1998

Applying continuous improvement through process management in a restaurant environment

Thomas Wappman

Follow this and additional works at: http://scholarworks.rit.edu/theses

Recommended Citation
APPLYING CONTINUOUS IMPROVEMENT THROUGH PROCESS MANAGEMENT IN A RESTAURANT ENVIRONMENT

by

Thomas J. Wappman

A thesis submitted to the
Faculty, of the School of Food, Hotel, and Travel Management
at
Rochester Institute of Technology
in partial fulfillment of the requirements
for the degree of Master of Science

May 1998
Title of Research: Applying Continuous Improvement Through Process Management in a Restaurant Environment

Specific Recommendations: (Use other side if necessary.)

Thesis Committee: (1) Dr. Richard Marecki (Chairperson)
(2) Prof. Warren Sackler
OR (3) Dr. Francis Domoy

Faculty Advisor: Dr. Richard Marecki

Number of Credits Approved: 4

Note: This form will not be signed by the Department Chairperson until all corrections, as suggested in the specific recommendations (above) are completed.

cc: Departmental Student Record File - Original Student
The author of a thesis or project should complete one of the following statements and include this statement as the page following the title page.

Title of thesis/project: Applying Continuous Improvement Through Process Management in a Restaurant Environment

I, Thomas J. Wappman, hereby grant/deny permission to the Wallace Memorial Library of R.I.T., to reproduce the document titled above in whole or part. Any reproduction will not be for commercial use or profit.

OR

I, ____________________, prefer to be contacted each time a request for reproduction is made. I can be reached at the following address:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

May 5, 1978
Date  Signature
ABSTRACT

The purpose of this study is to investigate how continuous improvement methods can be applied in a restaurant environment through process management. Increased competition in the service marketplace, and more knowledgeable customers has forced many organizations to focus on business re-engineering. Therefore, the ability to develop new systems aimed at the customers’ needs has become imperative. This assessment will focus on the service delivery time in four areas of a student-operated restaurant utilizing process management techniques. The four processes that the researchers measured are: 1) promptness of greeting-seating the customer, 2) beverage service, 3) entrée service, and 4) check-payout. The data collected in this study can be applied for future means of improvement at Henry’s Restaurant on the Rochester Institute of Technology campus. Furthermore, the utilization of the instruments in this study will prepare future service managers with experience in Statistical Process Control (SPC) methods, which are necessary for continuous improvement programs.
ACKNOWLEDGEMENTS

I would like to thank Dr. Richard Marecki for his expertise and guidance throughout this project.

I would also like to thank my parents Carl and Sharon Wappman for the love and support that they have given to me over the years. Thank you for everything that you have done for me mom and dad. I love you both very much.

To my brother Rob and sister Linda, thank you for your friendship, support, and knowledge that you have given to me over the years.

Tracey, thank you for being such a great friend, I love you.
# TABLE OF CONTENTS

Abstract........................................................................................................ii

Acknowledgments............................................................................................iii

List of Tables.....................................................................................................vi

List of Figures..................................................................................................vii

Chapter I. Introduction and Statement of Study..............................................1
   Introduction....................................................................................................1
   Problem Statement.........................................................................................2
   Hypothesis....................................................................................................3
   Definition of Terms.......................................................................................3
   Scope and Limitations..................................................................................4

Chapter II. Review of the Literature.................................................................6
   Customer Focus.............................................................................................6
   Process Improvement......................................................................................10
   Total Involvement.........................................................................................18
   Quality Lessons from Baldrige Award Winners...........................................21

Chapter III. Methodology................................................................................25
   Setting of Study............................................................................................25
   Study Sample................................................................................................25
   Research Instruments Used..........................................................................25
   Period of Data Collection............................................................................26
   Procedures....................................................................................................26
Chapter IV. Analysis of Data

Data Collection
Control Charts
Findings

Chapter V. Conclusions and Recommendations

Conclusions
Recommendations

Bibliography
LIST OF TABLES

Table 1 - Groups of People Involved in the Operation and Improvement of Processes...12

Table 2 – Phases of Process Management.........................................................14

Table 3 – Process Management in Perspective..................................................17
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customer Greeted by Host/Hostess</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>Beverage Order Taken and Delivered</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Entrée Order Taken and Delivered</td>
<td>32</td>
</tr>
<tr>
<td>4</td>
<td>Presentation of Check and Payment</td>
<td>34</td>
</tr>
<tr>
<td>5</td>
<td>Greet-Seat Response Time</td>
<td>37</td>
</tr>
<tr>
<td>6</td>
<td>Beverage Response Time</td>
<td>38</td>
</tr>
<tr>
<td>7</td>
<td>Entrée Response Time</td>
<td>39</td>
</tr>
<tr>
<td>8</td>
<td>Check-Payout Response Time</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>Process Model at Henry’s</td>
<td>44</td>
</tr>
</tbody>
</table>
CHAPTER I
Introduction and Statement of Study

Introduction

The 1990s have experienced a myriad of changes in the service industry. The future in this field is expanding rapidly, and it is estimated that 90% of all workers will be involved in some aspect of service by the turn of the century. The growth is evident; from new businesses entering the marketplace to technological advances to better serve the customer. Over the past fifteen years, more and more players have become involved in the delivery of some aspect of service. Food service has experienced the largest growth during this time period.

