

## **Kaizen Management Practices and Operational Performance in Peacock Shoes Factory, Addis Ababa, Ethiopia**

Demis Alamirew Getahun (PhD), Teklegeorgis Girma and Mrs. Jemila Hussien

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**Abstract:** The Japanese, who are believed to be the cradle of globally acknowledged management philosophies, created the kaizen concept to improve productivity, efficiency, quality and business excellence in general through continuous process improvement. This study was conducted to investigate the effect of kaizen management practices on operational performance as a major objective under the main theme- kaizen and operational performance. The study adopted a blend of descriptive and explanatory research design. To collect data from respondents, probability sampling design and simple random sampling techniques were used. Primary data was collected from 173 respondents by using self-administered structured questionnaire with likert scale statements. The collected data was analyzed by using SPSS version 22 software to achieve objectives of the study and to test the hypotheses. Descriptive and inferential statistics were employed. Mean was used for the descriptive analysis whereas multiple linear regression analysis was used to test the hypothesis. The results revealed that among kaizen management practices, elimination of seven forms of wastes was implemented in greatest extent. Because of implementation of kaizen management practices, quality was improved in greatest extent. The correlation result shows that all kaizen management practices were positively and strongly related with operational performance. The multiple linear regressions also revealed that all of the four kaizen management practices were found to be a significant predictor of operational performance. Their order of importance based on their coefficient is; TQM, seven wastes, TPM and 5S. Quality improvement and cost reduction were the two most important benefits from the implementation of KMP where as employee attitude and low commitment and insufficient participation were the most challenging factors of implementing KMP at peacock shoes factory.

**Key words:** total productive maintenance, total quality management, 5S, seven wastes, kaiz

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### **I. Introduction**

The foundation of kaizen was laid in Japan after the Second World War, when the country was attempting to rebuild factories and rethink many systems. The concept of kaizen began in the 1950s. According to Masaaki Imai, the father of kaizen, it is the most important concept of Japanese management –the key of Japanese business success. The Kaizen principle is based on ancient Japanese tradition and philosophy insofar as it seeks harmony through continuous improvement [8].

According to [21], the origin of the Japanese kaizen system roots back to the method of quality control from USA in post World War II. Then along comes Japan to incorporate and transform this management practices like its own exceeding even in the USA. Kaizen then become everywhere throughout the world and Japanese enterprises began to establish manufacturing networks with local organizations. The distinguishing feature of Japanese management is process oriented, and not uniquely goal oriented way of thinking. As a matter of fact, the main difference between Japanese and Western management is in its focus on improvement of all components of production and business process, particularly on such factors as stimulation and involvement of workers and medium ranking managers in the decision making process. The outcome is a process oriented management, with its relevant criteria, against a result oriented management focused on control. While process oriented criteria require long term perspective, result oriented criteria, on the other hand, are focused on short term benefits [8].

The adoption of kaizen management activities philosophy by overseas companies outside of Japan has been an issue of discussion for a number of researchers. Countries where such type of research has been carried out include America, [2](3)[4], [2] and UK, [5]; [18]. These studies found out that the success gained through the adoption and implementation of kaizen activities by companies outside of Japan is highly dependent on the social, cultural and economic contexts which companies operate in. In contrast to the worldwide dispersion of the concept of *kaizen*, many researchers have illustrated the difficulties for many companies outside

Japan to have *kaizen* activities take root in organizations. For example, [7] found out that the active participation of front line worker in kaizen activities is minimal in china, and suggests that great management

efforts are needed to create well suited contexts for Japanese *Kaizen* activities, such as introducing an open plant and office layout as well as import daily Communal rituals from Japan. In fact, as the comparison of key performance indicators between Japanese, UK and USA auto-parts manufacturers by [18] shows, there is still a large gap in terms of the influences of *kaizen* activities between Japanese and western companies. This highlights the necessity to understand not only the types of *kaizen* activities in countries outside Japan, but also the extent of implementation of these *kaizen* activities in more depth and their influence on organizational performance when the social, economic and cultural aspects are put into perspective. [16] argued that most Japanese companies, through the application of *kaizen*, transformed into world class companies but the success gained by overseas companies through implementing *kaizen* management practices is highly questionable.

