

Total Quality Management and Performance of Manufacturing Bread Industry, Akure, Ondo State, Nigeria.

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ABSTRACT

Total quality management practices have been shown to enhance organizational performance for both product and service organizations. However, there are relatively few not little studies on the differences between product and service offered by companies with respect to the impact of quality practices on customer retention and satisfaction. Hence, this study investigated and examined the effect of Total Quality Management on customer retention and satisfaction in the Nigerian manufacturing industry, Nigeria. A cross-sectional survey research design was used for the study, The population consist of 217 staff, The sample size for the study was determined using the Taro Yamane formula the sample size is 140 , information gathered on all relevant variables were analyzed using descriptive(frequencies, percentage, mean, and standard deviation) and inferential (regression) statistics with the use of SPSS statistical packages version 20. the results revealed that there was significant relationship between the total quality management practices and satisfaction (35.640,p=0.00), and the result of total quality management has significant effect of customer retention (F= 12.327, p<0.00) Thus, total quality management had significant effect on customer satisfaction and retention. The following recommendations were suggested on the basis of the findings of the study and the conclusion agreed upon Bread industry should always try to improve their product quality and also watch the improvement of process of production in the industry in order to adopt.

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I. Introduction

Total quality management practice is a firm-wide management philosophy of continuously improving the quality of the products/services/processes by focusing on the customers' needs and expectations to enhance customer retention, satisfaction and firm performance. A growing number of organizations use total quality management as a strategic foundation for generating a competitive advantage (Reed, Lemak, & Mero, 2000) and improving firm performance (Hendricks & Singhal, 2018; Lemak & Reed, 2017) and customer retention and satisfaction (Samson & Terziovski, 2019). Firms that have won quality awards generally outperform other firms with respect to both income measures (Hendricks & Singhal, 2017), customer loyalty and stock market value (Lemak & Reed, 2017). It is no surprise that the links among market orientation, total quality practices, and performance have attracted the attention of marketing and operations management researchers' alike (Ettlie & Johnson, 2016; Flynn, Schroeder, & Sakakibara, 2014; Kohli & Jaworski, 1990; Narver & Slater, 2019; Samson & Terziovski, 1999).

Total quality management practices have been shown to enhance organizational performance for both product and service organizations (Powell, 1995). However, there is relatively little research on the differences between product and service offered by companies with respect to the impact of quality practices on customer retention and satisfaction. We know little about how these two different types of organizations view what they do, how well they do it, and its consequences. The concept of total quality management practice has been developed as a result of intense global competition. Organizations with international trade and global competition have paid considerable attention to philosophies of total quality management, procedures, tools and techniques. According to Juran (2001), international competition requires higher levels of quality achievement by organizations. Total quality management is a popular area of research in management. Total Quality Management has been practiced in diverse manufacturing industries and now there is a growing interest in the service sector, even from non-profit organizations (Nwabueze, 1998). But the service industry differs from the

manufacturing industry in a number of ways, such as service intangibility, simultaneity of production, delivery and consumption, perishability, variability of expectations of the customers and the participatory role of customers in the service delivery but the main aim by both sector is to achieve customer retention and satisfaction. Several authors have proposed models of total quality management. However, most of the models are based on theories and practices that are primarily derived from the manufacturing industry where this has been effectively practiced in the recent decades.

Furthermore, total quality management has become the buzz word in the management practice. It has been defined in many different ways. The International Standard ISO 8402, Quality Management and Quality Assurance-Terminology has defined total quality management as the —management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society (Ljungstrom & Klefsjo, 2002). Temtime and Solomon (2002) said that total quality management seeks continuous improvement in the quality of all processes, people, products, and services of an organization. Total quality management is also a systematic approach to management that aims to enhance value to customers by designing and continually improving organizational processes and systems (Kartha, 2004). The emphasis is on employee involvement and empowerment along with customers and customer satisfaction as the focal point. The tenets of total quality are continuous improvement, top management leadership commitment to the goal of customer satisfaction and retention, employee empowerment, and customer focus (Ugboro & Obeng, 2000). Total quality management means that the organization's culture is defined by and supports the constant attainment of customer retention and satisfaction through an integrated system of tools, techniques and training (Sashkin & Kiser, 1993). There are mixed results about the relationship between total quality management practices and customer retention, satisfaction and performance. However, this study will examine the impact of total quality management practices on customer retention and satisfaction.