In the seventies, Burger King and McDonald’s were the lone fast-food giants. However, the nineties have seen the evolution of bagel shops, such as Bruegger’s and Manhattan Bagel. The emergence of new fast-food restaurants, like Boston Market, Taco Bell, and Wendy’s has also crowded the marketplace. Furthermore, specialized restaurants have become popular destinations for families. These include the Olive Garden, Macaroni Grill, Don Pablo’s, and the numerous steak houses (Outback, Lonestar, and Bugaboo Creek). The growth seems unlimited when it comes to restaurants, because more and more individuals are dining out on a more consistent basis. A problem that arises is, How are all of these establishments going to survive? The solution today is through a commitment to continuous improvement practices through process management.

Continuous improvement involves three major principles. First, customers’ needs must be attended to at all times. The customer has become the major player in today’s competitive marketplace, because they are necessary for continued success. Customers are now directing companies on how to deliver their services. One example that comes to mind is the new system implemented by the Mobil Oil Corporation. At Mobil service stations around the country, patrons are now able to use a device on their key-ring to
activate the gas pump. This enables customers to pay-at-the-pump without having to go inside to pay an attendant. Technological advances have given the customer more options, and those businesses that are committed to improving their service delivery process have a better chance of surviving.

Process improvement is the second aspect of continuous improvement. Its goal is to produce a desirable output to meet the customer's requirement. By devising new methods, and redesigning old ones, businesses are in a position where they must improve systems to stay competitive. Companies must constantly investigate, and devise the best method to produce a quality output.

Finally, total involvement is the last aspect involved in continuous improvement. This approach must consist of strong active leadership within senior management. Further, the talents of all employees in an organization must be utilized. This is accomplished by empowering employees and utilizing teams to better serve the customer. It has become increasingly important for all facets of an organization to commit to producing quality outputs (services).

My study will focus on Henry's Restaurant, located on the Rochester Institute of Technology campus. Through continuous improvement efforts, the restaurant is attempting to become a state-of-the-art food laboratory. Technological advances, such as strategically placed cameras and electronic comment cards have been implemented at Henry's. These processes are aimed at providing quality service on a consistent basis. The new cameras are used to time the wait staff, while the electronic comment cards provide feedback on the quality of food, and promptness of service. My study will focus on whether or not these improved processes have improved customer satisfaction at Henry's.

**Problem Statement**

Businesses today must constantly investigate new methods to improve service
delivery. There is a need to train tomorrow’s managers in utilizing statistical process control (SPC) tools, with an eye toward continuous improvement. This is accomplished by focusing on three principles: customer focus, process management, and total involvement. Process transformation has become a necessity for those businesses that are committed to producing a quality product year-after-year. The utilization of process management has emerged as the way to continue to improve the method of service delivery. This is accomplished by focusing on the customers’ needs, because they are the integral factor for success. If businesses fail to incorporate process management into their company, they are at risk of experiencing lost revenue and/or business. The ability to possess a system that is beneficial to the external, as well as the internal customer is important for continued success. This study will investigate how process management was implemented at Henry’s Restaurant and the results that were attained.

**Hypothesis**

The implementation of process management at Henry’s Restaurant has resulted in better service quality for the patrons.

**Null Hypothesis**

Process management has had little or no effect on the quality of service delivery at Henry’s Restaurant.

**Definition of Terms**

*Continuous Improvement* - the constant deployment of resources aimed at devising new processes that will increase the quality of an output for the customer

*External Customer* the people (person) who receives the desired output from a supplier
Henry’s Restaurant - a student-run restaurant located on the fourth floor of the George Eastman Building on the Rochester Institute of Technology campus

Process Management - the method used to acquire, define, execute, and improve best practices of an organization with customer focus as the main objective

QS-1000 - a hand-held electronic marketing device used to measure customer satisfaction

Total Quality Management - a management concept where the customer’s needs are the driving force, and continuous improvement is always investigated

Ultrak 24/40 Hour Continuous Recorder - device used to monitor time of wait staff to perform certain service functions in the restaurant

Scope and Limitations

The scope of this study is to examine how continuous improvement can be applied through process management in a restaurant environment. This study utilized statistical process control tools to improve service quality at Henry’s Restaurant. Students and faculty focused on the front-of-the-house operations in a restaurant. The four areas studied were; greeting of customers, beverage service, entree service, and check presentation-payment.

The limitation of this study is that it was conducted over a six-week time period every Tuesday and Thursday during the Fall Academic Quarter. Therefore, the data gathered reflects a limited sample. If the restaurant was open more than two days a week, then a larger assessment could have been complied. Furthermore, the analysis primarily
focused on the “front house” operations at Henry’s. Therefore, the wait staff and host/hostess were the only workers timed on a daily basis. This meant that the kitchen and beverage staff were not recorded and timed by the Ultrak recording device.
CHAPTER II
Review of the Literature

Customer Focus

_Society: Increased Expectations of Service_

The modern quality era emerged in 1980, with the introduction of a book by Philip Crosby entitled _Quality is Free_. Crosby investigated methods on how to improve adequate quality care for customers. In the years following, a number of similar books were published that focused on service excellence for the benefit of the customer. However, many organizations were reluctant to listen to the desires of the consumer. Today, it is imperative that senior management knows who their customers are and what they exactly expect. The customer has become an active participant in determining service delivery processes. A customer is constantly looking for ways to make their life easier for themselves, and in turn, are getting harder to please. "Today’s customer-driven culture demands that all systems and processes in a company be oriented to the customer’s convenience and success" (Hyden, 1991). Technological advances and convenience have become the best friend’s of consumers. Therefore, businesses are now forced to develop new methods that are aimed at the customer’s wants and/or needs or they will suffer. Hence, individual customers are now driving the global economy, instead of specific markets and products.