### **1.1. Kaizen and operational performance improvement**

In today's contemporary management style, the relationship between manager and employee is very important and the *Kaizen* techniques have a major role to play in the reinforcement of this relationship since the achievements of a company are the result of the mixed efforts of each employee. Therefore, a link between *kaizen* practices and superior organization performance is in dismissible [20].

There is no better way than *kaizen* to reflect organizational culture geared towards improvements realized by minor steps, step by step, every day within the framework of the process. [11] found that some selected manufacturing firms that implemented *kaizen* management practices in Tunisia were able to gain improvement in quality and productivity using existing machinery and equipment. The study conducted in Bangladesh has also found out the same finding. In Bangladesh *Kaizen* was implemented in the Jute production sector in "The study on potential sub-sector growth for export diversification", after six months four model companies

achieved an average of 11% production growth in their spinning sections and machine stoppage reduced by 45% but the study didn't address the challenges faced by companies during *kaizen* implementation.

Although studies have been carried out about the relationship between *kaizen* implementation and organizational performance in countries outside Japan such as Sweden [12], and Kenya [16], little is known about the effect of *kaizen* management practices on operational performance in companies which implement *kaizen* in Africa general and Ethiopia in particular.

In 2009 Ethiopian prime minister invited the Japanese *kaizen* management team to introduce *kaizen* in Ethiopia to change the working culture of the public sector institutions which were highly bureaucratic and inefficient but after implementation of *kaizen* in selected institutions, the success gained was very contestable and studies have been carried out to assess the effectiveness of the program and find out the challenges but the very crucial issue of investigating the effect of *kaizen* management practices on operational performance and indicating the extent of implementation of these *kaizen* management practices in organizations has not been researched so far in Ethiopia. The very extensive manufacturing sector of the country that caught the eyes of the government in transforming the economy and bringing about economic development has long been suffering from different operational problems. The implementation of *kaizen* management practices with the aim of bringing about improvement in operational performance through effective implementation of *kaizen* management practices is highly imperative but the very notion of researches carried out on this issue were restricted mainly on assessment of implementation and identifying the challenges faced during implementation.

There are a number of *kaizen* management practices vis-à-vis., 5S, Total preventive maintenance, Total quality management, Suggestion system, *Kaizen* costing, Quality control circles, Toyota production system, 5 why's, Kanban system, elimination of the seven kinds of wastes, and *poke-yoke* (error proofing) [1]. This research considered TQM, TPM, 5'S, and 7'waste system as they are *kaizen* management practices which have been implemented at peacock shoes factory. Therefore, the main objective of this study is stated as follows.

### **1.2. Objectives of the study**

The general objective of this study was to investigate the effect of *kaizen* management practices on operational performance at peacock shoes factory, Addis Ababa.

#### **1.2.1 Specific objectives**

- ❖ To assess the extent of *kaizen* management practice implementation of the factory.
- ❖ To examine the extent of operational performance improvement
- ❖ To establish relationship between *kaizen* management practices and operational performance improvement.

### **1.3. Definition of terms**

The following definition of terms will be used throughout this research paper.

**Kaizen** refers to the combination of two Japanese words *kai* 'change' and *zen* 'for good'. It is an overall process improvement approach.

**Kaizen management** practices refer to a combination different kaizen tools or practices implemented by the factory to achieve an overall success. Practices include TQM, TPM, 5S and seven wastes.

**Total quality management** a management approach to long term success through organization- wide efforts to develop and sustain a process to improve the quality of the factory’s outputs through perpetual improvement of internal practices.

**Total Productive Maintenance (TPM)** is a manufacturing improvement program that involves all levels of the workforce in the organization working towards increasing productivity and reducing losses in operations. TPM strives towards improving the productive capacity and developing an effective and efficient workforce.

