for difference = 0 (vs not = 0):  Z = -2.57  P-Value = 0.010

Fisher's exact test: P-Value = 0.024

### 21.Test and CI for Two Proportions

Sample   X   N  Sample p
1      9  14  0.642857
2     26  34  0.764706

Difference = p (1) - p (2)
Estimate for difference:  -0.121849
95% CI for difference:  (-0.410513, 0.166815)
Test for difference = 0 (vs not = 0):  Z = -0.86  P-Value = 0.388

Fisher's exact test: P-Value = 0.480