Throughout the eighties, many corporations thought that they were implementing breakthrough delivery processes, but in many instances their systems were not customer-friendly. Business leaders are just starting to realize that customer-focused processes are vital to their success. Customer focus has become the most important factor to being successful in the competitive marketplace. The companies that are experiencing success today, are the ones who constantly investigate ways to satisfy the external, as well as the internal customer on a consistent basis. According to Albrecht, the cardinal rule of service management has become, know thy customer (1988). Organizations that possess
the ability to identify and respond to areas where customers believe change is needed will prosper (Brown, 1995). It has been almost twenty years since the quality revolution, but the idea of customer focus is now extremely important due to changing needs and increased competition in the marketplace. An unsatisfied customer is difficult to win back, that is why customer focus must be the number one priority of all service providers.

The Need for Customer Focus

The detention of customers is a key ingredient to success in the service industry today. Only a handful of corporations have been successful in attending to customer's needs on a consistent basis. One example is the catalog giant, L.L. Bean. Bean describes what a customer means to his company:

A customer is the most important person ever, a customer is not dependent on us, we are dependent on them; they are not an interruption of work, but the purpose of it. We are doing them a favor by giving us the opportunity to serve them. A customer brings us his/her wants, it is our job to handle them (Tenner and DeToro, 1992, p.51).

A bad experience at a hotel or restaurant will make customers hesitate for a return visit in the future. “The key to gaining a long-term competitive advantage is to continually meet customers’ expectations in ways that they recognize as adding value. It is necessary to know who your customers are, and what they expect” (Tenner and DeToro, 1992, p.51). Therefore, the ability to focus on the customer is the first of three steps for quality management.

Since the introduction of the quality revolution twenty years ago, many organizations have experienced lost revenue because of a reluctance to listen to the customer. Hyden explains that success today is achieved by making the customer successful (1991). If the customer knows that they are appreciated, they in turn will
return in the future. Cross lists five stages of bonding to deepen customer loyalty; awareness, identity, relationship, community, and advocacy (1992). These stages assist management in learning who their customers are and how they can continue to service them in the future. The Strategic Planning Institute states, “organizations that focus on quality of customer care keep their customers up to 50% longer, have 20-40% lower marketing costs, and experience 7-17% better net returns” (Zemke, 1997). The problem is that only a handful of organizations have been successful in mastering customer service techniques. Club Med has been a successful operation for many years, because they focus on the information that they receive from their customers to improve the product and services that they offer (Whiteley, 1997). Therefore, all companies are attempting to pattern the methods of Club Med for their own customer-oriented systems.

The concept of customer care is a problem in many corporations, but more and more are starting to realize how important the customer has become. The Forum Corporation surveyed six hundred executives and asked them, what are your organizations most important strategic needs? An astounding 86% answered quality of customer care (Whiteley, 1994). However, the process of improving customer satisfaction involves many changes in a company’s philosophy and practices. Companies that are able to satisfy their customers consistently must have a complete understanding of their client, the competition of the marketplace, and an ability to identify and respond to areas that need change (Brown, 1995). This is the reason only a handful of corporations have been successful.

**Customer-Quality Practices**

Every company has a unique method of attending to customer’s needs. The ability to make the consumer happy and successful is a challenge that is not always attainable. However, a pizzeria in Minnesota has taken customer care to the next level. In an effort to ensure that all patrons enjoy their dining experience, a server may make as
many as nine visits to a specific table during a meal. This is accomplished by assigning small sections of the restaurant to each server. In turn, this allows the staff to spend plenty of time taking care of their guests. Further, the owner states, “we are attuned to our customers; from vegetarians to babies to grandparents” (Walkup, 1995). This example illustrates how important the customer has become in today’s competitive marketplace.

Quality customer service is also evident at the Motorola Corporation. The company uses a five-step method for recovery from a bad experience with a customer. These steps are as follows:

1. **Apology** - acknowledgment of error
2. **Urgent Reinstatement** - effort to restore balance
3. **Empathy** - expressing compassion
4. **Symbolic Atonement** - a gesture to show for mistake
5. **Follow-up** - closure for the incident

The above practice has enabled Motorola to become a leader in the electronics industry. The ability to turn a bad experience into a pleasant one takes a lot of commitment, and Motorola has established a method to do so.

*The Internal Customer's Impact on Service*

It has also been determined that employees are extremely important to companies that hope to become more customer-oriented. Employees who enjoy their jobs and feel valued and appreciated by their employer will, in turn, display a positive and helpful attitude toward customers (Barrett, 1994). The front-line employee has become an important asset for companies to find out what customers’ desire. They are the people who interact with the external customer on a daily basis. Southwest Airlines actively solicits advice from their front-line employees because of their close interaction with passengers. Employees are actively involved in developing new programs to improve
day-to-day operations, and Southwest listens carefully to their internal customer because they know the passengers best (Barrett, 1994). It would be absurd if management was reluctant to receive input from the employees, because a person behind a desk has very little knowledge of what the customer desires compared to a front-line employee. Employees often have valuable input that can be of benefit when improvement is needed in the quality of a company’s product (Weiss, 1997).

However, customer focused attitudes must be initiated by executives who wish that their employees treat customers fairly. Hyden lists four steps to begin a customer-oriented atmosphere. First, executives must add value to their products. Innovation, continuous improvement, and continually asking customers what they need are necessary to stay ahead of the competition. Second, customer-friendly systems must be developed at all levels of the organization. Hyden explains that simple service tests can be run to ensure that the systems are functioning properly. They include making phone calls from the outside into the company, performing surveys of customers, and examining if customer’s interests are being met. Third, employees must be involved in contributing ideas and solutions to the company. It has been determined that great business leaders create environments that allows employees to provide their input and participation toward customer service.