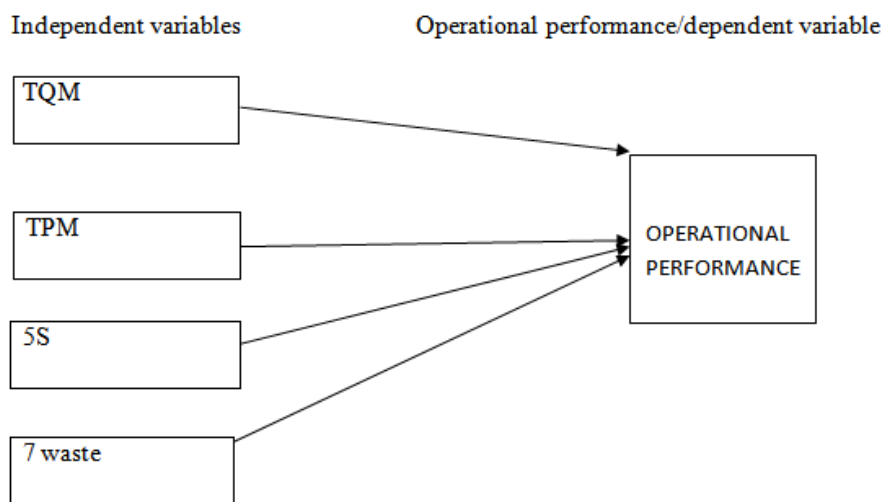
**Five ‘S’ methodology** derived from the first letters of the five words referred to five practices leading to a clean and manageable work area. The five words are; sort, shine, straighten, spread and standardize.

**Seven wastes/muda/** elimination refers to the factory wide and integrated activity carried out to eliminate wastes or any non value adding activities in the factory. Forms of wastes include; overproduction, motion, transportation, inventory, waiting, processing and defect.

**Operational performance** refers to the performance of the company against prescribed standards. Operational performance standards are cost, quality, production speed and flexibility of the master production schedule.

#### 1.4. Conceptual Framework

Based on the literature reviewed in this chapter and realistic presence of the concept in the study setting area, the conceptual frame work of the research has developed. The independent variables that make up kaizen management practices were selected on the basis of their practical existence in the factory; this is to mean that even though different researchers who conducted research on kaizen as it was discussed in the literature, outlined several basic elements of kaizen management practices such as, TQM, TPM, five ‘S’, kaizen event, suggestion system, five whys, error proofing and Toyota production system, among these list of basic KMP, peacock shoes factory has been implementing TQM, TPM, five ‘S’ and seven waste only. Due to this, including other kaizen management practices in this study as an independent variable when in fact they were not being implemented would have made the result of the study erroneous Kaizen management practices.



**Figure1:** Conceptual frameworks

Source: Authors (2018)

#### 1.5. Research hypotheses

- H<sub>1</sub>: Total quality management has a significant positive effect on operational performance
- H<sub>2</sub>: Total productive maintenance has a significant positive effect on operational performance
- H<sub>3</sub>: 5S<sub>s</sub> have a significant positive effect on operational performance
- H<sub>4</sub>: Elimination of the seven types of wastes has a significant positive effect on operational performance.

## II. Methodology

### 2.1. Research Design

The research design that fits with the objective, nature of variables and type of data used for this study is both explanatory and descriptive research design. The explanatory design employed to describe the characteristics of variables and at the same time to determine cause and effect between dependent and independent variables. Explanatory research aims to understand phenomena by discovering and measuring

causal relations among the stated variables and analyze and explain why and how there is a relationship between two or more aspects of phenomenon. In order to accomplish objectives and test hypotheses stated in this study, regression analysis was carried out to predict the value of the dependent variable from the four kaizen management practices used as a regressors or predictors

The study contains also objectives that can only be answered by descriptive analysis. To measure the extent of implementation of kaizen management practices and operational improvements sought on the indicators of operational performance and also to examine the benefits and challenges of implementing kaizen management practices in the factory, descriptive analysis was carried out.