Total quality management encompasses a number of different initiatives. Juran (2001) wrote that the benefits and goals of total quality are lower costs, higher revenues, delighted customers (as seen in customer retention and satisfaction), and empowered employees. Costs can be lowered by reducing errors, reducing rework, and reducing non-value added work. Higher quality can also equate to higher revenues through satisfied customers, increased market share, improved customer retention, more loyal customers, and premium prices. Customers continue to demand higher quality goods and services. Delighted customers purchase over and over again, advertise goods and services for the company, and check first when they are going to buy anything else to see what is offered by the company they are loyal to. However, it is not easy for management to implement total quality management, because it means a cultural overhaul (Rao, Youssef, & Stratton, 2004). Deming (1981) also attested that the benefits of better quality through improvement of the process are thus not just better quality and the long-range improvement of market-position, but also greater productivity and profit. Improvement of the process increases uniformity of output of product, reduces mistakes, and reduces waste of manpower, machine-time, and materials. Kaynak (2003) suggested that a positive relationship exists between the extent to which companies implement total quality management and performance as a result of satisfied customers.

i. What is the effect of total quality management practices on customer satisfaction?

ii. What are the factors affecting the practice of total quality management in companies?

the objectives of the study include ?

i. to determine the effects of product improvement on performance of oyato bakery, Akure.

ii. to investigate the effect of product process improvement on performance of oyato bakery, Akure

2.1 concept of Total Quality Management

Global economic competition has increased in the past few decades, (Muhammad, Lasrado and hafeez, 2019), "At the close of the century, the creating of the global market, the international orientation of management which sweeps national boundaries, the introduction of new technologies and shift toward customer focused strategies, make the competition stronger than ever". There has been greater trade co-operation amongst nations, which led to a decline in international trade barriers (Marcel and Ayankeng, 2015) . This has afforded customers all over the world, wider alternatives among several offers and organizations for every business decision made. The increase in demand of quality products and sophistication of customers have virtually rewritten the rules of competition and forced organizations to focus on quality. Today what underlies competitive advantage is the ability to provide products and services that meet or exceed the needs of customers. This implies that to survive, organizations must device new management systems based on the tenets of total quality and by offering quality products and service. This will not only lower costs but also outperform the products and services of competitors spread across the world. This is the driving force behind Total Quality Management.

TQM can be defined as a holistic management philosophy that strives for continuous improvement in all functions of an organization, and it can be achieved only if the total quality concept is utilized from the acquisition of resources to customer service after the sale. TQM practices have been documented extensively in

measurement studies as well as in the studies that have investigated the relation of TQM practices to various dependent variables (Hale, 2003). Total Quality Management (TQM) is a management philosophy which focuses on the work process and people, with the major concern for satisfying customers and improving the organizational performance. It involves the proper coordination of work processes which allows for continuous improvement in all business units with the aim of meeting or surpassing customer's expectations. It emphasizes on totality of quality in all facets of an organization with the aim of reducing waste and rework to reduce cost and increase efficiency in production (Oluwatoyin & Oluseun, 2008). Total Quality Management is a combined effort of both top level management as well as employees of an organization to formulate effective strategies and policies to deliver high quality products which not only meet but also exceed customer satisfaction. Total Quality Management enables employees to focus on quality than quantity and strive hard to excel in whatever they do. Total Quality embraces not only the quality of a specific product or service, but everything an organization does, might or should do to determine the opinion not only of its immediate customers or end-users, but its reputation in the community at large (Shahin & Dabestani, 2011). TQM is based on eight pillars which are: Creation of quality management environment; Top Management commitment; Practice of quality control tools and techniques; customer focus; focus on supplier relationship; Benchmarking; process improvement; and Employees involvement (Evans et al (2005). For the purpose of this study top management commitment and customer focused will be used to measure Total Quality Management

2.1.1 Total Quality Management Variables

2.1.1.1 Process Improvement

Stevenson in his book explained this process improvement as a systematic approach to improve a process. It involves record, measurement, and analysis for the aim of ameliorating the functioning of a process. Typical goals of process improvement include maximizing customer satisfaction, attaining higher quality, minimizing waste, reducing cost, adding productivity, and reducing processing time (Stevenson 2009). This is the proactive task of identifying, analyzing and improving upon existing business processes within an organization for optimization and to meet new quotas or standards of quality. The employees in an organization may acquire new knowledge and skills by participating in TQM. As they participate, it leads to lasting changes in behavior which results in quality improvement (Juran & Gryna, 1993). Some of the advantages of participation are that, it can change some employees' negative attitudes, reduce conflict stemming from the working environment, instill in them a better understanding of the importance of product quality and contribute to the establishment of an organization-wide quality culture. TQM will do little to improve the performance of an organization unless all employees embrace it, and this often requires a change in an organization's culture.