**Process Improvement**

*Work Processes*

Process improvement is the second key principle for total quality management. Every time that we receive a good or service, there is some type of process involved. There is a process in place when you order a hamburger from a fast food restaurant, or when one checks into a hotel. “All products and services are produced and delivered through work or business processes” (Tenner and DeToro, 1992, p.98). Tenner defines a process as the sequential integration of people, materials, methods, and machines to
produce value-added outputs for customers (1992). Further, Born asserts that a process is the sequence of steps which transforms information from an initial state (input) into a final state (output) (1994). The concept of process transformation is a key issue facing businesses in the nineties, due to increased competition and customer expectations. Today's industry leaders are constantly improving their work processes to better serve the customer. Four groups of people are involved in the operation and improvement process:

1. **Customers** - the people who receive the output
2. **Work Group** - the people who work in the process to produce and deliver the output
3. **Supplier** - the people who provide input to the work process
4. **Owner** - the person responsible for the operation of the process and for its improvement

(See Table 1 on next page)

**Improvement Strategies - Process Management**

Organizations are constructed in order to reach certain objectives. Therefore, constant improvement is needed in order to maintain a quality operation and satisfied customers. There are two types of improvement that can be adapted; incremental or breakthrough. Incremental improvements are usually low-cost modifications in a company involving work procedures and process steps. On the other hand, breakthrough (reengineering) improvements are major changes to the work process through technological advances and innovation (Melan, 1995). These methods can be accomplished through the implementation of *process management*.

Melan states, that process management achieves four objectives. First, it reduces costs for a company. Second, it improves the quality of the output that is being produced. Third, it increases the productivity of the output. Finally, it provides a basis for total quality improvement throughout an organization (1995). LBMS, Inc. supports this by stating, process management yields a 350% improvement in developer productivity, a 90% reduction in defects, and a $5 return for every dollar invested (1996). These results
### TABLE 1

Groups of People Involved in the Operation and Improvement of Processes

<table>
<thead>
<tr>
<th>Group Involved</th>
<th>Henry's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>Patrons of Henry's</td>
</tr>
<tr>
<td>Work Group</td>
<td>Kitchen Staff</td>
</tr>
<tr>
<td>Supplier</td>
<td>Wait Staff</td>
</tr>
<tr>
<td>Owner</td>
<td>Warren Sackler and Students</td>
</tr>
</tbody>
</table>

illustrate how process management can drastically turn around a company.

However, implementing process management is not accomplished overnight. There are three phases involved in the six basic steps of improving a process. Melan classifies the three phases as initialization, definition, and control (1995). This is represented in Table 2 on the following page. Further, Pall (1987) lists the six ingredients essential for process management as:

1. Ownership
2. Planning
3. Control
4. Measurement
5. Improvement
6. Optimization

*Ownership* is the first integral aspect of process management. It involves the assigning of responsibility for the design and improvement of the process. The owner of a process is usually a manager, because they are usually accountable for the performance and resources of the process (Melan, 1995). For all process improvement initiatives, ownership must be clearly established in order to achieve success. Effective process cannot be achieved without an individual or group that owns the total process.

*Planning* is the second ingredient for successful process management, and includes the beginning and the end of the process. According to Melan, every process must possess an input and an output boundary (1995). Inputs precede the first activity that occurs, while outputs follow the last activity in the process. Further, the planning stage examines the interrelationships that between the major components of the process. These include the interaction that occurs between customers, producers, and suppliers.

The third step is *control*. This stage assures that effective measures are being taken in the devised process. Pall describes it as, making sure all outputs are predictable and consistent with the customers’ expectations. It is a regulating method, because a
TABLE 2

Phases of Process Management

Phase 1: Initialization
- Assign Ownership
- Delineate Boundaries

Phase 2: Definition
- Define Process
- Establish Control Points

Phase 3: Control
- Implement Measurements
- Perform Feedback and Control

process with no control points will lack feedback (Melan, 1995).

**Measurement** is the fourth necessity, because it manages the improving process. Through measurement, it can be determined if or if not customers’ expectations are being met with the output delivered. According to Melan, there are three primary types of measurements; measures of conformance (defects, errors) measures of response time (cycle time), and measures of repetition (number of re-dos).

Further, process data can be presented in a number of ways. They include; histograms, bar charts, Pareto charts, trend or run charts, pie charts, and control charts. At the Zytec Corporation (a Baldrige Award Winning Company), employees use the following criteria to determine what statistical process control tool is to be used for a particular situation (Hodgetts, 1994):

**In answering this question...**  **Use this SPC tool**

<table>
<thead>
<tr>
<th>Question</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>What goes on in the activity?</td>
<td>Flow chart</td>
</tr>
<tr>
<td>What are the big problems?</td>
<td>Pareto chart</td>
</tr>
<tr>
<td>What are the causes?</td>
<td>Cause/effect Diagram</td>
</tr>
<tr>
<td>What does past data show?</td>
<td>Histogram</td>
</tr>
<tr>
<td>What are the cause/effect?</td>
<td>Scatter plot</td>
</tr>
<tr>
<td>What do current data show?</td>
<td>Control charts</td>
</tr>
</tbody>
</table>

**Improvement** is the fifth element of success process management. Continuous improvement is essential in order for a desired process to reach its full potential. As stated earlier, improvement can be incremental (little or no capital investment) to breakthrough (new technological advances and changes to an organization). Ownership participation is essential, because they are the ones who possess the resources for improvement.