## **2.2. Population of the study and sampling procedure**

In this study, the unit of analysis was the factory that has adopted the *kaizen* management practices in its operations and the target population was employees working at all levels and different departments in the factory. The sampling technique used to choose respondents was simple random sampling. The unrestricted, simple random sample is the purest form of probability sampling. The appropriateness of this sampling technique was chosen because it gives an equal and non-zero chance for the population to be included in the sample. The total number of employees working in the factory during the sampling time frame was 305. The sampling frame or the list of employees was made available to the researcher by the Human resource department of the factory.

A sample size of 173 respondents is determined using the formula by [22].

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

Where n= the desired sample size.

e= degree of precision (i.e., the margin of error, e.g., 0.05 for 95% confidence level).

N= the target population size.

$$n = \frac{305}{1 + 305(0.05)^2} = 173$$

## **2.3. Data collection methods and instruments**

The study was conducted through the use of primary data due to its efficient, flexible, accurate and inexpensive nature [14]. Based on the sample size determined above, a closed ended questionnaire which comprised a total of 33 questions were designed to measure the varying degrees of respondents' opinions on a five point likert scale about the relative importance of the items they were presented with. The questions were structured to explore the respondents' reactions to the extent of implementation of kaizen management practices and operational performance constructs. The questionnaire has four sections. The first section seeks general demographic information about the respondents. The second section collects information about the extent of implementation of the four selected kaizen management practices, this data demonstrates to what level or scale have the factory been implementing the kaizen management practices. The third section seeks data about the extent of increase in the four constructs of operational performance; this data provides a useful measure of the extent of improvement in the aggregate operational performance. The fourth section collects data about the extent of implementation of kaizen management practices which are TQM, TPM, 5'Ss and avoiding seven wastes, this data was used to carry out the regression analysis and achieve the major objective of this research. The questionnaire was administered by the researcher to collect the required data needed to carry out this research. The researcher compiled this questionnaire from two different sources; [15] and [17]. The 5'S' and seven waste kaizen management practices have their own widely known, accepted and consistent measurements.

## **2.4. Data analysis**

To analyze data collected from the respondents so as to make the findings clear for readers, the researcher was assisted by a statistical package SPSS, version 22. The data was edited, categorized and coded to make it ready for analysis. In this study, both descriptive and inferential statistics were applied, frequency was computed for the personal profile data of the informants and the result was portrayed by tables then described thereof. To achieve the general objective this research, multiple regression analysis was done to determine the value of the dependent variable as it was explained by the coefficient of each independent variable in the regression equation. Bivariate correlation was also done between each kaizen management practices (independent variables) and operational performance (dependent variables) by applying the Karl Pearson's correlation coefficient.

## **2.5. Verification of scales.**

Reliability test for each independent variables and dependent variable was computed using SPSS version 22 package to check the internal consistency of the constructs or study components. [23]states that in

testing the reliability of the measuring items, the acceptable cronbach's alpha result is more than 0.7. Accordingly, the reliability test result for each variable and the aggregate cronbach's result of all results are above the threshold and acceptable.

Second, to check the validity of the scale which is the measurement of the accuracy or truthfulness of the questionnaire, the researcher referred different articles studied with the same variables which are used in this study and also content validity has been conducted with discussing experts in study areas. Specifically, pilot test was conducted prior to the actual data collection with respondents and they provided the researcher with Comments on all of the questionnaire items about its readability, clarity and comprehensiveness. After all a few items which were found to be loose construct of the variable that they measure were excluded. To make the questionnaire more understandable and clear for respondents and avoid language barrier in the questionnaire filling process, it was translated back in to the local language from English language with the help of English language experts.