2.1.1.2 Product Improvement

Product improvement is a procedure or set of procedures intended to ensure that a product or service under development (before work is complete, as opposed to afterwards) meets specified requirements. QA is sometimes expressed together with QC as a single expression, quality assurance and control (QA/QC). Fening et al., (2013) explained that for organizations to avoid breakdown, a key part of any total quality strategy is the management of the processes which is focused on managing the manufacturing process so that it operates as expected. Process management involves precisely defining and documenting process management procedures with instructions for machine operation and set-up posted at each workstation to minimize the likelihood of operator error. The methods which are used for process control and improvement are problem solving methods, statistical process control, failure mode effects analysis, fool proofing, sampling and inspection (Flynn et al., 1994)

2.1.2 Customer Satisfaction

Rai (2013) defined satisfaction as "a buyer's emotional or cognitive response post-subjective assessment and comparison of pre-purchase expectations and actual performance subsequent to the consumption of the product or service, meanwhile evaluating the costs incurred and benefits reaped in a specific purchase even or over time in course of transacting with an organization". Most recent studies emphasize the importance of customer satisfaction, like Asikhia (2010); Kassim & Abdullah (2010), who showed that the customer satisfaction is a vital trend to develop the organizational performance, Fotopoulos and Psomas's (2010) study also reflects that customer focus and satisfaction are positively and significantly related to the performance of the organization, while Chen et al.(2012) confirmed that well-established relationship with customers can increase both financial and nonfinancial performance. Dadfar et al., (2013) reveals that it is important to build a strong relationship with the customer and service provider in order to be able to have an efficient co-production together

2.1.3 Customer Retention

Customer retention is a part of Customer Relationship Management, or CRM. According to Payne (2006), CRM is a business approach that seeks to create and develop relationships with carefully targeted customers in order to improve customer value and corporate profitability and thereby maximize shareholder value. Hennig-Thurau and Hansen (2000) argue that relationship marketing has become one of the most prosperous branches of marketing theory in recent times, as well as one of the most important management issues for the business community. The argument for customer retention is relatively straightforward; it is more economical to keep existing customers than to acquire new ones. According to some studies, acquiring new customers is calculated as being five times more costly than the expenses of retaining existing customers. The costs of obtaining customers to replace those who have been lost are high, because the expense of acquiring customers is incurred only in the beginning stages of the commercial relationship (Hurley 2004). In addition, long term customers buy more, and if satisfied, may generate positive word-of-mouth promotion for the company. Finally, long term customers take less of the company's time, and are less sensitive to price changes (Healy 1999).

Although many companies recognize the value and importance of customer retention in general, relatively few understand the economics of retention in their own business (Kotler, 2003; Payne 2006). Companies can clearly benefit from increasing the lifetime spending of customers. Most companies, however, concentrate a significant amount of resources on attracting and acquiring new customers, instead of keeping the existing ones. It is generally thought that once a customer is acquired, keeping the customer is simple through superior products and services (Payne, 2006). In the literature the concepts customer retention and customer loyalty are usually treated as the same. However, in their study of customer satisfaction in New Zealand, Cohen, Agrawal, and Agrawal (2006) argue that there is a difference between these concepts. Consumer inertia implies that some customers are only being retained, rather than expressing loyalty. Truly loyal customers are described as being less price-sensitive and more inclined to increase the number of purchases.

Moreover, satisfaction with a company's services also plays a role in generating loyalty that might be absent in the retention situation. Customer loyalty is therefore not the same as customer retention, as loyalty is distinct from simple repurchase behavior. Loyalty is considered to be only a valid concept in situations where customers can choose other providers (Cohen et al. 2006). In this study, retention is treated as a strong feeling of support and allegiance from the customer's side towards an organization.