The final step is **optimization**, which involves implementing the process. Melan lists eight steps that enables process improvement to become a reality using process management (1995). They are:
• Select a process
• Establish a process team
• Train the team
• Develop an improvement strategy
• Apply the six steps of process management
• Present results and recommendations
• Implement improvement
• Monitor the improved process

Process Management in Today's Marketplace

More and more organizations are using process management to attain company goals. It has become the central tool of modern quality management (Anttila, 1997). Further, process management focuses on the customer, and methods to better serve them. (See Table 3 on next page)

This management style (process management) provides customer focus for routine work. Adopting customer focus eliminates the interface between operations and project management. Rather than defining work in terms of responsibilities and systems, businesses are responsive to the customers’ requirements, and the processes which must be undertaken to deliver products which meet them (Turner, Peymai, and Stewart, 1995, p.48).

Xerox is one company that has been extremely successful in utilizing process management effectively. The Xerox Leadership through Quality strategy is based on three elements; quality principles, management actions and behaviors, and quality tools (Tenner and DeToro, 1992). These principals have enabled Xerox to become a leader in the copier business, and increase their worldwide market share. Process management can be effective only if the whole organization is willing to commit to quality. This leads to the next step in continuous improvement; total involvement.
### TABLE 3

**Process Management in Perspective**

<table>
<thead>
<tr>
<th>Management Orientation</th>
<th><strong>Organizational View</strong></th>
<th><strong>Process View</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>People</td>
<td>Process</td>
</tr>
<tr>
<td>Approach</td>
<td>Perpetuation</td>
<td>Initiation</td>
</tr>
<tr>
<td>Driver</td>
<td>Job</td>
<td>Customer</td>
</tr>
<tr>
<td>Progress</td>
<td>People Motivation</td>
<td>Removal of barriers, process simplification</td>
</tr>
<tr>
<td>Control</td>
<td>Responsibility</td>
<td>Procedure</td>
</tr>
<tr>
<td>Business Measurement</td>
<td>Bottom Line</td>
<td>Quality</td>
</tr>
<tr>
<td>Correction</td>
<td>Fix problem (Who is wrong?)</td>
<td>Reduce nonconformance (What is wrong?)</td>
</tr>
<tr>
<td>Motto</td>
<td>Follow orders - &quot;Do your job&quot;</td>
<td>Improve Process - &quot;How can I help?&quot;</td>
</tr>
</tbody>
</table>

**Total Involvement**

All organizations that engage in total quality management must have all of its employees involved. Each department should have supporting functions in order to ensure the desired output meets certain quality specifications. Total involvement is necessary to ensure customer focus and process improvement in an organization. This is supported by David Kearns, then President of Xerox, who stated in 1983:

Xerox is clearly in a period of transition. We are no longer the company we once were, and we are not yet the company that we must be. If we are to successfully complete this transition and continue our record of success, *every individual* in the corporation will have to work toward our common goals (Tenner & DeToro, 1992, p.259).

**Leadership/Management**

Senior management possesses the ability to make improvements that will lead to continual success in an organization. Every decision that impacts an organization starts at the top. Business leaders are responsible to their customers, employees, and stockholders to achieve successful results. Therefore, continuous improvement is a challenge that all leaders must address, because their actions and decisions result in success or failure of a company. As J. Willard Marriot, Sr. once stated, “Success is never final” (Albrecht, 1988). This exemplifies the commitment that his company has taken in regard to improving service quality.

Furthermore management must be aware that the right work processes are in place for an organization to succeed. Too often managers become fixated on a process, and try so hard to make it more efficient (Morano, 1994). This is where continuous improvement must be implemented. If a process is not working effectively, leadership must investigate methods to improve service quality for the internal and external customers. Tenner and
DeToro state, that leaders must look at the following six questions before altering a process for continuous improvement (1992). They are as follows:

1. What is our purpose? *(mission)*
2. What do we want to become? *(vision)*
3. What do we believe in? *(values)*
4. What guidance will be provided to employees of the organization? *(policy)*
5. What are the accomplishments that will fulfill our mission and attain our vision? *(goals)*
6. How do we move toward our vision and accomplish our goals? *(methodology)*

These questions are extremely important for those managers who seek to move their business in an upward fashion. Leadership is an integral part of total quality management, and if there is a lack of direction at the top of an organization, then status quo will prevail. Senior management must possess a commitment to continuous improvement, and total quality principles. Albrecht asserts, the chief executive and other senior managers must preach, teach, and reinforce the gospel of service quality (1988). Management must create the conditions to make service excellence attainable and worthwhile. If an executive is obsessed with quality improvement, employees at lower levels of the organization will recognize how important it is. The following methods have been used by senior management to improve processes for their employees, and in the long run; the customer.

*Empowering the Work Force*

An employee who is empowered to solve problems when they arise is an extremely important benefit to a company. Empowering involves passing on authority and responsibility to the employee. Many organizations believe that a commitment to continuous improvement by all members is necessary if their businesses are to remain competitive (Wellins, Byham, and Wilson, 1991). Therefore, empowerment has proved
beneficial because employees are no longer waiting for a manager to make a final decision on an issue. Employees are more active in determining the outcome of certain business transactions. At Solectron, the employees are given the authority to stop the production line at any time if they feel it is necessary (Hodgetts, 1994). Morano continues, “empowerment is becoming a necessary condition in firms to be able to compete in furiously competitive global markets” (1994). Xerox and AT&T have also been extremely successful in empowering employees.