### III. Result and Discussion

#### 3.1. Extent of kaizen management practices implementation

As it is shown in table1 below, respondents were asked to rate their impression on a five point likert scale about the extent of implementation of the four selected kaizen management practices in the factory and the result shows that greater portion of the respondents replied that among others, 7' wastes were the most greatly implemented as it appeared with a mean score of 4.00, 5'S<sub>s</sub> appeared 2<sup>nd</sup> with a mean score of 3.84 whereas, TQM and TPM appeared 3<sup>rd</sup> and 4<sup>th</sup> with a mean result of 3.71 and 3.43 respectively. From this information, it can be inferred that the factory has given the major priority for large scale implementation of 7'wastes in order to avoid the seven kinds of wastes namely, overproduction, excess inventory, waiting time lost through man power and machine, transportation, defects in produced shoes, motion and processing time. The factory has also given attention to the implementation of the 5'S activities to achieve the aim of putting everything in its place and preparing a place for every material. The other two kaizen management practices- TQM and TPM, were also implemented in a fairly greater extent

**Table1: Extent of Kaizen Implementation**

Kaizen management practices	Mean	Std.dev.
TQM	3.71	1.01
TPM	3.43	1.00
5'S <sub>s</sub>	3.84	0.87
7'waste	4.00	0.93

Source: own survey, 2018

#### 3.2. Extent of operational performance improvement

After kaizen management practices have been started to be implemented in the factory, improvements in operational performance were believed to be achieved. Accordingly, respondents were presented with statements indicating the extent of improvements brought about after the factory started implementing KMP. Quality stood out first with a mean score of 4.05. Cost decreased in nearly great extent with a mean score of 3.94. Production speed increased flexibility improved with a mean result of 3.68 and 3.55 respectively.

**Table 2: Extent of operational Performance Improvement**

Operational performance indicators.	Mean	Std.dev.
Quality	4.05	0.67
Cost	3.94	0.71
Production speed	3.68	0.63
Flexibility	3.55	0.71

Source: own survey, 2018

#### 3.3. Correlation Analysis

For this study, Pearson's correlation analysis was used to measure the direction and strength of the relationship between kaizen management practices and operational performance. A correlation coefficient is a very useful means to summarize the relationship between two variables with single number that falls between -1 and +1 [19].

**Table 3** depicted the Pearson correlation coefficient result of four variables (total quality management, total roductive management five S<sub>s</sub> and seven wastes) against operational performance result showed a Pearson

correlation coefficient of (r=0.650,p<0.05), (r=0.718,p<.05), (r=0.679,p<.05), and (r=0.713,p<.05) for TQM, TPM, The 5Sand seven wastes respectively.

**Table3: Correlation analysis result**

Source: own survey, 2018

Where: *OPPER=organizational Performance, TQM=Total Quality Management, TPM=Total Productive*

		OPPER	TQM	TPM	FIVES	SEVEN WASTE
OPPER	Pearson Correlation	1				
	Sig. (2-tailed)					
TQM	Pearson Correlation	.653**	1			
	Sig. (2-tailed)	.000				
TPM	Pearson Correlation	.718**	.599**	1		
	Sig. (2-tailed)	.000	.000			
5 “S	Pearson Correlation	.679**	.612**	.641**	1	
	Sig. (2-tailed)	.000	.000	.000		
SEVENWASTE	Pearson Correlation	.710**	.609**	.649**	.675**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

\*. Correlation is significant @the 0.01 level (2-tailed). \*\*.Correlation is significant @the 0.05level (2-tailed)

*Maintenance, 5 S= sort, straighten, sweep, sanitize, and sustain; SEVENWASTE=overproduction, inventory, waiting, Transportation, defect making, motion and processing*

If Pearson correlation coefficient result falls between 0.1to 0.29 shows weak positive relationship; 0.3to 0.49 is moderate; >0.5 shows strong positive relationship between the two criterion variables [6] with the sign being –ve for negative relationship. Based on this threshold suggested by Field, there is strong positive relationship between all of the independent variables and operational performance at peacock shoes factory. Sequentially, TPM appears 1st with (r=0.718). Seven waste appears 2<sup>nd</sup> with (r=0.713, p<.05). Five Ss and TQM being in the 3<sup>rd</sup> and 4<sup>th</sup> place with(r=0.679, p<.05) and (r=0.650, p<.05) respectively. Further, the correlation result showed that each of the four independent variables have a higher correlation result with operational performance than with each other which in turn assures that the independent variables are capable enough to predict operational performance without causing multicollinearity problem.