2.2 Theoretical Review

There are different theories related to Total Quality Management for example, Dynamic Capability theory and Theory of Constraint. In an attempt to provide a sound theoretical underpin for this study, this paper adopts the theory of Constraint

2.2.1 Dynamic Capability Theory

In organizational theory, dynamic capability is the capability of an organization to purposefully adapt an organization's resource base. The concept was defined by David Teece, Gary Pisano and Amy Shuen, in their 1997 paper *Dynamic Capabilities and Strategic Management*, as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments".

The idea of dynamic capabilities is similar to the previously existing concept of operational capabilities; the latter pertains to the current operations of an organization, whereas the former, by contrast, refers to an organization's capacity to efficiently and responsively change these operations and develop its resources (Helfat et al., 2007). Dynamic capabilities theory concerns the development of strategies for senior managers of successful companies to adapt to radical discontinuous change, while maintaining minimum capability standards to ensure competitive survival. For example, industries which have traditionally relied on a specific manufacturing process can't always change this process on short notice when a new technology arrives; when this happens, managers need to adapt their own routines to make the most of their existing resources while simultaneously planning for future process changes as the resources depreciate. Teece refers to successful implementation of these three stages as developing "corporate agility". Dynamic capability is "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (David J. Teece, Gary Pisano, and Amy Shuen). Dynamic capabilities can be distinguished from operational capabilities, which pertain to the current operations of an organization. Dynamic capabilities, by contrast, refer to "the capacity of an organization to purposefully create, extend, or modify its resource base" (Helfat et al., 2007). The basic assumption of the dynamic capabilities framework is that core competencies should be used to modify short-term competitive positions that can be used to build longer-term competitive advantage. Processes: Three dynamic capabilities are necessary in order to meet new challenges. Organizations and their employees need the capability to learn quickly and to build strategic assets. New strategic assets such

as capability, technology, and customer feedback have to be integrated within the company. Existing strategic assets have to be transformed or reconfigured.

2.3 Empirical Review

Nassar, Yahaya and Shorun (2015) examined the impact of TQM on customers' satisfaction with the services provided by hotels in Ilorin, Nigeria. Data were sourced through administration of survey questionnaires on eighty customers of hotels in Ilorin Metropolis. The respondents were selected using simple random and purposive sampling techniques. Linear Regression Analysis Model was used to analyze and test the research hypotheses. Overall results showed a positive relationship between TQM and customers' satisfaction. Based on the findings, it was recommended that more attention be devoted to the use of TQM in order to enhance customers' satisfaction and enhance SD in hotel industry.

Horsfall, Ukoha and Alagah (2018) evaluated the connection between Total Quality Management and Organizational success of Manufacturing Firms in Nigeria using primary sourced data as culled via structured questionnaire, using a sample size of 238 respondents out of a population size of 588. This study proceeds to use dimensions such as Product improvement, Process improvement and Customer Focus and measures such as Employee and Customer Satisfaction with an encompassing moderating variable which is Technology towards integrating the unit of measures of employed variables. The study evaluates the activities of the Manufacturing sector in Rivers state. The study discovered that despite the inherent importance of Total Quality management, it has rarely been adopted by the managers, usually as a result of their gender as all sample managers were largely male, and majority of the managers had a strong knack for Process improvement and were mostly weak towards Product improvement which could also be attributed to their marital status as most of the respondent were married and might have maintained a stringent workplace behaviour due to their level of responsibility in and out of their respective workplace. A positive and significant relationship was found amongst employed variables showing that a rise in any of the Total Quality Management is very likely to give birth to a corresponding rise in their Organizational success status. It was thus recommended that managers are to invest in the time and resources to implement TQM programs. This study also signals the importance of ensuring a supportive organizational environment through its technology for the effective implementation of TQM.

Shafiq, M., Lasrado, F. & Hafeez (2019) provides empirical evidence from a developing country of South Asia on The impact of TQM on Organisational Performance: Empirical Evidence from Textile Sector of a Developing Country using SEM. This study was conducted in the context of textile companies of Pakistan. The data was collected from the member companies of All Pakistan Textile Mills Association (APTMA) by using a questionnaire. The questionnaires were sent to 210 textile companies and the respondents were quality or production managers. Structural Equation Modelling (SEM) was used to investigate the relationship between TQM practices and organisational performance. The findings of this study indicate that TQM has a highly positive effect on organisational performance. These findings support the divergence argument which indicates that the positive effect of TQM on organisational performance is not limited only to the companies located in developed nations, but can also be equally achieved in the other parts of the world. All the TQM elements have positive relationship with financial and non-financial results. However, the element of people does not have significant relationship with financial and non-financial results.)