Further, restaurants have now empowered servers to correct any problems that may arise during a meal. Many now have the power to offer complimentary meals if a guest is not completely satisfied with his/her dining experience (Walkup, 1995). The age of empowerment has seen the elimination of the hierarchical business structure. In turn, the emergence of horizontal companies has become commonplace.

**Utilization of Teams**

Another aspect of empowerment is through the formation of teams. The concept of teams was brought to the United States in the late 1970s by Wayne Rieker in an effort to achieve quality improvement (Melan, 1993). Today, many leading corporations are relying on self-directed work teams to accomplish organizational goals. Jerry Junkins, the CEO of Texas Instruments states, “No matter your business, those teams are the wave of the future (Dumaine, 1990, p.52). So what is a team? A team is a small group of individuals with complimentary skills committed to a specific goal.

A survey asked senior managers the major reasons they were moving towards self-directed work teams; the primary reason was to improve quality (Wellins, Byham, and Wilson, 1991). The results attributed to teams can be found at such leading service providers as, Federal Express, General Electric, Motorola, and AT&T. At Federal Express, service errors (including such things as lost packages) were cut by 13% (Dumaine, 1990). A team has been known to obtain better results than a collection of
individuals operating in confined jobs. Teams are more flexible than larger organizational groupings because they can be more quickly assembled, deployed, refocused, and disbanded, usually in ways that enhance rather than disrupt more permanent structures and processes. Teams are more productive than groups that have no clear performance objectives because their members are committed to deliver tangible performance results. Teams and performance are an unbeatable combination (Katzenbach & Smith, 1993, p.15).

There have been several phenomena on why teams perform so well. First, they bring together complimentary skills and experiences, which exceed those of any individual. Second, teams establish communications that support real-problem solving. Third, they enhance the economic and administrative aspects of work. Finally, teams have more fun because workers feel more relaxed and comfortable with one another (Katzenbach and Smith, 1993). Finally, Wellins et al believe self-directed work teams are established for the following reasons; they improve quality and service, provide greater flexibility, reduce operating costs, and attract and retain the best people (1991). Empowered teams have emerged as a way to get more productivity from the work force.

Quality Lessons from Baldrige Award Winners

The Malcom Baldrige Quality Award was created in 1987 in hope of improving the overall competitiveness of United States’ industries. The award is open to three categories; manufacturing, services, and small businesses. This honor is the highest level of national recognition for performance excellence that an American company can receive. Richard Hodgetts performed an analysis of past winners and presents eight lessons that are universal among Baldrige winners for success (1994).

Lesson 1: Formulate a Vision of Quality

Every past winner of the award has had some vision of quality and formulated a
guide to develop a plan. This is evident by the following two examples:

**Cadillac:** The mission of the Cadillac Motor Car Company is to engineer, produce, and market the world’s finest automobiles known for uncompromised levels of distinctiveness, comfort, convenience, and refined performance.

**Motorola:** Dedication to quality is a way of life at our company, so much so that it goes far beyond rhetorical slogans. Our ongoing program of continued improvement reaches out for change, refinement, and even revolution in our pursuit of quality excellence. Motorola will pursue goals aimed at the achievement of quality excellence.

**Lesson 2: Involve Top Management from the Start**

The companies that are continuously competing for the Malcom Baldrige Quality Award has its top management involved in the total quality effort. Senior managers bear the ultimate responsibility for the success of organizations, and through their positions have the authority to set direction and allocate resources (Tenner and DeToro, 1992).

**Lesson 3: Focus on Customer Needs**

As stated earlier in the section on customer focus, the need for customer focus is extremely important to be a successful organization, because the customer is king!

**Lesson 4: Develop the Planning and Implementation Processes**

Award winning firms in the study did extensive planning for total quality by determining the objectives to be attained and then devising a plan of action to be implemented. This is accomplished by making sure that all of the departments in the organization can effectively attain quality objectives. At Federal Express, twelve service quality indicators measure quality performance. These indicators are tracked for overall performance on a daily basis to ensure quality.
**Lesson 5: Train Employees to Use Statistical Process Control Tools**

This step involves teaching the methods to the personnel and then allowing employees to apply it in the workplace. At the Zytec Corporation, critical questions are answered using the following methods:

**Lesson 6: Empower Employees**

Baldrige organizations spend a great deal of time encouraging their personnel to become more involved in getting tasks accomplished. For example, the Ritz-Carlton allows employees to spend up to $2,000 to alleviate a problem for their guests.

**Lesson 7: Recognize and Reward Employees**

Recognition and awards are presented in a myriad of ways. They can range from financial awards, vacation trips, a day off, a parking space, or a plaque. The ability to recognize employees is beneficial because it makes the internal customer feel as if they are having an impact on the success of the company. The companies in the analysis each had unique recognition systems, but they also shared the following characteristics in their efforts to acknowledge employees:

1. Recognition is always positive and rewards success
2. Recognition is offered openly, and is publicized throughout the company or department
3. Recognition is carefully tailored to needs of the people
4. Rewards are given promptly
5. There is a relationship between the achievement and the reward is clearly understood

**Lesson 8: Make Continuous Improvement an Ongoing Challenge**

All of the firms analyzed had a desire for continuous improvement. Two of the most popular tools utilized by Baldrige Award winners were benchmarking and six sigma
which aimed at improving their system of delivery.