### 3.4. Regression Analysis

The value of R in the followingtable (Table 4) of the regression model shows nearly a perfect positive relationship between kaizen management practices and operational performance improvement. More importantly, the value of R square shows the amount of variance in the operational performance which is explained by all independent variables. TQM, TPM, 5’Ss and seven wastes account for the 70.3 % variation on the dependent variable, while the remaining 29.7 % variation would presumably be explained by a myriad of other factors including technology, scale, business structure and focus.

The ANOVA output assesses the overall significance of the model shows that the ratio of the regression value to the value of residuals is positive, this implies the presence of a significant correlation between predictor variables and dependent variable. Further, p-value .000, which is less than the set limit of .05, tells us about whether all the stressors are eligible to be included in the regression model as a significant predictor of the criterion variable. The ANOVA table shows that all the predictor variables (TQM, TPM, 5’Ss and seven wastes) are a significant predictors of operational performance hence the model of the study sufficiently and significantly explained the variation in operational performance.

**Table4: ANOVA & Model Summary**

ANOVA <sup>a</sup>										
Model		Sumof Squares	Df	Mean Square	F	Sig.	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error
1	Regression	29.225	4	7.306	89.150	.838 <sup>a</sup>	.838 <sup>a</sup>	.703	.695	.28628
	Residual	12.375	151	.082						
	Total	41.601	155							
a. Dependent Variable: OPPEP										
b. Predictors: (Constant), SEVENWASTE, TQM, TPM, FIVES										

Source, own survey, 2018

It can be seen from Table 5, when all kaizen management practices are kept at a level of zero, the value of operational performance at peacock shoes factory is 6%. Regarding the sensitivity of beta, when total quality management increases by one unit, operational performance increases by nearly 0.326 units keeping all other

predictors constant. When total productive maintenance increases by one unit, operational performance improves by 0.246 units. If all other variables remain constant at zero, when Five ‘S’ and seven wastes increases by one unit each, operational performance improves by 0.236 and 0.252 unit respectively. From this result, it can be concluded that Total quality management is the best predictor of operational performance with largest beta value of ( $\beta=0.326$ ,  $P .05$ ). Seven wastes appear 2<sup>nd</sup> at ( $\beta= 0.252$ ,  $p<.05$ ). Total productive maintenance and Five ‘S’ appears 3<sup>rd</sup> and 4<sup>th</sup> with a beta value of 0.246 and 0.236 respectively.

**Table 5:Regression Coefficient**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.060	.215		.278	.781
	TQM	.326	.085	.285	3.840	.000
	TPM	.246	.076	.219	3.264	.001
	FIVES	.236	.075	.224	3.141	.002
	SEVENWASTE	.252	.080	.226	3.170	.002

a. Dependent Variable: OPPER

Based on the coefficients result, checking at the column for significance, all of the independent variables are a significant predictor of operational performance at peacock shoes factory.

Fixing the regression equation

$$OPPER = 0.060 + 0.326X_1 + 0.246X_2 + 0.236X_3 + 0.252X_4 + e$$

Where; OPPER is for operational performance.  $X_1$ = total quality management,  $X_2$ = total productive maintenance,  $X_3$ = Five  $S_s$  and  $X_4$ = Seven waste.

### 3.5. Hypotheses Testing

There were four hypotheses constructed in this study. Since Pearson correlation coefficient shows only the strength and direction of the relationship between variables, it is important to use regression analysis to test the effect of the independent variables on the dependent variable.