Ezenyilimba, Ezejiofor, and Afodigbueokwu (2019) determined the effect of Total Quality Management on organizational performance of deposit money banks in Nigeria. The specific objectives are to: ascertain the extent to which the application of total quality management practices affect customer satisfaction in Nigerian deposit money banks; find out the effect of total quality management practices on customer's continuous loyalty in Nigerian deposit money banks and examine if the application of Total Quality Management practices has assisted in achieving improved quality output and reduced cost. Survey research design was employed and data were collected through the use of questionnaires and was presented in a tabular form and t-test was used with the aid of Statistical Package for Social Science (SPSS) version 20.0. the outcome of the result shows that the application of total quality management practices affect customer satisfaction in Nigerian deposit money banks; also total quality management practices affect customer's continuous loyalty in Nigerian deposit money banks and that the application of Total Quality Management practices has assisted in achieving improved quality output and reduced cost. Based on the findings, it was recommended that employees involvement requires should be allowed, this will creates a work environment where people have the ability and confidence, to obliged and initiate necessary steps to satisfy customer requirements in order to achieve organizational values and goals.

2.4 Conceptual framework

The relationship between independent and dependent variables was showed in this framework. Total Quality Management acts as the independent variable and it was measured using: product improvement and

customer focus organisation. The performance of manufacturing will be act as the dependent variable and it was measured using: customer satisfaction. This is diagrammatically show in fig 2.1

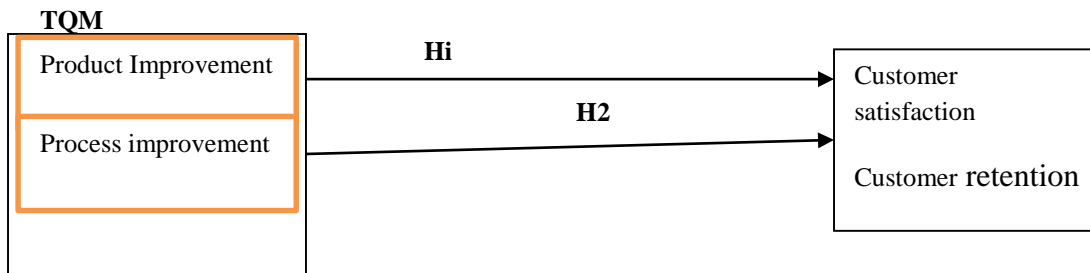


Fig 2.1 : Source: Researchers computation

III. METHODOLOGY

INTRODUCTION

This chapter addresses the methodology adopted to examine the concept of TQM as a tool that enhance retention and satisfaction in oyato bread and captain cook, ondo state Nigeria. It is organized as follows: Research Design, Sources of data, Sample size and Sampling Technique, Research Instruments, model specification, and data analysis techniques.

3.1 Research Design

A cross-sectional survey research design was used in carrying out this study.

The population of the study consists of Staff of oyato bread industry and captain cook in ondo State ,Nigeria. The population consist of 217 staff of Oyato who have the best information for this study.

The sample size for the study was determined using the Taro Yamane formula from a finite population. The formula is given as; $n = \frac{N}{(1+Ne^2)}$

Where n= Sample size

N= Total population

e= Margin of error i.e 0.05 or 5%

l= A constant.

$$S = \frac{N}{N(e)^2+1}$$

$$S = \frac{217}{217(0.05)^2+1}$$

$$\frac{217}{0.54+1} = \frac{217}{1.54}$$

$$=140$$

This study used primary sources of data to elicit information from respondents.

To provide answers to research questions and the stated objectives, information gathered on all relevant variables were analyzed using descriptive(frequencies, percentage, mean, and standard deviation) and inferential (regression) statistics with the use of SPSS statistical packages version 20

IV. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter presents the results obtained from the study in the form of tables to which references were made. The study considered the analysis of data generated from the research study in relation to the responses obtained through the administration of questionnaire. A total of 140 employees of bread industry was used for the study. Out of 140 copies of questionnaire administered, 100 (71.4%) were retrieved from the respondents and this was considered to be representative enough. The data presented, analyzed and interpreted were based on the retrieved useable questionnaire.