The above lessons are beneficial to those companies that are serious about continuous improvement. At Henry’s, a number of these ideas were implemented in order to re-organize the processes of service delivery.
CHAPTER III
Methodology

Setting of Study

The study was conducted over twelve days in Henry's Restaurant, which is located on the fourth floor of the George Eastman Building on the Rochester Institute of Technology. Henry's is a student-operated restaurant that is open to the public seven weeks during each academic quarter. During the 1997 Fall Academic Quarter, the hours of operation were 11:30 a.m. to 1:30 p.m.

Study Sample

The population used for this study included the lunch patrons at Henry's Restaurant (the external customers), as well as the staff of Henry's (the internal customers). Typically, the customers of Henry's are form both on and off campus. Reservations are requested, due to the limited number of seats, but walk-ins are also welcome.

Research Instruments Used

There were two instruments utilized to conduct this investigation. The Ultra 24/40 Hour Continuous Recorder KR5440 was used to time the wait staff in service delivery. Also, the Ultra 8 Camera System Model KZ0824A taped each member of the Henry's staff at all times. These cameras were strategically placed in the dining area of the restaurant and the kitchen. The response times were calculated in the following areas; promptness of greeting, beverage delivery, entree delivery, and check presentation.
Period of Data Collection

The data was collected by Rochester Institute of Technology graduate students during the 1997 Fall Academic Quarter. This period started on September 25, and ended on November 5, 1997. The restaurant was open every Tuesday and Thursday for lunch from 11:30 am until 1:30 pm.

 Procedures

This study was done to analyze the effects of a quality improvement process in a restaurant environment. During the Fall Academic Quarter, students and faculty were introduced to SPC concepts in regards to “front of the house” operations of a restaurant. A process flow chart was developed to illustrate how service was to be delivered at Henry’s. Further, sub-process flow charts were devised to show who was responsible for each activity of the service delivery process. These sub processes were divided into four categories; 1) greeting-seating of customers, 2) beverage service, 3) entree service, and 4) check pay-out. Melan’s six steps for improving products and services through process management were implemented for each sub process. A description of each sub process and its corresponding flow chart are represented on the following pages.
Promptness of Greeting

The promptness of the greeting was performed by the host/hostess on duty. Therefore, they possessed the **ownership** of the process. It was the role of the host/hostess to seat the guests when they arrived, which meant that there were no other **boundaries** with other co-workers. The **process** for greeting-seating guests was as follows. First, the **customer** arrives at the front door of Henry’s and is greeted by the host/hostess. Next, the customer is asked if they have reservations or if they are just walking-in for lunch. If there are reservations, they are checked on the master list of reservations for the day. Menus are then counted out for the number of guests, and the host/hostess seats the customers at a table. After this is completed, the host/hostess returns to the greeting station to await future guests. There are two **control points** present in this process. The first involves checking to see if there are reservations, and the second is the response time from the guests’ arrival until the actual seating. The **measurements** are determined through the use of the Ultrak video camera and timing device. Finally, **feedback** is provided through the customer assessment.  

(Figure 1)
FIGURE 1
Customer Greeted by Host/Hostess

Customer
Arrive at Henry's

Response Time

Greeted by Host/Hostess

Seats Guest with Menu

Return to Host Station

Host
Checks for Reservation

Counts Out Menus

Are tables available?

Asked to wait and given approximate time of wait

Tables become available
Beverage Delivery

Ownership was divided into three areas for the service of the beverage. The three owners were the wait staff, the bussers, and the beverage staff. Each owner had a specific boundary involved in the delivery of the beverage to the customers. The guests were greeted by the wait staff, and their beverage order was taken. The beverage staff then was in charge of preparing the beverage, while the bus person delivered the bread to the table. Also, the wait staff returns to take the entrée order form the guests. When the beverage order is completed by the beverage staff, it is delivered by the wait staff. Therefore, the process starts with the greeting and taking of the beverage order by the wait staff. Next, bread is delivered while the beverage is prepared, and the entrée order is taken and delivered to the kitchen for preparation. Finally, the beverage is served. The two control points were the preparation of the beverage and the response time from the time the beverage was ordered until the time it was delivered. The measurements were determined through the use of the Ultrak video camera and timing device, while feedback was gathered from the quality assessment. (Figure 2)
FIGURE 2

Beverage Order Taken and Delivered

Response Time

Waitstaff

Greet Guest, Beverage Order Taken

Beverage Delivered

Busperson

Bread Brought to Table and Water Glasses Filled

Beverage Staff

Beverage Prepared

Beverage Completed
Entée Delivery

The ownership of this process belonged to the wait staff and the kitchen staff. The boundaries were as follows; the entée order is taken by the wait staff and is delivered to the kitchen for preparation by the kitchen staff. During this time, the beverage is delivered by the wait staff. After the entée orders are completed, they are delivered by the wait staff. The process then is as follows: the entée order is taken and delivered to the kitchen to be prepared. Drinks are brought to the table and when the entée(s) is complete, it is served. The two control points of this process is the preparation of the entée(s) and the response time from the ordering of the entée until it is served. The measurements are determined through the use of the Ultrak video camera and timing device, while feedback is provided by the quality assessment. (Figure 3)
FIGURE 3
Entree Order Taken and Delivered