**Table6: Summary of Hypothesis Test Result**

Hypothesis	Decision criteria/reason	Result
H <sub>1</sub> : TQM has a significant positive effect on operational performance H <sub>0</sub> : TQM has no significant positive effect on operational performance	$\beta=0.203$ $p<0.05$	Accept H <sub>1</sub> Reject H <sub>0</sub>
H <sub>1</sub> : TPM has a significant positive effect on operational performance H <sub>0</sub> : TPM has no significant positive effect on operational performance	$\beta = 0.368$ $p<0.05$	Accept H <sub>1</sub> Reject H <sub>0</sub>
H <sub>1</sub> : Five S <sub>s</sub> have a significant positive effect on operational performance H <sub>0</sub> : Five S <sub>s</sub> have no significant positive effect on operational performance	$\beta = 0.181$ $p<0.05$	Accept H <sub>1</sub> Reject H <sub>0</sub>
H <sub>1</sub> : Seven wastes have a significant positive effect on operational performance H <sub>0</sub> : Seven wastes have no significant positive effect on operational performance	$\beta = 0.305$ $p<0.05$	Accept H <sub>1</sub> Reject H <sub>0</sub>

Source: survey (2018)

### 3.6. Discussion of Statistical Results

As it had been identified in the first section of this study, among others, one objective was to measure the level of implementation of kaizen management practices (KMP) at the factory by designing the questionnaire in a scale that rates the extent of implementation of KMP, the result showed that elimination of the seven types of wastes with a mean score of (4:00) and implementing the five ‘S’ housekeeping activities with a mean score of (3.84) have been implemented in nearly great extent. The factory also implemented Total Quality Management (TQM) and TPM practices in a moderate and above extent. This in turn indicates that the main effort of the factory is to eliminate bottlenecks by avoiding the seven stated forms of wastes namely; overproduction, long motion, excessive inventory, transportation, defect rate, long waiting time and time wasted on processing. Implementing the five ‘S’ kaizen activities include; eliminating what is not needed, keeping things visible, cleaning up of working environment, making other employees clean their own work area counter, establish self discipline and sustaining these activities to achieve goals. Implementing the total quality management practices appeared 3<sup>rd</sup> with a mean score of (3.71). Activities related to total quality management includes a top- down collaboration among employees of the factory such as; leadership and top management commitment, training and education, team collaboration and commitment, focusing on perpetual improvement of product quality and activities, building organizational culture that focus on quality, implementing statistical and/manual quality control systems. Among the four kaizen management practices TPM scored the least mean result (3.43). Activities related to total quality management includes; increasing asset productivity, autonomous

maintenance, planned maintenance, training of operators and employees, maintenance prevention, quality maintenance, office total productive maintenance and office and environment. The study further identify the major operational performance indicators that sought improvement after the implementation of KMP, in doing so, firstly, quality of produced shoes is reported to have been improved in a great extent with a mean score (3.55). Secondly, cost of production was also decreased in above moderate extent with a mean result (3.94). Thirdly, production speed and flexibility have also shown tremendous improvement scoring a mean result of (3.68) and (3.55) respectively. Regarding to the inferential statistics results, bivariate correlation was run to show the existence, direction and strength of association between each independent KMP dimensions and operational performance. The result of the correlation analysis shows a positive and strong relationship between kaizen management practices and operational performance. The strongest relationship is scored between total productive maintenance and operational performance ( $r=0.718$ ). Elimination of wastes is strongly related with operational performance with ( $r=0.71$ ). Implementation of the five 'S' activities and total quality management is also strongly related with operational performance with ( $r=0.679$ ) and ( $r=0.653$ ) respectively. As a major objective, by using multiple linear regressions, the study examined the effect of KMP on operational performance to predict improvement of operational performance for a unit increase in each kaizen management practices. The result revealed that implementation of total quality management practices was the best predictor of operational performance with ( $\beta = .326, p= .000$ ) this result is consistent with the findings of [9]. The effect of implementing total quality management on operational performance can be on the increase in desirability of the produced shoes, getting an ISO quality standard award, design improvement, reducing defect rate etc. The second best predictor of operational performance appeared to be elimination of different forms of wastes with ( $\beta=.252, p=.002$ ). Elimination of wastes in the factory can bring tremendous effect on operational performance by reducing production cost, making more free space for inventory and reducing tied up capital. Implementation of total productive maintenance with ( $\beta=.246, p=.002$ ) appeared in the 3<sup>rd</sup> place by the effect it creates on operational performance. Subsequent results include; lower equipment down time, lower defect rate, and high machine productivity, creation of smooth interface among Men, Machine and Material in the production floor, having standards for maintenance of equipments and lower manufacturing costs which in turn the sum total of those listed improvements could bring about a higher operational performance. [10] also emphasized that maintenance programs have long been used as a means of controlling manufacturing costs but their result shows TPM not only used to reduce costs but also can improve dimensions of costs, quality and delivery which the principal dimensions of operational performance. They further emphasized TPM can be a strong contributor to the strength of the organization and has the ability to improve manufacturing performance. The regression result of this study showed that five 'S' is the least predictor of operational performance with ( $\beta=.236, p=.001$ ). Though the five 'S' activities scored the least coefficient, it had a significant positive effect on operational performance. The implementation of five 'S' activities could bring a neatly and safe working environment by creating order and discipline.