4.1 DESCRIPTIVE ANALYSIS

The descriptive analysis table captured the demographic, factors that influence adoption of Total Quality management, and effect of total quality management on employee retention and satisfaction

Table 4.1 : Demographic Characteristics of the Respondents

DEMOGRAPHIC CHARACTERISTICS					
		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
GENDER	MALE	84	84.0	84.0	84.0
	FEMALE	16	16.0	16.0	100.0
	TOTAL	100	100.0	100.0	
AGE GROUP	21 – 30	31	31.0	31.0	31.0
	31 – 40	36	36.0	36.0	67.0
	41-50	20	20.0	20.0	87.0
	50yrs above	13	13.0	13.0	100.0
	TOTAL	100	100.0	100.0	
MARITAL STATUS	Single	24	24.0	24.0	24.0
	Married	55	55.0	55.0	79.0
	Divorced	13	13.0	13.0	92.0
	Widowed	8	8.0	8.0	100.0
	TOTAL	100	100.0	100.0	
Educational background	Wasc/ssce/gced	12	12.0	12.0	12.0
	Ond	14	14.0	14.0	26.0
	Bsc/hnd	70	70.0	70.0	96.0
	Mba/m.sc and professional	4	4.0	4.0	100.0
	Total	100	100.0	100.0	

Source: field survey, 2021

The analysis in Table 4.1 indicated the socio demographic characteristics of the respondents of this study. This analysis showed that gender participation was representative as both sexes had good representation. Because, about 84% (84) of the respondents were male while 16.0% (16) were female indicating that majority of the respondents were male.

In terms of age, majority of the respondents representing 36.0% (36) were within the age bracket 31-40years. For the age bracket 21-30 years, 31% (31) respondents took part. while 20% (20) of the sampled respondents were within the age bracket 41-50 and age bracket 51yrs and above are 13% (13) which shows that the respondents of the study are matured enough to give correct information pertaining to the question being asked.

In terms of marital status 24%(24) of the respondent were of single, 55%(55) of the respondent were married, while 13% (13) are divorcee, also the widowed are 8%(8) indicating that majority of the respondents have a stable home.

On educational background of the respondents, Table 4.1 shows that majority 70(70%) of the respondents had bsc/hnd and was closely followed by those with ond 14(14%). Wasc/ssce/gce were 12% (12) of the respondents, while 4% (4) respondents had msc.mba and phd, indicating that our respondents were educated enough to know and understand the questionnaire given to them.

4.2 HYPOTHESES OF THE STUDY

This section showed the inferential analysis of the hypothesis one; TQM has no significant effect on customers' satisfaction, and hypothesis two; TQM has no significantly effect on customer retention..

Table 4.2 The Effect of TQM on Customers' Satisfaction

We have below the regression analysis of TQM using product Improvement (PRODI) and process improvement (PROCI) on customer satisfaction (CS)

Model	Unstandardized coefficients		Standardized coefficients Beta	T	Sign	Collinearity statistics	
	B	Std Error				Tolerance	VIF
Constant	.700	1.443		.485	.628		
PRODI	.469	.107	.264	4.391	.000	.998	1.002
PROCI	.435	.062	.422	7.014	.000	.998	1.002
Model Statistics							
R	.507						
R ²	.257						
Adjusted R ²	.250						
S. E of estimate	2.27247						
F- stat	35.640						
Sig (F stat)	0.000						
DW stat	2.754						

Source: Field Survey, 2021.

a. Dependent variable CS

Predictors: (Constant), PRODI, PROCI.

PRODI = product improvement

PROCI = process improvement

In addition to the descriptive analysis shown in Table 4.2, an inferential analysis (regression analysis) was also used to test hypothesis one: total quality management has no significant effect on customer satisfaction. The analysis indicates the effect of TQM on customer satisfaction. The results revealed that the predictor variables (product improvement and process improvement) were individually statistically significant to customer satisfaction. Product improvement explained 46.9% of the variance in the customer satisfaction while process improvement explained 43.5% of the variance in the customer satisfaction. However, the overall effect of TQM on customer satisfaction was significant ($F= 35.640, p<0.00$).