Wait Staff

Entree Order Taken → Entree Served

Kitchen Staff

Entree Prepared → Entree Complete

Response Time
Presentation of Check and Payment

The wait staff, cashier, and quality assessment team possess ownership of this sub process. The boundaries are as follows; the check is prepared by the cashier, who gives it to the wait staff for delivery. Next, payment is given to the wait staff who delivers it to the cashier. After payment is received, the quality assessment team delivers the electric comment card for completion by the guests. The process is very simple; the meal is completed, the check is prepared, payment is made, and the assessment is completed. The two control points used were the preparation of the check by the wait staff and the response time from the completion of the meal until the presentation of the check. Measurements were determined through the use of the Ultrak video camera and timing device. Finally, feedback was received from the quality assessment completed by the guests. (Figure 4)
FIGURE 4

Presentation of Check and Payment

Response Time

Check Presented

Meal Completed

Check Prepared

Is It Correct

Payment and Assessment

Payment Received

Assessment Compiled

Guest Departs

Wait Staff

Cashier

Quality Assessment
CHAPTER IV

Analysis of Data

Data Collection

The goal of this continuous improvement project was to improve the processes of service delivery. Data was collected in a real time and for a period of twelve days (every Tuesday and Thursday) the restaurant was open. The tabulated data was entered into Microsoft Excel spreadsheet for tabulation. Then the tabulated data used Minitabs (v11.2) to produce control charts that represented x-bar and range of the information.

Control Charts

Process control charts are used to specify the upper and lower bounds of a sample. Within these limits lies the mean of the averages for the data sample over a specific time period. The upper control limit (UCL) is the highest boundary on the chart, while the lower control limit (LCL) is the lowest boundary of the chart. Data is plotted within these boundaries, and it enables researchers to find the mean and range of the samples over the time of the research (Hayes, 1997). Control charts were used in this study to illustrate the mean and range of the data collected in Henry’s for the four areas of service delivery.

Findings

Figure 5 represents the x-bar and range for the greeting-seating process. In this analysis, the mean time for this process was 37.68 seconds, with a range of 51.33 seconds. The mean and range of times gathered for day one were not very accurate.
Since this was the opening of day of the restaurant, the staff may have been uncertain of their roles. Further, they were getting acquainted with the SPC tools. The next ten days of operation represent an increase in service time. The analysis also showed that groups with six people or more took longer to seat than those with two or three in a party. The increased time to seat larger groups can be attributed to the staff being unprepared or unfamiliar with seating big groups for lunch (Marecki, 1998).

**Figure 6** shows the x-bar and range for the beverage service process. The mean for this process was 3.5 minutes, with a range of about 8 minutes. The range data was in control over the period of data collection, except on the 11th day when there was a large number of groups with six or more guests. On this day, the range was out of control.

**Figure 7** represents the x-bar and range for the entree service process. The mean time for the order to be taken and delivered was 14.58 minutes, while the range was 10.22 minutes. All of the data lie within the upper and lower control limits, which indicate that the process remained in control during the duration of the analysis (Marecki, 1998). Entrée response times were in control for the day with large groups, because the kitchen staff was aware that they were coming in for this day. This was one occurrence where the back of the house was more adequately prepared than the front of the house.

**Figure 8** represents the x-bar and range for the check-payout process. The mean time from check presentation until change and receipt was 4.43 minutes. The range for this process was 6.9 minutes. Almost all of the data was within the control limits, which means that the process was in control for the duration of the study (Marecki, 1998). On day 10 the cashier was using the computer system for the first time, which increased the mean time for this day.
FIGURE 5

Greet-Seat Response Time

Greet-Seat Time (Sec.)

Means

Ranges

Subgroup

0

5

10

Means

Subgroup

0

5

10

Ranges
FIGURE 6

Beverage Response Time

Beverage Response Time (Min.)
Entree Response Time (Min.)

FIGURE 7

Entree Response Time

Means

Ranges

Subgroup

0

5

10

Means

Ranges

3.0SL=20.48

3.0SL=21.62

-3.0SL=8.688

-3.0SL=0.000

X=14.58

R=10.22

39
CHAPTER V

Conclusion and Recommendations

Conclusion

This study was performed to improve service quality in a restaurant environment. Food service organizations are faced with strong competition and increased customer demands today. It has become imperative that continuous improvement is used in order to provide a quality product on a consistent basis. Through the use of statistical process control tools, Henry’s implemented a program that has made it a state-of-the-art food institution. Further, it has enabled future food service managers to learn how to implement a continuous improvement process. This study was important because it empowered the students to develop processes and then analyze what occurred in each one.

The SPC tools will benefit each student who had an opportunity to be a part of this program. However, this is not a one-time program. “Quality improvement must become part of the culture of an organization” (Marecki, 1998). This study was the first step in the turn around of Henry’s Restaurant utilizing process improvement.

Recommendations

Future studies may investigate the data that was compiled by the quality assessment team. This data was gathered from the electric comment cards that the guests filled-out after their meals were completed. I believe that if this is done, then a complete analysis can be performed to see if process management has an effect on customer satisfaction.
Service quality process model at Henry's

Customer
- Arrive at Henry's
- Response Time

Host
- Greeted by Host/Hostess
- Seats Guest with Menu
- Returns to Host Station

Beverage Staff
- Beverage Prepared

Wait Staff
- Greet Guest, Beverage Order Taken
- Bread Brought to Table
- Entree Order taken
- Entree Delivered
- Entree Served
- Meal Completed; Dessert Offered
- Check Presented
- Payment & Assessment
- Guest Departs

Chef
- Prepares Entree
- Entree Complete

Cashier

Quality Assessment

Check Prepared

Payment Received

Assessment Compiled
BIBLIOGRAPHY


Hyden, Howard E. (1991, April 1). Outside-in customer focus: it may be the only way to survive in the 1990s. *Industry Week,* 240, 34.