#### **IV. Conclusion and Recommendation**

##### **a. Conclusion**

Following the first and major objective of the study, the central finding was that kaizen management practices (TQM, TPM, five 'S' and waste elimination) significantly affect operational performance improvement. The R square of the model shows 70.3% which means collectively KMP are able to create variation on operational performance and predict effectively. This indicates that companies can improve their operational performance which is expressed by quality improvement, cut in production cost, increased operation speed and presence of operational flexibility. On the second objective of the study, indicated that the kaizen management practices that has been implemented in the factory in greatest extent was seven waste followed by five 'S', TQM and TPM. Regarding to the operational performance improvement, the largest improvement was shown quality improvement followed by reduction in operational cost, increased operation speed and achieving operational flexibility.

The results concerning the third objective of the study revealed that, there exist a significant positive relationship between all kaizen management practices and operational performance. The finding of the regression analysis also revealed that kaizen management practices in the factory have a significant effect on the operational performance.

##### **b. Recommendations**

Based on the findings of this study, the following recommendations have been forwarded.

The study found out that, the factory implemented the seven waste kaizen management practices which is a comprehensive activity carried out to eliminate any form of waste to a greatest extent but the multiple linear regression result shows that the highest coefficient was taken by TQM. TQM had the greatest significant



positive effect on operational performance improvement so, it is better for the factory to give more emphasis to the implementation of TQM practices by increasing leadership and top management commitment, giving extensive training to employees, develop and build a culture that focus on quality and improving quality control and inspection activities as the factory offers 90% of its products to foreign market especially in Europe and America, customers in developed countries are sensitive to quality products.

As the multiple linear regressions revealed TQM having the greatest effect on operational performance and the greatest extent of improvement being on the quality aspect of operational performance. The factory implemented TQM, TPM, five 'S' and seven wastes only but these are not the only kaizen management practices found under the kaizen umbrella. Studies have shown that kaizen events are team based, comprising of employees from targeted work area and support functions such as engineering, purchasing and production. They are action oriented with the teams given authority to implement solutions as they are developed [13]. It is recommended for the factory to implement kaizen events and suggestion systems as a counter challenge strategy to improve employees' attitude and participation towards kaizen and to achieve a greater improvement in operational performance by anchoring different continuous improvement approaches.

This study considered one shoes producing factory only and its focus was on the manufacturing industry. The researcher suggests that future research be carried out by considering several organizations as much as possible to produce comprehensive result and compare differences in implementation level of kaizen management practices among organizations. In the future, research about kaizen should also be carried out in the service industry as the concept of kaizen can compatibly be implemented in any organizations. Regarding to the type of data employed by this study, structured questionnaire has been used but it could be better to for further research to be carried out by using extensive data collection instruments like interview and use of secondary data to better anchor the prevailing fabric of kaizen management practices and operational performance.

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