In addition, multiple regressions simply measures the naturally occurring scores on a number of predictor variables and try to establish which set of the observed variables gives rise to the best prediction of the dependent variables. The R value was .507 which represents the fitness of the model. Adjusting to a degree of freedom, our model could still account for 25% of the variation in the ease to use while 67.6% in satisfaction variation were accounted for by other variable not included in this study. The regression assumptions were also checked by autocorrelation and multi-collinearity tests. The results of the Durbin Watson (DW) was satisfactory at 2.754 implying that in this model the residuals are not auto-correlated as the value is greater than 2. The multi-collinearity of the variables in the model was verified by the Tolerance (Tol.) and the values were satisfactory. The Tolerance values were high ranging from 0.998 to 0.998 which are far above 0.1 the worrying level and the Variance Inflation Factor (VIF) values ranging from 1.002 and 1.002 were also lower than the worrying level of 10 and above indicating that there were no multi-collinearity problems among the independent variables in the data.

Table 4.3 The Effect of TQM on Customers' retention

We have below the regression analysis of TQM using product Improvement (PRODI) and process improvement (PROCI) on customer satisfaction (CR)

Model	Unstandardized coefficients		Standardized coefficients Beta	T	Sign	Collinearity statistics	
	B	Std Error				Tolerance	VIF
Constant	4.391	1.750		2.508	.013		
PRODI	.308	.130	.157	2.377	.018	.998	1.002
PROCI	.320	.075	.280	4.252	.000	.998	1.002
Model Statistics							
R	.327						
R ²	.107						
Adjusted R ²	.098						
S. E of estimate	2.75666						
F- stat	10.387						
Sig (F stat)	0.000						
DW stat	2.754						

Source: Field Survey, 2021.

a. Dependent variable CR

Predictors: (Constant), PRODI, PROCI.

PRODI = product improvement

PROCI = process improvement

In addition to the descriptive analysis shown in Table 4.3 an inferential analysis (regression analysis) was also used to test hypothesis one: total quality management has no significant effect on customer satisfaction. The analysis indicates the effect of TQM on customer satisfaction. The results revealed that the predictor variables (product improvement and process improvement) were individually statistically significant to customer retention. Product improvement explained 30.8% of the variance in the retention of customers while process improvement explained 32.0% of the variance in the retention of customer. However, the overall effect of TQM on security was significant ($F= 10.387, p<0.00$).

In addition, multiple regressions simply measures the naturally occurring scores on a number of predictor variables and try to establish which set of the observed variables gives rise to the best prediction of the dependent variables. The R value was .327 which represents the fitness of the model. Adjusting to a degree of

freedom, our model could still account for 9.8% of the variation in the performance while 67.6% in their performance variation were accounted for by other variable not included in this study. The regression assumptions were also checked by autocorrelation and multi-collinearity tests. The results of the Durbin Watson (DW) was satisfactory at 2.754 implying that in this model the residuals are not auto-correlated as the value is greater than 2. The multi-collinearity of the variables in the model was verified by the Tolerance (Tol.) and the values were satisfactory. The Tolerance values were high ranging from 0.998 to 0.998 which are far above 0.1 the worrying level and the Variance Inflation Factor (VIF) values ranging from 1.002 and 1.002 were also lower than the worrying level of 10 and above indicating that there were no multi-collinearity problems among the independent variables in the data.

V. Summary

The results of the analysis indicated that bread industry in ondo state are aware of total quality management. Also, the effect of total quality management on customer satisfaction was carried out. The results revealed that total quality management variables such as (product improvement and process improvement) result in improving Satisfaction. Using regression analysis, the results revealed that there was significant relationship between the total quality management practices and satisfaction (35.640,p=0.00), and the result of total quality management has significant effect of customer retention (F= 12.327, p<0.00) Thus, total quality management had significant effect on customer satisfaction and retention.

The study revealed that total quality management which are measured with product improvement and process improvement will improved the satisfaction of customers and retention significantly in in agreement with the work of Nassar, Yahaya and Shorun 2015; Shafiq, M., Lasrado, F. & Hafeez ,2019; Ezenyilimba, Ezejiofor, and Afodigbueokwu ,2019; Omogbiya (2016 who opined from the findings of their studies that there was positive influence of total quality management on customers satisfaction and retention.

The following recommendations were suggested on the basis of the findings of the study and the conclusion agreed upon

Bread industry should always try to improve their product quality and also watch the improvement of process of production in the industry in other to adopt.

Also, bread industry in Ondo state must monitor the factors that influence total quality management in their industry

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